Official Catalogue

OF THE

U.S. INTERNATIONAL

EXHIBITION

1876.

REVISED EDITION
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$100
"STAR" ALPACA BRAIDS.
S. B. & M. FLEISHER,
MANUFACTURERS, PHILADELPHIA.

WHY ARE THEY THE BEST?

ANSWER.

As a strong and conclusive evidence of the superior quality of the "STAR" ALPACA BRAIDS, is the preference that is given them over all competitive makes.

Having been subjected to rigid tests for the past ten years, and wherever introduced, they at once became the desired article.

They are made of the very best materials, with the greatest care and efficient workmanship, and upon the most improved machinery.

With these appliances, and a determination to go ahead, the manufacturers have made the "STAR" Alpaca Braids the most popular Braid of the country.

First Prize, Silver Medal, Franklin Institute, Philada., 1874.
First Prize, Silver Medal, Maryland Institute, Baltimore, 1874.
First Prize, Silver Medal, Industrial Exposition, Cinn., 1875.

For Sewing Machines and Hand Sewing

USE

CLARK'S
TRADE
MARK
ON
SPOOL COTTON.

(WOUND ON WHITE SPOOLS.)

GEORGE A. CLARK, SOLE AGENT.

IT IS

The Best and Most Popular Thread of the age.

GEORGE A. CLARK & BRO.,
SOLE AGENTS IN AMERICA,
Nos. 337 and 339 Canal Street, New York.
Sub-agency, 8 Strawberry St., Philadelphia.
BUILDING No. 41,
OCCUPIED JOINTLY BY THE
CENTENNIAL CATALOGUE COMPANY,
AND
S. M. Pettengill & Co., Newspaper Advertising Agents,
South of East End of Machinery Hall.

Advertisements taken at this office for the Official Catalogue and all newspapers of the United States and Canadas. The principal papers of the country kept on file for inspection and use of exhibitors and visitors generally.
This Company owns the exclusive right to publish, sell, and distribute the "Official Catalogue of the International Exhibition of 1876," the work being printed under the direction of, and compiled from manuscript furnished by, the "U. S. Centennial Commission."

Advertisements taken on application to S. M. Pettengill & Co. Advertising Agents.

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MORDECAI D. EVANS,
Treasurer.

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L. L. HYNEMAN,
Secretary.

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524 Market St., Philadelphia.

S. M. PETTENGILL & CO.,
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No. 701 Chestnut Street, Philadelphia,
No. 87 Park Row, New York,
No. 10 State Street, Boston,
Exhibition Grounds—South of East end of Machinery Hall, Building No. 41.

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Sole European Agents,
No. 3 Castle St., Holborn, London.

DIRECTORS:

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Joseph Heilbrun.

Office of the Company on Exhibition Grounds, Building No. 41, South of East end of Machinery Hall.
INTERNATIONAL EXHIBITION.

1876

Official Catalogue.

COMPLETE IN ONE VOLUME.

I. MAIN BUILDING.
II. DEPARTMENT OF ART.
III. DEPARTMENT OF MACHINERY.
IV. DEPARTMENTS OF AGRICULTURE AND HORTICULTURE.

REVISED EDITION.

PHILADELPHIA:
Published for the Centennial Catalogue Company
By JOHN R. NAGLE AND COMPANY.
1876.
INTERNATIONAL EXHIBITION.
1876
Official Catalogue.

PART I.
MAIN BUILDING AND ANNEXES.

DEPARTMENT I.—MINING AND METALLURGY.
DEPARTMENT II.—MANUFACTURES.
DEPARTMENT III.—EDUCATION AND SCIENCE.

REVISED EDITION.

PHILADELPHIA:
Published for the Centennial Catalogue Company
By JOHN R. NAGLE AND COMPANY.
1876.
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# CONTENTS

<p>| Subject Index, National Exhibits                          | 4 |
| The International Exhibition of 1876                   | 7 |
| Synopsis of the Classification                          | 8 |
| United States Centennial Commission                     | 9 |
| Officers of the United States Centennial Commission     | 10 |
| Centennial Board of Finance                             | 10 |
| State Boards of Centennial Managers.                    | 11 |
| System of Awards                                        | 14 |
| Judges of Awards                                        | 15 |
| List of Buildings and Special Exhibits                   | 20 |
| The Main Exhibition Building                            | 23 |
| Key to the Notation                                     | 25 |
| Ground Plan of the Main Exhibition Building             | 26 |
| Classification                                          | 27 |
| Catalogue of Department I., Mining and Metallurgy       | 47 |
| Catalogue of Department II., Manufactures               | 101 |
| Catalogue of Department III., Education and Science     | 321 |
| Annex to Main Building                                  | 374 |</p>
<table>
<thead>
<tr>
<th>NATIONS</th>
<th>DEPT. I. MINING AND METALLURGY</th>
<th>DEPT. II. MANUFACTURES</th>
<th>DEPT. III. EDUCATION AND SCIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minerals, Ores, Stone Products</td>
<td>Chemical Manufactures</td>
<td>Geographical Maps and Atlases</td>
</tr>
<tr>
<td>United States</td>
<td>47</td>
<td>101</td>
<td>321</td>
</tr>
<tr>
<td>Great Britain</td>
<td>61</td>
<td>144</td>
<td>322</td>
</tr>
<tr>
<td>New Zealand</td>
<td>63</td>
<td>155</td>
<td>323</td>
</tr>
<tr>
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<td>64</td>
<td>155</td>
<td>324</td>
</tr>
<tr>
<td>Victoria</td>
<td>65</td>
<td>160</td>
<td>325</td>
</tr>
<tr>
<td>South Australia</td>
<td>166</td>
<td>161</td>
<td>326</td>
</tr>
<tr>
<td>Port of Good Hope</td>
<td>169</td>
<td>169</td>
<td>327</td>
</tr>
<tr>
<td>Jamaica</td>
<td>66</td>
<td>171</td>
<td>328</td>
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<tr>
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<td>66</td>
<td>173</td>
<td>329</td>
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<tr>
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<td>66</td>
<td>174</td>
<td>330</td>
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<tr>
<td>British Guiana</td>
<td>76</td>
<td>177</td>
<td>331</td>
</tr>
<tr>
<td>Ceylon</td>
<td>175</td>
<td>175</td>
<td>332</td>
</tr>
<tr>
<td>Straits Settlements</td>
<td>177</td>
<td>177</td>
<td>333</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>177</td>
<td>176</td>
<td>334</td>
</tr>
<tr>
<td>Mauritius</td>
<td>177</td>
<td>177</td>
<td>335</td>
</tr>
<tr>
<td>Queensland</td>
<td>177</td>
<td>177</td>
<td>336</td>
</tr>
<tr>
<td>Seychelles Archipelago</td>
<td>177</td>
<td>177</td>
<td>337</td>
</tr>
<tr>
<td>Tasmania</td>
<td>182</td>
<td>182</td>
<td>338</td>
</tr>
<tr>
<td>Trinidad</td>
<td>184</td>
<td>184</td>
<td>339</td>
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<td>Country</td>
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<td>186</td>
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<td>221</td>
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<td>Philippine Islands</td>
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<td>Russia</td>
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* Entire Exhibit in Agricultural Hall.
† For Spanish Educational Exhibit see Part III., p. 132.
THE INTERNATIONAL EXHIBITION OF 1876.

The Congress of the United States, by an act approved March 3d, 1871, provided that the centennial anniversary of the promulgation of the Declaration of American Independence in Philadelphia should be celebrated in that city "by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine." The preparation of the Exhibition was, by the act, confided to the United States Centennial Commission, composed of a commissioner and alternate commissioner nominated by the governor of each State and Territory, and confirmed by the President of the United States. A subsequent act, approved June 1st, 1872, created the Centennial Board of Finance, charged with the financial conduct of the Exhibition.

A proclamation by the President of the United States, dated July 3d, 1873, announced the International Exhibition, and commended it to all nations. An act of Congress, approved June 5th, 1874, requested the President, in the name of the United States, to invite the governments of foreign nations to participate in the Exhibition. The invitation thus extended was accepted by the governments of

| Argentine Republic,     | Queensland,            | Seychelles Archipelago, Norway, |
| Austria-Hungary,        | New Zealand,           | Orange Free State,              |
| Belgium,                | New South Wales,       | Peru,                           |
| Brazil,                 | Victoria,              | Philippine Islands,            |
| Canada,                 | South Australia,       | Portugal,                       |
| Chili,                  | India,                 | Russia,                         |
| China,                  | Cape of Good Hope,     | Spain,                          |
| Denmark,                | Bahamas,               | Sweden,                         |
| Egypt,                  | British Guiana,        | Switzerland,                   |
| France, with Algeria,   | Ceylon,                | Turkey,                         |
| Germany,                | Straits Settlements,   | Venezuela.                      |
| Great Britain, with col. | Mauritius,             |                                 |

Onies, viz. Seychelles Archipelago, Norway, Orange Free State, Peru, Philippine Islands, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Venezuela.

The Centennial Commission provided for the classification of the objects to be exhibited in seven departments, which were referred to five exhibition buildings in this manner:

<table>
<thead>
<tr>
<th>DEPARTMENT</th>
<th>BUILDINGS</th>
<th>ACRES COVERED</th>
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<tbody>
<tr>
<td>I. Mining and Metallurgy,</td>
<td>Main Building,</td>
<td>21.47</td>
</tr>
<tr>
<td>II. Manufactures,</td>
<td></td>
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<tr>
<td>III. Education and Science,</td>
<td></td>
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<tr>
<td>IV. Art,</td>
<td>Art Gallery,</td>
<td>1.5</td>
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<tr>
<td>V. Machinery,</td>
<td>Machinery Building,</td>
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<td>VI. Agriculture,</td>
<td>Agricultural Building,</td>
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<tr>
<td>VII. Horticulture,</td>
<td>Horticultural Building,</td>
<td>1.5</td>
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<tr>
<td>Total,</td>
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<td>48.47</td>
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The applications for exhibiting space, however, both at home and from abroad, so exceeded the calculations that had been made as to necessitate the erection of annexes supplementing the capacity of each of these buildings. Enumerations of these additional structures will be found on subsequent pages. The classes of objects grouped in the several departments are indicated in the following synopsis of the classification of the Exhibition.

7
### SYNOPSIS OF THE CLASSIFICATION.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEPARTMENTS</th>
<th>CLASSES</th>
<th>GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>110–119</td>
<td>Metallurgical Products.</td>
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<td></td>
<td>120–129</td>
<td>Mining Engineering.</td>
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<td></td>
<td>200–205</td>
<td>Chemical Manufactures.</td>
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<td></td>
<td>206–216</td>
<td>Ceramics, Pottery, Porcelain, Glass, etc.</td>
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<td></td>
<td>217–227</td>
<td>Furniture, etc.</td>
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<td></td>
<td>228–234</td>
<td>Yarns and Woven Goods of Vegetable or Mineral Materials.</td>
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<td>235–241</td>
<td>Woven and Felted Goods of Wool, etc.</td>
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<td></td>
<td>242–249</td>
<td>Silk and Silk Fabrics.</td>
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<td>250–257</td>
<td>Clothing, Jewelry, etc.</td>
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<td>265–272</td>
<td>Weapons, etc.</td>
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<td>272–279</td>
<td>Medicine, Surgery, Prothesis.</td>
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<td></td>
<td>280–284</td>
<td>Hardware, Edge Tools, Cutlery, and Metallic Products.</td>
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<td></td>
<td>292–296</td>
<td>Carriages, Vehicles, and Accessories.</td>
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<td>300–309</td>
<td>Educational Systems, Methods, and Libraries.</td>
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<td>310–319</td>
<td>Institutions and Organizations.</td>
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<td>330–339</td>
<td>Engineering, Architecture, Maps, etc.</td>
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<td></td>
<td>340–349</td>
<td>Physical, Social, and Moral Condition of Man.</td>
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<tr>
<td>II. Manufactures.</td>
<td>400–409</td>
<td>Sculpture.</td>
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<td></td>
<td>410–419</td>
<td>Painting.</td>
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<td>420–429</td>
<td>Engraving and Lithography.</td>
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<td>430–439</td>
<td>Photography.</td>
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<td></td>
<td>440–449</td>
<td>Industrial and Architectural Designs, etc.</td>
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<td></td>
<td>450–459</td>
<td>Ceramic Decorations, Mosaics, etc.</td>
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<tr>
<td>Main Building.</td>
<td>500–509</td>
<td>Machines, Tools, etc., of Mining, Chemistry, etc.</td>
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<td></td>
<td>520–529</td>
<td>Machines and Implements of Spinning, Weaving, etc.</td>
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<td>530–539</td>
<td>Machines, etc., used in Sewing, Making Clothing, etc.</td>
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<td>540–549</td>
<td>Machines for Printing, Making Books, Paper Working, etc.</td>
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<td>550–559</td>
<td>Motors, Power Generators, etc.</td>
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<td>560–569</td>
<td>Hydraulic and Pneumatic Apparatus.</td>
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<td>570–579</td>
<td>Railway Plant, Rolling Stock, etc.</td>
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<td>580–589</td>
<td>Machinery used in Preparing Agricultural Products.</td>
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<td>590–599</td>
<td>Aerial, Pneumatic, and Water Transportation.</td>
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<td>Machinery, and Apparatus, especially adapted to the requirements of the Exhibition.</td>
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<td></td>
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<td>Arboriculture and Forest Products.</td>
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<td>Pomology.</td>
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<td>Agricultural Products.</td>
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<td>Land Animals.</td>
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<td>Marine Animals, Fish Culture, and Apparatus.</td>
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<td>Animal and Vegetable Products.</td>
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<td>Textile Substances of Vegetable or Animal origin.</td>
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<td>Machines, Implements, and Processes of Manufacture.</td>
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<td>Agricultural Engineering and Administration.</td>
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<td>Tillage and General Management.</td>
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<td>Ornamental Trees, Shrubs, and Flowers.</td>
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<td>Hot Houses, Conservatories, Graperies.</td>
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<td>Garden Tools, Accessories of Gardening.</td>
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<td>Garden Designing, Construction, and Management.</td>
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<td>III. Education and Science</td>
<td>600–609</td>
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The full text of the classification of the several Departments will be found at the commencement of the enumeration of objects shown in each. The distribution of the departments and buildings through the four volumes of the catalogue, is as follows:

**VOLUME I.—DEPARTMENT I. Mining and Metallurgy; II. Manufactures; III. Education and Science.** Main Building and Annexes.

**VOLUME II.—DEPARTMENT IV. Art.** Memorial Hall and Annexes.


**VOLUME IV.—DEPARTMENT VI. Agriculture; VII. Horticulture.** Agricultural and Horticultural Buildings and Annexes, Alphabetical Index of Exhibitors, Commissioners, Judges, etc.

### UNITED STATES CENTENNIAL COMMISSION.

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<td>Benjamin P. Kooser, Santa Cruz</td>
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<td>Colorado, ...</td>
<td>J. Marshall Paul, Fair Play, ...</td>
<td>N. C. Meeker, Greeley</td>
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<td>Connecticut, ...</td>
<td>Joseph R. Hawley, Hartford, ...</td>
<td>William P. Blake, New Haven</td>
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<td>Dakota, ...</td>
<td>J. A. Burbank, Bonhomme county, ...</td>
<td>Solomon L. Spink, Yankton</td>
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<td>Delaware, ...</td>
<td>John K. Kane, Wilmington, ...</td>
<td>John H. Rodney, New Castle</td>
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<td>District of Col., ...</td>
<td>James E. Dexter, Washington, ...</td>
<td>Lawrence A. Gobright, Washington</td>
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<td>T. H. Osborn, Jacksonville, ...</td>
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<td>George Hillyer, Atlanta, ...</td>
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<td>Thomas Donaldson, Boise City, ...</td>
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<td>Illinois, ...</td>
<td>F. L. Matthews, Carlinville, ...</td>
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<td>Indiana, ...</td>
<td>J. L. Campbell, Crawfordsville, ...</td>
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<td>Robert Lowry, Davenport, ...</td>
<td>Coker F. Clarkson, Eldora</td>
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<td>John A. Martin, Atchison, ...</td>
<td>George A. Crawford, Fort Scott</td>
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<td>Robert Mallory, La Grange, ...</td>
<td>Smith M. Hobbs, Mount Wash'n</td>
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<td>John Lynch, New Orleans, ...</td>
<td>Edward Penington, Philadelphia</td>
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<td>Joshua Nye, Augusta, ...</td>
<td>Charles H. Haskell, Portland</td>
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<td>John H. B. Latrobe, Baltimore, ...</td>
<td>S. M. Shoemaker, Baltimore</td>
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<td>George B. Loring, Salem, ...</td>
<td>William B. Spooner, Boston</td>
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<td>James Birney, Bay City, ...</td>
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<td>J. Fletcher Williams, St. Paul, ...</td>
<td>W. W. Folwell, Minneapolis</td>
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<td>Patrick A. Largey, Virginia City</td>
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<td>Henry S. Moody, Omaha, ...</td>
<td>R. W. Furnas, Brownsville</td>
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<td>W. W. McCoy, Eureka, ...</td>
<td>James W. Haines, Genoa</td>
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<td>M. V. B. Edgerly, Manchester</td>
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<td>Orestes Cleveland, Jersey City, ...</td>
<td>John G. Stevens, Trenton</td>
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<td>Eldridge W. Little, Santa Fe, ...</td>
<td>Stephen B. Elkins, Washington, D.C.</td>
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<td>N. M. Beckwith, New York, ...</td>
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<td>Samuel F. Phillips, Washington City, ...</td>
<td>J. W. Albertson, Hertford</td>
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<td>Alfred T. Goshorn, Cincinnati, ...</td>
<td>Wilson W. Griffith, Toledo</td>
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<td>J. W. Virtue, Baker City, ...</td>
<td>A. J. Dufur, Portland</td>
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<td>Daniel J. Morrell, Johnstown, ...</td>
<td>Asa Packer, Mauch Chunk</td>
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<td>George H. Corliss, Providence, ...</td>
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<td>William Gurney, Charleston, ...</td>
<td>Archibald Cameron, Charleston</td>
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<td>W. H. Parsons, New York, ...</td>
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<td>John H. Wickizer, Salt Lake City, ...</td>
<td>Wm. Haydon, Salt Lake City</td>
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<td>Alexander R. Boteler, Shepherdstown, ...</td>
<td>Andrew J. Sweeney, Wheeling</td>
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<td>Wisconsin, ...</td>
<td>David Atwood, Madison, ...</td>
<td>Edward D. Holton, Milwaukee</td>
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<td>Wyoming, ...</td>
<td>Joseph M. Carey, Cheyenne, ...</td>
<td>Robert H. Lamborn, Philadelphia</td>
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INTERNATIONAL EXHIBITION OF 1876.

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SYSTEM OF AWARDS.

The Centennial Commission have substituted for the international juries employed at previous International Exhibitions, a system of awards which provided:

That awards shall be based upon written reports attested by the signatures of their authors.

That the judges should be selected for their known qualifications and character, and should be experts in the departments to which they are respectively assigned; the foreign members of this body being appointed by the Commission of each country and in conformity with the distribution and allotment to each; the judges from the United States by the Centennial Commission.

That judges should be reimbursed for their personal expenses.
That reports and awards should be based upon inherent and comparative merit; the elements of merit being held to include considerations relating to originality, invention, discovery, utility, quality, skill, workmanship, fitness for the purposes intended, adaptation to public wants, economy, and cost.

That each report should be delivered to the Centennial Commission as soon as completed, for final award and publication.

That awards should be finally decreed by the United States Centennial Commission, in compliance with the Act of Congress, and should consist of a diploma with a uniform Bronze Medal, and a special report of the judges on the subject of the Award.

That each exhibitor shall have the right to produce and publish the report awarded to him, but the United States Centennial Commission reserves the right to publish and dispose of all reports in the manner it thinks best for public information, and also to embody and distribute the reports as records of the Exhibition.

JUDGES OF AWARDS.

GROUP I.

Minerals, Mining, and Metallurgy, including the Machinery.—(Classes 100 to 108 of the classification. See page 27.)

Metals, Metallurgical Products and Processes.—(Classes 110 to 115.)

Machines, Tools, and Apparatus of Mining and Metallurgy.—(Classes 500 to 507, and 512.)

Mine Engineering—Models, Maps, and Sections.—(Classes 120, 121.)

GROUP II.

Pottery, Glass, Artificial Stone, etc.—(Classes 206 to 216, and 219, 517, 518.)

GROUP III.

Chemistry and Pharmacy, including the Apparatus.—(Classes 200 to 203, and 274, 508, 509, and 659.)

AMERICAN.

<table>
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<th>Award Category</th>
<th>Judges</th>
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<tr>
<td>Minerals, Mining, and Metallurgy</td>
<td>Alexander L. Holley, 56 Broadway, N.Y.</td>
</tr>
<tr>
<td>Mine Engineering—Models, Maps, and Sections</td>
<td>Mr. Isaac Lowthian Bell, M.P., F.R.S., Great Britain.</td>
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FOREIGN.

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<tbody>
<tr>
<td>Metals, Metallurgical Products and Processes</td>
<td>Mr. Mr.</td>
</tr>
<tr>
<td>Machines, Tools, and Apparatus of Mining and Metallurgy</td>
<td>Mr. Mr.</td>
</tr>
<tr>
<td>Mine Engineering—Models, Maps, and Sections</td>
<td>Mr. Mr.</td>
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GROUP II.

Pottery, Glass, Artificial Stone, etc.—(Classes 206 to 216, and 219, 517, 518.)

AMERICAN.

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<tr>
<td>Chemistry and Pharmacy, including the Apparatus</td>
<td>Dr. William Odling, F.R.S., Great Britain. Dr. Rudolf von Wagner, Würzburg, Germany. M. J. F. Kuhlmann Lille, France. Mr. Prosper De Wilde, Belgium. Mr. Emanuel Paterno, Italy.</td>
</tr>
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GROUP III.

Chemistry and Pharmacy, including the Apparatus.—(Classes 200 to 203, and 274, 508, 509, and 659.)
GROUP IV.

Animal and Vegetable Products, and the Machinery for their Preparation.—(Classes 650 to 661.)

AMERICAN.

Prof. W. C. Kerr, Raleigh, N. C.
L. B. Arnold, Rochester, N. Y.
Col. John Bradford, Tallahassee, Fla.
Guido Marx, Toledo, Ohio.
Ryland T. Brown, Indianapolis, Ind.
W. S. Green, Millford, Wis.

FOREIGN.

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Don Edward Loring, Malaga, Spain.
Dr. Nicolau J. Moreira, Brazil.
M. Jayme Batalha Reis, Portugal.
Mr. Ekeda Kenzo, Japan.
E. Oldendorff, Argentine Confederation.
Dr. E. H. Von Baunhauer, Netherlands.
H. G. Joly, M. P., Canada.
Julius Wegeler, Coblenz, Germany.
G. F. Secchi de Casali, Italy.
Prof. Thomas R. Segelche, Denmark.
Rustem Effendi, Turkey.

GROUP V.

Fish and Fish Products—Apparatus of Fishing, etc.—(Classes 640 to 648.)

AMERICAN.

Prof. S. F. Baird, Smithsonian Institution, Washington.
T. B. Ferguson, Baltimore, Md.

FOREIGN.

Joachim Anderssen, Norway.

GROUP VI.

Timber, Worked Lumber, Parts of Buildings, Forestry.—(Classes 660 to 667.)

AMERICAN.

Prof. Wm. H. Brewer, New Haven, Conn.
Prof. J. S. Newberry, Cleveland, Ohio, or Columbia College, N. Y.

FOREIGN.

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M. Rodrigues de Vasconcellos, Portugal.
Hon. W. Skead, Canada.
Dr. Jose de Saldanha, Brazil.

GROUP VII.

Furniture, Upholstery, Wooden Ware, Baskets, etc.—(Classes 217, 220, 221, 225, 226, 266, 289, 590.)

AMERICAN.

Addison Boyden, Boston, Mass.
Chauncey Wiltsie, Omaha, Neb.
Robert Mitchell, Cincinnati, O.

FOREIGN.

Le Marquis de Rochambeau, France.
Mr. Theo. Snyers, Belgium.
Francis Thonet, Austria.

GROUP VIII.

Cotton, Linen, and other Fabrics, including the Materials and the Machinery.—(Classes 228, 229 to 234, 521, 523, 524, 665, 666.)

AMERICAN.

Edward Atkinson, Boston, Mass.
Hugh Waddell, Jr., Savannah, Ga.
Col. Ed. Richardson, Jackson, Miss.
A. D. Lockwood, Providence, R. I.
Chas. H. Wolf, Cincinnati, Ohio.
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Prof. Giuseppe Dassi, Italy.

GROUP IX.

Wool and Silk Fabrics, including the Materials and the Machinery. Woven and Felted Goods of Wool, and Mixtures of Wool.—(Classes 235 to 241, 522, and 667.)

Silk and Silk Fabrics, and Mixtures in which Silk is the Predominating Material.—(Classes 242 to 249 and 520.)

AMERICAN.

Chas. Le Bottiller, Philadelphia, Pa.
Chas. J. Ellis, 714 Market St., Philadelphia, Pa.
J. D. Lang, Vassalboro', Me.

FOREIGN.

Mr. Henry Mitchell, Great Britain.
Dr. Max Weigert, Germany.
Mr. Chatel, France.
Carl Arnberg, Sweden.
Mr. Hayami Kenzo, Japan.
Mr. John G. Neesper, Switzerland.
August Behmer, Egypt.
Theodore Bochner, Austria.
### GROUP X.

**Clothing, Furs, India Rubber Goods, Ornaments, and Fancy Articles.** (Exclusive of Leather Boots and Shoes.)—(Classes 250 to 257 and 288.)

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
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</thead>
<tbody>
<tr>
<td>Wm. O. Linthicum, New York City.</td>
<td>Mr. Modest Kittay, Russia.</td>
</tr>
<tr>
<td>Benj. F. Britton, New York City.</td>
<td>Mr. Edward Kanitz, Austria.</td>
</tr>
<tr>
<td>Dr. George Hewson, San Francisco, Cal.</td>
<td>Mr. M. P. Empey, Canada.</td>
</tr>
<tr>
<td>Prof. E. N. Horsford, Cambridge, Mass.</td>
<td></td>
</tr>
</tbody>
</table>

| Caoutchouc and Gutta Percha Industry.—(Class 285.) |

### GROUP XI.

**Jewelry, Watches, Silverware, Bronzes, etc.—(Class 253.)**

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Gottesleben, Denver, Col.</td>
<td>M. Roulleaux du Gage, France.</td>
</tr>
</tbody>
</table>

### GROUP XII.

**Leather and Manufactures of Leather, including Boots, Shoes, Trunks, etc.—(Classes 532 and 533.)**

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Cummings, Boston, Mass.</td>
<td></td>
</tr>
<tr>
<td>Thomas Miles, Philadelphia, Pa.</td>
<td></td>
</tr>
<tr>
<td>J. P. Postles, Wilmington, Del.</td>
<td></td>
</tr>
</tbody>
</table>

### GROUP XIII.

**Paper Industry, Stationery, Printing, and Book Making.—(Classes 258 to 264.)**

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>James M. Wilcox, Ph.D., Glen Mills, Pa., 1792 Spruce St., Phila.</td>
<td>Sir Sidney H. Waterlow, Bart., M.P., Great Britain.</td>
</tr>
<tr>
<td>Wm. Faxon, Hartford, Conn.</td>
<td></td>
</tr>
<tr>
<td>Edward Conly, Cincinnati, Ohio.</td>
<td></td>
</tr>
</tbody>
</table>

### GROUP XIV.

**Apparatus of Heating, Lighting, Ventilation, Water Supply, and Drainage.—(Classes 222 to 224.)**

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. C. Cox, M. D., LL.D., Washington, D. C.</td>
<td></td>
</tr>
</tbody>
</table>

### GROUP XV.

**Builders’ Hardware, Edge Tools, Cutlery, etc.—(Classes 280 to 284.)**

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daniel Steinmetz, Philadelphia.</td>
<td>Mr. D. McHardy, Great Britain.</td>
</tr>
<tr>
<td>George L. Reed, Clearfield, Pa.</td>
<td>Mr. Diefenbach, Germany.</td>
</tr>
</tbody>
</table>

### GROUP XVI.

**Military and Sporting Arms, Weapons, Apparatus of Hunting, Explosives, etc.—(Classes 204, 205, and 265 to 270.)**

<table>
<thead>
<tr>
<th>AMERICAN</th>
<th>FOREIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>George A. Hamilton, St. Paul, Minn.</td>
<td>Capt. L. F. Saldanha da Gama, Brazil.</td>
</tr>
</tbody>
</table>
GROUP XVII.

Carriages, Vehicles, and Accessories.—(Classes 292 to 296.)

AMERICAN.
Thos. Goddard, Boston, Mass., 134 State St.
B. F. Morse, Augusta, Me.

FOREIGN.
Mr. Guizot, France.
Mr. Duffus, Canada.

GROUP XVIII.

Railway Plant, Rolling Stock, and Apparatus, Road Engines.—(Classes 570 to 577.)

AMERICAN.
Robert E. Ricker, Elizabeth, N. J.
Gen. T. A. Morris, Indianapolis, Ind.
Felician Slataper, Pittsburg, Pa.

FOREIGN.
Capt. Douglas Galton, R.E., C.B., F.R.S.,
Great Britain.
Mr. Ernest Pontzen, Austria.
Mr. E. E. A. Schaar, Belgium.

GROUP XIX.

Vessels and Articles of Transportation—(not included in other groups).—(Classes 287 to 544, and 590 to 597.)

AMERICAN.
Isaac Newton, New York.
J. W. Griffith, Portsmouth, N. H.
H. C. Goodspeed, Salt Lake City, Utah.

FOREIGN.
Col. F. H. Rich, K.E., Great Britain.

GROUP XX.

Motors, Hydraulic and Pneumatic Apparatus, etc.—(Classes 550 to 555, and 563 to 568.)

AMERICAN.
C. T. Porter, Newark, N. J.
Joseph Beekman, New York.
James Moore, Philadelphia.
Horatio Allen, South Orange—"Homewood,"
N. J.
Chas. E. Emery, 7 Warren Street, New York.

FOREIGN.
Mr. W. H. Parlow, C.E., Great Britain.
Prof. Reulcaux, Germany.
Nicholas Petroff, Russia.
Emil Brugsch, Egypt.

GROUP XXI.

Machine Tools—Wood, Metal, and Stone.—(Classes 510, 511, and 514 to 516.)

AMERICAN.
Irving M. Scott, Union Iron Works, San Francisco, Cal.
George H. Bleckley, Springfield, Mass.
W. F. Duffie, Wisconsin (at 56 Broadway, New York).
Prof. John A. Anderson, President Kansas State Agricultural College, Manhattan, Kan.

FOREIGN.
Mr. John Anderson, L.L.D., C.E., Great Britain.
M. Le Commandant F. Perier, France.
Mr. C. A. Angstrom, Sweden.
Mr. Auguste Gobert (fils), Belgium.
Mr. Felix Reifer, Austria.

GROUP XXII.

Machines, Apparatus, and Implements used in Sewing and Making Clothing, Lace, Ornamental Objects, Pins, etc.—(Classes 530, 531, and 534 to 537.)

AMERICAN.
George W. Gregory, Boston, Mass.
Edward H. Knight, Patent Office, Washington, D. C.
L. D. F. Poore, Springfield, Dakota.

FOREIGN.
Mr. Fred. A. Puget, C.E., Great Britain.

GROUP XXIII.

Agricultural Machines, Implements of Agriculture, Horticulture, and Gardening.—(Classes 675, 679, 683 to 693.)
Tillage and General Management.—(Classes 697 to 692, and 715, 716.)

Garden Tools, Accessories of Gardening.—(Classes 710 to 722.)
Garden Designing, Construction, and Management.—(Classes 730 to 733.)

AMERICAN.
Hon. John P. Reynolds, Chicago, Ill.
James S. Grinnell, Washington, D. C.
Geo. E. Waring, Jr., Newport, R. I.
James Bruce, Corvallas, Oregon.

FOREIGN.
Mr. John Coleman, Great Britain.
Dr. Jose de Saidanha, Brazil.
Don Fermín Rosillo, Spain.

GROUP XXIV.

Instruments and Apparatus of Hygiene, Medicine, Surgery, Prothesis, etc.—(Classes 272, 273, and 275 to 276.)

AMERICAN.
C. B. White, M.D., New Orleans, La.
J. H. Thompson, A.M., M.D., Washington, D. C.

FOREIGN.
Dr. William Roth, Germany.
Dr. Ernst Fleischel, Austria.
## GROUP XXV.

**Instruments of Precision, Research, Experiment, and Illustration, including Telegrapgy and Music.**—(Classes 320 to 327.)

**AMERICAN.**

- Prof. Joseph Henry, LL.D., Secretary of the Smithsonian Institution, Washington, D.C.
- Prof. F. A. P. Barnard, S.T.D., LL.D., Columbia College, N.Y.
- Prof. J. E. Hilgard, Washington, D.C.
- Prof. J. C. Watson, Ann Arbor, Mich.
- General Henry K. Oliver, Salem, Mass.
- Geo. F. Bristow, New York.

**FOREIGN.**

- Jul. Schiedmayer, Germany.
- Mr. E. Levasseur, France.
- P. F. Kupka, Austria.
- Edw. Favre Perret, Switzerland.

## GROUP XXVI.

**Architecture and Engineering.** (For Agricultural Engineering, see Class 680.)

(For Mine Engineering, see Group I.)

**Architecture.**—(Classes 341, 342.)

**AMERICAN.**

- General Wm. B. Franklin, Hartford, Conn.
- Richard M. Hunt, 49 West Thirty-fifth street, New York.

**FOREIGN.**

- Sir John Hawkshaw, C.E., F.R.S., Great Britain.
- Mr. Lavoinne, France.
- J. M. da Silva Continho, Brazil.
- J. G. W. Fynje, Netherlands.
- Lourenço Maheiro, M.E., Portugal.

## GROUP XXVII.

**Plastic and Graphic Art Sculpture.**—(Classes 400 to 405.)

**Painting.**—(Classes 410 to 413.)

**Engraving and Lithography.**—(Classes 420 to 424.)

**Photography.**—(Classes 430 to 432.)

**Industrial and Architectural Designs, Models, and Decorations.**—(Classes 440 to 443.)

(Classes 450 to 454.)

**Decoration with Ceramic and Vitreous Materials; Mosaic and Inlaid Work.**

**AMERICAN.**

- Frank Hill Smith, Boston, Mass.
- Prof. S. F. Weir, New Haven, Conn.
- Donald G. Mitchell, New Haven, Conn.
- Geo. Ward Nichols, Cincinnati, Ohio.
- Prof. Henry Draper, Medical College, New York City.

**FOREIGN.**

- Mr. Charles West Cope, R.A., Great Britain.
- Mr. Peter Graham, Great Britain.
- Carl Schlesinger, Germany.
- Dr. H. Vogel, Germany.
- Mr. Emile T. Saintain, France.
- Fritz L. Dardel, Sweden.
- P. N. Arbo, Norway.
- Count of Donadis, Spain.
- Mr. Tantardini, Italy.
- Guglielmo de Sanctis, Italy.
- Mr. Carl Costenoble, Austria.
- Prof. V. Dahlerup, Denmark.
- J. E. van Heemskerck van Beest, Netherlands.

## GROUP XXVIII.

**Educational Systems, Methods, and Libraries.**—(Classes 300 to 306.)

**Institutions and Organizations.**—(Classes 310 to 313.)

**AMERICAN.**

- Hon. Andrew D. White, LL.D., President of Cornell University, Ithaca, N.Y.
- D. C. Gilman, LL.D., President of St. John's Hopkins University, Baltimore, Md.
- Hon. J. M. Gregory, LL.D., President of Illinois Industrial Union, Champaign, Ill.
- Hon. J. W. Hoyt, M.D., LL.D., Madison, Wis.

**FOREIGN.**

- Sir Charles Reed, Great Britain.
- Mr. Rene Fouret, France.
- Col. John Marin, Spain.
- Prof. Dr. Otto Martin Torell, Sweden.
### BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[Note.—The buildings bear the numbers prefixed to them in this table, being the numbers adopted by the Centennial Guide Book Co. (Limited).]

<table>
<thead>
<tr>
<th>Buildings South of the Avenue of the Republic.</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>1. Main Exhibition Building,</td>
<td>I. 23</td>
</tr>
<tr>
<td>2. Machinery Hall,</td>
<td>III. 9</td>
</tr>
<tr>
<td>3. Machine Shop,</td>
<td>III. 117</td>
</tr>
<tr>
<td>4. American Boiler House,</td>
<td>III. 117</td>
</tr>
<tr>
<td>5. Corliss Boiler House,</td>
<td>III. 117</td>
</tr>
<tr>
<td>6. British Boiler House,</td>
<td>III. 117</td>
</tr>
<tr>
<td>7. Shoe and Leather Exhibition Building,</td>
<td>III. 105</td>
</tr>
<tr>
<td>8. Office Centennial Board of Finance,</td>
<td>III. 117</td>
</tr>
<tr>
<td>9. Office U. S. Centennial Commission,</td>
<td>III. 117</td>
</tr>
<tr>
<td>10. Centennial National Bank,</td>
<td>III. 117</td>
</tr>
<tr>
<td>11. Weimer Machine Works,</td>
<td>III. 118</td>
</tr>
<tr>
<td>12. Bartholdi Fountain,</td>
<td>III. 146</td>
</tr>
<tr>
<td>13. Catholic Total Abstinence Union Fountain,</td>
<td>III. 146</td>
</tr>
<tr>
<td>15. Gillender &amp; Sons, Glassware Manufactory,</td>
<td>III. 118</td>
</tr>
<tr>
<td>16. Camp of West Point Cadets,</td>
<td>III. 118</td>
</tr>
<tr>
<td>17. Iron Pipe,</td>
<td>III. 118</td>
</tr>
<tr>
<td>18. Liberty Store Works,</td>
<td>III. 118</td>
</tr>
<tr>
<td>20. Boiler House,</td>
<td>III. 119</td>
</tr>
<tr>
<td>21. Railway Engine House,</td>
<td>III. 119</td>
</tr>
<tr>
<td>22. St. Cecilia Organs,</td>
<td>III. 119</td>
</tr>
<tr>
<td>23. Automatic Railway,</td>
<td>III. 119</td>
</tr>
<tr>
<td>24. Monument—American Soldier,</td>
<td>III. 119</td>
</tr>
<tr>
<td>25. Gunpowder Pile-Drivel,</td>
<td>III. 119</td>
</tr>
<tr>
<td>27. West End Railway Offices,</td>
<td>III. 119</td>
</tr>
<tr>
<td>28. Pneumatic Tubes,</td>
<td>III. 119</td>
</tr>
<tr>
<td>29. New England Granite Co.'s Exhibit,</td>
<td>III. 120</td>
</tr>
<tr>
<td>30. Railroad Crossings,</td>
<td>III. 120</td>
</tr>
<tr>
<td>31. State of Nevada Quartz Mill,</td>
<td>III. 120</td>
</tr>
<tr>
<td>32. Store House,</td>
<td>III. 120</td>
</tr>
<tr>
<td>33. Friction Drum,</td>
<td>III. 120</td>
</tr>
<tr>
<td>34. Stokes &amp; Parrish, U.S. Hoisting Machine,</td>
<td>III. 120</td>
</tr>
<tr>
<td>35. Chilean Amalgamating Machinery,</td>
<td>III. 120</td>
</tr>
<tr>
<td>36. Campbell Printing Press,</td>
<td>III. 120</td>
</tr>
<tr>
<td>37. Old Locomotive and Car,</td>
<td>III. 121</td>
</tr>
<tr>
<td>38. Car House,</td>
<td>III. 121</td>
</tr>
<tr>
<td>39. Police Station,</td>
<td>III. 121</td>
</tr>
<tr>
<td>40. Averill Paint Co.,</td>
<td>III. 121</td>
</tr>
<tr>
<td>41. Centennial Catalogue Co.,</td>
<td>III. 121</td>
</tr>
<tr>
<td>42. Stokes &amp; Parrish, Boiler House,</td>
<td>III. 121</td>
</tr>
<tr>
<td>43. Ehret's Waterproof Roofing,</td>
<td>III. 121</td>
</tr>
<tr>
<td>44. Tombstones,</td>
<td>III. 122</td>
</tr>
<tr>
<td>45. Terra Cotta Pipe,</td>
<td>III. 122</td>
</tr>
<tr>
<td>46. Mineral Annex, 1 and 2,</td>
<td>III. 122</td>
</tr>
<tr>
<td>47. Fireproof Ventilated Buildings,</td>
<td>III. 122</td>
</tr>
<tr>
<td>48. Swings,</td>
<td>III. 122</td>
</tr>
<tr>
<td>49. Ornamental Stone Work,</td>
<td>III. 122</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buildings North of the Avenue of the Republic, and West of Belmont Av.</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td></td>
</tr>
<tr>
<td>51. United States Government Building,</td>
<td>III. 73</td>
</tr>
<tr>
<td>51⅔. Bartholdi Electric Light,</td>
<td>III. 122</td>
</tr>
<tr>
<td>52. United States Hospital,</td>
<td>III. 73</td>
</tr>
<tr>
<td>52⅔. Howe Monument,</td>
<td>III. 122</td>
</tr>
<tr>
<td>53. United States Hospital Tent,</td>
<td>III. 73</td>
</tr>
<tr>
<td>53⅔. Jerusalem Bazaar,</td>
<td>III. 122</td>
</tr>
<tr>
<td>54. United States Laboratory,</td>
<td>III. 73</td>
</tr>
<tr>
<td>54⅔. Office Philadelphia &quot;Times,&quot;</td>
<td>III. 123</td>
</tr>
<tr>
<td>55⅔. Pennsylvania State Building,</td>
<td>III. 123</td>
</tr>
<tr>
<td>55½. Hungarian Wine Pavilion,</td>
<td>III. 123</td>
</tr>
<tr>
<td>56. Ohio State Building,</td>
<td>III. 123</td>
</tr>
<tr>
<td>56½. Police Station,</td>
<td>III. 124</td>
</tr>
<tr>
<td>57. Indiana State Building,</td>
<td>III. 124</td>
</tr>
<tr>
<td>57½. Sponge Fishers of Turkey,</td>
<td>III. 124</td>
</tr>
<tr>
<td>58. Illinois State Building,</td>
<td>III. 124</td>
</tr>
<tr>
<td>58½. Bethlem Bazaar,</td>
<td>III. 124</td>
</tr>
<tr>
<td>59. Wisconsin State Building,</td>
<td>III. 124</td>
</tr>
<tr>
<td>59½. Fog Horn and Bell,</td>
<td>III. 124</td>
</tr>
<tr>
<td>60. Michigan State Building,</td>
<td>III. 124</td>
</tr>
<tr>
<td>61. New Hampshire State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>62. Connecticut State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>63. Massachusetts State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>64. Delaware State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>65. Maryland State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>66. Arkansas State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>67. Japanese Dwelling,</td>
<td>III. 125</td>
</tr>
<tr>
<td>68. West Virginia State Building,</td>
<td>III. 125</td>
</tr>
<tr>
<td>69. Canadian Log House,</td>
<td>IV. 134</td>
</tr>
<tr>
<td>70. Missouri State Building,</td>
<td>III. 130</td>
</tr>
<tr>
<td>71. British Government Building,</td>
<td>III. 130</td>
</tr>
<tr>
<td>72. British Government Building,</td>
<td>III. 130</td>
</tr>
<tr>
<td>73. British Government Building,</td>
<td>III. 130</td>
</tr>
<tr>
<td>74. New York State Building,</td>
<td>III. 130</td>
</tr>
<tr>
<td>75. Liénard's Relief Plans, Paris, Jerusalem, Italy, etc.,</td>
<td>III. 130</td>
</tr>
<tr>
<td>76. Pop-corn Stand,</td>
<td>III. 131</td>
</tr>
<tr>
<td>77. Cigar Stand,</td>
<td>III. 131</td>
</tr>
<tr>
<td>78. Soda Water Stand,</td>
<td>III. 131</td>
</tr>
<tr>
<td>79. Tunisian Cafe and Bazaar,</td>
<td>III. 131</td>
</tr>
<tr>
<td>80. Columbus Monument,</td>
<td>III. 131</td>
</tr>
<tr>
<td>81. Drinking Fountains,</td>
<td>III. 131</td>
</tr>
<tr>
<td>82. Restaurant &quot;Trois Frères Provencaux,&quot;</td>
<td>III. 131</td>
</tr>
<tr>
<td>83. Office New York &quot;Tribune,&quot;</td>
<td>III. 131</td>
</tr>
<tr>
<td>84. World's Ticket Office, Cook, Son, &amp; Jenkins,</td>
<td>III. 131</td>
</tr>
<tr>
<td>85. Loiseau's Pressed Fuel Company,</td>
<td>III. 132</td>
</tr>
<tr>
<td>86. Spanish Government Buildings,</td>
<td>III. 132</td>
</tr>
<tr>
<td>87. United States Signal Office,</td>
<td>III. 141</td>
</tr>
<tr>
<td>88. Tennessee State Building,</td>
<td>III. 141</td>
</tr>
<tr>
<td>89. Mississippi State Building,</td>
<td>III. 142</td>
</tr>
<tr>
<td>90. George's Hill Restaurant,</td>
<td>III. 142</td>
</tr>
<tr>
<td>91. Bishop Allen Monument,</td>
<td>III. 142</td>
</tr>
</tbody>
</table>
BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[Note.—Descriptions of the Buildings will be found at the indicated part and page of the Official Catalogue.]

Buildings North of the Avenue of the Republic, and West of Belmont Av.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>92. Office of the Boston “Advertiser” and Boston “ Herald,”</td>
<td>II</td>
<td>9</td>
</tr>
<tr>
<td>93. Rowell’s Newspaper Exhibition Building,</td>
<td>III</td>
<td>142</td>
</tr>
<tr>
<td>94. California State Building,</td>
<td>III</td>
<td>142</td>
</tr>
<tr>
<td>95. Centennial Fire Patrol, No. 1,</td>
<td>III</td>
<td>142</td>
</tr>
<tr>
<td>96. Turkish Café,</td>
<td>III</td>
<td>143</td>
</tr>
<tr>
<td>97. Office Frank Leslie’s Publications,</td>
<td>III</td>
<td>143</td>
</tr>
<tr>
<td>98. Iowa State Building,</td>
<td>III</td>
<td>143</td>
</tr>
<tr>
<td>99. Rhode Island State Building,</td>
<td>III</td>
<td>143</td>
</tr>
<tr>
<td>100. Vermont State Building,</td>
<td>III</td>
<td>143</td>
</tr>
</tbody>
</table>

Buildings East of Belmont Avenue, and South of Fountain Avenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>101. Art Gallery,</td>
<td>II</td>
<td>9</td>
</tr>
<tr>
<td>102. Art Gallery Annex,</td>
<td>II</td>
<td>10</td>
</tr>
<tr>
<td>103. B’nai B’rith Monument of Religious Liberty,</td>
<td>III</td>
<td>143</td>
</tr>
<tr>
<td>104. Photographic Art Building,</td>
<td>II</td>
<td>137</td>
</tr>
<tr>
<td>105. Vienna Bakery and Coffee House,</td>
<td>III</td>
<td>143</td>
</tr>
<tr>
<td>106. Principal Annex to Main Exhibition Building,</td>
<td>I</td>
<td>374</td>
</tr>
<tr>
<td>107. Swedish Government Building,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>108. Japanese Bazaar,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>109. The Judges’ Hall,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>110. Centennial Photographic Co.,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>111. Sheet-metal Pavilion,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>112. German Government Building,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>113. Railroad Ticket Office,</td>
<td>III</td>
<td>144</td>
</tr>
<tr>
<td>114. Office United States Centennial Commission,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>115. Brazilian Government Building,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>116. The Dairy,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>117. Restaurant “La Fayette,”</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>118. House of Public Comfort,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>119. Empire Transportation Co.,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>120. French Government Building,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>121. Centennial Fire Patrol, No. 2,</td>
<td>III</td>
<td>145</td>
</tr>
<tr>
<td>122. Penn’a Educational Building,</td>
<td>III</td>
<td>146</td>
</tr>
<tr>
<td>123. Telegraph Office,</td>
<td>III</td>
<td>147</td>
</tr>
<tr>
<td>124. American Fusee Company,</td>
<td>III</td>
<td>147</td>
</tr>
<tr>
<td>125. Klautscheck, Thomas, &amp; Stewart’s Glass Magazine,</td>
<td>III</td>
<td>147</td>
</tr>
<tr>
<td>126. Moorish Villa,</td>
<td>III</td>
<td>147</td>
</tr>
<tr>
<td>127. American Bible Society,</td>
<td>III</td>
<td>147</td>
</tr>
<tr>
<td>128. Hunter’s Camp,</td>
<td>III</td>
<td>147</td>
</tr>
<tr>
<td>129. Office Water Department,</td>
<td>III</td>
<td>148</td>
</tr>
<tr>
<td>130. Soda Water Stands,</td>
<td>III</td>
<td>148</td>
</tr>
</tbody>
</table>

Buildings East of Belmont Avenue, and North of Fountain Avenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>131. Cigar Stands,</td>
<td>III</td>
<td>148</td>
</tr>
<tr>
<td>132. Singer’s Sewing Machines,</td>
<td>III</td>
<td>148</td>
</tr>
<tr>
<td>133. Centennial Medical Deparm’t,</td>
<td>III</td>
<td>148</td>
</tr>
<tr>
<td>134. Portugal Government Building,</td>
<td>III</td>
<td>148</td>
</tr>
<tr>
<td>135. Bankers’ Building,</td>
<td>III</td>
<td>148</td>
</tr>
<tr>
<td>136. French Glass Exhibit,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>137. Kindergarten,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>138. Centennial Police Station,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>139. Philadelphia City Building,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>140. Music Pavilion,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>141. Burial Caskets,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>142. Perforated Metal Building,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>143. Rubber Roofing,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>144. Cuban Acclimation Office,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>145. Naval Group,</td>
<td>III</td>
<td>149</td>
</tr>
<tr>
<td>146. The Dying Lioness,</td>
<td>III</td>
<td>149</td>
</tr>
</tbody>
</table>

Buildings East of Belmont Avenue, and North of Fountain Avenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>151. Horticultural Hall,</td>
<td>IV</td>
<td>147</td>
</tr>
<tr>
<td>152. Agricultural Hall,</td>
<td>IV</td>
<td>9</td>
</tr>
<tr>
<td>153. The Women’s Pavilion,</td>
<td>III</td>
<td>85</td>
</tr>
<tr>
<td>154. The Women’s School House,</td>
<td>III</td>
<td>150</td>
</tr>
<tr>
<td>155. New Jersey State Building,</td>
<td>III</td>
<td>150</td>
</tr>
<tr>
<td>156. Restaurant of the South,</td>
<td>III</td>
<td>150</td>
</tr>
<tr>
<td>157. Kansas and Colorado State Building,</td>
<td>III</td>
<td>150</td>
</tr>
<tr>
<td>158. New England Farmer’s Home 100 years ago, and Modern Kitchen,</td>
<td>III</td>
<td>150</td>
</tr>
<tr>
<td>159. Great American Restaurant,</td>
<td>III</td>
<td>150</td>
</tr>
<tr>
<td>160. German Restaurant,</td>
<td>III</td>
<td>151</td>
</tr>
<tr>
<td>161. Tea and Coffee Press,</td>
<td>III</td>
<td>151</td>
</tr>
<tr>
<td>162. Butter and Cheese Factory,</td>
<td>III</td>
<td>151</td>
</tr>
<tr>
<td>163. Soda Water Stand,</td>
<td>III</td>
<td>151</td>
</tr>
<tr>
<td>164. Cigar Stand,</td>
<td>III</td>
<td>151</td>
</tr>
<tr>
<td>165. Farm Wagon Building,</td>
<td>IV</td>
<td>135</td>
</tr>
<tr>
<td>166. Pomological Building,</td>
<td>IV</td>
<td>135</td>
</tr>
<tr>
<td>167. Brewers’ Building,</td>
<td>IV</td>
<td>136</td>
</tr>
<tr>
<td>168. Model House Apiary,</td>
<td>IV</td>
<td>140</td>
</tr>
<tr>
<td>169. Guano Company,</td>
<td>III</td>
<td>151</td>
</tr>
<tr>
<td>170. Special Flower Exhibit Building,</td>
<td>III</td>
<td>170</td>
</tr>
<tr>
<td>171. Wind Mills,</td>
<td>IV</td>
<td>140</td>
</tr>
<tr>
<td>172. Office “Ohio Farmer,”</td>
<td>IV</td>
<td>140</td>
</tr>
<tr>
<td>173. Hay Press,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>174. Police Station,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>175. Elevated Railroad,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>176. Boiler House,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>177. Virginia State Building,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>178. Protective Fire Apparatus,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>179. Pop-corn Stands,</td>
<td>III</td>
<td>152</td>
</tr>
<tr>
<td>180. J. L. Mott Co. Fountain,</td>
<td>III</td>
<td>152</td>
</tr>
</tbody>
</table>
No. 1. THE MAIN EXHIBITION BUILDING.

Size, 1880 by 464 feet.

Contractor, R. J. Dobbins.


The Main Exhibition Building, containing Departments I, II, III of the Exhibition, is in the form of a parallelogram, extending east and west 1880 feet in length, and north and south 464 feet in width.

The larger portion of the structure is one story in height, and shows the main cornice upon the outside at 45 feet above the ground; the interior height being 70 feet. At the centre of the longer sides are projections 416 feet in length, and in the centre of the shorter sides or ends of the building are projections 216 feet in length. In these projections, in the centre of the four sides, are located the main entrances, which are provided with arcades upon the ground floor, and central facades extending to the height of 90 feet.

The East Entrance forms the principal approach for carriages, visitors being allowed to alight at the doors of the building under cover of the arcade. The South Entrance is the principal approach from street cars, the ticket offices being located upon the line of Elm Avenue, with covered ways provided for entrance into the building itself. The Main Portal on the north side communicates with the Art Gallery, and the Main Portal on the west side gives the main passage way to the Machinery and Agricultural Halls.

Upon the corners of the building there are four towers, 75 feet in height, and between the towers and the central projections or entrances there is a lower roof introduced, showing a cornice at 24 feet above the ground. In order to obtain a central feature for the building as a whole, the roof over the central part, for 184 feet square, has been raised above the surrounding portion, and four towers, 48 feet square, rising to 120 feet in height, have been introduced at the corners of the elevated roof.

The areas covered are as follows:

<table>
<thead>
<tr>
<th>Type of Area</th>
<th>Square Feet</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground floor</td>
<td>872,320</td>
<td>20.02</td>
</tr>
<tr>
<td>Upper floors in projections</td>
<td>37,344</td>
<td>.85</td>
</tr>
<tr>
<td>&quot; in towers</td>
<td>26,344</td>
<td>.60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>936,008</strong></td>
<td><strong>21.47</strong></td>
</tr>
</tbody>
</table>
The general arrangement of the ground plan shows a central avenue or nave 120 feet in width, and extending 1832 feet in length. This is the longest avenue of that width ever introduced into an exhibition building. On either side of this nave there is an avenue 100 feet by 1832 feet in length. Between the nave and side avenues are aisles 48 feet wide, and on the outer sides of the building smaller aisles 24 feet in width. In order to break the great length of the roof lines, three cross avenues or transepts have been introduced of the same widths and in the same relative positions to each other as the nave and avenues running lengthwise, viz.: a central transept 120 feet in width by 416 feet in length, with one on either side of 100 feet by 416 feet, and aisles between of 48 feet. The intersections of these avenues and transepts in the central portion of the building result in dividing the ground floor into nine open spaces, free from supporting columns, and covering in the aggregate an area of 416 feet square. Four of these spaces are 100 feet square, four 100 feet by 120 feet, and the central space or pavilion 120 feet square. The intersections of the 48 feet aisles produce four interior courts 48 feet square, one at each corner of the central space. The main promenades through the nave and central transept are each 30 feet in width, and those through the centre of the side avenues and transepts 15 feet each. All other walks are 10 feet wide, and lead at either end to exit doors.

The following table gives the principal dimensions of the different parts of the building:

<table>
<thead>
<tr>
<th>Measurements taken from centre to centre of supporting columns.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CENTRAL AVENUE OR NAVE.</strong></td>
</tr>
<tr>
<td>Length, 1832 feet.</td>
</tr>
<tr>
<td>Width, 120 &quot;</td>
</tr>
<tr>
<td>Height to top of supporting columns, 45 &quot;</td>
</tr>
<tr>
<td>Height to ridge of roof, 70 &quot;</td>
</tr>
<tr>
<td><strong>CENTRAL TRANSEPT.</strong></td>
</tr>
<tr>
<td>Length, 416 &quot;</td>
</tr>
<tr>
<td>Width, 120 &quot;</td>
</tr>
<tr>
<td>Height to top of columns, 45 &quot;</td>
</tr>
<tr>
<td>Height to ridge of roof, 70 &quot;</td>
</tr>
<tr>
<td><strong>SIDE AVENUES.</strong></td>
</tr>
<tr>
<td>Length, 1832 &quot;</td>
</tr>
<tr>
<td>Width, 100 &quot;</td>
</tr>
<tr>
<td>Height to top of columns, 45 &quot;</td>
</tr>
<tr>
<td>Height to ridge of roof, 65 &quot;</td>
</tr>
<tr>
<td><strong>CENTRAL AISLES.</strong></td>
</tr>
<tr>
<td>Length at east end, 744 &quot;</td>
</tr>
<tr>
<td>Width, 48 &quot;</td>
</tr>
<tr>
<td>Height to roof, 30 &quot;</td>
</tr>
<tr>
<td><strong>SIDE AISLES.</strong></td>
</tr>
<tr>
<td>Length at east end, 744 &quot;</td>
</tr>
<tr>
<td>Width, 24 &quot;</td>
</tr>
<tr>
<td>Height to roof, 24 &quot;</td>
</tr>
<tr>
<td><strong>CENTRE SPACE OR PAVILION.</strong></td>
</tr>
<tr>
<td>Ground plan, 120 ft. sq.</td>
</tr>
<tr>
<td>Height to top of supporting columns, 72 &quot;</td>
</tr>
<tr>
<td>Height to ridge of roof, 90 &quot;</td>
</tr>
<tr>
<td><strong>TOWERS OVER COURTS.</strong></td>
</tr>
<tr>
<td>Ground plan, 48 &quot;</td>
</tr>
<tr>
<td>Height to roof, 120 &quot;</td>
</tr>
<tr>
<td><strong>CORNER TOWERS.</strong></td>
</tr>
<tr>
<td>Ground plan, 24 &quot;</td>
</tr>
<tr>
<td>Height to roof, 75 &quot;</td>
</tr>
</tbody>
</table>

The foundations consist of piers of masonry. The superstructure is composed of wrought iron columns, which support wrought iron roof trusses. These columns are composed of rolled channel bars, with plates riveted to the flanges. Lengthwise of the building the columns are spaced at the uniform distance apart of 24 feet. In the entire structure there are 672 columns, the shortest being 23 feet and the longest 125 feet in length. Their aggregate weight is 2,200,000 pounds. The roof trusses
are similar in form to those in general use for depots and warehouses, and consist of straight rafters with struts and tie-bars. The aggregate weight of iron in the roof trusses and girders is 5,000,000 pounds. This building being a temporary construction, the columns and trusses are so designed that they may be easily taken down and erected again at another site.

The sides of the building, for the height of seven feet from the ground, are finished with brickwork in panels between the columns; above the seven feet, with glazed sash. Portions of the sash are movable for ventilation. The roof covering is of tin upon sheathing boards. The ground flooring is of plank upon sills resting upon the ground, with no open space underneath.

The building stands nearly due east and west, and is lighted almost entirely by side light from the north and south sides. Louvre ventilators are introduced over the central nave and each of the avenues. Skylights are introduced over the central aisles.

Small balconies, or galleries of observation, have been provided in the four central towers of the building at the heights of the different stories.

A complete system of water supply, with ample provision of fire cocks, etc., is provided for protection against fire, and for sanitary purposes.

Offices for foreign commissions are placed along the sides of the building, in the side aisles, in proximity to the products exhibited.

The ground was graded and foundation laid for this building in the autumn of 1874. The erection of iron work at the site commenced on May 8th, 1875; the erection of the iron work was finished December 2d, 1875; and the building was accepted from the contractor February 14th, 1876. The cost of the building was $1,580,000.

KEY TO THE NOTATION.

The location of objects in the Main Building is shown by a letter and figure, indicating the nearest column of the building. The letters—A, B, C, to U—designate the successive ranges of columns, proceeding southward from the northern wall across the width of the building; the figures, the number of the column in each range, counting eastwardly from the western wall, the entire length of the building, from 1 to 79. Thus C 5 is the column in the third range from the north, and the fifth from the western end of the building. The southeastermmost column is U 79.

The class of the classification to which each exhibit belongs is indicated by the small figures at the end of the line.
MAIN EXHIBITION BUILDING.

Scale, 360 ft. to 1 in.

1. United States.
2. Germany.
3. Austria and Hungary.
4. Russia.
5. Spain and Philippine Islands.
6. Turkey.
7. Egypt.
8. Denmark.
11. Tunis.
15. Chili.
17. Italy.
20. Australasia and other British Colonies.
22. Great Britain and India.
23. France and Colonies.
24. Switzerland.
25. Belgium.
26. Brazil.
27. Netherlands.
28. Mexico.
29. Peru.
30. Orange Free State.

Total Length, 1380 ft. Width, 464 ft. Height, 70 ft.
CLASSIFICATION.

DEPARTMENT I.—MINING AND METALLURGY.

MINERALS, ORES, STONE, MINING PRODUCTS.

CLASS 100.—Minerals, ores, etc. Metallic and non-metallic minerals, exclusive of coal and oil. Collections of minerals systematically arranged; collections of ores and associated minerals; geological collections.

CLASS 101.—Mineral combustibles. Coal, anthracite, semi-bituminous, and bituminous, coal-waste and pressed coal; albertite, asphalt, and asphaltic limestone; bitumen, mineral tar, crude petroleum.

CLASS 102.—Building stones, marbles, slates, etc. Rough, hewn, sawn, or polished, for buildings, bridges, walls, or other constructions, or for interior decoration, or for furniture.
   Marble—white, black, or colored—used in building, decoration, statuary, monuments, or furniture, in blocks or slabs not manufactured.

CLASS 103.—Lime, cement, and hydraulic cement, raw and burned, accompanied by specimens of the crude rock or material used, also artificial stone, concrete, beton.
   Specimens of lime mortar and mixtures, with illustrations of the processes of mixing, etc. Hydraulic and other cement.
   Beton mixtures and results, with illustrations of the processes.
   Artificial stone for building purposes, building blocks, cornices, etc.
   Artificial stone mixtures, for pavements, walls, or ceilings.
   Plasters, mastics, etc.

CLASS 104.—Clays, kaolin, silex, and other materials for the manufacture of porcelain faience, and of glass, bricks, terra cotta and tiles, and fire brick. Refractory stones for lining furnaces, sandstone, steatite, etc., and refractory furnace materials.

CLASS 105.—Graphite, crude and refined; for polishing purposes; for lubricating, electrotyping, photography, pencils, etc.

CLASS 106.—Lithographic stones, hone, whetstones, grindstones, grinding and polishing materials, sand quartz, garnet, crude topaz, diamond, corundum, emery in the rock and pulverized, and in assorted sizes and grades.

CLASS 107.—Mineral waters, artesian well water, natural brines, saline and alkaline efflorescences and solutions. Mineral fertilizing substances, gypsum, phosphate of lime, marls, shells, coprolites, etc., not manufactured.

METALLURGICAL PRODUCTS.

CLASS 110.—Precious metals.

CLASS 111.—Iron and steel in the pig, ingot, and bar, plates and sheets, with specimen of slags, fluxes, residues, and products of working.
CLASSIFICATION.

CLASS 112.—Copper in ingots, bars, and rolled, with specimens illustrating its various stages of production.

CLASS 113.—Lead, zinc, antimony, and other metals, the result of extractive processes.

CLASS 114.—Alloys used as materials, brass, nickel, silver, solder, etc.

MINING ENGINEERING—MODELS, MAPS, AND SECTIONS.

CLASS 120.—Surface and underground surveying and plotting. Projection of underground work, location of shafts, tunnels, etc. Surveys for aqueducts and for drainage.

Boring and drilling rocks, shafts, and tunnels, etc. Surveys for aqueducts, and for ascertaining the nature and extent of mineral deposits.

Construction. Sinking and lining shafts by various methods, driving and timbering tunnels, and the general operations of opening, stoping, and breaking down ore, timbering, lagging, and masonry.

Hoisting and delivering at the surface, rock, ore, or miners.

Pumping and draining by engines, buckets, or by adits.

Ventilation and lighting.

Subaqueous mining, blasting, etc.

Hydraulic mining, and the various processes and methods of sluicing and washing auriferous gravel and other superficial deposits.

Quarrying.

CLASS 121.—Models of mines, of veins, etc.
CLASSIFICATION.

DEPARTMENT II.—MANUFACTURES.

CHEMICALS.

Class 200.—Chemicals, pharmaceutical preparations.


The common commercial alkalies, potash, soda, and ammonia, with their carbonate.


Bleaching powders and chloride of lime.

Yeast powders, baking powders.

Class 201.—Oils, soaps, candles, illuminating and other gases.

Oils from mineral, animal, and vegetable sources. Refined petroleum, benzine, naphtha, and other products of the manufacture. Oils from various seeds, refined, and of various degrees of purity. Olive oil, cottonseed oil, palm oil. Animal oils, of various kinds, in their refined state. Oils prepared for special purposes besides lighting and for food. Lubricating oils.

Soaps and detergent preparations.

Candles, stearine, glycerine, paraffine, etc., spermaceti.

Illuminating gas and its manufacture.

Oxygen gas, and its application for heating, lighting, metallurgy, and as a remedial agent.

Chlorine and carbonic acid.

Class 202.—Paints, pigments, dyes, colors, turpentine, varnishes, printing inks, writing inks, blacking.

Class 203.—Flavoring extracts, essences, perfumery, pomades, cosmetics.

Class 204.—Explosive and fulminating compounds; in small quantities only, and under special regulations, shown in the building only by empty cases and cartridges. Black powder of various grades and sizes. Nitroglycerine and the methods of using and exploding. Giant powder, dynamite, dualin, tri-nitroglycerine.

Class 205.—Pyrotechnics, for display, signaling, missiles.

CERAMICS—POTTERY, PORCELAIN, ETC.

Class 206.—Bricks, drain-tiles, terra cotta, and architectural pottery.

Class 207.—Fire clay goods, crucibles, pots, furnaces. Chemical stoneware.

Class 208.—Tiles, plain, enameled, encaustic; geometric tiles and mosaics. Tiles for pavements and for roofing, etc.

Class 209.—Porcelain for purposes of construction. Hardware trimmings, etc.
CLASS 210.—Stone china, for chemists, druggists, etc., earthenware, stoneware, faience, etc.
CLASS 211.—Majolica and Palissy ware.
CLASS 212.—Biscuit-ware, parian, etc.
CLASS 213.—Porcelain for table and toilet use, and for decoration:

GLASS AND GLASSWARE.
CLASS 214.—Glass used in construction and for mirrors. Window glass of various grades of quality and of size. Plate glass, rough, and ground or polished. Toughened glass.
CLASS 215.—Chemical and pharmaceutical glassware, vials, bottles.
CLASS 216.—Decorative glassware.

FURNITURE AND OBJECTS OF GENERAL USE IN CONSTRUCTION AND IN DWELLINGS.
CLASS 217.—Heavy furniture.—Chairs, tables, parlor and chamber suits, office and library furniture, vestibule furniture. Church furniture and decoration.
CLASS 218.—Table furniture.—Glass, china, silver, silver-plate, tea and coffee sets, urns, samovars, epergnes.
CLASS 219.—Mirrors, stained and enameled glass, cut and engraved window-glass, and other decorative objects.
CLASS 220.—Gilt cornices, brackets, picture frames, etc.
CLASS 221.—The nursery and its accessories; children’s chairs, walking chairs.
CLASS 222.—Apparatus and fixtures for heating and cooking,—stoves, ranges, heaters, etc.
CLASS 223.—Apparatus for lighting,—gas fixtures, lamps, etc.
CLASS 224.—Kitchen and pantry,—utensils, tinware, and apparatus used in cooking (exclusive of cutlery).
CLASS 225.—Laundry appliances, washing machines, mangles, clothes-wringers, clothes-bars, ironing-tables.
CLASS 226.—Bath-room and water closet, shower bath, earth closet.
CLASS 227.—Manufactured parts of buildings,—sash, blinds, mantels, metal work, etc.

YARNS AND WOVEN GOODS OF VEGETABLE OR MINERAL MATERIALS.
CLASS 228.—Woven fabrics of mineral origin.—Wire cloths, sieve cloth, wire screens, bolting cloth.
Asbestos fibre, spun and woven, with the clothing manufactured from it.
Glass thread, floss, and fabrics.
CLASS 229.—Coarse fibres, of grass, rattan, cocoanut, and bark.
Matting, Chinese, Japanese, palm-leaf, grass, and rushes.
Floor cloths of rattan and cocoanut fibres, aloe fibre, etc.
CLASS 230.—Cotton yarns and fabrics, bleached and unbleached.
Cotton sheeting and shirting, plain and twilled.
Cotton canvas and duck. Awnings, tents.
CLASS 231.—Dyed cotton fabrics, exclusive of prints and calicoes.
CLASS 232.—Cotton prints and calicoes, including handkerchiefs, scarfs, etc.
CLASS 233.—Linen and other vegetable fabrics, uncolored or dyed.
CLASS 234.—Floor oil cloths, and other painted and enameled tissues, and imitation of leather, with a woven base.

WOVEN AND FELTED GOODS OF WOOL AND MIXTURES OF WOOL.
CLASS 235.—Card wool fabrics.—Yarns, broadcloth, doeskins, fancy cassimeres, Felted goods.
CLASS 236.—Flannels.—Plain flannels, domets, opera and fancy.
CLASSIFICATION.

CLASS 237.—Blankets, robes, and shawls.
CLASS 238.—Combined wool fabrics.—Worsted, yarns, dress goods for women's wear, delaines, serges, poplins, merinoces.
CLASS 239.— Carpets, rugs, etc.—Brussels, melton, tapestry, tapestry Brussels, Axminster, Venetian, ingrain, felted carpetings, druggests, rugs, etc.
CLASS 240.—Hair, alpaca, goat's hair, camel's hair, and other fabrics, mixed or unmixed with wool.
CLASS 241.—Printed and embossed woolen cloths, table covers, patent velvets.

SILK AND SILK FABRICS, AND MIXTURES IN WHICH SILK IS THE PREDOMINATING MATERIAL.

CLASS 242.—Cocoons and raw silk as reeled from the cocoon, thrown or twisted silks in the gum.
CLASS 243.—Thrown or twisted silks, boiled off or dyed, in hanks, skeins, or on spools.
CLASS 244.—Spun silk yarns and fabrics, and the materials from which they are made.
CLASS 245.—Plain woven silks, lutestrings, sarsnets, satins, serges, foulards, tissues for hat and millinery purposes, etc.
CLASS 246.—Figured silk piece goods, woven or printed. Upholstery silks, etc.
CLASS 247.—Crapes, velvets, gauzes, cravats, handkerchiefs, hosiery, knit goods, laces, scarfs, ties, veils, all descriptions of cut and made up silks.
CLASS 248.—Ribbons, plain, fancy, and velvet.
CLASS 249.—Bindings, braids, cords, galloons, ladies' dress trimmings, upholsterers', tailors', military, and miscellaneous trimmings.

CLOTHING, JEWELRY, AND ORNAMENTS, TRAVELING EQUIPMENTS.

CLASS 250.—Ready-made clothing, knit goods and hosiery, military clothing, church vestments, costumes, waterproof clothing, and clothing for special objects.
CLASS 251.—Hats, caps, boots and shoes, gloves, mittens, etc., straw and palm leaf hats, bonnets, and millinery.
CLASS 252.—Laces, embroideries, and trimmings for clothing, furniture, and carriages.
CLASS 253.—Jewelry and ornaments worn upon the person.
CLASS 254.—Artificial flowers, coiffures, buttons, trimmings, pins, hooks and eyes, fans, umbrellas, sunshades, walking-canes, pipes, and small objects of dress or adornment, exclusive of jewelry. Toys and fancy articles.
CLASS 255.—Fancy leather work, pocketbooks, toilet cases, traveling equipments, valises, and trunks.
CLASS 256.—Furs.
CLASS 257.—Historical collections of costumes, national costumes.

PAPER, BLANK BOOKS, AND STATIONERY.

CLASS 258.—Stationery for the desk, stationers' articles, pens, pencils, inkstands, and other apparatus of writing and drawing.
CLASS 259.—Writing paper and envelopes, blank-book paper, bond paper, tracing paper, tracing linen, tissue paper, etc., etc.
CLASS 260.—Printing paper for books, newspapers, etc.

Wrapping paper of all grades, cartridge and manilla paper, paper bags.
CLASS 261.—Blank books; sets of account books, specimens of ruling and binding, including blanks, bill heads, etc., book binding.
CLASS 262.—Cards; playing cards, cardboard, binders' board, pasteboard, paper or cardboard boxes.
CLASS 263.—Building paper, pasteboard for walls, cane fibre felt for car-wheels, ornaments, etc.
CLASS 264.—Wall papers, enamelled and colored papers, imitations of leather, wood, etc.
MILITARY AND NAVAL ARMAMENTS, ORDNANCE, FIREARMS, AND HUNTING APPARATUS.

CLASS 265.—Military small-arms, muskets, pistols, and magazine guns, with their ammunition.
CLASS 266.—Light artillery, compound guns, machine guns, mitrailleuses, etc.
CLASS 267.—Heavy ordnance and its accessories.
CLASS 268.—Knives, swords, spears, and dirks.
CLASS 269.—Firearms used for sporting and hunting, also other implements for the same purpose.
CLASS 270.—Traps for game, birds, vermin, etc.

MEDICINE, SURGERY, PROTHESIS.
CLASS 272.—Medicines; official (in any authoritative pharmacopoeia), articles of the materia medica, preparations, unofficinal.
CLASS 273.—Dietetic preparations, as beef extract and other articles intended especially for the sick.
CLASS 274.—Pharmaceutical apparatus.
CLASS 275.—Instruments for physical diagnosis, clinical thermometers, stethoscopes, ophthalmoscopes, etc. (except clinical microscopes, etc., for which see Class 324).
CLASS 276.—Surgical instruments and appliances, with dressings, apparatus for deformities, prosthesis, obstetrical instruments.
CLASS 277.—Dental instruments and appliances.
CLASS 278.—Vehicles and appliances for the transportation of the sick and wounded, during peace and war, on shore or at sea.

HARDWARE, EDGE TOOLS, CUTLERY, AND METALLIC PRODUCTS.
CLASS 280.—Hand tools and instruments used by carpenters, joiners, and for wood and stone in general. Miscellaneous hand tools used in industries, such as jewellers', engravers'.
CLASS 281.—Cutlery, knives, penknives, scissors, razors, razor straps, skates, and implements sold by cutlers.
CLASS 282.—Emery and sand paper, polishing powders, polishing and burnishing stones.
CLASS 283.—Metal hollow ware, ornamental castings.
CLASS 284.—Hardware used in construction, exclusive of tools and implements. Spikes, nails, screws, tacks, bolts, locks, latches, hinges, pulleys. Plumbers' and gas fitters' hardware, furniture fittings, ships' hardware, saddlers' hardware, and harness fittings and trimmings.

FABRICS OF VEGETABLE, ANIMAL, OR MINERAL MATERIALS.
CLASS 285.—India rubber goods and manufactures.
CLASS 286.—Brushes.
CLASS 287.—Ropes, cordage.
CLASS 288.—Flags, insignia, emblems.
CLASS 289.—Wooden and basket ware, papier mache.
CLASS 290.—Undertakers' furnishing goods, etc.
CLASS 291.—Galvanized iron work.

CARRIAGES, VEHICLES, AND ACCESSORIES.
(For farm vehicles and railway carriages, see Departments of Agriculture and Machinery.)
CLASS 292.—Pleasure carriages.
CLASS 293.—Traveling carriages, coaches, stages, omnibuses, hearses, Bath chairs, velocipedes, baby coaches.
CLASS 294.—Vehicles for movement of goods and heavy objects, carts, wagons, trucks.
CLASS 295.—Sleighs, sledges, sleds, etc.
CLASS 296.—Carriage and horse furniture, harness and saddlery, whips, spurs, horse blankets, carriage robes, rugs, etc.
CLASSIFICATION.

DEPARTMENT III.—EDUCATION AND SCIENCE.

EDUCATIONAL SYSTEMS, METHODS, AND LIBRARIES.

CLASS 301.—Elementary instruction. Infant schools and kindergartens, arrangements, furniture, appliances, and modes of training.

Public schools, graded schools, buildings and grounds, equipments, courses of study, methods of instruction, text-books, apparatus, including maps, charts, globes, etc.; pupils' work, including drawing and penmanship; provisions for physical training.

CLASS 302.—Higher education. Academies and high schools.

Colleges and universities. Buildings and grounds; libraries, museums of zoology, botany, mineralogy, art, and archeology; apparatus for illustration and research, mathematical, physical, chemical, and astronomical courses of study; text-books, catalogues, libraries, and gymnasiums.

CLASS 303.—Professional schools, theology, law, medicine, and surgery, dentistry, pharmacy, mining, engineering, agriculture, and mechanical arts, art and design, military schools, naval schools, normal schools, commercial schools, music.

Buildings, text-books, libraries, apparatus, methods, and other accessories for professional schools.

CLASS 304.—Institutions for instruction of the blind, deaf, and dumb, and the feebleminded.

CLASS 305.—Libraries, history, reports, statistics, and catalogues.

CLASS 306.—School and text-books, dictionaries, encyclopedias, gazetteers, directories, index volumes, bibliographies, catalogues, almanacs, special treatises, general and miscellaneous literature, newspapers, technical and special newspapers and journals, illustrated papers, periodical literature.

INSTITUTIONS AND ORGANIZATIONS.

CLASS 310.—Institutions founded for the increase and diffusion of knowledge. Such as the Smithsonian Institution, the Royal Institution, the Institute of France, British Association for the Advancement of Science, and the American Association, etc., their organization, history, and results.

CLASS 311.—Learned and scientific associations. Geological and mineralogical societies, etc. Engineering, technical, and professional associations. Artistic, biological, zoological, medical schools, astronomical observatories.
CLASS 312.—Museums, collections, art galleries, exhibitions of works of art and industry. Agricultural fairs, state and county exhibitions, national exhibitions. International exhibitions.
Scientific museums and art museums.
Ethnological and archeological collections.

CLASS 313.—Music and the drama.

SCIENTIFIC AND PHILOSOPHICAL INSTRUMENTS AND METHODS.

CLASS 320.—Instruments of precision, and apparatus of physical research, experiment, and illustration.
Astronomical instruments and accessories, used in observatories.
Geodetic and surveying instruments. Transits, theodolites, needle compasses. Instruments for surveying underground in mines, tunnels, and excavations.
Nautical astronomical instruments. Sextants, quadrants, repeating circles, dip-sectors.
Leveling instruments and apparatus. Carpenters' and builders' levels, hand levels, water levels, engineers' levels.
Instruments for deep-sea sounding and hydrographic surveying.
Meteorological instruments and apparatus.
Thermometers, pyrometers.
Barometers.
Hygrometers and rain gauges.
Maps, bulletins.
Blanks for reports, methods of recording, reducing, and reporting observations.

CLASS 321.—Indicating and registering apparatus, other than meteorological; mechanical calculation.
Viameters, pedometers, perambulators.
Gas meters.
Water meters, current meters, ships' logs, electrical logs.
Tide registers.
Apparatus for printing consecutive numbers.
Counting machines, calculating engines, arithmometers.

CLASS 322.—Weights, measures, weighing and meteorological apparatus.
 Measures of length; graduated scales on wood, metal, ivory, tape, or ribbon; steel tapes, chains, rods, verniers, rods, and graduated scales for measuring lumber, goods in packages, casks, etc., gaugers' tools and methods.
 Measures of capacity for solids and liquids.
Weights. Scales and graduated beams for weighing; assay balances, chemical balances. Ordinary scales for heavy weights; weighing locomotives and trains of cars. Postal balances. Hydrometers, alchometers, lactometers, etc.; gravimeters. (See Class 571.)

CLASS 323.—Chronometric apparatus.

CLASS 324.—Optical and thermotic instruments and apparatus.
Mirrors, plane and spherical.
Lenses and prisms.
Spectacles and eyeglasses, field and opera glasses, graphoscopes and stereoscopes.
Cameras and photographic apparatus.
Microscopes.
Telescopes.
Apparatus for artificial illumination, including electric, oxyhydrogen, and magnesium light.
Stereopticons.
Photometric apparatus.
Spectroscopes and accessories for spectrum analysis.
Polariscopes, etc.
Thermotic apparatus.

**CLASS 325.**—Electrical apparatus.
Friction machines.
Condensers and miscellaneous apparatus to illustrate the discharge. Galvanic batteries and accessories to illustrate dynamical electricity. Electro-magnetic apparatus. Induction machines, Rumkorff coils, etc. Magnets and magneto-electrical apparatus.

**CLASS 326.**—Telegraphic instruments and methods.
Batteries and forms of apparatus used in generating the electrical currents for telegraphic purposes. Conductors and insulators, and methods of support, marine telegraph cables.

**CLASS 327.**—Musical instruments and acoustic apparatus.

**ENGINEERING, ARCHITECTURE, CHARTS, MAPS, AND GRAPHIC REPRESENTATIONS.**

(For Agricultural Engineering, see Class 630.)
(For Mining Engineering, see Class 120.)

Submarine constructions, foundations, piers, docks, etc.
CLASSIFICATION.

CLASS 331.—Dynamic and industrial engineering. Construction and working of machines; examples of planning and construction of manufacturing and metallurgical establishments.

CLASS 332.—Railway engineering. Location of railways, and the construction and management of railways.

CLASS 333.—Military engineering.

CLASS 334.—Naval engineering.

CLASS 335.—Topographical map. Marine and coast charts.

   Geological maps and sections.
   Botanical, agronomical, and other maps, showing the extent and distribution of men, animals, and terrestrial products. Physical maps.

PHYSICAL, SOCIAL, AND MORAL CONDITION OF MAN.

CLASS 340.—Physical development and condition.

   The nursery and its accessories.
   Gymnasiums, games, and manly sports. Skating, walking, climbing, ball-playing, acrobatic exercises; rowing, hunting, etc.

CLASS 341.—Alimentation. Markets; preparation and distribution of food.

CLASS 342.—The dwelling. Sanitary conditions and regulations. Domestic architecture.

   Dwellings characterized by cheapness, combined with the conditions essential to health and comfort.
   Fire-proof structures.
   Hotels, club-houses, etc.
   Public baths.

CLASS 343.—Commercial systems and appliances.

   Mercantile forms and methods, counting-houses and offices.
   Banks and banking.
   Saving and trust institutions.
   Insurance; fire, marine, life, etc.
   Commercial organizations, boards of trade, merchants', produce, and stock exchanges.
   Corporations for commercial and manufacturing purposes.
   Railway and other transportation companies.
   Building and loan associations.

CLASS 344.—Money. Mints and coining.

   Collections of current coins.
   Historical collections.
   Tokens, etc.
   Bank notes and other paper circulating mediums.
   Commercial paper, bills of exchange, etc.
   Securities for payment of money, stocks, bonds, mortgages, ground rents, quit rents.
   Precautions against counterfeiting and misappropriation of money.

CLASS 345.—Government and law. Various systems of government.

   Departments of government. Revenue and taxation, military organization, executive powers, legislative forms and authority, judicial functions and systems, police regulations, government charities.
   International relations; international law; diplomatic and consular service, etc., allegiance and citizenship; naturalization.
   Codes.
Municipal government.
Protection of property in inventions.
Postal system and appliances.
Punishment of crime.
Prisons and prison management and discipline; police stations; houses of correction; reform schools; naval or marine discipline; punishment at sea.

Special hospitals for the eye and ear, for women, etc.
Hospitals for contagious and infectious diseases.
Hospitals for the insane—under State control, and private asylums.
Quarantine systems and organizations.
Sanitary regulations of cities.
Dispensaries.
Inebriate asylums.
Lying-in asylums.
Magdalen asylums.
Asylums for infants and children. Foundling and orphan asylums, children's aid societies.
Homes for the aged and infirm; homes for aged men and women; soldiers' homes; homes for the maimed and deformed; sailors' homes.
Treatment of paupers. Almshouses, feeding the poor, lodging houses.
Emigrant aid societies.
Treatment of aborigines.
Prevention of cruelty to animals.

CLASS 347. - Co-operative associations.
Political societies and organizations.
Military organizations and orders.
Trade unions and associations.
Industrial organizations.
Secret orders and fraternities.

Religious orders and societies, and their objects.
Societies and organizations for the propagation of systems of religion by missionary effort.
Spreading the knowledge of religious systems by publications.
Bible societies, tract societies, colportage.
Systems and methods of religious instruction and training for the young.
Sunday-schools, furniture and apparatus.
Associations for religious or moral improvement.
Dispensing charities, church guilds.

CLASS 349. - Art and industrial exhibitions. Agricultural fairs, state and county exhibitions, national exhibitions, international exhibitions, international congresses, etc.
CLASSIFICATION.

DEPARTMENT IV.—ART.

SCULPTURE.
CLASS 400.—Figures and groups in stone, metal, clay, or plaster.
CLASS 401.—Bas-reliefs, in stone or metal; electrotype copies.
CLASS 402.—Medals, pressed and engraved; electrotypes of medals.
CLASS 403.—Hammered and wrought work—repoussé and rehaussé work, embossed and engraved relief work.
CLASS 404.—Cameos, intaglios, engraved stones, dies, seals, etc.
CLASS 405.—Carvings in wood, ivory, and metal.

PAINTING.
CLASS 410.—Paintings in oil on canvas, panels, etc.
CLASS 411.—Water color pictures; aquarelles, miniatures, etc.
CLASS 412.—Frescoes, cartoons for frescoes, etc.
CLASS 413.—Painting with vitrifiable colors. Pictures on porcelain, enamel, and metal.

ENGRAVING AND LITHOGRAPHY.
CLASS 420.—Drawings with pen, pencil, or crayons.
CLASS 421.—Line engravings from steel, copper, or stone.
CLASS 422.—Wood engravings.
CLASS 423.—Lithographs, zincographs, etc.
CLASS 424.—Chromo-lithographs.

PHOTOGRAPHY.
CLASS 430.—Photographs on paper, metal, glass, wood, fabrics, or enamel surfaces.
CLASS 431.—Prints from photo-relief plates, carbon prints, etc.
CLASS 432.—Photo-lithographs, etc.
CLASS 433.—Photographic apparatus and supplies.

INDUSTRIAL AND ARCHITECTURAL DESIGNS, MODELS, AND DECORATIONS.
CLASS 440.—Industrial designs.
CLASS 441.—Architectural designs; studies and fragments, representations and projects of edifices; restorations from ruins and from documents.
CLASS 442.—Decoration of interiors of buildings.
CLASS 443.—Artistic hardware and trimmings, artistic castings, forged metal work for decoration, etc.

DECORATION WITH CERAMIC AND VITREOUS MATERIALS, MOSAIC AND INLAID WORK.
CLASS 450.—Mosaic and inlaid work in stone.
CLASS 451.—Mosaic and inlaid work in tiles, tessaræ, glass, etc.
CLASS 452.—Inlaid work in wood and metal, parquetry, tables, etc.
CLASS 453.—Stained glass.
CLASS 454.—Miscellaneous objects of art.
CLASSIFICATION.

DEPARTMENT V.—Machinery.

MACHINES, TOOLS, AND APPARATUS OF MINING, METALLURGY, CHEMISTRY, AND THE EXTRACTIVE ARTS.

CLASS 500.—Rock drilling.
CLASS 501.—Well and shaft boring.
CLASS 502.—Machines, apparatus, and implements for coal cutting.
CLASS 503.—Hoisting machinery and accessories.
CLASS 504.—Pumping, draining, and ventilating.
CLASS 505.—Crushing, grinding, sorting, and dressing. Breakers, stamps, mills, pans, screens, sieves, jigs, concentrators.
CLASS 506.—Furnaces, smelting apparatus, and accessories.
CLASS 507.—Machinery used in Bessemer process.
CLASS 509.—Gas machinery and apparatus.

MACHINES AND TOOLS FOR WORKING METAL, WOOD, AND STONE.

CLASS 510.—Planing, sawing, veneering, grooving, mortising, tonguing, cutting, moulding, stamping, carving, and cask-making machines, etc., cork-cutting machines.
CLASS 511.—Direct acting steam sawing machines, with gang saws. Bark mills.
CLASS 512.—Rolling mills, bloom squeezers, blowing fans. Rivet, nail, bolt, and tack making machinery.
CLASS 513.—Furnaces and apparatus for casting metals, with specimens of work.
CLASS 514.—Steam, trip, and other hammers, with specimens of work, anvils, forges, bellows.
CLASS 515.—Planing, drilling, slotting, turning, shaping, punching, stamping, cutting, and coining machines. Wheel cutting and dividing machines, emery wheels, drills, taps, gauges, dies, etc. Grindstones.
CLASS 516.—Stone-sawing and planing machines, dressing, shaping, and polishing, sand blasts, Tilghman’s machines, glass-grinding machines, etc.
CLASS 517.—Brick, pottery, and tile machines. Machines for making artificial stone.
CLASS 518.—Furnaces, moulds, blowpipes, etc., for making glass and glassware.
CLASS 519.—Tools, implements, etc., for working metal, wood, and stone.

MACHINES AND IMPLEMENTS OF SPINNING, WEAVING, FELTING, AND PAPER MAKING.

CLASS 520.—Machines for the manufacture of silk goods.
CLASS 521.—Machines for the manufacture of cotton goods.
CLASS 522.—Machines for the manufacture of woolen goods, carpets, and tapestry.
CLASS 523.—Machines for the manufacture of linen goods.
CLASS 524.—Machines for the manufacture of rope and twine, and miscellaneous fibrous materials.
CLASS 525.—Machines for the manufacture of paper and felting.
CLASS 526.—Machines for the manufacture of India-rubber goods.
CLASS 527.—Machines for the manufacture of mixed fabrics.
CLASS 528.—Machines for the manufacture of wire cloth.

MACHINES, APPARATUS, AND IMPLEMENTS USED IN SEWING AND MAKING CLOTHING AND ORNAMENTAL OBJECTS.

CLASS 530.—Machines used in the manufacture of lace, floor-cloths, fancy emboidery, hair, ribbons, etc.
CLASS 531.—Sewing and knitting machines, clothes, corset, hat, and bonnet making machines.
CLASS 532.—Machines for preparing and working leather.
CLASS 533.—Machines for making boots and shoes.
CLASS 534.—Machines for ironing, drying, scouring, and cleaning.
CLASS 535.—Machines for making clocks and watches.
CLASS 536.—Machines for making jewelry.
CLASS 537.—Machines for making buttons, pins, needles, etc.
CLASS 538.—Pipes for smoking.

MACHINES AND APPARATUS FOR TYPESETTING, PRINTING, STAMPING, EMBOSsing, AND FOR MAKING BOOKS, AND PAPER WORKING.

CLASS 540.—Printing, stamping, embossing, and lithographing presses.
CLASS 541.—Typecasting machines, apparatus of stereotyping.
CLASS 542.—Types and typesetting machines. Type-writing machines.
CLASS 543.—Printers' furniture.
CLASS 544.—Bookbinding machines.
CLASS 545.—Paper-folding machines.
CLASS 546.—Paper and card cutting machines, paper box machines.
CLASS 547.—Envelope machines.

MOTORS AND APPARATUS FOR THE GENERATION AND TRANSMISSION OF POWER.

CLASS 550.—Boilers and all steam or gas generating apparatus for motive purposes.
CLASS 551.—Water-wheels, water engines, hydraulic rams, windmills.
CLASS 552.—Steam, air, or gas engines, electro-magnetic engines.
CLASS 553.—Apparatus for the transmission of power, shafting, belting, cables, transmission of power by compressed air, etc., gearing, cables.
CLASS 554.—Screw propellers, wheels for the propulsion of vessels, and other motors.
CLASS 555.— Implements and apparatus used in connection with motors. steam gauges, manometers, etc. Anti-friction metals.

HYDRAULIC AND PNEUMATIC APPARATUS, PUMPING, HOISTING, AND LIFTING.

CLASS 560.—Pumps and apparatus for lifting and moving liquids.
CLASS 561.—Pumps and apparatus for moving and compressing air or gas.
CLASS 562.—Pumps and blowing engines, blowers and ventilating apparatus.
CLASS 563.—Hydraulic jacks, presses, elevators, lifts, meters, cranes.
CLASS 564.—Fire engines, hand, steam, or chemical, and fire extinguishing apparatus, hose, ladders, and fire-escapes, etc.
CLASS 565.—Beer engines, soda-water machines, bottling apparatus, corking machines.
CLASS 566.—Stop valves, cocks, pipes, etc.
CLASS 567.—Diving apparatus and machinery.
CLASS 568.—Ice machines.

RAILWAY PLANT, ROLLING STOCK, AND APPARATUS.

CLASS 570.—Locomotives, models, drawings, plans, etc.
CLASS 571.—Carriages, wagons, trucks, cars, etc.
CLASSIFICATION.

CLASS 572.—Brakes, buffers, couplings, and snow-plows.
CLASS 573.—Wheels, tires, axles, bearings, springs, etc.
CLASS 574.—Permanent ways, ties, chairs, switches, etc.
CLASS 575.—Station arrangements, signals, water-cranses, turn-tables.
CLASS 576.—Miscellaneous locomotive attachments.
CLASS 577.—Street railways and cars.

MACHINES USED IN PREPARING AGRICULTURAL PRODUCTS.
CLASS 580.—Flour mills.
CLASS 581.—Sugar refining machines.
CLASS 582.—Confectioners' machinery.
CLASS 583.—Oil-making machinery.
CLASS 584.—Tobacco manufacturing machines.
CLASS 585.—Mills for spices, coffee, etc.
CLASS 586.—Machines for preparing fancy goods.
CLASS 587.—Machines for preparing malt and spirituous liquors.

AERIAL, PNEUMATIC, AND WATER TRANSPORTATION.
CLASS 590.—Suspended cable railways.
CLASS 591.—Transporting cables.
CLASS 592.—Balloons, flying machines, etc.
CLASS 593.—Pneumatic railways, pneumatic dispatch.
CLASS 594.—Boats and sailing vessels. Sailing vessels used in commerce. Sailing vessels used in war. Yachts and pleasure boats. Rowing boats of all kinds. Life boats and salvage apparatus, with life rafts, belts, etc. Submarine armor, diving bells, etc. Ice boats. Models and drawings.
CLASS 595.—Steamships, steamboats, and all vessels propelled by steam.
CLASS 596.—Vessels for carrying telegraph cables and railway trains, also coal barges, water boats, and dredging machines, screw and floating docks, and for other special purposes.
CLASS 597.—Steam capstans, windlass, deck-winches, and steering apparatus, fans.

MACHINERY AND APPARATUS ESPECIALLY ADAPTED TO THE REQUIREMENTS OF THE EXHIBITION.

Boilers, engines, cranes, pumps, etc.
CLASSIFICATION.

DEPARTMENT VI.—Agriculture.

ARBORICULTURE AND FOREST PRODUCTS.

Class 600.—Timber and trunks of trees, entire or in transverse or truncated sections, with specimens of barks, leaves, flowers, seed vessels, and seed. Masts, spars, knees, longitudinal sections of trees, railway ties, ship timber, lumber roughly sawn; as planks, shingles, lath, and staves. Timber and lumber prepared in various ways to resist decay and combustion; as by injection of salts of copper and zinc.

Class 601.—Ornamental woods used in decorating and for furniture; as veneers of mahogany, rosewood, ebony, walnut, maple, and madrona.

Class 602.—Dyewoods, barks, and galls for coloring and tanning.

Class 603.—Gums, resins, caoutchouc, gutta percha, vegetable wax.

Class 604.—Lichens, mosses, fungi, pulu, ferns.

Class 605.—Seeds, nuts, etc., for food and ornamental purposes.

Class 606.—Forestry.—Illustrations of the art of planting, managing, and protecting forests. Statistics.

Class 607.—Fruit trees and shrubs.

POMOLOGY.

Class 610.—Fruits of temperate and semi-tropical regions; as apples, pears, quinces, peaches, nectarines, apricots, plums, grapes, cherries, strawberries, and melons.

Class 611.—Tropical fruits and nuts, oranges, bananas, plantains, lemons, pineapples, pomegranates, figs, coconuts.

AGRICULTURAL PRODUCTS.

Class 620.—Cereals, grasses, and forage plants.

Class 621.—Leguminous plants and esculent vegetables.

Class 622.—Roots and tubers.

Class 623.—Tobacco, hops, tea, coffee, spices, condiments, herbs.

Class 624.—Seeds and seed vessels.

LAND ANIMALS.

Class 630.—Horses, asses, mules.

Class 631.—Horned cattle.

Class 632.—Sheep.

Class 633.—Goats, alpaca, llama, camel.

Class 634.—Swine.

Class 635.—Poultry and birds.

Class 636.—Dogs and cats.

Class 637.—Wild animals.

Class 638.—Insects, useful and injurious. Honey bees, cochineal, silk-worms.
CLASSIFICATION.

MARINE ANIMALS, FISH CULTURE, AND APPARATUS.

Class 640.—Marine mammals.—Seals, cetaceans, etc., specimens living in aquaria, or stuffed, salted, preserved in alcohol, or otherwise.

Class 641.—Fishes, living or preserved.

Class 642.—Pickled fish, and parts of fish used for food.

Class 643.—Crustaceans, echinoderms, beche de mer.

Class 644.—Mollusks, oysters, clams, etc., used for food.

Class 645.—Shells, corals, and pearls.

Class 646.—Whalebone, shagreen, fish-glue, isinglass, sounds, fish-oil.

Class 647.—Instruments and apparatus of fishing.—Nets, baskets, hooks, and other apparatus used in catching fish.

Class 648.—Fish culture.—Aquaria, hatching pools, vessels for transporting roe and spawn, and other apparatus used in fish breeding, culture, or preservation.

ANIMAL AND VEGETABLE PRODUCTS.

(Used as food or as materials.)

Class 650.—Sponges, seaweed, and other growths used for food or in the arts.

Class 651.—The dairy.—Milk, cream, butter, cheese.

Class 652.—Hides, furs, and leather, tallow, oil, and lard, ivory, bone, horn, glue.

Class 653.—Eggs, feathers, down.

Class 654.—Honey and wax.

Class 655.—Animal perfumes; as musk, civet, ambergris.

Class 656.—Preserved meats, vegetables, and fruits. Dried, or in cans or jars. Meat and vegetable extracts.

Class 657.—Flour; crushed and ground cereals, decorticated grains.

Class 658.—Starch and similar products.

Class 659.—Sugar and syrups.

Class 660.—Wines, alcohol, and malt liquors.

Class 661.—Bread, biscuits, crackers, cakes, confectionery, cocoa, chocolate, etc.

Class 662.—Vegetable oils, oil cake.

TEXTILE SUBSTANCES OF VEGETABLE OR ANIMAL ORIGIN.

Class 665.—Cotton on the stem, in the boll, ginned, and baled.

Class 666.—Hemp, flax, jute, ramie, etc., in primitive forms and in all stages of preparation for spinning.

Class 667.—Wool in the fleece, carded, and in bales.

Class 668.—Silk in the cocoon and reeled.

Class 669.—Hair, bristles.

MACHINES, IMPLEMENTS, AND PROCESSES OF MANUFACTURE.


Class 671.—Planting.—Manual implements, corn-planters and hand-drills. Animal power machinery, grain and manure drills, corn and cotton planters. Steam power machinery, grain and manure drills.


Class 673.—Preparatory to marketing.—Thrashers, clover-hallers, corn-shellers, winnowers, hay, cotton, flax, jute, ramie, wine, oil, and sugar making apparatus. Cleaners and smutters. Horse powers.
CLASSIFICATION.

Class 674.—Applicable to farm economy.—Portable and stationary engines, chaffers, hay and feed cutters, slicers, pulpers, corn mills, farm boilers and steamers, incubators, edged tools, mills, meat choppers.

Class 675.—Dairy fittings and appliances.—Churns for hand and power, butter-workers, cans and pails, cheese-presses, vats, and apparatus, ice-cream freezers, cedar-ware.

AGRICULTURAL ENGINEERING AND ADMINISTRATION.

Class 680.—Laying out and improving farms.—Clearing (stump extractors), construction of roads, draining, irrigating, models of fences, gates, drains, out-falls, dams, embankments, irrigating machinery, stack building and thatching.

Class 681.—Commercial fertilizers, phosphatic, ammoniacal, calcareous, etc.

Class 682.—Transportation.—Wagons, carts, sleds, harness, yokes, traction engines, and apparatus for road making and excavating.

Class 683.—Farm buildings.—Models and drawings of farm houses and tenements, barns, stables, hop-houses, fruit-driers, ice-houses, windmills, granaries, barracks, apiaries, cocooneries, aviaries, abattoirs, and dairies.

TILLAGE AND GENERAL MANAGEMENT.

Class 690.—Systems of planting and cultivation.

Class 691.—Systems of draining and application of manures.

Class 692.—Systems of breeding and stock feeding, training.

Class 693.—Veterinary surgery and appliances.
CLASSIFICATION.

DEPARTMENT VII.—Horticulture.

ORNAMENTAL TREES, SHRUBS, AND FLOWERS.

CLASS 700.—Ornamental trees and shrubs, evergreens.
CLASS 701.—Herbaceous perennial plants.
CLASS 702.—Bulbous and tuberous rooted plants.
CLASS 703.—Decorative and ornamental foliage plants.
CLASS 704.—Annuals and other soft-wooded plants, to be exhibited in successive periods during the season.
CLASS 705.—Roses.
CLASS 706.—Cactacea.
CLASS 707.—Ferns, their management in the open air and in ferneries, wardian cases, etc.
CLASS 708.—New plants, with statement of their origin.
CLASS 709.—Floral designs, etc.—Cut flowers, bouquets, preserved flowers, leaves, seaweeds. Illustrations of plants and flowers.—Materials for floral designs. Bouquet materials, bouquet holders, bouquet papers, models of fruits, vegetables, and flowers.

HOTHOUSES, CONSERVATORIES, GRAPERIES, AND THEIR MANAGEMENT.

CLASS 710.—Hothouse and conservatory plants.
CLASS 711.—Fruit trees under glass.
CLASS 712.—Orchids and parasitic plants.
CLASS 713.—Forcing and propagation of plants.
CLASS 714.—Aquatic plants under glass, or in aquaria, etc.
CLASS 715.—Horticultural buildings, propagating houses, hotbeds, etc., and modes of heating them. Structures for propagating and forcing small fruits.
CLASS 716.—Portable or movable orchard houses and graperies, without artificial heat. Frames, beds.

GARDEN TOOLS, ACCESSORIES OF GARDENING.

CLASS 720.—Tools and implements.—Machines for the transplanting of trees, shrubs, etc. Portable forcing pumps, for watering plants in greenhouses and methods of watering the garden and lawn.
CLASS 721.—Receptacles for plants.—Flower pots, plant-boxes, tubs, fern cases, jardinières, etc. Window gardening. Plant and flower stands, ornate designs in iron, wood, and wire.
CLASS 722.—Ornamental wirework, viz.: fences, gates, trellis bordering of flower beds, porches. Park seats, chairs, garden statuary, vases, fountains, etc. Designations, labels, numbers.

GARDEN DESIGNING, CONSTRUCTION, AND MANAGEMENT.

CLASS 731.—Treatment of water for ornamental purposes, cascades, fountains, reservoirs, lakes.
CLASS 732.—Formation and after-treatment of lawns.
CLASS 733.—Garden construction, buildings, etc.—Rockwork, grottoes. Rustle constructions and adornments for private gardens and public grounds.
CLASS 734.—Planting, fertilizing, and cultivating.
INDEX TO ADVERTISEMENTS.

Anderson, D., & Son .......................................................... 147
American Newspaper Union ............................................. 66
“Aroma” Cigars .............................................................. 47
Barlow & Jones ............................................................... 144
Burke, Edward & John ...................................................... 145
Bartlett, W., & Sons ........................................................ 145
Bissell’s Hip & Norton Tweeds ........................................ 146
Brod, Wells & Co ............................................................. 147
Brook, Jonas, & Brother ................................................... 148
Bai ey & Co ................................................................. 51
Badele, Adamson & Co .................................................... 101
Clark, “O. N. T.” Spool Cotton ......................................... 132
Cantrill & Cochrane ....................................................... 149
Clark, John, Jr., & Co .................................................... 152
Conover, David F., & Co .................................................. 124
Dewhurst, John, & Sons .................................................. 153
Drown, W. A., & Co ....................................................... 122
Dobbins’ Electric Soap .................................................... 128
Ewart, William, & Son .................................................... 151
French, E. D. & W. A ..................................................... 132
French Restaurant .......................................................... 112
Hurnad & Champi ........................................................... 112
Greener, W. W ............................................................... 144
Great Combination Store ................................................ 100
Gloucester Iron Works .................................................... 100
Grubbs, Jos. C., & Co ..................................................... 101
Golds’ Household Soup .................................................. 144
Henry, A. C ................................................................. 144
Hambel, Jos ................................................................. 145
Hooper, Cleeve, Jr ........................................................ 145
Hurlbut, Seiringer .......................................................... 125
Horrings’ Safes ............................................................ 124
Horstman Brothers & Co ................................................ 124
Haseltine Galleries ....................................................... 47
Johnson, J., & Co ........................................................... 151
Kettle, S. P ................................................................. 132
Lewis, John T., & Bros .................................................... 100
McAllister, W. T., & Co ................................................... 47
Mintons’ Tires ............................................................... 125
Moreau & Hendley ........................................................ 125
McCallum, Crease, & Sloan ........................................... 133
McGee, John G., & Co .................................................. 145
Pitt & Brothers & Co ...................................................... 150
Presbyterian Banner ...................................................... 124
Pratt, E. C., Bro., & Co .................................................. 143
Presbyterian Life and Trust Co ...................................... 124
Penn Mutual Life Insurance Co ...................................... 47
Pennsylvania Railroad .................................................... 55
Pittsburgh Daily Evening Chronicle ................................ 112
Pittsburgh Commercial .................................................. 125
Radway’s, Dr. M’Nichol ................................................ 91
“Star” Alpaca Braids ..................................................... 321
Sun Newspaper ............................................................. 321
Scott, W. C., & Son ....................................................... 144
Smith, David, & Co ...................................................... 144
Tomlinson, A. S ........................................................... 320
Thornton, John, & Co ................................................... 133
United Presbyterian ....................................................... 133
Wattson, Thos., & Sons .................................................. 133
West Philadelphia Passenger Railway Company ........... 133
York Street Flax Spinning Co ......................................... 149
The Finest Cigar
(At six for 25 cents)
In the United States,
The "AROMA,"
From
The United States Cigar Manufactory,
Office, S. W. cor. Fifteenth and Vine Sts.,
Philadelphia.

MAGIC LANTERNS.
STEREO-PANOPTICOS, ARTOPHTCOS. 10000 SLIDES ALWAYS ON HAND.
ILLUSTRATING EVERY SECTION OF THE GLOBE, AND ALL THE ARTS AND
SCIENCES. THE ARTOPHTCOS IS THE BEST LANTERN, WITH A
BRILLIANT GASOLINE LAMPS, SUITABLE FOR HOME, SUNDAY SCHOOLS
AND LECTURES.
ILLUSTRATED CATALOGUES FREE.

TWENTY-EIGHTH ANNUAL REPORT
OF
THE PENN MUTUAL LIFE INSURANCE CO.
OFFICE, 921 CHESTNUT STREET, PHILADELPHIA.

ASSETS, JAN. 1st, 1876.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States bonds, Philadelphia and other</td>
<td>$1,770,477 50</td>
</tr>
<tr>
<td>stocks and loans,</td>
<td></td>
</tr>
<tr>
<td>Mortgages and ground rents upon property</td>
<td>1,974,798 84</td>
</tr>
<tr>
<td>appraised at $2,314,000, all first liens.</td>
<td>349,266 55</td>
</tr>
<tr>
<td>Real estate owned by Co.</td>
<td>853,840 13</td>
</tr>
<tr>
<td>Premium notes and loans secured by collateral,</td>
<td>101,016 62</td>
</tr>
<tr>
<td>Cash on hand and in trust companies,</td>
<td>114,030 63</td>
</tr>
<tr>
<td>Scrip-dividends held by Co.</td>
<td>17,953 48</td>
</tr>
<tr>
<td>Balance in hand of agents</td>
<td>236,496 14</td>
</tr>
<tr>
<td>All other securities</td>
<td>$5,904,339 24</td>
</tr>
</tbody>
</table>

LIABILITIES.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Losses reported, but not yet due,</td>
<td>$90,000 00</td>
</tr>
<tr>
<td>Reserve at 4 per cent interest, required to</td>
<td></td>
</tr>
<tr>
<td>insure outstanding risks,</td>
<td>4,553,118 00</td>
</tr>
<tr>
<td>Scrip yet outstanding,</td>
<td></td>
</tr>
<tr>
<td>Surplus to policy holders, 4 per cent basis,</td>
<td>4,756,438 00</td>
</tr>
<tr>
<td>Surplus to policy holders, 4 1/2 per cent basis.</td>
<td>747,891 24</td>
</tr>
<tr>
<td>Total number of policies issued in 1875,</td>
<td></td>
</tr>
<tr>
<td>Policies in force Jan. 1, 1876,</td>
<td></td>
</tr>
<tr>
<td>Amount at risk</td>
<td></td>
</tr>
</tbody>
</table>

SAMUEL C. HUEY, President,
H. S. STEPHENS, Second Vice-President.
HENRY AUSTIE, Secretary.

SAMUEL E. STOKES, Vice-President.
JAMES WEIR MASON, Actuary.

HASELTINE GALLERIES,
1125 and 1127 Chestnut St., Philadelphia.
### UNITED STATES.

#### DEPT. I.—MINING AND METALLURGY.

**UNITED STATES.**

**Minerals, Ores.**

**1 Cambria Iron & Steel Co., Johnstown, Pa.**—W 66.  
*a* Carbonate, fossil, and hematite ores from Johnstown, Frankstown, Marklesburg, Yellow Creek, Henrietta, and Springfield mines; specular, magnetic, red hematite, Lake Superior, and Lake Champlain ores; manganiferous Iron Mountain ores.  
*b* B, C, D, and E coal from Johnstown and Pottsville mines; Belgian oven and bit coke.  
*c* Lime and ganister from near Hollidaysburg, Henrietta, and Ganister mines.

**2 Wharton, Joseph, Camden, N. J.—Nickel ores.** T 63.

**3 Sharswood, Wm., Philadelphia, Pa.—**Iron ore, T 70.  
*a* Magnetic iron ore from the Moratic Furnace mines, Danbury, N. C.; ores and minerals from North Carolina.  
*b* Coal from North Carolina.  
*c* Marble from North Carolina.  
*d* Steatite, agalmatolite, etc., from North Carolina.

**4 Hatch, Joh.: San Francisco, Cal.—Minerals of the Pacific states and territories, Mexico, Central and South America, China, Japan, etc.** T 67.

**5 Barton, Chas., Philadelphia, Pa.—Ores from "Blazing Star" silver mine, Colorado.** T 71.

**6 Adams, J. Howe, Philadelphia, Pa.—**Ore from "Blue Jacket" silver mine, Montana district, Colorado. T 71.

**7 Benton, Caroline C., Philadelphia, Pa.—Iron ores from St. Lawrence and Lewis counties, N. Y.** T 67.

**8 Foote, A. E., M. D., 3725 Lancaster avenue, Philadelphia, Pa.—Collection of minerals; elementary collection of minerals for students illustrating principal species; all grand divisions in Dana; every chemical element; every system of crystallization; trimorphism, 100 specimens, averaging four square inches, mostly crystallized, printed label of species, composition, locality attached—$10.00; crystallized amazon stone, feldspar, quartz, beryl, rutile rosettes, perovskite, hydrozotetane (new mineral, Krenzii), schorlomite, sapphire, tellurides, copper, hexagonal graphite, embolite, aegerite, ozarkite, chlorastrolite, wavelite, peganeite, etc.** T 71.

**9 Cleveland Rolling Mill Co., Cleveland, Ohio.—Ores.** T 60.

**10 Wyoming Historical & Geological Society, Wilkesbarre, Pa.—Fossils from the anthracite coal measures of Wyoming Valley, Pa.** T 70.

**11 Cook, Isaac, St. Louis, Mo.—Lead ores from Washington county, Mo.** T 68.


**14 Withberes, Sherman, & Co., Port Henry, Essex County, N. Y.—Old bed puddling and furnace ore, and new bed Bessemer ore.** T 71.

**15 Black Band Iron Co., Marietta, O.—Black band, red hematite, and other iron ores.** V 63.


**18 Providence Franklin Society, Providence, R. I.—Minerals and geological specimens of Rhode Island.** T 70.

**19 Lombard, Thos. C., New York, N. Y.—Galena from Tudor mine, Hasting county, Ont.** T 71.

**20 Hussey & Howe Mining Co., Plattsburg, N. Y.—Blue magnetic iron ore (marlrite); black magnetic iron ore.** T 69.

**21 Alexander, John S., Philadelphia, Pa.—Collection of minerals.** P 68.

**22 Passaic Zinc Co., Passaic, N. J.—Zinc ores.** T 65.

**23 Magnetite Iron Co., Philadelphia, Pa.—Bessemer ores; minerals from Carter county, Tenn.** T 69.

**24 Crab Orchard Iron Co., Philadelphia, Pa.—Magnetic Bessemer iron ores from Crab Orchard, Tenn.** T 69.

**25 Herr, Jos. C., Philadelphia, Pa.—Hematite iron ores, manganese, and baryta from French Broad River, Cocke county, Tenn.** T 69.

**26 Davis, O. W., jr., Bangor, Maine.—Katahdin ores (limonite).** T 69.

**26a Fleming, F. N. & J. S., Gloochoal C. H., Va.—**T 68.  
*a* Minerals, especially gold ores.  
*b* Mineral waters.

**27 Thomas Iron Co., Hokendaqua, Pa.—Iron ore.** T 64.

**28 Lehigh Zinc Co., Bethlehem, Pa.—Zinc ores and minerals from zinc mines.** T 64.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
<thead>
<tr>
<th>Minerals, Ores.</th>
</tr>
</thead>
<tbody>
<tr>
<td>29 Virginia Mineral Bureau, Alexandria, Va.—Collection of minerals of Virginia and West Virginia.</td>
</tr>
<tr>
<td>32 Minong Mining Co., Detroit, Mich.—Native copper, etc.</td>
</tr>
<tr>
<td>33 Shafter, R. M., Carrick Furnace, Franklin county, Pa.—Iron ore.</td>
</tr>
<tr>
<td>36 Semiahmoo coal coke.</td>
</tr>
<tr>
<td>37 South &amp; North Alabama Railroad, Montgomery, Ala.—V 66 and T 57.</td>
</tr>
<tr>
<td>41 Kentucky Geological Survey.—Collection illustrating the geology and mineral resources of Kentucky.</td>
</tr>
<tr>
<td>42 Allen, Oliver, Mumford, N. Y.—Petritied wood, leaves, ferns, etc., found on boulder breccias.</td>
</tr>
<tr>
<td>43 Vesuvius Furnace, Etna Iron Works, Ironton, Ohio.—Iron ore.</td>
</tr>
<tr>
<td>44 Etna Furnace, Etna Iron Co., Hanging Rock, Ohio.—Iron ore.</td>
</tr>
<tr>
<td>45 Blanche Furnace, Etna Iron Works, Ironton, Ohio.—Iron ore.</td>
</tr>
<tr>
<td>46 Hecla Iron &amp; Mining Co., John Campbell, President, Ironton, O.—Iron ore.</td>
</tr>
<tr>
<td>47 Monitor Furnace Co., Ironton, O.—Iron ores.</td>
</tr>
<tr>
<td>48 Grant Furnace, W. D. Kelley &amp; Sons, Ironton, O.—Iron ores.</td>
</tr>
<tr>
<td>49 Center Furnace, W. D. Kelley &amp; Sons, Ironton, O.—Iron ore.</td>
</tr>
<tr>
<td>50 Howard Furnace, Charcoal Iron Co., Ironton, O.—Iron ores.</td>
</tr>
<tr>
<td>50a Benton, Lewis F., Antwerp, N. Y.—Lead ore.</td>
</tr>
<tr>
<td>51 Buckhora Furnace, Charcoal Iron Co., Ironton, O.—Iron ores.</td>
</tr>
<tr>
<td>52 Olive Furnace, Campbell, McGugin, O.—Iron ore.</td>
</tr>
<tr>
<td>53 Lawrence Furnace Co., Ironton, O.—Iron ore.</td>
</tr>
<tr>
<td>53a Ward, L. B., Niles, O.—V 61 to 63.</td>
</tr>
<tr>
<td>54 Coal.</td>
</tr>
<tr>
<td>58a Chaffin, Staples, &amp; Co., Richmond, Va.—Ores.</td>
</tr>
<tr>
<td>64 Orange Furnace, Orange Iron Co., Jackson, O.—Iron ores.</td>
</tr>
<tr>
<td>68b Coal.</td>
</tr>
<tr>
<td>69 Coal and slag.</td>
</tr>
<tr>
<td>70a Hannibal &amp; St. Joseph Railroad, Hannibal, Mo.—Minerals, etc. from the line of the road.</td>
</tr>
<tr>
<td>70b St. Louis &amp; Iron Mountain Railroad, St. Louis, Mo.—Minerals, etc. from the line of the road.</td>
</tr>
</tbody>
</table>

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Minerals, Ores, Stone.

76. a Marietta, Pittsburg, & Cleveland Railway, Marietta, O.—Minerals and ores. V 63. 100
76. b Union Furnace, Bancroft, Readers & Co., Vienna Station, O.—Iron ores. 100
78. Monroe Furnace, Union Iron Co., Portsmouth, O.—Iron ores. T 68. 100
79. Latrobe Furnace, Bundy & Cobb, Berlin Cross Roads, O.—Iron ores. T 68. 100
80. a Barnes, Lewis, Philadelphia, Pa.—Manganiferous iron ore, from Warren county, N. J. T 59. 100
80. b Logan Furnace Co., Logan county, O.—Iron ores. T 68. 100
81. Union Furnace, Brooks & Hueston, Haydenville, O.—Iron ores. T 68. 100
82. Mount Savage Furnace, Lexington & Carter county Mining & Manufacturing Co., Leavenworth, Ky.—Iron ores. T 68. 100
83. Buffalo Furnace, Culbertson, Earhart, & Co., Greensburg, Ky.—Iron ores. T 68. 100
84. Hennelwell Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Iron ores. T 68. 100
85. Pennsylvania Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Iron ores. T 68. 100
86. Charlotte Furnace Co., Riverton, Ky.—Iron ores. T 68. 100
88a. Iowa, State of.—Minerals, ores, etc. of Iowa. V 57. 100
89. Racoon Furnace, Racoon Mining & Manufacturing Co., Riverton, Ky.—Iron ores. T 68. 100
90. Tygett's Valley Mining Co., Riverton, Ky.—Section of iron ore. T 68. 100
91. Chester Iron Co., Chester, N. J.—Iron ore. T 64. 100
91. a Bellefonte Furnace, Means, Russell, & Means, Ashland, Ky.—Iron ores. T 68. 100
92. Buena Vista Furnace, Means & Co., Ashland, Ky.—Iron ores. T 68. 100
93. Trigg Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Iron ores. T 68. 100
93a. a Lowe, S. B., Chattanooga, Tenn.—Ores. X 63. 100
94. Center Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Iron ores. T 68. 100
95. Hanging Rock Iron Region, Iron ton, O.—Iron ores. T 68. 100
96. Traber & Aubery, Cincinnati, O.—Iron ores from twenty-five states and territories. T 68. 100

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

98. Borden, William W., New Providence, Ind.—Fossils of Clark county, Ind., and stone. X 60. 100
   a Iron ores. 100
   b Fuels. 100
100. Ohio Coal Co., Marietta, O.—V 63.
    a Coal. 100
    b Coke. 100
    a Lake Superior iron ores. 100
    b Massillon, Ohio, coals. 100
    a Iron ores, etc., from Anderson county, Tenn. 100
    b Coal from Anderson county, Tenn. 104
103. Durham Iron Co., Riegelsville, Pa.—T 64.
    a Ores. 100
    b Fuel. 100
104. Glendon Iron Co., Easton, Pa.—T 64.
    a Iron ores. 100
    b Fuel. 100
105. Mahoning Valley Centennial Association, Youngstown, O.—V 63.
    a Ores. 100
    b Coal. 101
    c Limestone. 103
106. Bye, E. Mortimer, Wilmington, Del.
    a Iron ore. (Titaniferous magnetic.) Chrome ore. (Rock and sand.) 100
    b Maryland "verde antique" marble (serpentine), various shades of green, handsomely blended; takes a brilliant polish, does not fade or weather, and is adapted for all kinds of ornamental work. T 70.
107. Northampton Furnace, worked by the Bethlehem Iron Co., Bethlehem, Pa.—T 64.
    a Iron ores. 100
    b Fuel. 100
108. Lehigh Iron Co., Allentown, Pa.—T 64.
    a Iron ore. 100
    b Coal. 100
    a Iron ore. 100
    b Fuel. 100
111. Allentown Rolling Mill Co., Allentown, Pa.—T 64.
    a Ores. 100
    b Fuel. 100
112. Carbon Iron Co., Parryville, Pa.—T 64.
    a Iron ore. 100
    b Fuel. 100
    a Iron ores. 100
    b Coals for smelting and steam purposes. 100
114. Grand Tower Mining, Manufacturing, and Transportation Co., Grand Tower, Ill.—T 68.
    a Ores. 100
    b Fuel. 100
115 Ironton Furnace Iron & Steel Co., Ironont, O.—T. 68.  
   a Iron ores. 
   b Bituminous coal.  

   a Iron ores.  
   b Bituminous coals.  

117 Ophir Furnace Co., Jackson, O.—T. 68.  
   a Iron ores.  
   b Jackson county stone coal.  

118 Norton Iron Works, Ashland, Ky.—T. 68.  
   a Iron ores.  
   b Coals and coke.  

119 Ashland Furnace, Lexington & Big Sandy Railroad Co., Ashland, Ky.—T. 68.  
   a Iron ores.  
   b Coals.  

120 Powell, Robert Hare, & Co., 424 Walnut street, Philadelphia, Pa.—X 54.  
   a Iron ores.  
   b Semi-bituminous and gas coals, from the Powellton estate, Pennsylvania.  

121 Union Iron Co. of Buffalo, Buffalo, N. Y.—T 64 and V 60 outside.  
   a Iron ores.  
   b Limestone.  

122 Woodstock Iron Co., Anniston, Ala.—T. 63.  
   a Iron and manganese ores.  
   b Limestone.  

123 Saucon Iron Co., Hellertown, Pa.—T. 64.  
   a Hematite and magnetic ore.  
   b Limestone.  

123a Seima, Rome, & Dalton Railroad (by S. W. Baird), Cincinnati, O.—X 54.  
   a Copper and iron ores.  
   b Coal.  
   c State, marble, and limestone.  
   d Fire clay.  

124 Andrews, Hitchcock, & Co., Cleveland, O.—V 61 to 64.  
   a Lake Superior iron ores.  
   b Brier Hill coal.  
   c Limestone.  

125 Duncan, John W., Philadelphia, Pa.—T. 72.  
   a Iron ores.  
   b Clays.  

   a Iron ore.  
   b Graphite ore.  

127 Thomas, W. H. B., Mount Holly, N. J.—T. 68.  
   a Minerals.  
   b Marls for fertilizing purposes; mineral waters from New Jersey.  

   a Magnetic and hematite iron ores.  
   b Anthracite coal.  

   a Minerals, ores.  
   b Mineral spring waters, chalkybeite, and sulphur waters.  

128a Andover Iron Co., Phillipsburg, N. J.—T. 64.  
   a Iron ores.  
   b Coal.  
   c Limestone and slags.  

129 Crane Iron Co., Catasauqua, Pa.—T. 64.  
   a Hematite and magnetic iron ores.  
   b Fuel.  
   c Limestone.  

130 Chattanooga, Mineral District, Chattanooga, Tenn.—X 63.  
   a Iron and copper ores; gold quartz.  
   b Coal.  
   c Marble.  

131 Lehigh Valley Iron Co., Copley, Pa.—T. 64.  
   a Hematite and magnetic ore.  
   b Fuel.  
   c Limestone.  

132 Olton Coal Co., Youngstown, O.—V 63.  
   a Black band ore mixed with coal.  
   b Mineral ridge coal.  

   a Ores.  
   b Coal.  

133 Alice Furnace, Etna Iron Works, Hanging Rock, Ohio.—T. 63.  
   a Iron ores.  
   b Bituminous coal and coke.  
   c Limestone.  

133a Coleraine Iron Co., Northampton county, Pa.—T. 64.  
   a Iron ore.  
   b Coal.  

134 Hanging Rock Iron Region Furnaces, Charles Campbell, Commissioner, Ironont, O.—T. 69.  
   a Iron ores.  
   b Cinders, bituminous coals.  
   c Limestone.  
   d Fire clay.  

135 Tuscarawas Coal & Iron Co., Cleveland, O.—T. 71.  
   a Iron ores.  
   b Coal.  
   c Limestone.  
   d Sand, fire clay.  

136 Mount Vernon Furnace, Hiram Campbell & Sons, Ironont, O.—T. 68.  
   a Iron ores.  
   b Bituminous coals.  
   c Limestone.  
   d Fire clay.  

137 Milton Furnace & Coal Co., Wellsion, O.—T. 68.  
   a Iron ores.  
   b Coals.  
   c Limestone.  
   d Fire clay.  

   a Iron ores.  
   b Coal.  
   c Limestones.  
   d Fire clays.  

139 State of Wisconsin.—V 60.  
   a Minerals, soils, etc.  
   b Building stone.  
   c Sands, gravel.  

140 State of Ohio (by F. W. Green).—V 61 to 65.  
   a Minerals, ores.  
   b Stone.  
   c Clay, etc.  

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
<table>
<thead>
<tr>
<th>Numbers</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>141</td>
<td>State of New Jersey (by Geo. H. Cook, State Geologist, New Brunswick, N. J.).—T 70. a Limestone, sand, and gravel; minerals, geological suite. 100 b Building stones. 102 c Sands and clays. 104 d Fertilizers. 107</td>
</tr>
<tr>
<td>142</td>
<td>State of Indiana (by E. T. Cox, State Geologist).—V 58. a Hydrated brown oxide iron ores. 100 b Bituminous and cavel coal from various mines. 101 c Marble of various colors, calcite building stone, limestone, sandstone, limestones, flags, hydraulic stone. 102 d Hydraulic cement, castica lime. 103 e Fire, white porcelain, and potsers' clay; sand. 104</td>
</tr>
<tr>
<td>143</td>
<td>State of Michigan (Jay A. Hubbell, Huntington, Mich., Superintendent of Mineral Department).—V 67. a Minerals, ores, geological collections, etc. 100 b Luminous and cavel coal. 101 c Clays, sand, and polished building stone, marbles, and slates. 102 d Lime and cement. 103 e Clays and silex for glass manufacturers; sandstone, etc. 104 f Mineral waters, natural brines, gyspum, marls, etc. 107</td>
</tr>
<tr>
<td>144</td>
<td>State of Delaware (by J. P. Comegys, Dover, Del.).—V 55. a Iron ore. 100 b Building stone. 102 c Clays. 104 d Natural woods. 600 e Fruits. 610 f Cereals. 620 g Peas, beans, potatoes, turnips. 621</td>
</tr>
<tr>
<td>145</td>
<td>State of Missouri (collective exhibit, by Thos. Allen, President State Board Centennial Managers, St. Louis, Mo.).—V 65 and T 60. a Iron, lead, zinc, copper, and nickel ores, barytes, feldspar, and soils. 10 b Coal. 101 c Stone. 102 d Clays, sand, ochres, and kaolin. 104 e Tripoli. 106 f Petroleum. 605 g Wheat, rye, oats, barley, and corn. 620 h White beans and black-eyed peas. 621 i Millet. 624 j Cotton. 665 k Flax and hemp. 666 l Wool. 667 m Silk. 668</td>
</tr>
<tr>
<td>147</td>
<td>Foster Coal Co., Youngstown, O.—Coal. V 63. 101</td>
</tr>
<tr>
<td>148</td>
<td>Kittanning Coal Co., 125 South Fifth street, Philadelphia, Pa.—Cleanfield bituminous coal, for steam and manufacturing purposes. V 56 and T 72. 101</td>
</tr>
<tr>
<td>149</td>
<td>Westmoreland Coal Co., 230 South Third street, Philadelphia, Pa.—Bituminous coal from the Pittsburg seam, for manufacture gas and iron, and for locomotive fuel. V 56. 101</td>
</tr>
<tr>
<td>150</td>
<td>Warwick, John G., Massillon, O.—Coal from Warminster mines. V 63. 101</td>
</tr>
<tr>
<td>151</td>
<td>Penn Gas Coal Co., Westmoreland county, Pa.—Section of bituminous coal vein. T 72 and V 56. 101</td>
</tr>
<tr>
<td>152</td>
<td>Sparks, T. &amp; Westwater, &amp; Co., Columbus, O.—Coal from Muskingum county. V 63. 101</td>
</tr>
<tr>
<td>154</td>
<td>Kyle Coal Co., Youngstown, O.—Coal. V 63. 101</td>
</tr>
<tr>
<td>155</td>
<td>Linderman, G. B., Bethlehem, Pa.—Anthracite coal. T 64. 101</td>
</tr>
<tr>
<td>156</td>
<td>Newton, Jotham, New York, N. Y.—Composition fuel made of coal dust. T 57. 101</td>
</tr>
<tr>
<td>157</td>
<td>Union Mining Co., of Allegheny county, Md.—Coal. X 58. 101</td>
</tr>
<tr>
<td>158</td>
<td>Stoner, Hatchman, &amp; Co., Mt. Pleasant, Pa.—Coal and coke. X 57. 100</td>
</tr>
<tr>
<td>159</td>
<td>Anthracite Fuel Co., Rondout, N. Y.—Pressed anthracite coal. Y 54. 101</td>
</tr>
<tr>
<td>161</td>
<td>Hickory Coal Co., Pottsville, Pa.—Samples of coal. W 55. 101</td>
</tr>
<tr>
<td>162</td>
<td>Harleigh Coal Co., Philadelphia, Pa.—Samples of coal. W 55. 101</td>
</tr>
<tr>
<td>163</td>
<td>Lawton, Burnett, &amp; Co., East Palestine, Ohio.—Bituminous coal, from Columbiana county, O. V 61 to 63. 101</td>
</tr>
<tr>
<td>164</td>
<td>Draper, John W., Pottsville, Pa.—Anthracite coal. W 56. 101</td>
</tr>
<tr>
<td>165</td>
<td>Excelsior Coal Mining Co., Philadelphia, Pa.—Samples of coal. W 55 to 57. 101</td>
</tr>
<tr>
<td>166</td>
<td>Garretson, Theodore, Philadelphia, Pa.—Coal from the Girard colliery. W 55. 101</td>
</tr>
<tr>
<td>167</td>
<td>Wadsworth Coal Co., Akron, O.—Coal from Medina county, O. V 63. 101</td>
</tr>
<tr>
<td>168</td>
<td>Blauvelt, Jas. C., Marietta, O.—Bituminous coal from Marietta Run, Ohio. V 61 to 64. 101</td>
</tr>
<tr>
<td>169</td>
<td>Hurd Coal &amp; Iron Co., Columbus, O.—Bituminous coal from Perry county, O. V 63. 101</td>
</tr>
<tr>
<td>170</td>
<td>Lexington &amp; Carter county Mining &amp; Manufacturing Co., Lexington, Ky.—Section of bituminous coal. T 65. 101</td>
</tr>
<tr>
<td>171</td>
<td>Church Hill Coal Co., Youngstown, O.—Coal from Briar Hill. V 63. 101</td>
</tr>
<tr>
<td>172</td>
<td>Burton, J. F., Massillon, O.—Coal. V 63. 101</td>
</tr>
<tr>
<td>173</td>
<td>Andrews &amp; Hitchcock, Youngstown, O.—Briar Hill block coal. V 61 to 63. 101</td>
</tr>
<tr>
<td>174</td>
<td>Huddell &amp; Seitzinger, Philadelphia, Pa.—Anthracite coal from Draper's colliery. W 58. X 60. 101</td>
</tr>
<tr>
<td>175</td>
<td>Keyes, John, Brockwayville, Pa.—Lump of bituminous coal. Y 56. 101</td>
</tr>
<tr>
<td>176</td>
<td>Suydam, M. A. &amp; Co., Columbus, O.—Coal from Strasville Mining Company. V 63. 101</td>
</tr>
<tr>
<td>177</td>
<td>Eastern Kentucky Railway, River- ton, Ky.—Sections of cavel and bitumi- nous coal. Y 68. 101</td>
</tr>
<tr>
<td>178</td>
<td>Hayden, P., Columbus, O.—Coal from Hobson mining. V 63. 101</td>
</tr>
<tr>
<td>179</td>
<td>Steubenville Coal Company, Steub- benville, O.—Bituminous coal. V 63. 101</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Coal, Stone.

165- Pomeroy Coal Company, Pomeroy, O.—Coal. V 63. 102
165 Brooks, W. B., & Son, Hocking county, O.—Coal. V 63. 102
166 Newkirk Coal Company, Newton, O.—Coal. V 63. 102
166 Dysart & Co., Philadelphia, Pa.—Bituminous white ash coal from Carriau county, Pa. V 57. 102
166a Franklin Coal Company, Akron, O.—Coal from Summit county, V 63. 102
167 Gritch, E. A., Columbus, O.—Coal from Athens county, V 63. 102
167 Howells, Anthony, Massillon, O.—Coal from Pigeon Run, V 63. 102
168 Williams Marble & Slate Mantel Co., Philadelphia, Pa.—Marble and marbled slate mantels, etc. T 48. 102
169 Wilson & Miller, Philadelphia, Pa.—Marbleized slate mantels, etc.; plain slate work. T 51. 102
171 Hayes, Coulter, & Co., Philadelphia, Pa.—Slate mantels with grates. T 59. 102
172 Dougherty, E. D., Philadelphia, Pa.—Rock of Dougherty marble of Tennessee, rough and polished; pedestals, slabs, etc. The Dougherty marble is used in the U. S. Capitol, Treasury, South Carolina State House, and over one hundred and fifty other buildings, public and private, in all parts of the country. Operated since 1853. Quarry in Doughertyville, Hawkins county, Tenn. T 49. 102
172 Peninsula Stone Co., Peninsula, O.—Building stone. V 63. 102
173 Columbian Marble Co., Rutland, Vt.—Marble wainscoting, pedestal, tiling, etc. T 54. 102
174 Van Guden, Young, & Drumm, Philadelphia, Pa.—Vermont marble tables and rustic monument; Italian marble. T 47. 102
175 Innis, G. S., Warden of Ohio Penitentiary, Columbus, O.—Limestone from State quarries at Columbus, O. V 61 to 64. 102
175a Field, F. F., Philadelphia, Pa.—North River, Pennsylvania, and Virginia blue stone. T 53. 102
175b Gurney, H. D., St. Paul, Minn.—Minnesota granite—red, white, and blue. T 59. 102
177 Forest City Stone Co., Cleveland, O.—Sawed stone flagging. T 54. 102
178 Chase, M. K., Bluehill, Maine.—Cut granite pedestal. (Note.) 102
179 Martin, H. F., Allentown, Pa.—Slate mantels and blackboards, school slates, etc. T 51. 102
180 Chandler, C. H., Brownsville, Maine.—Roofing slate. T 51. 102
181 Alien, James T., & Co., Philadelphia, Pa.—Seagliola and Marezzo marble for interior decoration. T 54. 102
182 Fauchere, A. L., & Co., New York, N. Y.—Marble mantels, etc. T 50. 102
183 Williams, Chas., St. Louis, Mo.—Tennessee, Italian, and Missouri marble work; jewel boxes. V 53. 102
183 Parker, H., & Bro., Philadelphia, Pa.—Institut of Massachusetts granite. (Note.) 102
184 Denton, Drake W., Office, 17 North Front street, Philadelphia, Pa.—Excelsior fire and water-proof slate roofing, and flux, waste-composition base. All orders promptly attended to. T 56. 102
185 Tillson, Davis, Rockland, Maine.—Plain, polished, and ornamental granite work. T 51. 102
186 Finigan, M., Cincinnati, Ohio.—Jura Vista stone. V 61 to 62. 102
186 Fish, W., & Co., Columbus, O.—Stone from Portsmouth and Blacklick, Ohio. W 63. 102
186a Finch, Pruyn, & Co., Glen Falls, N. Y.—Block of marble. T 51. 102
186 Maine Slate Co., Skowhegan, Maine.—Roofing slate, dark, rich, finest-quality, cutting color, unequalled elasticity, toughness, and strength, wonderful rift and smoothness of surface. T. H. Dimmott, Business Manager, T 53. 102
187 Chapman Slate Co., Bethlehem, Pa.—Roofing slate, flagging, stairways, pediments, doors, window sills, mantels. T 64. 102
188 Lehigh Slate Co., Slatonico, Pa.—Roofing and school slate, mantels, blackboards, bath tubs; bureau, table, and washstand tops. T 64. 102
188a Hinsdale, Doyle, & Co., New York, marble monuments. T 72. 102
188b Fisher & Bird, New York, N. Y.—Marble mantels. T 50. 102
188c Howell, C. M., Lancaster, Pa.—Marble monuments. V 63. 102
189 Allentown Slate Mantel Co., Allentown, Pa.—Slate mantels. T 51. 102
189a Hinton, David, Xenia, O.—Building stone. V 61 to 64. 102
189b Caguiras, Frank, Chicago, Ill.—Antique vase of limestone. T 53. 102
190 Carpenter & Raymond, Cambridge City, Ind.—Monumental work. T 71. 102
191 McDonald, Alexander, Cambridge, Mass.—The Centennial Cascade, a rustic rockwork surmounted by a cross (granite from Glen quarries, Mason, N. H.), carved at Cambridge, Mass., exhibiting fine quality of this granite and its capabilities for carved and polished work. N 56 and T 67. 102
191a Bosler, Marcus, Dayton, O.—Limestone. V 61 to 63. 102
191b Ballard & Galloway, Finley, O.—Limestone. V 61 to 63. 102
192 Bodwell Granite Co., Rockland, Maine.—Granite samples. T 72. 102
193 Brinton, Joseph H., Thornbury P. O., Pa.—Serpentine stone from quarries in Chester county, Pa. T 55. 102
194 Scorgie, Wight, & Co., Cambridge, Mass.—Polished granite fountain. U

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Stone.

195 Struthers, W., & Sons, Philadelphia, Pa.—Mantels, font, group of birds in Caen stone; alto-relief in statuary, marble, sandstone, font, specimens of foreign marbles and native plaster: models for public buildings; specimens of native granite, marble, and sandstones. T 25. 102


197 Brown, E. F., Commandant Soldiers' Home, Dayton, O.—Stone from quarries on grounds of National Soldiers' Home. V 61 to 63. 102

197 a Barker, Henry, & Sons, Quincy, Mass.—Quincy granite pedestal. (Nave.) 102

198 Rutland Marble Co., West Rutland, Vt.—Wrought and unwrought marble. T 59. 102

199 Maine Red Granite Co., Red Beach, Maine. (G. G. McCluskey, superintendent.)—Specimen block of red granite from top sheet of quarry. T 55. 102

199 a Graves Brothers, Birmingham, O.—V 63.

a Building stone. 102
b Grindstones. 106

200 Columbia Slate Co., Slattington, Pa.—Manufactured Wisconsin vein roofing slate. T 54. 102

201 Martin, F. O., St. George, Maine.—Block of dressed granite. T 64. 102

202 Wells, Chas. R., Marietta, Ohio.—Sandstone for building purposes. T 64. 102

203 St. Johnsbury Granite Co., St. Johnsbury, Vt.—Granite monument and tablet. T 56. 102

204 Merrille, Adams H., Williamsburgh, Maine.—Rooftop slate. T 53. 102

207 Clemens, C. H., Sandusky, Ohio.—Limestone. V 61 to 63. 102

208 Concord Granite Co., Quincy, Mass.—Granite pedestal. N 48. 102

209 Sheldons & Slason, West Rutland, Vt.—Pedestal of statuary and blue mottled marble. V 54. 102

210 Davis, I. J., Newark, O.—White and red sandstone. V 61 to 63. 102

211 McNally, William G., Cleveland, O.—Coat-of-arms of Ohio, carved from Berea stone. (Ohio State Building.) 102

211 a Portland Brown Stone Quarries, Portland, Conn.—Steep doors and doorways of Connecticut brown stone. (Outside.) 102

211 b King, T. H., Trumansburg, N. Y.—Flag stones. (Outside.) 102

211 c Stotler, D. C., Piqua, O.—Building limestone. V 61 to 64. 102

211 d Strom & De Plante, New York, N. Y.—Marble table top and mantelpiece. T 51. 102

211 e Lase, Lewis, Covington, O.—V 61 to 64.

a Building limestone. 102
b Lime. 103

c North Pittsford Marble Company, Pittsford, Vt.—Marble monuments, pedestal, and design case. T 56. 102


211 f Myers, Uhl & Co., Cleveland, O.—Marble mantel and grate. (Ohio State Building.) 102

212 Thompson, Wm. S., Springfield, Ohio.—V 63.

a Stone. 102
b Lime. 103

c Traber, Jacob, Cincinnati, O.—Limestone. V 61 to 64. 102

d Mueller, John M., Cincinnati, O.—Buena Vista stone. V 63 to 64. 102

e Richey, Morris S., Waverly, O.—Building stone. V 63 to 64. 102

212 f Singer & Talcott Stone Company, Chicago, Ill.—Illinois limestone dressed by machinery. (At spring S. E. of Horticultural Hall.) 102

212 St. Johnsbury Granite Company, St. Johnsbury, Vt.—Granite monument and tablet. T 57. 102

212 f Richmond Marble Company, of Vermont, Philadelphia, Pa.—White marble. T 57. 102

213 Amherst Stone Co., Cleveland, O.—V 63.

a Blocks of sandstone. 102
b Grindstones. 106


a Sandstone. 102
b Grindstones. 106

c Berea Stone Company, Berea, O.—V 63.

a Building stone and flagging. 102
b Grindstones, and soapstone. 106


a Building stone. 102
b Limestone. 103

216 Worthington & Sons, North Amherst, Ohio.—T 56 and V 63.

a Amherst building stone. 102
b Grindstones, etc., from quarries at Amherst and Lake Huron, Mich. 106

c Burlington Manufacturing Co., Burlington, Vt.—Marble tiling. T 56. 102

d Williams, R. L., Middle Granville, N. Y.—T 51.

a Vermont and New York roofing slate. 102
b Car coupler. 576

COLLECTIVE EXHIBIT OF BUILDING STONES USED IN THE OHIO STATE BUILDING. 102

218 Hoffman, A. O., Thompson, Wm., and others, Springfield, O.

219 Berea Stone Co., Berea, O.

220 Hurst, I. R., Cleveland, O.

221 Ford, O. D., Cleveland, O.

222 Halderman, L., & Son, Cleveland, O.

223 Wagner, John, Cleveland, O.

224 Amherst Stone Co., Cleveland, O.

225 Black River Stone Co., Cleveland, O.

226 Paul, John, & Co., Massillon, O.

227 Wilson & Hughes Stone Co., Cleveland, O.

228 Clough Stone Co., Amherst, O.

229 Worthington & Sons, Amherst, O.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
230 Ohio Stone Co., Cleveland, O.
231 McDermott, J., & Co., Cleveland, O.
232 Coshocton Stone Co., Coshocton, O.
233 Stitt, Price, & Co., Columbus, O.
234 Finnegan, M., Cincinnati, O.
235 Finnegan, J. H., Cincinnati, O.
236 Montgomery, R. M., Youngstown, O.
237 Caldwell & Tod, Youngstown, O.
238 Byers & Mellchayn, Youngstown, O.
239 Mauser & Haid, Youngstown, O.
240 Hamilton, Homer, Youngstown, O.
241 Warthorst & Co., Massillon, O.
242 Stocking, Z. S., Mansfield, O.
243 Bosler, Marcus, Dayton, O.
244 Huffman, William, Dayton, O.

245 Tremain, Chas., Manlius, N. Y.—
Cement and land plaster. V 72. 103
246 Ervin, D. S., Cedarville, Oh o.—
Limestone. V 61 to 64. 103
247 H. H. U. S. Association, Howards
Cave, N. Y.—Hydraulic cement and lime,
ground plaster, and rock strata. V 55. 103
248 Fireproof Building Co., New York,
N. Y.—Tell concrete hollow blocks, hol-
core window sills, and brick blocks. T 55. 103
249 Michael, F. M., and others, Eaton,
Ohio.—Limestone and lime. V 61 to 64. 103
247 Sintz, George, Springfield, O.—
Limestone and lime. V 61 to 64. 103
248 Mitchell, Wilson, Philadelphia, Pa.—
Porcelain artificial stone building blocks,
partitions, floors, colored paving tiles,
etc. T 53. 103
249 Richardson, Geo., Milwaukee,
Wis.—Artificial stone, with moulds and aparatus for hardening. X 57. 103
250 Wampum Cement & Lime Co.,
limited, New Castle, Pa.—Portland
cement, and samples in artificial stone of
various designs. T 57. 103
251 Coplay Cement Co., Allentown, Pa.—
Cements, building blocks, pipe, ornam-
ments, etc. T 56. 103
252 Allen Cement Co., Siegfried’s
Bridge, Pa.—Crude and manufactured
cement. T 57. 103
253 Cedar Hollow Lime Co., Philadel-
phia, Pa.—Lime, lime rock, model of fur-
nace, and model of receptacle for storing
and preserving lime. T 58. 103
255 Abbott Pavement Co., Brooklyn,
N. Y.—Pavement. The Abbott Pavemen
t is a bituminous concrete that has been
used for six years past on many
miles of roadways in Brooklyn, and for
four or five years in Washington. It costs
less than the asphalt pavement of Paris;
in this country only about one-half. It
costs less than one-half for repairs, and it
is not nearly so slippery, while in all the
other qualities, of smoothness, quietness,
cleanliness, comfort to those driving on it,
economy of horse-flesh and vehicles, it is
admirable. Under patents held by the
Abbott Pavement Company, old stone,
macadam, and wood pavements can be
utilized as a foundation, and millions of
dollars’ worth of wood pavements, now
going rapidly to decay, can be saved, as
demonstrated on many miles that have been
covered in the city of Brooklyn
T 70. 103
256 Union Stone Co., Boston, Mass.—
T 56. a Articles in artificial stone, soapstone regis-
ter borders, millstone cement, etc. 103
b Limestone. 103
256a Shields, King & Co., Newark Star
Glass Works, Newark, Ohio.—Sand, etc.,
for making glass. V 61 to 63. 103
257 Hampton, Cutter, & Sons, Wood-
bridge, N. J.—Clays, kaolin, sand. T 55.
104
258 Such, George, South Amboy, N. J.
—Samples of clay. T 58. 104
259 Sarchet, J. W. & J. T., Glen Loeh
Post Office, Pa.—T 57. 104
a Moulding sand and kaolin.
6 Flint. 106
260 Kier Brothers, Pittsburg, Pa.—
Fire clay. V 56. 104
261 Bradford, H., Philadelphia, Pa.—
Maryland quartz. T 54. 104
261a Tucker, George, New York, N. Y.
—Tripoli and polishing rouge. N 66. 106
262 Schreiber, W. H. A., Phenixville,
Pa.—Kaolin, flint, spar, and siliceous
potters’ and decorators’ materials. T 69.
104
263 Toll, Charles, Monroe, Mich.—
Washed and crude silice. V 67. 104
264 Zihlmann, Joseph, Belleville, O.—
Wooden mould for shaping blown glass. V 60. 104
265 Dover Fire Brick Co., Canal Dover,
Ohio.—Fire clay. T 63. 104
266 Kreischer, B., & Son, Philadelphia,
Pa.—Fire clay, etc. X 56. 104
267 American Kaolin Co.; Works, New
Garden, Chester county, Pa.; office, 233
South Third Street, Philadelphia, Pa.—
Kaolin, china, fire clay, and fire sand.
T 63. 104
268 Dixon Crucible Co., Jersey City, N.
J.—Crude and refined graphite. V 72. 105
269 Strow, Wire, & Co., Philadelphia,
Pa.—Black lead crucibles, retorts, covers,
etc.; plumbago, crude and prepared; lum-
ber pencils, stové polish. T 59. 105
270 Taylor, Robert, & Co., Philadelphia,
Pa.—Black lead crucibles. T 58. 105
271 Morse Bros., Canton, Mass.—Stove
polish, lumber pencils, plumbago. The
“Rising Sun Stove Polish,” noted for
beauty of polish, saving of labor, dura-
bility, freedom from dust and odor, when
heated. This preparation is an excellent
article. The Rising Sun Lumber Pencils,
and samples of plumbago, from which
they are manufactured. T 56. 105
273 Jersey City Crucible Manufacturing
Co., Jersey City, N. J.—Crucibles and
stove polish. T 58. 105
274 Phenix Manufacturing Co., Taun-
ton, Mass.—Crucibles and stove polish. T 58.
105
275 Webb, Robert, Boston, Mass.—
Stove polish; crude and prepared plumb-
ago. T 60. 105

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 46.
ESTABLISHED 1830.

BAILEY & COMPANY,

Jewelers and Silversmiths,

DIAMONDS, WATCHES, CLOCKS, BRONZES,

Chestnut and Twelfth Sts.,

PHILADELPHIA.
Summer Excursions.

The Pennsylvania Railroad Co.

Have arranged for the Centennial Year a system of summer excursion routes, more comprehensive and complete than was ever before presented to the American people. These routes reach every place of interest or attraction in the Eastern, Middle, and Southern States, and the Dominion of Canada, including

Niagara Falls, the Thousand Islands, Watkins Glen, Saratoga, the White Mountains, Newport, Lake George, all the Virginia Springs, and many others.

Visitors to the Centennial Exhibition will find the lines of this Company available for reaching, within a few hours' time and at very small outlay, such famous resorts as

Cape May, Long Branch, the Delaware Water Gap, Bedford Springs, Gettysburg, Minnequa Springs, Kane, Renovo,

And hundreds of beautiful villages and towns in the mountains of Pennsylvania, where the accommodations are excellent and the scenic attractions all that can be desired.

The Pennsylvania Railroad Co.

Devote special attention to this Summer Travel. The construction and equipment of their lines render travel over them thoroughly enjoyable, and the tickets issued afford every facility for recreation, recuperation, and pleasure.

Pamphlets of routes can be had gratuitously at the offices of the Company in New York, Boston, Philadelphia, Baltimore, Washington, Harrisburg, Altoona, and Pittsburgh, and also a handsomely illustrated book describing all prominent resorts.

Frank Thomson, L. P. Farmer, D. M. Boyd, Jr.,
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Metallurgical Products.

313 Otis Iron & Steel Co., Cleveland, O.—Ingots, bars, plates, and forgings of Siemens’s Martin steel. T 65.

314 Cleveland Rolling Mill Co., Cleveland, O.—Pig metals, rails, bars, etc., of iron and Bessemer or Siemens’s Martin steel. T 60.

315 South & North Alabama Railroad, Montgomery, Ala.—Iron. Y 60 and T 57.


317a Silicon Steel Co., New York, N. Y.—Silicon steel, rails, etc.; steelified iron. T 63.


318b Youngstown Rolling Mill Co., Youngstown, Ohio.—Horse shoe, bar hoop, and hand iron, steel mixed with iron. V 61 to 64.

318c Wick, Ridgway, & Co., Youngstown, Ohio.—Railroad iron, of all sizes. V 61 to 64.

318d Brown, Bonnett, & Co., Youngstown, Ohio.—Pig, bar, and sheet iron. V 61 to 64.


319 American Sheet & Boiler-plate Co., Cleveland, Ohio.—Plate, sheet, corru-gated, galvanized, metallic tile, universal plate and agricultural iron, Bessemer or Siemens’s Martin steel. T 59.


321 Hanging Rock Iron Region Furnaces (Chas. Campbell, Commissioner), Ironston, Ohio.—Pig iron, with articles manufactured therefrom. T 69.


323 Clark, Wm., & Co., Pittsburgh, Pa.—Hoop, band, and scroll iron. T 66.

324 Reese, Graff, & Woods, Pittsburgh, Pa.—Wrought iron of all descriptions; cast and special steel; tool steel, spring steel, plow steel, machinery and agricultural steel, fire steel, steel hoop, steel cotton ties, horse and mule shoes, steel toecals, steel boiler-plate. T 66.

325 Andrews Brothers, Youngstown, O.—Bessemer, foundry, and mill pig iron. V 61 to 64.


328 Henderson, James, Hamburg, Pa.—Wrought iron made by the Henderson process. T 66.


331 Edgar Thomson Steel Co. (limited), Pittsburgh, Pa.—Bessemer steel rails, billets, blooms, and ingots. T 66.

332 Lucy Furnace Co., Pittsburg, Pa.—Pig metal, etc. T 66.

334 Carnegie Bros. & Co., Pittsburg, Pa.—Wrought iron beams, channels, bridge iron, etc. T 66.


339 Duncan, John W., Philadelphia, Pa.—Pig metal. T 72.

340 Tuscarawas Coal & Iron Co., Cleveland, Ohio.—Pig iron. T 71 and V 63.

341 Rhodes & Co., Cleveland, Ohio.—Bessemer car-wheel and malicable char-coal. T 71 and V 63.

342 Woodstock Iron Co., Anniston, Ala.—Hot-blast, cold-blast, and spiegel- eisen iron, charcoal. T 63.


344 Crane Iron Co., Catasauqua, Pa.—Foundry and forge pig iron; cinder. T 64.


346a Selma & Alabama Railroad, Mont- gomery, Ala.—Iron. Y 60.


348 Crab Orchard Iron Co., Philadel- phia, Pa.—Samples of iron and steel. T 59.

For location of objects, indicated by letter and figure, see Key to Notation, p. 35; ground plan, p. 36.
<table>
<thead>
<tr>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metallurgical Products.</td>
</tr>
</tbody>
</table>

| 348a Chester Iron Co., Chester, N. J.— Iron ore. T 64. |
| 353 Davis, O. W., jr., Bangor, Me.—Charcoal pig iron, fluxes, cinders; articles made in part from Kattadine iron. T 69. |
| 354 Durham Iron Co., Riegelsville, Pa.—Flux, pig iron, and cinders. T 64. |
| 355 Glendon Iron Co., Easton, Pa.— Flux, slag, and pig iron. T 64. |
| 356 Selma, Rome, & Dalton Railroad, by S. W. Baird, Cincinnati, O.—Charcoal pig iron, slag and charcoal, spiegel, car wheels. X 64. |
| 359 Northampton Furnace, worked by the Bethlehem Iron Co., Bethlehem, Pa.— Pig iron, flux, slags. T 64. |
| 360 Lehigh Iron Co., Allentown, Pa.— Flux, slag, and pig iron. T 64. |
| 361 Bethlehem Iron Co., Bethlehem, Pa.—Charges and products of iron, Bessemer and spiegel iron. manufactures; products from Bessemer mill. T 64. |
| 362 Emas Iron Co., Allentown, Pa.— Flux, slag, and iron. T 64. |
| 363 Coleraine Iron Co., Northampton county, Pa.—Pig iron. T 64. |
| 364 Thomas Iron Co., Hokendauqua, Pa.—Iron and flux. T 64. |
| 365 Allentown Rolling Mill Co., Allentown, Pa.— Flux, iron, and slag, hot-plate bolts, nuts, spikes, rivets, etc. T 64. |
| 366 Allentown Iron Co., Allentown, Pa.—Pig iron. T 64. |
| 367 Lehigh Valley Iron Co., Copley, Pa.—Pig iron, cinders. T 64. |
| 368 Carbon Iron Co., Parryville, Pa.— Flux, slag, and pig iron. T 64. |
| 369 Saucon Iron Co., Hellertown, Pa.—Pig iron. T 64. |
| 370 Catasauqua Iron Co., Catasauqua, Pa.—Rolled iron and steel, iron and steel bars bent hot and cold and fractured. T 64. |
| 371 Lehigh Zinc Co., Bethlehem, Pa.— Metallic and sheet zinc, zinc oxide. T 64. |
| 372 Stewart & Co., South Easton, Pa.—Round, square, and triangular iron wire. T 64. |
| 373 Gough, Edward, Allentown, Pa.—Fluxed rails. T 65. |
| 374 Bay State Iron Co., Boston, Mass.—Homogeneous iron boiler plates and iron. T 64. |
| 375 Co-operative Iron & Steel Works, Danville, Pa.—T and street passenger railroad iron. T 63. |
| 376 Shaler, R. M., Carrick Furnace, Franklin county, Pa.—Cold-blast pig iron. T 63. |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 74-75.
Metallurgical Products.

400 Monitor Furnace Co., Ironton, O.—Pig iron, cold blast charcoal carburized iron. T 68.

401 Mount Vernon Furnace, Hamilton, Ohio. — Campbell & Sons, Ironton, O.—Pig iron, hot blast charcoal foundry iron. T 68.

402 W. D. Kelly & Sons, Ironton, O.—Pig iron, hot blast charcoal iron. T 68.

403 Center Furnace, W. D. Kelly & Sons, Ironton, O.—Pig iron, hot blast charcoal iron. T 68.

404 H. W. Howard Furnace Charcoal Iron Co., Ironton, O.—Pig iron, hot blast charcoal iron. T 68.

405 Buckhorn Furnace, Charcoal Iron Co., Ironton, O.—Pig iron, hot blast charcoal iron. T 68.

406 Olives Furnace, Campbell, McGugin, & Co., Ironton, O.—Pig iron, hot blast charcoal iron. T 68.

407 Lawrence Furnace Co., Ironton, O.—Pig iron, hot blast charcoal iron. T 68.

408 Pine Grove Furnace, Means, Kie, & Co., Hanging Rock, O.—Pig iron, hot blast charcoal iron. T 68.

409 Ohio Furnace, Means, Kyle, & Co., Hanging Rock, O.—Pig iron, hot blast charcoal iron. T 68.

410 Ironton Furnace Iron and Steel Co., Ironton, O.—Pig iron, Player hot blast. T 68.

411 Belfont Iron Works, Ironton, O.—Pig iron, Player hot blast. T 68.

412 Washington Furnace, Union Iron Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68.

413 Scio Furnace, L. C. Robinson & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68.

414 Bloom Furnace, John Paul & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68.

415 Clinton Furnace, W. J. Bell, Wheelersburg, O.—Pig iron, hot blast charcoal iron. T 68.

416 Buckeye Furnace Co., Jackson, O.—Pig iron, hot blast charcoal iron. T 68.

417 Cambria Furnace, D. Lewis & Co., Steubenville, O.—Pig iron, hot blast charcoal iron. T 68.

418 Jackson Furnace, L. P. N. Smith's heirs, Steubenville, O.—Pig iron, hot blast charcoal iron. T 68.

419 Jefferson Furnace Co., Oak Hill, O.—Pig iron; cold blast charcoal carwheel and machinery iron. T 68.

420 Orange Iron Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68.

421 Star Furnace Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68.

422 Huron Iron Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68.

423 Tropic Furnace Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68.

424 Globe Furnace Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68.

425 Fulton Furnace, Globe Furnace Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68.

426 Ophir Furnace Co., Jackson, O.—Hot blast pig iron. T 68.

427 Milton Furnace & Coal Co., Wells ton, O.—Pig iron, Jackson county softener iron. T 68.

428 Wells ton Coal & Iron Co., Wells ton, O.—Pig iron, Jackson county stone coal iron. T 68.

429 Lincoln Furnace Co., M. McGhee's estate, Rd. Mills, O.—Pig iron, cold blast charcoal iron. T 68.


432 Hope Furnace, L. C. Damarin & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68.


434 Vinton Furnace, Bancroft, Rader, & Co., Vinton Station, O.—Pig iron, hot blast bituminous coal and coke iron. T 68.

435 Keystone Furnace Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68.

436 Monroe Furnace, Union Iron Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68.

437 Latrobe Furnace, Bundy & Cobb, Latrobe Cross-roads, O.—Pig iron, hot blast charcoal iron. T 68.

438 Logan Furnace Co., Logan county, O.—Pig iron, hot blast charcoal iron. T 68.

439 Union Furnace, Brooks & Hueston, Haydenville, O.—Pig iron, hot blast charcoal iron. T 68.

440 Vinton Furnace, Bancroft, Rader, & Co., Vinton Station, O.—Pig iron, hot blast charcoal iron. T 68.

441 Pascal Iron Works, Philadelphia, Pa.—Cast iron work for Main Exhibition Building. T 64.

442 Lewis, Oliver, & Phillips, Pittsburgh, Pa.—Iron in merchant bars and cold shapes. T 64.

443 Roberts, Henry, Newark, N. J.—Iron, Bessemer steel, and cast steel wire. T 64.


444 Mount Savage Furnace, Lexington & Carter county Mining & Manufacturing Co., Lexington, Ky.—Pig iron, hot blast charcoal iron. T 68.

444a Hiirmed Furnace Co., Youngstown, O.—Bessemer, foundry, and forge pig iron. T 64.

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 36.
Metallurgical Products.

59

445 Buffalo Furnace, Culbertson, Ear- hart, & Co., Greensburg, Ky.—Pig iron, hot and cold charcoal iron. T 63.

450 Andrews & Hitchcock, Youngs- town, O.—Scotch, foundry, forge, and mill iron. V 61 to 64.

456 Hunnewell Furnace, Eastern Ken- tucky Railway Co., Riverton, Ky.—Pig iron, hot blast charcoal foundry iron. T 63.

451 Liking Iron Co., Newark, O.—Pig iron. V 61 to 64.

457 Pennsylvania Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Pig iron, hot blast charcoal foundry iron. T 63.

458 Charlotte Furnace Co., Riverton, Ky.—Pig iron, hot blast charcoal foundry iron. T 63.


461 Raccoon Mining and Manufacturing Co., Riverton, Ky.—Pig iron, hot and cold blast charcoal iron. T 63.

462 Ashland Furnace, Lexington & Big Sandy Railroad Co., Ashland, Ky.—Pig iron, bituminous coal, and Playfer hot blast. T 63.

463 Bellefonte Furnace, Means, Rus- sell, & Means, Ashland, Ky.—Pig iron, hot blast charcoal foundry iron. T 63.


466 Trigg Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Pig iron, cinders, etc.; hot blast charcoal iron. T 63.

467 Center Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Pig iron, hot blast charcoal iron. T 63.

468 Empire Iron Works, Trigg county, Ky.—Samples of boiler plate and refined charcoal iron. T 63.

469 Cleveland Malleable Iron Co., Cleveland, O.—Malleable iron castings and tackle blocks; fifth wheels. T 53.

470 Traber & Aubery, Cincinnati, O.—Broken car-wheels, chill tests, and castings from Hanging Rock pig iron; pig iron. T 63.


472 Sellers, William, & Co., Edgemore Iron Co., Wilmington, Del.—Wrought and cast iron work for Main Exhibition Building.

473 Roberts, A. & P., Pencoyd Rolling Mills, Philadelphia, Pa.—Wrought iron work for Main Exhibition Building.

474 Morris, Tasker, & Co., Philadelphia, Pa.—Cast iron work for Main Exhibition Building.


476 Pusey, Jones, & Co., Wilmington Del.—Iron work for Machinery Hall.


478 Manhattan Brass Co., New York, N. Y.—Sheet brass; brass, copper, and zinc tubing; brass goods, nickel-plated oils, etc. T 65.

479 Pope, Cole, & Co., Baltimore Copper Co., Baltimore, Md.—Specimens of cop- per mattes and slags, and refined copper; metallurgical products. T 64.

470 Revere Copper Co., Boston, Mass. —Copper and yellow metal sheets and bars; tinmed metal for stove reservoirs; bronze cannon cast by a patented process. T 64.

471 Pennsylvania Lead Co., Pitts- burg, Pa.—Refined pig lead from ores of Colorado and Utah. T 63.

472 Benedict & Burnham Manufactur- ing Co., Waterbury, Conn.—Sheet brass, German silver, brass tubing, rods, and wire, lamp burners, etc. T 63.


475 Holmes, Booth, & Haydens, Water- bury, Conn.—Brass and German silver wire, tubing, rivets, lamp trimmings, burn- ers. T 61.

476 Matthiessen & Hegeler Zinc Co., La Salle, Ill.—Refined zinc, sheet zinc, and zinc ingots; zinc ingots, foil, castings, and oxide; sheet zinc. T 63.


479 Scovill Manufacturing Co., Water- bury, Conn.—Sheet brass; German silver, gold and silver plated metal; lamp and trimmings; hinges, buttons, thimbles, castors, metal tubes, etc. P 67.

480 Ansonia Brass & Copper Co., An- sonia, Conn.—Brass and copper goods, sheet metal and wire, planished brass and copper. P 54.

481 Waterbury Brass Co., Waterbury, Conn., and 566 Beachman street, New York, N. Y.—Brass and German silver in sheets, rolls, wire, and tubes; brass kettles, cop- per and brass rivets and bolts; percussion caps; all qualities; powder flasks, shot bolts and pouches; game bags, metallic eyelets, and tape measures. T 64.

### Mining Engineering

<table>
<thead>
<tr>
<th>No.</th>
<th>Author/Title/Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>484</td>
<td>Holley, Alexander L., New York, N. Y.</td>
<td>Exhibit relating to metallurgical engineering. (West gallery.)</td>
</tr>
</tbody>
</table>

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
THE
American Newspaper Union.
A. J. AIKENS, President.

New York Newspaper Union,
148 and 150 Worth St., New York. 315 Newspapers, $3.00 per line, per week.
Chicago Newspaper Union,
114 Monroe St., Chicago. 350 " $3.50 " "
Milwaukee Newspaper Union,
365 East Water St., Milwaukee. 120 " $1.25 " "
Aikens Newspaper Union,
143 Race St., Cincinnati. 200 " $2.00 " "
Southern Newspaper Union,
272 Second St., Memphis, Tenn. 145 " $1.50 " "
St. Paul Newspaper Union,
17 Wabashaw St., St. Paul, Minn. 73 " $.75 " "

THE ORIGIN OF CO-OPERATIVE NEWSPAPER ADVERTISING.
Co-operative newspaper printing, as now practised, originated in Wisconsin twelve years ago. It is termed co-operative for the reason that one side of each of the newspapers is printed at a central office, and the paper sent in its half-printed state to the home office, where it is completed with editorial, local news, and other matter prepared by the editor or publisher. In December, 1846, the idea of co-operation, with advertisements, occurred to Mr. Aikens, while yet serving his time as an apprentice, in printing the message of President Polk on one side of a country newspaper of New England at Boston, and the other half being printed at the local office.
Mr. A. J. Aikens, a practical printer and business man, conceived the idea of reducing the cost of ready-printed paper, as it is now termed, to country publishers, by making an agreement with them to use a certain space in each of their papers for advertisements that he might procure. This plan of co-operation he put into practice twelve years ago, at the office of Cramer, Aikens & Cramer, Milwaukee. It at once became successful, leading to the establishment of co-operative newspaper printing-offices in Chicago, New York, St. Louis, Cincinnati, Memphis, St. Paul, and other places. There are now over two thousand newspapers printed upon the co-operative plan in the United States and Canadas, and the number is constantly increasing, it having more than doubled in the last five years. The enterprise is no longer an experiment, but an established success, and the system is one yielding manifold advantages to advertisers as well as to local publishers.

The American Newspaper Union

Is essentially national. The papers represented in it are located in all the States of the Union and in nearly five hundred county seats. They circulate over the whole area of the country from Maine to Colorado, distributing at least one hundred copies every year to each square mile of the settled portions of the United States.
Although, as a whole, the Union List is national, covering all sections, it is so made up of different members as to be susceptible of easy division into sections—East, Middle, West, South.
The distribution of the papers is as follows:

| New England | 78 | Illinois | 117 | Nebraska | 15 |
| New York | 101 | Michigan | 86 | Missouri | 17 |
| New Jersey | 27 | Wisconsin | 98 | Georgia | 10 |
| Pennsylvania | 65 | Tennessee | 29 | Alabama | 32 |
| Virginia | 24 | Kentucky | 29 | Louisiana | 11 |
| No. and So. Carolina | 24 | Minnesota | 79 | Mississippi | 29 |
| Ohio | 122 | Iowa | 85 | Other States | 46 |
| Indiana | 81 |

AGGREGATE CIRCULATION.
The circulation of these papers is large and constantly increasing. It is larger than the circulation of any other lists or combinations of country papers in the United States—the last aggregate weekly circulation being seven hundred thousand seven hundred and thirty copies (700,730).

SEND TO EITHER OFFICE FOR A CIRCULAR.
HEALTH! BEAUTY!!

Strong, Pure, and Rich Blood, Increase of Flesh and Weight, Clear Skin, and Beautiful Complexion secured to all through

DR. RADWAY’S SARSAPARILLIAN RESOLVENT

Every drop of the Sarsaparillian Resolvent communicates through the Blood, Sweat, Urine, and other fluids and juices of the system the vigor of life, for it repairs the wastes of the body with new and sound material. Scurvy, Consumption, Tubercular Disease, Ulcers in the Throat, Mouth, Tumors, Nodes in the Glands and other parts of the system, Sore Eyes, Strumous Discharges from the Ears, and the worst forms of Skin Diseases, Eruptions, Fever Sores, Scald Head, Ring Worm, Salt Rheum, Erysipelas, Acne, Black Spots, Worms in the Flesh, Tumors, and all Weakening and Painful Discharges and Night Sweats are within the curative range of this Wonder of Modern Chemistry, and a few days' use will prove to any person using it for either of these forms of disease, its potent power to cure them. If the patient, daily becoming reduced by the wastes and decomposition that are continually progressing, succeeds in arresting these wastes, and repairs the same with new material, made from healthy blood, and this the Sarsaparillian will and does secure, a cure is certain; for, when once this remedy commences its work of purification and succeeds in diminishing the loss of wastes its repairs will be rapid, and every day the patient will feel himself growing better and stronger, the food digesting better, appetite improving, and flesh and weight increasing. Not only does the Sarsaparillian Resolvent excel all known remedial agents in the cure of Chronic, Scrofulous, Constitutional; and Skin Diseases, but it is the only positive cure for Kidney, Bladder, and Urinary Diseases, Gravel, Diabetes, Dropsy, Stoppage of Water, Incontinence of Urine, Bright's Disease, Albuminuria, and in all cases where there are brickdust deposits, or the water is thick, cloudy, mixed with substance like the white of an egg, or threads like white silk, or there is a morbid, dark, bilious appearance, and white bonedust deposits, and when there is a prickling, burning sensation when passing water, and pain in the Small of the Back along the Loins.

Tumor of 12 years' growth cured by Radway's Resolvent.

BEVERLY, MASS., July 18th, 1869.

Dr. Radway: I have had Ovarian Tumor in the ovaries and bowels. All the doctors said "there was no help for it." I tried everything that was recommended, but nothing helped me. I saw your Resolvent, and thought I would try it, but had no faith in it, because I had suffered for TWELVE YEARS. I took six bottles of the Resolvent, one box of Radway's Pills, and used two bottles of your READY RELIEF, and there is not a sign of a tumor to be seen or felt, and I feel BETTER, SMARTER, and happier than I have for twelve years. The worst tumor was in the left side of the bowels, over the groin. I write this to you for the benefit of others. You can publish if you choose.

R. B. R. HANNAH P. KNAPP.

RADWAY'S READY RELIEF

Cures the worst pains in from one to twenty minutes. Not one hour after reading this advertisement need any one suffer with pain. Radway's Ready Relief is a cure for every pain. It was the first and is THE ONLY PAIN REMEDY that instantly stops the most excruciating pains, allays inflammations, and cures congestions, whether of the Lungs, Stomach, Bowels, or other glands or organs, by one application, in from one to twenty minutes. No matter how violent or excruciating the pain be, the Rheumatic, Bedridden, Infirm, Crippled, Nervous, Neuralgic, or prostrated with disease may suffer.

RADWAY'S READY RELIEF

Will afford instant ease. Inflammation of the Kidneys, Inflammation of the Bladder, Inflammation of the Bowels, Congestion of the Lungs, Sore Throat, Difficult Breathing, Palpitation of the Heart, Hysterics, Croup, Diphtheria, Catarh, Influenza, Headache, Toothache, Neuralgia, Rheumatism, Cold Chills, Ague Chills. The application of the READY RELIEF to the part or parts where the pain or difficulty exists will afford ease and comfort. Twenty drops in a half tumbler of water will, in a few moments, cure Cramps, Spasms, Sour Stomach, Heartburn, Sick Headache, Diarrhoea, Dysentery, Colic, Wind in the Bowels, and all Internal Pains. Travelers should always carry a bottle of RADWAY'S RELIEF with them. A few drops in water will prevent sickness or pains from change of water. It is better than French Brandy or Bitters as a stimulant.

FEVER AND AGUE.

FEVER AND AGUE cured for FIFTY CENTS. There is not a remedial agent in this world that will cure Fever and Ague and all other Malarious, Bilious, Scarlet, Typhoid, Yellow, and other Fevers (aided by RADWAY'S PILLS) as quick as RADWAY'S READY RELIEF. Fifty cents per bottle.

DR. RADWAY'S PILLS,

Perfectly tasteless, elegantly coated, for the cure of all Disorders of the Stomach, Liver, Bowels, Kidneys, Bladder, Nervous Diseases, Headache, Constipation, Coughs, Indigestion, Dyspepsia, Bilioussness, Bilious Fever, Inflammation of the Bowels, Piles, and all Derangements of the Internal Viscera. The only positive cure for Kidney, Rheumatic, Bowel, and all bilious diseases. RADWAY'S PILLS will cure the system from all the above-named disorders. Price, 25 cents per box.

Read FALSE AND TRUE. Send one letter stamp to Radway & Co., No. 32 Warren Street, New York. Information worth thousands will be sent you.
Minerals, Ores, Stone, Mining and Metallurgical Products.

1 West Cumberland Iron & Steel Co. (limited), Workington, Cumberland.
   a Iron ores. 100
   b Coal and coke. 101
   c Limestone. 103

1a Whitwell, Thomas, Stockton-on-Tees.—Cumberland ores. 103

2 Wigan Coal & Iron Co. (limited), Wigan, Lancashire, England.—Cannel and coal. 103

3 Penrose & Richards, Swansea, South Wales.—Coke fuel. 103

4 Dixon, Frederick, London.—Patent fuel. 103

5 Dudgeon, Arthur, Westminster, London.—Peat fuel, manufactured by the Irish Peat Fuel Co. 103

6 Lindley, Robert Charles, Mansfield, Nottinghamshire.—Stones from the Mansfield quarries. 102

7 Cwmorith Slate Co. (limited), Torunclad, North Wales.—Roofing slates. 102

8 Hunter, James, Aberdeen, Scotland.—Red polished granite monument. 102

9 Macdonald, Field, & Co., Aberdeen Granite Works, Aberdeen, Scotland.—Polished red granite monument. 102

10 Pen-yr-orsedd Slate Quarry Co. (limited), Carnarvon, North Wales.—Roofing slate, slate slabs, cisterns, ridges for roofs, billiard slabs, slate partly manufactured. 102

11 Shearer, Smith, & Co., Dalbeattie Granite Quarries, Scotland.—Scotch polished granite, and street paving blocks. 102

12 Bessbrook Granite Works, Bessbrook, Ireland.—Blue and gray Irish granites in headstones, monuments, and building blocks. 102

13 Great North of Scotland Granite Co. (limited), Peterhead, Scotland.—Monumental pedestal and vase in polished red granite. 102

13a Campbell, Hugh, & Son, Newry.—Polished granite. 102

14 Hollick & Co., Greenwich, London.—Portland cement. 103

15 Patent Scientic Cement Co. (limited), London.—Method of preparing lime for mortar, for plastering and brickwork, and also for concrete. 103

16 Wouldham Cement Co., Wouldham-on-the-Medway, Kent, England.—Portland cement and its ingredients in different stages of manufacture. Concrete blocks and other objects made therefrom. 103

17 Lavers, Alfred Hamilton, London.—Portland cement, test blocks, cements, plaster of Paris, whiting. 103

17a Busse, G., & Co., London.—Cement. 103

18 Francis & Co., Cliffe Creek, Rochester.—Cements, cement concrete, parian scagliola, and decorated parian. 103

19 Grays Chalk Quarries Co. (limited) Grays, Essex.
   a Chalk, whiting, kiln-dried chalk, gilders' whiting. 103
   b Flint. 103

20 Eastwood & Co. (limited), London.—Portland cement. 103

21 Pike, William Joseph. Warehouse, Dorsetshire.—Clays. 104

22 Harrison, George King, Lye & Brettell Lane Fire Clay Mines & Brick Works, Stourbridge, England.—Stourbridge fire clays. 104

23 Dunn, Robert, & Co., St. Austell, Cornwall.—China clay, in its raw material; samples for potting, bleaching, paper manufacturing, etc. 103

24 Oakley, John, & Sons, Wellington Mills, London.—Cement emery stone; grain emery; flour emery. 106

24a Star Plate & Universal Polishing Powder Co., London.—Plate and polishing powder. 106

Metallurgical Products.

25 Johnson, Matthey, & Co., London.—Articles in platinum; rare and precious metals. 110

26 Wigan Coal & Iron Co. (limited), Wigan, Lancashire.—Hematite, foundry, and forge pig iron. 111

27 Great Western Iron Co., Soudley Newinhamp.—Pig iron. 111

28 West Cumberland Iron & Steel Co. (limited), Workington, Cumberland.—Pig iron, spiegelisen, granulated blast furnace slag, Bessemer steel in the ingot; steel forgings, rails and rail sections, boiler and bridge plates, railway chains, etc.; samples illustrating the testing of steel, and its metallurgy. 111

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Metallurgical Products.

29 Smith, Frederick, & Co., Caledonia Works, Halifax, Yorkshire.—Rope, rigging, telegraph, card, reed, and bonnet wire; iron in its various stages of manufacture into wire. 111

30 Houghton, William Dickson, Warrington.—Wire for special and general purposes. 111


31 Edge & Sons, Coalport Works, Shropshire.—Wire ropes and chains for mining and engineering purposes. 111

31c Hawksworth, Ellison, & Co., Carlisle Works, Sheffield.—Steel, and articles made therefrom. 111

32 Ash & Lacy, Globe Works, Staffordshire.—Galvanized, tinned, plain, and corrugated iron sheets; perforated zinc, metals, etc. 111

32c Ward & Payne, Sheffield.—Steel. 111

32c Whitwell, Thomas, Stockton-on-Tees.—Pig iron. 111

33 Cammell, Charles, & Co. (limited), Cyclops Steel & Iron Works, Sheffield.—Rolled iron armor plates. 111

34 Siemens, Charles William, London.—Specimens of iron and steel. 111

34c Jessop, William, & Sons (limited), Sheffield.—Steel in bars, sheets, and large and small plates. 111

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

34c Hatton, Sons, & Co., Bilston, Staffordshire.
   a Charcoal sheet iron. 111
   b Charcoal tin plates. 113

35 Baldwin, E. P. & W., Wilden Works, near Stourport.
   a Button and sheet iron black plates. 111
   b Tin and terne plates; tinned sheets. 113

35a Warrington Wire Rope Works, Liverpool.—Wire ropes, cord, etc. 111

36 Brown, John, & Co. (limited), Atlas Steel & Iron Works, Sheffield.—Armor plates; naval engineering. (In Machinery Hall.) 111

37 Swansea Tin Plate Co., The Tin & Terne Plate Manufacturers, Swansea Tin Plate Works, Swansea.—Tin and terne plates. 113

38 Nash, Henry, & Co., Liverpool.—Tin and terne plates, black plate, and patent continuous roofing terne plate. 113

39 Governor & Company of Copper Miners in England, London.—Tin and terne plates. 113

40 Morewood, E., & Co., Llanelly. a Tin and terne plates. 113
   b Machines for manufacturing tin and terne plate, and galvanized sheet iron. 113

41 Phosphor Bronze Co. (limited), London.—Phosphor bronze tools, locks, keys, tubes, wire, sheet, steam fittings, parts of machinery. 111

(N.B. English Exhibits in this department are also installed in Agricultural Hall, and catalogued in that volume.)
NEW ZEALAND.

( North of Nave, Columns 10 to 17.)

Stone, Mining Products, Metallurgical Products.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1 Parapara Iron &amp; Coal Co., Nelson.</td>
<td></td>
</tr>
<tr>
<td>a Brown hematite ore.</td>
<td>100</td>
</tr>
<tr>
<td>b Coal from the Aorere river.</td>
<td>101</td>
</tr>
<tr>
<td>c Limestone used as a flux for hematite ore.</td>
<td>103</td>
</tr>
<tr>
<td>2 Johnstone Bros., Nelson.—Hematite iron ore.</td>
<td>100</td>
</tr>
<tr>
<td>3 Nelson Committee, Nelson.</td>
<td></td>
</tr>
<tr>
<td>a Iron, plumbago, galena, zinc blende, copper, antimony, and argentiferous lead ores.</td>
<td>100</td>
</tr>
<tr>
<td>b Coal from Cealbrookdale, Mount Rochfort, and Reefton.</td>
<td>101</td>
</tr>
<tr>
<td>c Marble from Ruatanuka, Golden Bay.</td>
<td>102</td>
</tr>
<tr>
<td>d Porcelain clays from Pakawau and Ruatanuka; steatite from Golden Gully, Collingwood.</td>
<td>104</td>
</tr>
<tr>
<td>4 Louisson, T. B., Nelson.—Iron ore, calcined iron ore.</td>
<td>100</td>
</tr>
<tr>
<td>5 Washbourn, W. E., Nelson.—Argentiferous lead ore.</td>
<td>100</td>
</tr>
<tr>
<td>6 Taranaki Committee.</td>
<td></td>
</tr>
<tr>
<td>a Titanic iron sand, older tertiary marl, trachyte pebble, trachyte with crystals of hornblende, trachyte cast, hornblende, obsidian, nephrite, taranakite, carnelean.</td>
<td>100</td>
</tr>
<tr>
<td>b Lignite from Urenui.</td>
<td>101</td>
</tr>
<tr>
<td>c Potters’ clay from Urenui.</td>
<td>104</td>
</tr>
<tr>
<td>7 Colonial Museum, Wellington.—James Hector, Director.</td>
<td></td>
</tr>
<tr>
<td>a Collection of minerals, containing magnetic iron, hematite, chrome, copper, lead, zinc, and manganese ores.</td>
<td>100</td>
</tr>
<tr>
<td>b Specimens illustrating the classification of New Zealand coals; petroleum from Sugar Loaf Point, Waiapu, Waipawa.</td>
<td>101</td>
</tr>
<tr>
<td>c Marble from Collingwood, Nelson.</td>
<td>102</td>
</tr>
<tr>
<td>8 Steatite from Parapara Valley, Nelson.</td>
<td>104</td>
</tr>
<tr>
<td>8 Kennedy Brothers, Nelson.</td>
<td></td>
</tr>
<tr>
<td>a Coal from the Brunner Mine, and coke manufactured from it.</td>
<td>101</td>
</tr>
<tr>
<td>b Raw and ground fire clay.</td>
<td>104</td>
</tr>
<tr>
<td>9 Albion Coal Co., Nelson.—Coal from Ngakauau.</td>
<td>101</td>
</tr>
<tr>
<td>10 Reid, Alexander W., Canterbury.—Coal from Kowai Pass.</td>
<td>101</td>
</tr>
<tr>
<td>11 Oakden, J. J., Canterbury.—Anthracite coal from Lake Coleridge.</td>
<td>101</td>
</tr>
<tr>
<td>12 Rowley, Wilson, &amp; Co., Otago.—Coal from Shag Point, Palmerston.</td>
<td>101</td>
</tr>
<tr>
<td>13 Ross, A., Poverty Bay, Auckland.—Petroleum.</td>
<td>101</td>
</tr>
<tr>
<td>14 Wilson, W., Christchurch.—Hewn white and yellow limestone.</td>
<td>107</td>
</tr>
</tbody>
</table>

Metallurgical Products.

| 15 New Zealand Commissioners. | Specimens of alluvial gold and gold-bearing quartz from Auckland, Westland, and Otago, collected by the Bank of New Zealand. | 110 |
| 16 Government of New Zealand.—Specimens of alluvial gold from Nelson and Westland, and of auriferous quartz from the west coast; specimens of alluvial gold from Otago; bars of melted and refined gold; bars of chloride of silver, and silver; model representing gold exported from New Zealand 1862-75. | 110 |
| 17 Nelson Committee.—Specimens of auriferous quartz from Reefton. | 110 |
| 18 Reefton Committee.—Specimens of auriferous quartz from the Inangahua and Lyell districts, Nelson. | 110 |
| 19 Telhurst, George E., Bank of New Zealand, Wellington.—Models of gold ingots. | 110 |

For classes of exhibits, indicated by numbers at en of entries, see Classification, pp. 27-45.
NEW SOUTH WALES.
(North of Nave, Columns 13 to 15.)

Minerals, Metallurgical Products, Mining Engineering.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>McCallum, Argyle, Yaas</td>
<td>Copper and lead ores from Woolgaroo Mine; iron ore from Bogolong.</td>
</tr>
<tr>
<td>2</td>
<td>Stuart, Seymour C.</td>
<td>Auriferous quartz from Adelong; lode and stream tin ore.</td>
</tr>
<tr>
<td>3</td>
<td>King, P. G., Goonoo</td>
<td>Sulphuret of antimony, from Nundle.</td>
</tr>
<tr>
<td>4</td>
<td>Howard, John, Sofala</td>
<td>Antimony, from Crudine creek.</td>
</tr>
<tr>
<td>4a</td>
<td>Dewhurst, Arthur, Tamworth</td>
<td>Collection of minerals.</td>
</tr>
<tr>
<td>5</td>
<td>Coulter, Edward, Sydney</td>
<td>Magnetic iron ore containing gold and copper, from Mount Lambie.</td>
</tr>
<tr>
<td>5a</td>
<td>Cleghorn, Wm., Uralla</td>
<td>Collection of minerals.</td>
</tr>
<tr>
<td>6</td>
<td>Department of Mines, Sydney</td>
<td>Mineralogical and geological collection; specimens of gold from the Southern, Western, and Northern districts; models of gold nuggets found in New South Wales; gold trophy, showing production of New South Wales.</td>
</tr>
<tr>
<td>7</td>
<td>Towns &amp; Co., Sydney</td>
<td>Kerosene shale from Murrumbidgee.</td>
</tr>
<tr>
<td>8</td>
<td>Fountain, John, Gosford, Brisbane Water</td>
<td>Iron ore from Brisbane Water.</td>
</tr>
<tr>
<td>9</td>
<td>King, P. G., Goonoo Goonoo</td>
<td>Lepidodendron fossils from Goonoo Goonoo.</td>
</tr>
<tr>
<td>10</td>
<td>Wilson, W., Monaltrie, Richmond river</td>
<td>Fossils.</td>
</tr>
<tr>
<td>11</td>
<td>Butchart, J. Hawkins, Sydney</td>
<td>Lode and stream tin ore.</td>
</tr>
<tr>
<td>12</td>
<td>Caddell, Alfred, Sydney</td>
<td>Tin ore and wash dirt from Vegetable Creek Tin Mine.</td>
</tr>
<tr>
<td>13</td>
<td>New South Wales Shale &amp; Oil Company, Sydney</td>
<td>Kerosene shale.</td>
</tr>
<tr>
<td>15</td>
<td>Browne, Thomas, Bishop's Bridge</td>
<td>Sandstone from West Maitland.</td>
</tr>
<tr>
<td>16</td>
<td>Douglass, W., Sydney</td>
<td>Slate from a quarry near Goulburn.</td>
</tr>
<tr>
<td>17</td>
<td>Young, John, Sydney</td>
<td>Granite from Moruya; marble.</td>
</tr>
<tr>
<td>18</td>
<td>Mackintosh &amp; Oakes, Bathurst</td>
<td>Kao-lin.</td>
</tr>
<tr>
<td>19</td>
<td>Warden, David, Ulladulla</td>
<td>Kao-lin.</td>
</tr>
<tr>
<td>20</td>
<td>New South Wales Commissioners</td>
<td>Copper ingots.</td>
</tr>
<tr>
<td>22</td>
<td>Vegetable Creek Company, Sydney</td>
<td>Tin ingots.</td>
</tr>
<tr>
<td>23</td>
<td>New South Wales Commissioners</td>
<td>Tin ingots, bars, and grain tin.</td>
</tr>
</tbody>
</table>

**Metallurgical Products.**

19a Lithgow Valley Iron & Coal Co.—Iron.
20 New South Wales Commissioners.—Copper ingots.
22 Vegetable Creek Company, Sydney.—Tin ingots.
23 New South Wales Commissioners.—Tin ingots, bars, and grain tin.

**Mining Engineering.**

24 Caddell, Alfred, Sydney.—Model of shaft of Vegetable Creek Tin Mine, and report, plan, and photographs.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Minerals, Ores, Stone, Mining Products.

6 Hanckar, J. H. H., Melbourne.—Nickel ore from the Boa Kaine Mine New Caledonia. 100
7 McGie, James, & Co., Melbourne.—Nickel ore. 100
8 Shenandoah Gold Mining Co., Sandhurst.—Gold-bearing quartz. 100
9 Mining Department of Victoria, Melbourne.—Coal. 101
10 Mansfield Shire Council, Mansfield.—Polished marble, hewn sandstone. 102
11 Arthur & Dogherty, New Zealand.—Lithographic stone. 106
12 Lewis & Whitty, Fitzroy.—Knife polish. 106
13 Hattersley, J., Yackandandah.—Aerated waters. 107
14 Lyon, George, Spring Creek, Beechworth. Lemonade, soda water, and ginger ale. 107
15 Rowlands & Lewis, Ballarat.—Tonic potass, soda, lithia, and seltzer waters, and ginger ale. 107

Metallurgical Products.

16 Bright Bros. & Co., Melbourne.—Star antimony in ingots. 113
17 Costerfield Gold & Antimony Mining Co., Melbourne.—Antimony. 113
18 Hodgson, Richard, Collingwood.—Star antimony, pig lead, block tin. 113
19 Croaker, Scott, & Co., Melbourne.—Star antimony. 113

Mining Engineering.

20 Smyth, R. Brough, Department of Mines, Melbourne.—Geological maps, reports, etc. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
BAHAMAS.

(South of Nave, Columns 15 to 17.)

Minerals, Ores, Stone, Mining Products.

Minerals, Ores, Stone, Mining Products

1 Dupuch, Joseph.—Building stone.
2 George, Jno. S.—Building stone.

BERMUDAS.

(North of Nave, Columns 15 to 17.)

Minerals, Ores, Stone, Mining Products.

Minerals, Ores, Stone, Mining Products

1 Bermuda, Government of.—Top of a pillar of stalagmite, and a small stalactite from a submerged cave.
2 Ness, Ph.—Building stones.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
QUEENSLAND.

(North of North Avenue, Columns 10 to 15.)

Mineral and Metallurgical Products, Mining Engineering.

Minerals, Ores, Stone, Mining Products.
1 Aplin, D.—Trophy of tin ores. 100
2 Brisbane Tin Mining Co.—Tin ores, wash dirt, etc. 100
3 Cloncurry Mine, Proprietors of.—Manganese. 100
4 Daintree, Richard.—Collection of rocks, soils, and fossils illustrative of the colony. 100
5 Foote, Alfred.—Iron ores from West Moreton. 100
6 Gregory, A. C.—Antimony ores. 100
7 Henry, Captain.—Nugget of native copper. 100
8 Hume, W. C.—Collection of tin ores. 100
9 Mount Marley Tin Mining Co.—Collection of tin ores. 100
10 Perry, Matthew.—Copper pyrites. 100
11 Staiger, C.—Antimony ores. 100
12 Tyrrell, J. de F.—Tin ores. 100
13 Wilkinson Mine, Proprietors of.—Cinnabar. 100
14 Government of Queensland.
a Copper ores, fossils, etc., from Ipswich; quartz and gold bearing stone from Gympie, Rockhampton, Ravenswood, Cawarrol, Palmer, Cloncurry, etc. 100
b Coal from Ipswich. 101
c Building stone. 102
d Plumbago. 105
5 Aberdare Mine, Proprietors of.—Coal. 101
16 Alexander, W. R.—Coal. 101
17 Allora Mine, Proprietors of.—Coal. 101
18 Bingera Mine, Proprietors of.—Coal. 101
19 Blackfellows' Creek Mine, Proprietors of.—Coal. 101
20 Bland & Wright, Perseverance Mine.—Coal. 101
21 Flagstone Creek, Proprietors of.—Coal. 101
22 Gulland & Co., Ipswich.—Coal and coke. 101
23 Rosewood Mine, Proprietors of.—Coal. 101
24 Tivoli Mine, Proprietors of.—Coal and coke. 101
25 Peak Downs Copper Mining Co.—Slab of polished malachite. 102

Metallurgical Products.
26 Government of Queensland.
a Gold, in nuggets, from Gympie, Rockhampton, Ravenswood, Cawarrol, Palmer, Cloncurry, etc. 110
b Tin in ingots. 113
27 Government of Queensland.—Refined copper. 112
28 Mount Perry Copper Mining Co.—Ingots of copper. 112
29 Peak Downs Copper Mining Co.—Trophy of copper ingots. 112
30 Bulimba Tin Smelting Co.—Refined tin, in ingots. 112
31 Mount Marley Tin Co.—Refined tin, in ingots. 113
32 Queensland Smelting & Assaying Co.—Trophy of tin ingots. 113

Mining Engineering.
33 Clifton Mine, Proprietors of.—Fossils, kaolin, etc., showing strata of mine. 122

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
TASMANIA.

(South of North Avenue, Columns 13 to 15.)

Minerals, Ores, Stone, Mining and Metallurgical Products.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Location</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>British &amp; Tasmanian Charcoal Iron Co. - Iron ores.</td>
<td>Hobart Town</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Hammond, W., Hobart Town - Bismuth, from Mount Ramsey.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>3</td>
<td>Harrap, A., Launceston - Petrified wood.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Hull, Henry J., Hobart Town - Tin ore, from George's Bay.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>Innes, J. H., Hobart Town - Tin ore, from Rongarooma.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>6</td>
<td>Just, T. C., Launceston - Iron ores and asbestos.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Royal Society of Tasmania - Topazes and beryls from Bass's Straits Island.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>7</td>
<td>Smart, Dr., Hobart Town - Gold, in quartz.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>8</td>
<td>Smith, James, Launceston - Bismuth, from Mount Ramsey.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>9</td>
<td>Stanhope Company - Tin ore.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>10</td>
<td>Harcourt, James, Hobart Town - Iron ores.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Coal from Seymour.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>11</td>
<td>Hematite Iron Works, West Tamar - Iron ores.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Blue and white marble limestone.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>12</td>
<td>Lyell &amp; Gowan, Melbourne - Tin ore from Mount Bischoff.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Coal from river Don.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>Slate from Piper's river.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>Marble limestone from river Don.</td>
<td></td>
<td>103</td>
</tr>
<tr>
<td>13</td>
<td>Groom, P., Harefield - Coal.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>14</td>
<td>Hurst, J., Hobart Town - Coal from Tasman's Peninsula.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>15</td>
<td>Kermode, W. A., Mona Vale - Gray and brown freestone.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>16</td>
<td>Rayoor, E., Bridgewater - Limestone, with fossils.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>17</td>
<td>Coverdale, John, Port Arthur - Pipe clay.</td>
<td></td>
<td>104</td>
</tr>
</tbody>
</table>

Metallurgical Products.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Location</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Harcourt, James, Hobart Town - Pig iron and castings.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>19</td>
<td>Hematite Iron Works, West Tamar - Pig iron and castings.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>20</td>
<td>Mount Bischoff Tin Mining Co., Mount Bischoff - Tin, in ingots.</td>
<td></td>
<td>113</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
# Minerals, Ores, Stone, Mining and Metallurgical Products.

**Collections selected from the India Museum by J. Forbes Watson, M.A., M.D., LL.D., Director of the India Museum, etc.**

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products</th>
<th>Deposits or Localities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron ores and magnetic iron sand from the Madras Presidency; iron ores from the Bombay Presidency; iron ores and magnetic iron sand from the Bengal Presidency; chrome iron ores from Salem and South Arcot; manganese ores from the Madras Presidency; copper ores from Nellore, Singbhum, and Deoghur; copper pyrites from the hills of Beloochistan; malachite from Central India; lead ore from Deoghur; galena from the Malanna and Parbutti mines, and from Catlool, Karnul, Chota Nagpur, Duttiah, Hazaribagh, and Beloochistan (stibnite antimony ore) from Shigri, Busoh, Borneo, and Sarawak; tin stone from Junk Ceylon, Malacca, Kahun, Mergui, Tenasserim, Larut, and Johore; gold sand from Purulia, Toradanally, Danput, Rangoon, and Ramagberry; arsenical ores from Pegu, Burmah, Tenasserim, Bengal, and Madras; sulphur from Rangoon and Shorungs.</td>
<td>Kabul; selenite from Ava; white mica from Salem; jack mica from Behar; agalmatolite from Chota Nagpur; zolites from Deccan; lime from Bownee, Salem, Bullary, and Soonporah.</td>
</tr>
<tr>
<td>Coal from Nerudda Coal and Iron Co., Guzrawarra, Oormoo, Chigo, and Malacca; lignite from Darjiling; petroleum and naphtha from Burmah.</td>
<td>Wootz iron; fullers' earth; gold; tin; white lead; copper calc; chrome.</td>
</tr>
<tr>
<td>Limestone from South Arcot, Nellore, Tripattur, Musulipatam, and Beronda; calcite from Ramgunj; calc spar from Zeolites, Ruby, Litharge.</td>
<td>Minerals, Collections for lia, bagh, lacca; ore; and pyrites from Malacca, Sarawak, Kehun, from malachite from Nellore, Madras South Dancy.</td>
</tr>
<tr>
<td></td>
<td>Metals, for pottery, from South Arcot, Madura, North Arcot, Sadigeri, Bangalore, and Vizianagram; powdered mica from Labore; quartz, yellow and red ochre, fire and china clays from Madras; ball clay from Mangalore and Raepore; raw, fine white, and prepared clay, powdered marble, red lead and red ochre from Pattan; litharge from CALCUTTA; white lead from Punjab; white earth from Beronda; geero from Raepore; pink and yellow earth from Paldeo; white earth from Punnah; yellow earth from Alipore; pipe clay from Singapore; red clay from Duttiah; white earth from Kotec; fuller's earth from Sind.</td>
</tr>
<tr>
<td>Graphite from Caviatten Coodul, Trevandrum, Almorah, and Ceylon.</td>
<td>Corundum from Madras, Salem, and Mysores; agates and carnelians from Cambay; gem sand from Ceylon; ruby sand from Travancore; rough garnets from Nyssoro and Vizianagram; calderite from Nepal; tourmaline from Nellore; epidote granite from Madras.</td>
</tr>
<tr>
<td>Fibrous gypsum from Karnul; reh from Buttiana.</td>
<td>Metallurgical Products.</td>
</tr>
</tbody>
</table>

**Metallurgical Products.**

| Crude iron from Assam; Wootz steel; native iron; native iron with slag. |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
# C A N A D A.

*(North of Nave, Columns 16 to 23.)*

## Minerals, Ores, Stone, Mining and Metallurgical Products.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gatling Gold Mining Co., Marmora, Ont. — Gold-bearing arsenical pyrites.</td>
</tr>
<tr>
<td>2</td>
<td>Russell, W. W., Ottawa, Ont. — Gold in quartz.</td>
</tr>
<tr>
<td>3</td>
<td>Lindsay, J. A., Toronto, Ont. — Gold, silver, and magnetic ores.</td>
</tr>
<tr>
<td>4</td>
<td>Jackfish Lake Gold Mining Co., Toronto, Ont. — Gold and silver, in quartz.</td>
</tr>
<tr>
<td>5</td>
<td>McKellar Bros., Prince Arthur's Landing, Ont. — Gold.</td>
</tr>
<tr>
<td>6</td>
<td>McKellar, D., Prince Arthur’s Landing, Ont. — Gold, in quartz.</td>
</tr>
<tr>
<td>7</td>
<td>Toronto Gold Mining Co., Toronto, Ont. — Gold-bearing arsenical pyrites.</td>
</tr>
<tr>
<td>8</td>
<td>Lockwood, W. P., St. Francois, Q. — Model of gold nugget.</td>
</tr>
<tr>
<td>9</td>
<td>Geological Survey, Canada, Q. — Quarts, magnetic sand, and alluvial gold, models of gold nuggets, platinum, copper pyrites, native copper, magnetite, magnetic iron sand, hematite, iron ores, iron pyrites, native iron, antimony ore, galena, blende, barytes, mica, magnesite, kermesite, celestine, albite, orthoclase, asbestos, amethyst, agates, and Canadian rocks.</td>
</tr>
<tr>
<td>a</td>
<td>Coal from Saskatchewan river, bituminous shale, crude and inspissated petroleum.</td>
</tr>
<tr>
<td>b</td>
<td>Sandstones, marbles, marble column, dolomite, limestone, syenite, granite, gneiss, labradorite, jasper conglomerate, ornamental and polished slate, cut and polished stones.</td>
</tr>
<tr>
<td>c</td>
<td>Hydraulic cement, gypsum.</td>
</tr>
<tr>
<td>d</td>
<td>Clay, fire clay, clay for moulding, river and moulding sand, soapstone.</td>
</tr>
<tr>
<td>e</td>
<td>Graphite.</td>
</tr>
<tr>
<td>f</td>
<td>Lithographic stones, grindstones, whetstones, burl stones, granite for millstones.</td>
</tr>
<tr>
<td>g</td>
<td>Brine, mineral water, phosphates of lime, shell marl.</td>
</tr>
<tr>
<td>i</td>
<td>Oppenheimer Bros., Victoria, Br. Col. — Gold nugget.</td>
</tr>
<tr>
<td>j</td>
<td>Robertson, Rbt., Halifax, N. S. — Representation of the gold fields of Nova Scotia.</td>
</tr>
<tr>
<td>k</td>
<td>Morton, George, Frontenac Lead Mine — Pig lead.</td>
</tr>
<tr>
<td>l</td>
<td>Donaldson, T. B., Oldham, N. S. — Gold in quartz.</td>
</tr>
<tr>
<td>m</td>
<td>Sibley, A. H., Silver Islet, Ont. — Silver ores and native silver.</td>
</tr>
<tr>
<td>o</td>
<td>McKellar Bros., Fort William, Ont. — Silver ores, native silver, copper pyrites, and barytes.</td>
</tr>
<tr>
<td>p</td>
<td>Marks, T., &amp; McKellar Bros., Fort William, Ont. — Silver ores.</td>
</tr>
<tr>
<td>q</td>
<td>Dawson, S. J., Ottawa, Ont. — Silver ores.</td>
</tr>
<tr>
<td>r</td>
<td>Simpson, John, Upham, N. B. — Manganese.</td>
</tr>
<tr>
<td>s</td>
<td>Pyrette, Ambrose, Fort William, Ont. — Silver ores.</td>
</tr>
<tr>
<td>t</td>
<td>Van Norman, Judge, Prince Arthur's Landing, Ont. — Native silver and silver ores.</td>
</tr>
<tr>
<td>u</td>
<td>Plumber, McIntyre, &amp; Russ, Fort William, Ont. — Silver ores.</td>
</tr>
<tr>
<td>w</td>
<td>Eames, Prof., Pie Island, Ont. — Silver veinstone.</td>
</tr>
<tr>
<td>x</td>
<td>Stephen, George, Montreal, Q. — Silver ores.</td>
</tr>
<tr>
<td>y</td>
<td>Eureka Mining Co., Victoria, Br. Col. — Silver ores.</td>
</tr>
<tr>
<td>z</td>
<td>Mechanics’ Institute, North Westminister, Br. Col. — Platinum.</td>
</tr>
<tr>
<td>A</td>
<td>Anthracite.</td>
</tr>
<tr>
<td>B</td>
<td>West Canada Mining Co., Wellington, Ont. — Copper pyrites, copper ore.</td>
</tr>
<tr>
<td>C</td>
<td>Hime, H. L., Toronto, Ont. — Copper pyrites.</td>
</tr>
<tr>
<td>D</td>
<td>Plumber, B., Bruce Mine, Ont. — Copper pyrites.</td>
</tr>
<tr>
<td>E</td>
<td>Oliver, Geo., Perth, Ont. — Copper pyrites, bog iron ore.</td>
</tr>
<tr>
<td>F</td>
<td>Ontario Advisory Board, Toronto, Ont. — Copper pyrites.</td>
</tr>
<tr>
<td>G</td>
<td>Copper pyrites, magnetic hematite, galena.</td>
</tr>
<tr>
<td>H</td>
<td>Serpentinite, syenite.</td>
</tr>
<tr>
<td>I</td>
<td>Graphite.</td>
</tr>
<tr>
<td>J</td>
<td>Emery.</td>
</tr>
<tr>
<td>K</td>
<td>Phosphate of lime, shell marl.</td>
</tr>
<tr>
<td>L</td>
<td>Shaw, P., Harvey Hill, Q. — Copper pyrites.</td>
</tr>
<tr>
<td>M</td>
<td>Stewart, W. W., Montreal Q. — Copper.</td>
</tr>
<tr>
<td>N</td>
<td>Douglas, Dr., Quebec, Q. — Copper ore.</td>
</tr>
<tr>
<td>O</td>
<td>Davidson, Wm., Alma, N. B. — Copper glance.</td>
</tr>
<tr>
<td>P</td>
<td>Russell, Grand Manan, N. B. — Copper glance.</td>
</tr>
<tr>
<td>Q</td>
<td>Cole, Rufus, Dorchester, N. B. — Copper glance.</td>
</tr>
<tr>
<td>R</td>
<td>Sweet, R. J., Halifax, N. S. — Copper glance.</td>
</tr>
<tr>
<td>S</td>
<td>Lloyd, H. C., Madoc, Ont. — Magnetite, hematite.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Mining and Metallurgy.

74 McVicar, Geo., Toronto, Ont.—Amethyst.
75 Blackwood, R., Toronto, Ont.—Amethyst, fluor spar, and pyrites.
76 Morrison, W. A., Toronto, Ont.—Collection of Canadian precious stones.
77 Poole, H. S., Halifax, N. S.—Ores and associated rocks.
78 Honeyman, Dr., Halifax, N. S.—Collection of Nova Scotia rocks.
80 Bailey, G., Grand Lake, N. B.—Coal.
81 Hall, William, Springhill, N. S.—Coal.
82 Mitchell, Henry L., Glace Bay Mines, N. S.—Coal.
83 McQueen, Wm., Blockhouse Mines, N. S.—Coal.
84 Brown, R. H., Sydney Mines, N. S.—Coal.
86 McKeen, David, Caledonia Mines, N. S.—Coal.
88 Sutherland, James, Big Glace Bay, N. S.—Coal.
89 Fraser, J. W., Victoria Mines, N. S.—Coal.
90 Routledge, William, Gardiner Mines, N. S.—Coal.
91 Campbell, C. J., North Campbellton, N. S.—Coal.
92 Hoyt, Jesse, Acadia Mines, N. S.—Coal.
93 Hudson, James, Albion Mines, N. S.—Coal.
95 Greener, John, Vale Colliery, N. S.—Coal.
96 Bennett, Wm., Scotia Mines, N. S.—Coal.
97 Sterling, E., Cape Breton, Big Glace Bay, Sydney, and L. Mines, N. S.—Coal.
98 Union Mining Co., Union Mines, Comox, B. —Coal.
100 Vancouver Mining Co., Vancouver Mines, Br. —Coal.
102 Ketchum, E. W., Albert Mines, N. B.—Albertite and bituminous shale.
104 Smith, Wm., Toronto, Ont.—Peat.
107 Biddleave Albertite & Oil Co., Westmorland, N. B.—Albertite mineral oil.
109 Gibson, Robert L., Grimsby, Ont.—Building sandstones.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Mineral Water, Metallurgical Products.

110 Farquhar & Booth, Esquesing, Ont. — Building sandstones and flagging. 102
111 Sread, Gloucester, Ont. — Building sandstones. 102
112 Londley, Beckwith, Ont. — Building sandstones. 102
113 Rankin, John, Pembroke, Ont. — Building sandstones. 102
114 Bishop, Henry, Nepean, Ont. — Building sandstones. 102
115 Decew, William, Oneida, Ont. — Building sandstones. 102
116 McGregor, Lachute, Q. — Building sandstones and limestones. 102
117 Goodfellow, Joseph, North Esk, N. B. — Building sandstones. 102
118 Grindstones. 106
119 Dor. U. Free Stone Co., Budreau, Vii., N. B. — Building sandstones. 102
120 Caledonia Free Stone Co., Rockland, N. B. — Building sandstones. 102
121 Roberts & Co., Mary’s Point, N. B. — Building sandstones. 102
122 Bayview Quarry Co., Albert City, N. B. — Building sandstones. 102
123 Hopewell Quarry Co., Sheppy Mt., N. B. — Building sandstones. 102
124 McQuarrie, John, George River, N. S. — Building sandstones. 102
125 Gilpin, Edwin, Springville, N. S. — Building sandstones. 102
126 Heustis, R. B., Wallace, N. S. — Building sandstones. 102
127 McDonald, George J., Cornwallis, N. S. — Building sandstones. 102
128 Peters, Henry S., Halifax, N. S. — Building sandstones. 102
129 Vancouver Coal Co., Vancouver Island, B. C. — Building sandstones, marble, limestone. 102
130 Howley, James, Montreal, Q. — Building and flagging sandstones. 102
131 Pin-ton & Co., Quebec, Q. — Sandstone, flagging, curbstones. 102
132 Worthington & Co., Montreal, Q. — Polished marble. 102
133 Somerville, P. T., Arnprior, Ont. — Marble monument. 102
134 Halon, Alphonse, Quebec, Q. — Marble. 102
135 Benjamin, H., & Co., Montreal, Q. — Marble. 102
136 Brunet, Joseph, Montreal, Q. — Marble monument. 102
137 Langevin, A. B., Quebec, Q. — Marble. 102
138 Silver, John, Halifax, N. S. — Marble. 102
139 McQuarrie, John, George River, N. S. — Marble and syenite. 102
140 Ingram, Wm., St. George, N. B. — Red granite clock case. 102
141 Barclay & Morrison, Stony Mount, Manitoba. — Dolomite. 102
142 Hayslip, John, Goderich, Ont. — Clay. 104
143 Young, Y. & G., Gloucester, Q. — Limestone. 102
144 Levallee, N., Carleton Place, Ont. — Limestone. 102
145 Kirkpatrick Quarry, Parrsboro, Q. — Limestone. 102
146 Forsyth, Robert, Montreal, Q. — Red granite monument. 103
147 Bay of Fundy Red Granite Co., S. George, N. B. — Red polished granite. 103
148 Danville School Slate Co., Danville, Q. — Ornamental slate panel, slates in blocks. 102
149 Danville Slate Co., Danville, Q. — School slates. 102
150 Rockland Slate Quarry, Melbourne, Q. — Limestone. 102
151 Decew, William, Cayuga, Ont. — Lime and limestone. 103
152 Whitson & Slater, St. Marys, Ont. — Sandstone and limestone. 103
153 Dunbar, George, Rockwood, Ont. — Lime and limestone. 103
154 Lewis, Levi, Kincardine, Ont. — Limestone. 103
155 Buxton, George, Goderich, Ont. — Lime and limestone. 103
156 Emsley, R., Guelph, Ont. — Lime and limestone. 103
157 Ballantyne, Mrs., Galt, Ont. — Lime and limestone. 103
158 Farquhar, E. C., Dundas, Ont. — Lime and limestone. 103
159 Goudie, Thomas, Limehouse, Ont. — Lime and limestone. 103
160 Lavallee, N., Carleton Place, Ont. — Lime and limestone. 103
161 Baker, W., Arnprior, Ont. — Lime and limestone. 103
162 Quebec Advisory Board, Quebec, Q. — Lime and limestone. 103
163 Galvines, C. A., Montreal, Q. — Lime and limestone. 103
164 Robitaille, Dr., Quebec, Q. — Lime stone. 103
165 Quesnel, Sheriff, Arthabaska, Q. — Lime and hydraulic cement. 103
166 Douglas, David, Pugwash, N. S. — Lime. 103
167 Goudie, Thomas, Limehouse, Ont. — Hydraulic cement. 103
168 McKay, Wm., Ottawa, Ont. — Hydraulic cement and artificial stone. 103
169 Buchanan Mineral Co., Hamilton, Ont. — Cement and mastic. 103
170 Gauvreau, P., & Co., Quebec, Q. — Cement and plasters, artificial stone. 103
171 Hill, Albert J., Sydney, N. S. — Selinite. 103

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Minerals, Stone.

172 Gregory, V. R., & Co., Toronto, Ont.—Artificial stone monument. 103
173 Wandy, Henry, Clover Hill, Toronto, Ont.—Artificial stone. 104
174 Milner & Heerd, Strathroy, Ont.—Artificial stone window cap. 103
175 Joslyn, J. H. L., Box 152, Tilsonburg, Ont.—Marbleface roofing, a seamless sheet of artificial stone, not excessively heavy, but wonderfully efficient; not resting on the roof boards, but accommodated to them by an intervening plastic waterproof composition. 103
176 Riggins, George, Kincardine, Ont.—Clay for bricks. 104
177 Russell, Samuel, London, Ont.—Clay for bricks. 104
178 Munro & Coehner, Dundas, Ont.—Clay for bricks. 104
179 Leslie, Robert, Glenwilliam, Ont.—Clay for bricks. 104
180 Townshend, Mrs. Mary, Rockville, Ont.—Clay for bricks. 104
181 Anderson, Thos., Nepean Ont.—Clay for bricks. 104
182 Cashmore, Thos., Pembroke, Ont.—Clay for bricks. 104
183 McGregor, Daniel, Pembroke, Ont.—Clay for bricks. 104
184 Baker, William, Arnprior, Ont.—Clay for bricks. 104
185 Foshick, Eneas, Ramsay, Ont.—Clay for bricks. 104
186 Moore, Gilbert, Ramsay, Ont.—Clay. 104
187 Coulter, James, Ramsay, Ont.—Clay. 104
188 Metcalfe, James, Ramsay, Ont.—Clay. 104
189 Foster, W. A., Belleville, Ont.—Clay. 104
190 Workman, Hugh, Brantford, Ont.—Clay. 104
191 Peel, Thos. W., Montreal, Q.—Clay. 104
192 Mohan, Albert, St. Johns, Q.—Clay. 104
193 Jackson, Charles, Woodstock, N. B.—Clay. 104
194 Wells, William, Beamsville, Ont.—Pottery clay. 104
195 Ahren, J. H., Paris, Ont.—Pottery clay. 104
196 Pratt, Charles, London, Ont.—Pottery clay. 104
197 Farrar, G. H. & L. E., St. Johns, Q.—Pottery clay. 104
198 Bell, David, St. Johns, Q.—Clay tile. 104
199 Copeland & McLaren, Montreal, Q.—Fire clay, sandstone facing for furnaces. 104
200 McMann, G. N., Grand Lake, N. B.—Fire clay. 104
201 Bannerman, Robert, Montreal, Q.—Pipe clay. 104
203 Bishop, H., Nepean, Ont.—Sandstone for glass-making. 104
204 McDougall, John, & Sons, Three Rivers, Q.—Sandstone for furnace lining. 104
205 Oil Cloth Factory, Yorkville, Ont.—Sand. 104
206 Jackson, Charles, Woodstock, N. B.—Brick sand. 104
207 Sweet, S. H., Wentworth, N. S.—Kaolin. 104
208 McDonald, George J., Cornwallis, N. S.—Refractory stone. 104
209 Law, John, London, Ont.—Black lead crucible. 105
210 Dominion of Canada Plumbago Co., office, Ottawa, Ont.; mines and works, Buckingham, Province of Quebec.—Manufacturers of electrolyzing, lubricating, pencil, crucible, stove polish, and other stock of every grade. Assays and tests prove quality. Prices are ordinary current market rates. 105
211 Millet, John G., Grenville, Q.—Graphite. 105
212 Montreal Plumbago Mining Co., Montreal, Q.—Stove polish. 105
213 Martin, Charles, Montreal, Q.—Stove polish. 105
214 Kelly, John, Belleville, Ont.—Lithographic stones. 104
215 Ontario Lithographic Stone Co., Marmora, Ont.—Lithographic stone. 106
216 Read, Stevenson, & Co., Dorchester, N. B.—Grindstone polishing and cutters' stone. 106
217 Seaman & Co., Lower Cove, N. S.—Grindstones. 106
218 Douglass, David, Port Philip, N. S.—Grindstones. 106
219 Leroux, G., Quebec, Q.—Mill-stones. 106
220 Casgrain, Stoneham, Q.—Tripoli. 106
221 Fisher, W., Victoria, Br. Col.—Tripoli. 106
222 Coleman, William, Paris, Ont.—Raw and prepared gypsum. 107
223 Ontario Plaster Co., Mt. Healy, Ont.—Raw and prepared gypsum. 107
224 Converse, John A., Montreal, Q.—Raw and prepared gypsum. 107
225 Brown, A., Petitcodiac, N. B.—Gypsum and celecrite. 107
226 Tébique Gypsum Co., Tobique, N. B.—Gypsum. 107
227 Albert Manufacturing Co., Hillsboro, N. B.—Calcined and anhydrous gypsum; alabaster. 107
228 McDonald, R. N., International Museum, N. S.—Gypsum. 107
229 Nova Scotia Advisory Board, Halifax, N. S.—Gypsum. 107
230 Davidson, H. A., Black River, N. S.—Gypsum. 107
231 Cove, Jas. A., Claremont Hill, N. S.—Gypsum. 107

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Minerals, Metallurgical Products.

232 Meighen Bros., Perth, Ont.—Phosphate of lime. 107
233 McLennan, Jos., Montague, N. S.—Gypsum. 107
234 Merchants’ Salt Co., Seaforth, Ont.—Brine. 107
235 International Works, Goderich, Ont.—Brine. 107
236 Ransford, H., Clinton, Ont.—Brine. 107
237 Tecumseh Works, Goderich, Ont.—Brine. 107
238 Gray, Young, & Spalding, Seaforth, Ont.—Brine. 107
239 Jourvie, J. A., & Co., Caledonia Springs, Ont.—Saline, gas, and sulphur waters. 107
240 Winning, Hill, & Ware, Montreal, Q.—Carratrina water. 107
241 Gee, J. N., St. Francis Spring, Q.—Mineral water. 107
242 Hickman, James S., Amherst, N. S.—Saline water. 107
243 Murray, Edmund W., Buckingham, Q.—Phosphate of lime. 107
244 Buckingham Mining Co., Buckingham, Q.—Crystal phosphate of lime. 107

Metallurgical Products.
245 Silver Islet Co., Silver Islet, Ont.—Ingots of silver. 110
246 Ottawa Iron & Steel Manufacturing Co., Ottawa, Ont.—Iron billets. 111
247 Field & Aydon Patent Smelting Co., Marmora, Ont.—Pig iron, smelted with pure petroleum. 111
248 Gauthier, C., St. Urbain, Q.—Titanium pig iron. 111
249 McDougall, John, & Sons, Three Rivers, Q.—Charcoal iron; iron bars, bent and twisted cold; axes, tomahawk, slag. 113
250 Canadian Titanic Co., Baie St. Paul, Q.—Slags, titanium iron. 111
251 Chicic Eugene, Quebec, Q.—Viger steel. 111
252 Moisic Iron Works, Montreal, Q.—Iron, iron bloom. 111
253 McDougall, John, Montreal, Q.—Iron bloom, car-wheels. 111
254 Steel Co. of Canada, Londonderry, N. S.—Iron and steel. 111
255 West Canada Mining Co., Bruce Mines, Ont.—Ingots copper. 112
256 Lake George Antimony Co., Prince William, N. B.—Babbit metals, regulus, slags, oxidized ore. 113

FRANCE.

(The French Exhibits in Mining and Metallurgy are installed in the Agricultural Building, and Catalogued in Part IV.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
## GERMANY.

(\textit{South of Page, Columns 28 to 38.})

Minerals, Ores, Mining and Metallurgical Products.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Krupp, Fr., Essen.</strong>—Ores and raw products.</td>
<td>100</td>
</tr>
<tr>
<td><strong>2 Burbach Works, Burbach.</strong></td>
<td></td>
</tr>
<tr>
<td>\textit{a} Iron.</td>
<td>100</td>
</tr>
<tr>
<td>\textit{b} Coal.</td>
<td>102</td>
</tr>
<tr>
<td>\textit{c} Stone.</td>
<td>102</td>
</tr>
<tr>
<td><strong>3 Heinrichshütte, Au-on-the-Sieg.</strong>—Sphæric iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>4 Mine Owners of the Siegerland.</strong>—Ores, etc.</td>
<td>100</td>
</tr>
<tr>
<td>\textit{(The above exhibits are installed in Machinery Hall.)}</td>
<td></td>
</tr>
</tbody>
</table>

**COLLECTIVE EXHIBIT OF PRODUCTIONS OF LEAD MINES AND FURNACES, ACCOMPANIED BY DRAWINGS.**

| Royal Prussian Smelting Works of the Upper Harz, Clausthal. | Lead, copper, and zinc ores. | 100 |
| Royal Prussian & Ducal Brunswick Smelting Works of the Lower Harz, Goslars. | Argentiferous copper and lead ores. | 100 |
| Royal Prussian Smelting Works, Friedrichshütte. | Ores and litharge. | 100 |
| Joint Stock Association for Mining, & Lead & Zinc Manufactures, Stolberg, near Aix-la-Chapelle. | Lead and zinc ores. | 100 |
| Rheinish-Nassau Co., Stolberg, near Aix-la-Chapelle. | Lead ores. | 100 |
| Solenhofen Joint Stock Co., Solenhofen. | a Tiles for malthouse floors. | 102 |
| \textit{b} Lithographic stones. | 106 |
| Zimmermann, Otto, Greussen, To- | 102 |
| phus. |  |
| Stern Portland Cement Factory, Stettin—Portland cement. | 103 |
| Hiller, Otto, Berlin. | Mastic roofing and model roof. | 103 |
| Häuersler, Carl Sam., Hirschberg, Silesia. | Wood cement and model roof. | 103 |
| Scharlach, Louis, jr., Hamburg. | Roofing. | 103 |
| Vovohl Asphalt Works, Escher- |  |
| schaussen. | Asphalt mastic blocks. | 103 |
| Schindel, John Adam, Solenhofen. | 106 |
| Apollinaré’s Co., Ahnweiler. | Mineral waters. | 107 |
| Biaseborn Mineral Spring Co., Biaseborn. | Mineral waters. | 107 |
| Jungfer, A., Berlin. | Amber. | 107 |
| Stantien & Becker, Berlin. | Raw amber. | 107 |
| Managers of Friedrichshall Springs, C. Oppel & Co., Friedrichshall, near Hilburhausen—Friedrichshall natural bitter water. | For mill and grindstones, see Machinery Hall.) | 107 |

**Metallurgical Products.**

| Borsig, A., Berlin.—Iron, cast steel, boiler plates, plates for fire boxes, etc. | 111 |
| Burbach Works, Burbach.—Rolled double T iron. | 111 |
| Krupp, Fr., Essen.—Wheels, pistons, flanges, rollers, springs, etc. | 111 |

**COLLECTIVE EXHIBIT, SIEGERLAND.—SPIEGELISEN AND ORSES.**

| Heinrichshütte, Au-on-Sieg.—Spiegel iron. | 111 |
| Cologne Mülzen Mining Co., Creutzthal.—Spiegel iron. | 111 |
| Joint Stock Co., Charlottenhütte, Niederschelden.—Spiegel iron. | 111 |
| Wissen Mining & Smelting Co., Wissen.—Spiegel iron. | 111 |
| Lohmann & Söding, Witten.—Steel for tools and arms. | 111 |
| Westphalian Union Joint Stock Co., for Mining & for Iron & Wirework, Hamm.—Wire. | 111 |

**For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.**

**Mining Engineering.**

| Nörr, Eugene, Berlin.—Drawings and description of a self-acting safety lamp. | 120 |
| Gödecke, Carl, Gelsenkirchen.—Plans of the Gelsenkirchen furnaces. | 127 |
AUSTRIA.
(South of Nave, Columns 23 to 28.)

Minerals, Ores, Stone, Metallurgical Products.

<table>
<thead>
<tr>
<th>Number</th>
<th>Company/Individual</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Imperial &amp; Royal Metallurgy Direction, Idria</td>
<td>—</td>
<td>Cinnabar.</td>
</tr>
<tr>
<td>2</td>
<td>Jugoviz, A., Klagenfurt</td>
<td>—</td>
<td>Ore and mining products of Kärnten.</td>
</tr>
<tr>
<td>3</td>
<td>Chief Mountain &amp; Mining Administration, Pozoritta, Bukowina</td>
<td>—</td>
<td>Pyrolusite for aniline pigments for soda factories, German silver ware, and manganese products.</td>
</tr>
<tr>
<td>4</td>
<td>Metallurgy &amp; Mining Administration, Joachimsthal</td>
<td>—</td>
<td>Meteoric specimens.</td>
</tr>
<tr>
<td>6</td>
<td>Nedwied &amp; Son, Schlan, Bohemia</td>
<td>—</td>
<td>Red chalk, red-lead pencils.</td>
</tr>
<tr>
<td>7</td>
<td>Saxlehner, Andreas, Budapest</td>
<td>—</td>
<td>Hunyadi János mineral water.</td>
</tr>
<tr>
<td>8</td>
<td>Mineral Water Direction, Pullina, near Brüx, Bohemia</td>
<td>—</td>
<td>Mineral water.</td>
</tr>
<tr>
<td>9</td>
<td>Loser Bros., Budapest</td>
<td>—</td>
<td>Genuine mineral water from the Ofen-Rakoczy spring.</td>
</tr>
</tbody>
</table>

Metallurgical Products.

<table>
<thead>
<tr>
<th>Number</th>
<th>Company/Individual</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Industry Association in Krain, Laibach</td>
<td>—</td>
<td>Iron and steel mountain and mining works. Ferro-manganese and Spiegel iron.</td>
</tr>
<tr>
<td>11</td>
<td>Imperial &amp; Royal Metallurgy Direction, Idria</td>
<td>—</td>
<td>Quicksilver.</td>
</tr>
</tbody>
</table>

SWITZERLAND.
(North of Nave, Columns 52 to 55.)

Minerals, Metallurgical Products.

<table>
<thead>
<tr>
<th>Number</th>
<th>Company/Individual</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Neuchatel Asphalte Co. (limited), Travers, Ct. Neuchâtel</td>
<td>—</td>
<td>Natural and mastic asphalt.</td>
</tr>
<tr>
<td>3</td>
<td>Bürgin Bros., Schaffhausen</td>
<td>—</td>
<td>Phosphate of bronze, different compositions, with strength and fracture tests.</td>
</tr>
</tbody>
</table>

Note: The minerals illustrating the geological formations traversed by the St. Gotthard tun-nel are classified in this catalogue, together with the other exhibits of the St. Gotthard Railroad Co., under Dept. III., Class 332.)

Metallurgical Products.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
BELGIUM.

(North of Nave, Columns 54 to 59.)

Minerals, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 Bleyberg es Montzen Joint Stock Co., Montzen, Province of Liége.—Zinc and lead ores. 100
2 Vincent Son, Basècles (Hainaut).—Samples of Basècles black marble pavements. 102
2a Sacquelet, F., Basècles near Tournaï (Hainaut).—Specimens of Basècles blue and gray stone. 102
3 Ville de Spa (Communal Administration).—Trophy furniture, showing views of the city and environs, plans of mineral water-works, samples of these waters, articles of export, etc. The painting of this furniture was executed by Messrs. Boland, Chas., Bronfort, H., Crahey, senior, G. I., Debras, Alexis, Debras, Alexis, Krins, E., Mercatte, Henri, and Reigler, L. 107

Metallurgical Products.

4 Bonehill Bros., L'Esperance High Furnace Forge Foundry, Marchienne-au-Pont, near Charleroi.—Architectural iron. 111
5 Constant, Emile, Monceau-sur-Sambre, near Charleroi.—Patterns of building iron spring and web iron. 111
6 Mabille, Valère, Mariemont (Hainaut).—Manufactured iron, Kind Chaudron shaft-sinking apparatus. 111
7 Paris, Isaac Joseph, Marchiennes, near Charleroi.—Iron riveted beams for ship-building. 111
8 Charleroi Iron Manufacturing Joint Stock Co., Marchienne-au-Pont, near Charleroi.—Iron for building, etc. 111
9 Providence Forge Joint Stock Co., Marchienne-au-Pont, near Charleroi.—Iron for building, iron wheels without welding. 111
10 Forge and Rolling Mill Joint Stock Co., Régissa, near Huy.—Polished and unpolished sheet iron by wood and coke. 111
11 Angleur Steel Manufacturing Co., F. de Rosnay, Pastor & Co., Renory, near Liége.—Bessemer cast steel products, rails, tires, axles, forge pieces, and rolled bars. 111
12 Jemmapes Forge Foundry & Rolling Mill Co., V. Demerbe & Co., Jemmapes (Hainaut).—Broken bar-bended iron, tramway rails, system of tramway rails on cast iron sleepers. 111
13 Bivort, Raymond, Henri, Arbre, Province of Namur.—Kettles and copper wire. 112
14 Bleyberg es Montzen Joint Stock Co., Montzen, near Verviers.—Prepared zinc and lead ore, potters' ore (pure galena) for glazing, pig lead for rolling mill, white lead and crystals, silver ore, block zinc for rolling, galvanizing, etc. 113

NETHERLANDS.

(North of Nave, Columns 60 to 65.)

Stone.

Minerals, Ores, Stone, Mining Products.

1 Onderwater, H. F., Dordrecht.—Stones for pavement. 102
2 Van Verschuur & Van der Voort, Amsterdam.—Unpolished stones. 102
3 Borst & Roggenkamp, Delft.—Portland cement stones, lithographic stones, oilstones, whetstones, grindstones, polishing material, and sand quartz; garnets, raw topazes, diamonds, tripoli, and corundum. 106

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
**SWEDEN.**

*(North of Nave, Columns 6 to 11.)*

**Ores, Stone, Metallurgical Products.**

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Adelsvård, Baron Th., Atvidaberg.</td>
<td>Copper ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>2</strong> Bofors Stock Co., Gullspang, Bofors.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>3</strong> Berg, Axel, Warby, Stockholm.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>4</strong> Berg, Gottfried, Warby, Stockholm.</td>
<td>Zinc, galena, and nickel ores, pyrites.</td>
<td>100</td>
</tr>
<tr>
<td><strong>5</strong> Fagersta Iron &amp; Steel Works, Westanfors.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>6</strong> Limestone</td>
<td></td>
<td>103</td>
</tr>
<tr>
<td></td>
<td><strong>a</strong> Swedish Iron Masters' Association, Stockholm.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>b</strong> Collection of minerals.</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td><strong>c</strong> Maps and drawings.</td>
<td>335</td>
</tr>
<tr>
<td><strong>7</strong> Avesta Garpenbergs Stock Co., Avesta.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>8</strong> Björneborgs Iron &amp; Steel Works, Björnebergs.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>9</strong> Degerfors Stock Co., Degerfors.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>10</strong> Ekman, Carl, Finspang.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>11</strong> Hermansson, C. F., Count von, Forna.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>12</strong> Hofors &amp; Hammarby Iron Works, Gele.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>13</strong> Larsbo Norn Stock Co., Kafa.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>14</strong> Laxa Iron Works Co., Laxa.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>15</strong> Lesjöfors Iron &amp; Steel Co., Langbanshyttan.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Hausmannite and limestone.</td>
<td>103</td>
</tr>
<tr>
<td><strong>16</strong> Lindberg, Lars, Kohlsva.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>17</strong> Lofvenskiöld, Salomon, Nissafors, Jönköping.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>18</strong> Ramnäs Iron Works Co., Ramnäs.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>19</strong> Rettig, C. A., Kilafora, Gefle.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>20</strong> Schisshytte-Molnebo Iron Works, Morgongåva.</td>
<td>Iron ore, krebelite, linores, and galena.</td>
<td>100</td>
</tr>
<tr>
<td><strong>21</strong> Stockenström, Axel von, Aker, Mariested.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>22</strong> Stora Kopparbergs Bergslag, Stockholm.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>23</strong> Sundström, J. O., Charlottenberg.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>24</strong> New Gellivara Company (limited), Lulea.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

**Metallurgical Products.**

<table>
<thead>
<tr>
<th>Metallurgical Products</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>24</strong> Osterby &amp; Strömbacka Iron Works, Osterby.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>25</strong> Uddeholm Company, Rada.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>26</strong> Larsson, P. M., Löa, Rausa.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>27</strong> Sandvikens Stock Co., Gefle.</td>
<td>Iron ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>28</strong> Schough, Robert, Lulea.</td>
<td>Iron and copper ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>29</strong> Geological Survey of Sweden, Stockholm.</td>
<td>Geological collections.</td>
<td>100</td>
</tr>
<tr>
<td><strong>30</strong> Högmanås Coal Mining Co., Högmanås.</td>
<td>a Mineral coal.</td>
<td>101</td>
</tr>
<tr>
<td></td>
<td>b Fire clay, fire brick.</td>
<td>104</td>
</tr>
<tr>
<td><strong>31</strong> Samuelson, S. H., Föskefors, Rada.</td>
<td>Peat.</td>
<td>101</td>
</tr>
<tr>
<td><strong>32</strong> Westerlund, A. F., Nybro, Kalmar.</td>
<td>Peat.</td>
<td>101</td>
</tr>
<tr>
<td><strong>33</strong> Berg, Gottfried, Wärby, Stockholm.</td>
<td>Iron ores.</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td><strong>a</strong> Porphyry, serpentine, and marble.</td>
<td>100</td>
</tr>
<tr>
<td><strong>34</strong> Klinberg, J. W., Wisby.</td>
<td>Marble table slabs, jewelry, etc.</td>
<td>102</td>
</tr>
<tr>
<td><strong>35</strong> Kullgrens, C. A., Widow, Uddevalla.</td>
<td>Articles of polished granite.</td>
<td>103</td>
</tr>
<tr>
<td><strong>36</strong> New Marble Works, Norrköping.</td>
<td>Manufactured marble.</td>
<td>102</td>
</tr>
<tr>
<td><strong>37</strong> Scania Cement Co., Malmö.</td>
<td>Portland cement, raw materials and products.</td>
<td>103</td>
</tr>
<tr>
<td><strong>38</strong> Rörstrand Stock Co., Stockholm.</td>
<td>Feldspar.</td>
<td>104</td>
</tr>
<tr>
<td><strong>39</strong> Gottland Grindstone Co., Burgsvik.</td>
<td>Grindstones.</td>
<td>104</td>
</tr>
<tr>
<td></td>
<td><strong>a</strong> Karlson, Gust &amp; Martin, Lugnas.</td>
<td>Grindstone.</td>
</tr>
<tr>
<td><strong>40</strong> Berg, Gottfried, Warby, Stockholm.</td>
<td>a Graphite.</td>
<td>105</td>
</tr>
<tr>
<td></td>
<td>b Grindstones.</td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>c Vivianite.</td>
<td>107</td>
</tr>
<tr>
<td><strong>41</strong> Berg, Chr. Lud., Eriksberg, Stockholm.</td>
<td>Mineral waters.</td>
<td>107</td>
</tr>
</tbody>
</table>

**DEPT. I.—MINING AND METALLURGY.**
Metallurgical Products.


47 Laxa Iron Works, Laxa. — Pig iron, blooms, and bar iron. 

COLLECTIVE EXHIBIT OF IRON MANUFACTURERS, STOCKHOLM: 

48 Ankarsrum Works, Ankarsrum. — Pig iron, blooms, iron bars, wire rods, and railway crossings. 

49 Västra Garpenberg Stock Co., Västra. — Pig iron, blooms, and bar iron. 

50 Björneborg Iron & Steel Works, Björneborg. — Pig iron, Bessemer steel ingots, and manufactured Bessemer steel. 

51 Degerfors Stock Co., Degerfors. — Pig iron, blooms, wire rods, and plates. 

52 Ekman, Carl. Finspong. — Pig iron for guns, malleable blooms, and bar iron. 

53 Gyvling Iron Works, Gyvling. — Iron in the pig and bar, with specimens of slag. 

54 Hermansson, C. F. Count von, Ferna. — Bernhammar. — Pig iron, spiegelisen, and bar iron. 

55 Hofors & Hammarsby, Hammarsby. — Storvik, Gest. — Pig iron, blooms, and bars, with specimens of slag. 

56 Laxjo, Norns, Stock Co., Kahilla. — Pig, bar, and angle iron; blooms. 

57 Lesjöfors Iron & Steel Co., Filipstad. — Pig iron, ingots of Bessemer and Martin steel, bars, wire, and wire rope of the same material. 

58 Lindberg Lars, Kihlava. — Pig iron, bar iron, and wire rods. 


60 Rettig, C. A., Kilsfors. — Pig iron and bar iron. 

61 Stockenström, Axel von, Måristad. — Pig iron for machine iron. 

62 Bergslagens Iron Works, Stockholm. — Iron iron, Bessemer steel ingots, blooms, bar iron, and samples of iron showing the quality. 

63 Sundström, J. O., Charlottenberg. — Pig and bar iron; spikes. 

64 New Gyllivara Company Limited, Luden. — Pig and bar iron; nails. 

65 Gatersby & Strombacka, Danemora. — Pig iron, Bessemer steel ingots, blooms, Bessemer steel, crucible cast iron, and bar iron. 


67 Uddevalla Stock Co. Limited, Rada. — Pig iron, ingots of Bessemer and Martin steel, and iron bars; springs, etc. 

68 Larsson, P. M., Låda, Rällsa. — Samples of pig iron. 

69 Motala Mechanical Co., Motala. — Iron and steel, in bars, plates, and sheets, with specimens of working. 

70 Säbvesters Iron Works Limited, Säbvesters. — Pig iron, Bessemer steel ingots, forgings for engines, steamers, etc. 

71 Adelswärd, Baron Th., Atvidaberg. — Copper in ingots, with specimens illustrating its various stages of production. 

72 Skultuna Iron Co., Westeras. — Copper, with specimens of working. 

For iron, railway and wagon wheels, tires, axles, etc., see Class 773, Machinery, etc.
**NORWAY.**

(North of Nave, Columns 4 to 7.)

Ores, Stone, Metallurgical Products.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products</th>
<th>Metallurgical Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Stones, eruptive rocks, leading strata, constituents of coarse granite dykes. 100</td>
<td>— Silver in bars and granulated silver. 110</td>
</tr>
<tr>
<td>b Manuscript maps, natural sections, generalized representations, printed maps. 335</td>
<td>17 Cathrineholm's Iron Works &amp; Foundry, Fredrikshald.</td>
</tr>
<tr>
<td>2 Fasmer, I. H., &amp; Son, Bergen.—Feldspar. 100</td>
<td>a Stoves and other wrought iron. 222</td>
</tr>
<tr>
<td>3 Hinderager Mining Co., Bergen.—Copper ore, pyrites. 100</td>
<td>b Anchors, chains. 284</td>
</tr>
<tr>
<td>4 Hoyem, Andr., Bergen.—Titanium iron ore. 100</td>
<td></td>
</tr>
<tr>
<td>5 Kongsberg Silver Mines, Kongsberg.—Ores, crystals. 100</td>
<td></td>
</tr>
<tr>
<td>5a Dahl, J., Kragerø.—Apatite ore. 100</td>
<td></td>
</tr>
<tr>
<td>6 Bamble Nickel Mines, Johan Dahl, Kragerø.—Samples of nickel ores, with specimens illustrative of the melting process. 100</td>
<td></td>
</tr>
<tr>
<td>7 Glorud Nickel Co., F. H. Frolich &amp; Son, Christiania.—Nickel ores. 100</td>
<td></td>
</tr>
<tr>
<td>a Newly-discovered crystals. 100</td>
<td></td>
</tr>
<tr>
<td>b Contents of giant-kettles, spiral marked interior grinding-stones. 106</td>
<td></td>
</tr>
<tr>
<td>For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.</td>
<td></td>
</tr>
</tbody>
</table>
ITALY.—BRAZIL.

ITALY.

(North of Nave, Columns 1 to 5.)

Minerals, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

1 Tagliavia, Francesco, & Co., Messina.—Collection of minerals. 100
2 Fontana Brothers, Luserna, Turin.—Flagstones. 102
3 Tassi, Peter, Leghorn.—Yellow marble and alabaster. 102
4 Chamber of Commerce & Arts, Sienna.—Marble and alabaster stone. 103
5 Stock Company for Manufacturing Bricks, Feggio, Emilia.—Cement, limestone. 103
6 Crispo, Moncada Carlo, Catania.—Limestone. 103
7 Maccagnani, Ulisse, Bolonga.—Aromatic earth of Cattu. 104
8 Bolari & Yellow Earth Co., Sienna.—Bolari and yellow earth, earth for coloring. 104
9 Furse Bros., & Co., Rome.—Bolari earth of Sienna. 104
10 Molfino, Luigi, Genoa.— Lithographic stone. 106
11 Scammano, Cav. Michele, Catania.—Cedrats. 107
12 Birindelli, Carlo, Florence.—Colalli water. 107
13 Spedalieri, Ba Felice, Catania.—Sulphur. 107
14 Aristide, Count, Castrocaro.—Mineral waters. 107
15 Romano, Gaetano, Palermo.—Sulphur. 107
16 Scavo Vita Brothers, Catania.—Sulphur. 107
17 Dily, Edoardo, Catania.—Sulphur. 107
18 Ardizzone, Francesco, Catania.—Sulphur. 107
19 Pennini, Baron of Floristallo, Catania.—Sulphur. 107
20 Cesena Sulphur Co. (limited), Cesena.—Raw and refined sulphur. 107
21 Bartolini dott Cesare, Sienna.—Fossil flour. 107

Metallurgical Products.

22 Fornara, Gio., & Co., Turin.—Wire. 111
23 Ponsard & Gigli, Florence.—Iron, manganese. 111

BRAZIL.

(North of Nave, Columns 58 to 61.)

Minerals, Stone.

Minerals, Ores, Stone, Mining Products.

1 Province of Paraná. 100
2 Iron ores. 100
3 Clay, argil, and schist. 104
4 Alkaline waters. 107
5 Province of Sao Paulo.—Iron ores. 100
6 Ypanema Iron Works.—Iron ores. 100
7 Cunha Bettencourt, M. J. da.—Minerals. 100
8 Gorceix, H.—Rocks and minerals. 100

6 Commission General for the National Exhibition.

a Ores. 100
b Coal. 101
c Marbles. 102
d Clay, argil, and schist. 105
e Minerals, showing gold and diamond formations. 106

7 National Museum.

a Minerals. 100
b Coal. 101
c Marbles. 102
d Gems. 106

For classes of exhibits, indicated by number at end of entries, see Classification, pp 29-45.
Oils, Blacking, Boots and Shoes.

8 Goens, J. T. Pereira de.—Minerals.

9 Lemos, J. A. de.—Minerals.

10 Correia, J. Severo.—Calcareaous rocks, galeia, and pyrites.

11 Athayde, M. E. de S.—Mica.

12 Moraes, Rozeira, M. G. de.—Martial pyrites.

13 Mendes, J. O.
   a Sulphur.
   b Calcareaous stalactites.

14 Costa Netto, J. da.—Fossils.

15 Province of San Pedro do Sul.—Coal.

16 Villa Franca, Baron of.—Peat.

17 Andrade, A. R. L.—Bituminous coal.

18 Barbacena, Viscount of.—Coal.

19 Province of Santa Catherina.
   a Coal.
   b Marble.


21 Carvalho, A. P. S.—Bituminous schist.

22 Muricy, J. C. da Silva.
   a Anthracite and bituminous coal.
   b Quartz, agates, and grindstones.

23 Steraux, E.—Marbles.

24 Leo, A. D.
   a Calcareaous slates and stalactites.
   b Rock crystal and agates.

25 Coritiba Museum.
   a Slates.
   b Violaceous quartz.

26 Osnabruck, Charles.—Virgin lime.

27 Juparana, Baron of, & Nogueira da Gama.—Calcareaous specimens.

28 Freitas, T. Teixeira de.—Lime.

29 Cardoso, A. Nunes.—Lime from oyster-shells.

30 Portugal, F. P. de Asvedo.—Calcareaous rocks.

31 Commission of S. Joao d'El Rei.—Plaster of Paris in powder.

32 Nhorinho, J. S. da Silva.—Lime.

33 Bento, Dr.—Lime.

34 Lendenberg, L. B.—Lime.

35 Rezende, C. Xavier.—Stalactites.

36 Colony of Assunção.—Saponaceous clay.

37 Gonzaga, E. J.—Clays.

38 Gonsalves, J.—Calcined kaolin.

39 Correa, G. Lourenço.—Clay.

40 Wirmund, E. E.—Yellow argil.

41 Mota, C. S. da.—Tagua (rose-colored argil).

42 Gomes, T. G. C.—Argil.

43 Figueiredo, D. J.—Argil and plastics.

44 Magalhaes, F. T. S.—Argil and colored clay.

45 Andrade, J. F. de.—Colored clay.

46 District of Formiga.—Argil.

47 Travança, A.—Argil.

48 Schimmelpfing, A.—Kaolin.

49 Ribas, M. de Sa.—Alum.

50 Ferreira, Domingos F.—Rough and cut diamonds.

51 Silva, L. Machado da.—Quartz prisms.

52 Heyd, Theodoro.—Grindstones.

53 Siqueira, P. Lustosa de.—Agates.

54 Colony of Mucury.—Precious stones.

55 Cortez, P. de Siqueira.—Amethysts.

56 Asevedo, D. J. Santés.—Diamonds.

57 Maciel, D. Ferreira.—Sulphurous water.

Metallurgical Products.

58 Commission General for the National Exhibition.
   a Gold.
   b Iron.
   c Mercury.

59 Province of Paraná.—Specimens of gold veins.

60 Tourinho, F. A. M.—Magnetic gold.

61 Camara, J. Ewbank da.—Auriferous stones.

62 Leone, F. M., & Lemos, P. L.—Auriferous minerals.

63 Camara, F. T. Vieyra da.—Gold-dust.

64 Portogol, F. P. de A.—Gold-dust.

65 Province of Pernambuco.—Native iron.

66 National Museum.
   a Iron.
   b Copper.

67 Province of Santa Catherina.
   a Iron.
   b Nickel.

68 Cruz, B. A. da.—Magnetic iron.

69 Lellian, Ernesto.—Magnetic iron.

70 Ypanema Iron Works.—Bar iron.

71 Silva, M. A. Machado da.—Oligistic iron.

72 Oliveira, A. C. de.—Oligistic iron.

73 Barboda, Nemes.—Oligistic iron.

74 Aranjo, J. A. Vieyra de.—Oligistic iron.

75 Ledo, Agostinho E. de.—Oligistic iron.

76 Suplicy, J. Francisco.—Pyrites and sulphuret of iron.

77 Gasse, F.—Lead foils from Rio de Janeiro.

Mine Engineering, Models, Maps, and Sections.

78 Geological Commission.—Geological photographs.

79 Gorcelx, H.—Geological map of the Chupadão.
ARGENTINE REPUBLIC.

Minerals, Ores, Stone.

<table>
<thead>
<tr>
<th>Mineral/Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galindez, Clasico, Province of Catamarca</td>
<td>Silver and copper ore.</td>
</tr>
<tr>
<td>Villafane, Tristan, Province of Catamarca</td>
<td>Silver-bearing galena.</td>
</tr>
<tr>
<td>Bedoya, Segundo, Province of Salta</td>
<td>Silver ore.</td>
</tr>
<tr>
<td>Resoagli, Luis, Province of Corrientes</td>
<td>Quartz, flint, agate, etc.</td>
</tr>
<tr>
<td>Mansilla, Manuel, Province of Corrientes</td>
<td>Quartz, agate, copper ore, and mica.</td>
</tr>
<tr>
<td>Galarraga, E. G. de, Province of Corrientes</td>
<td>Crystal rock.</td>
</tr>
<tr>
<td>Tula, Nabor, Province of Catamarca</td>
<td>Copper ore from the Cerro Negro.</td>
</tr>
<tr>
<td>Sicard, Juana G. de, Province of Corrientes</td>
<td>Crystal rock and flint.</td>
</tr>
<tr>
<td>Porta, Felix, Province of Corrientes</td>
<td>Agglomeration of small stones.</td>
</tr>
<tr>
<td>Acosta de Quirolo, Josefa, Province of Corrientes</td>
<td>Crystal rock.</td>
</tr>
<tr>
<td>Cuña, Americo, Province of Corrientes</td>
<td>Agate.</td>
</tr>
<tr>
<td>Molina &amp; Carranza, Province of Catamarca</td>
<td>Ore from the Rosario mine.</td>
</tr>
<tr>
<td>Cabral y Melo, José Maria, Province of Corrientes</td>
<td>Crystal rock and flint.</td>
</tr>
<tr>
<td>Salcedo, Uladislas M., Province of Catamarca</td>
<td>Copper and silver ore.</td>
</tr>
<tr>
<td>Pujol, Nicanor, Province of Corrientes</td>
<td>Iron ore.</td>
</tr>
<tr>
<td>Córdoba University, Province of Córdoba</td>
<td>Collection of minerals.</td>
</tr>
<tr>
<td>Muro, Froilan, Province of Catamarca</td>
<td>Iron and copper ore, copperers, and alum.</td>
</tr>
<tr>
<td>Fragneiro, José M., Province of Córdoba</td>
<td>Lead containing silver.</td>
</tr>
<tr>
<td>Provincial Commission, Province of Córdoba</td>
<td>Lead containing silver, gypsum, various minerals.</td>
</tr>
<tr>
<td>Provincial Commission, Province of San Luis</td>
<td>Lead containing silver, gypsum, various minerals.</td>
</tr>
<tr>
<td>Government of the Province of San Juan</td>
<td>Lead containing silver, gypsum, various minerals.</td>
</tr>
<tr>
<td>Provinciales, Province of Catamarca</td>
<td>Iron and antiquity ores.</td>
</tr>
<tr>
<td>Rosilla, Benjamin, Province of Salta</td>
<td>Silver ore.</td>
</tr>
<tr>
<td>Provincial Sub-commission of Tinegasta, Province of Catamarca</td>
<td>Ores of iron, lead, copper, silver, etc.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. I.—MINING AND METALLURGY.

Minerals, Ores, Stone.

37 Echevarria, Cecillo, Province of Santa Fé.—Minerals; quartz and agates of Alto Uruguay. 100
38 Rap, Eugenio, Province of Tucuman.—Collection of minerals. 100
39 Government of the Province of Jujuy.—Silver ore from Tilcará. 100
40 Sub-commission of the Department of Diamante, Province of Entre Ríos.—
4 Stones found on the shores of the Plata y Uruguay. 100
5 Hydraulic cement stones and cement, lime, artificial stone, petrified wood, etc. 103
40a Provincial Commission, Province of Catamarca. 100
a Quartz, garnets, manganese, etc. 100
b Coal. 101
c Soapstone from Ancasti. 102
d Water-lime, gypsum. 103
e Colored clay, soapstone in powder, kaolin, etc. 104
f Mineral waters. 107
40b Elordi, Louis, Province of Buenos Ayres.—Copper ore from Patagonies. 100
41 Arguello, David, Province of Cordoba. 100
a Silver ore. 100
b Anthracite coal. 101
42 Galvan, Federico, Province of La Rioja.—Coal from Tumbillos. 101
43 Roman, Gabriel, Province of Catamarca.—Coal. 101
44 Valdes, Emiliano, & Cipriano, Province of Buenos Ayres. 100
a Colored and other stones from Tandil. 102
b Black and white vegetable clay from Balcarce. 104
c Sand and whitestones. 106
45 Olimo, Jose V., Province of Cordoba. 100
—White marble. 106
46 Salas, Manuel M., Province of Corrientes.—Marble and crystallized stones. 102
47 Santos, Francisco A., de los, Province of Corrientes.—Hollow unpolished stone. 102
48 Hurley, Tomás, Province of Catamarca.—Granites; copper and black bronzes; antique pieces of stone discovered in the abandoned mine of Ortiz. 102
49 Provincial Commission, Province of Santiago del Estero. 102
a Dressed stones from the Sierra de Guayacan. 102
b Crystallized and common gypsum. 103
c Colored clay and saltpetre. 104
d Mineral and sarsaparilla waters. 107
50 Provincial Commission, Province of San Juan.—Building stone. 102
51 Avellaneda, Nicolas, Province of Cordoba.—Marble 102
52 Segura, Rufino, Province of Catamarca.—Soapstone, flagstone. 102
53 Sub-commission of Andalgalá, Province of Catamarca.—Soapstone from Belen. 102
54 Riso, Isidoro, Province of Catamarca, a Soapstone. 102
b Water lime. 103
55 Herrera, Nicolas, Province of Catamarca.— Slate. 102
56 Cornelo, Melchora, T., Province of Salta. 103
a Carbonate of lime. 103
b Mineral waters. 107

57 Saravia, Pablo, Province of Salta. — Sulphate of lime. 103
58 Fornasari, R., & Facino, H., Province of Entre Ríos.—Hydraulic cement, artificial stones. 103
59 Commission of Paraná, Province of Entre Ríos. 102
a Limes, limestones, lime, sulphate of lime, petrified oyster-shells, etc. 103
b Clay, fine sand, calcareous clay, containing gold and silver. 103
c Tripoli. 106
60 Garlve, N., Province of Entre Ríos. — Artificial stones. 103
61 Peretti, Santiago, Province of Salta. — Dressed stone and carbonate of lime. 103
63 Solá, Ramon, Province of Entre Ríos.—Gypsum. 103
64 Justice of the Peace of Ensenada, Province of Buenos Ayres.—Lime made from shells. 103
65 Pedruncini, Juan, Province of Buenos Ayres.—Shell-lime. 103
66 Vañes, Nicasio, Province of Buenos Ayres. 100
a Lime from Balcarce. 103
b Red clay. 104
67 Ñiguez, Manuel A., Province of Buenos Ayres.—Limestone from Tandil. 103
68 Commission of Water Works, Province of Buenos Ayres. 100
a Lime-shells, calcareous stones, raw and burnt cement, cement in shape of bricks. 103
b Clay. 104
69 Welsh, Miguel, Province of Buenos Ayres.—Limestone, quicklime, slaked lime. 103
70 Caetani, Vicente, Province of Buenos Ayres.—Artificial marble. 103
71 Sandrot, José, Province of Buenos Ayres.—Artificial stones. 103
72 Justice of the Peace of Patagonies, Province of Buenos Ayres.—Gypsum, etc. 103
73 Ibáñez, P., Province of Catamarca.—Stalagmitical lime. 103
74 Provincial Commission, Province of Tucuman. 100
a Block, yellow, and white limestone, common gypsum. 103
b White clay. 104
75 Paroni, Andrés, Province of Santa Fé.—Hydraulic cement. 103
76 Provincial Commission, Province of Corrientes.—Calcareous stones from Itati. 103
77 Aguilar, Francisco D., Province of San Juan.—Hydraulic lime. 103
78 Gache, Manuel, Province of Buenos Ayres.—Gypsum from Rio Salado. 103
79a Careno, Nicholas, Province of Salta.—Kaolin, white clay, and chalk. 104
79b Santacruz, Simon de, Province of Entre Ríos.—Sand from Ibicui. 104
79c Tamayo, Sidney, Province of Salta.—White clays. 104
80 Arias, Hilarión, Province of Salta.—Sulphate of lime. 104
81 Lopez, Feliciano, Province of Corrientes.—Clay for the manufacture of crockery, tiles, and bricks, yellow stone for coloring and paint. 104

For classes of exhibits, indicated by numbers at end of entries, see Classification. pp. 27-45.
Minerals, Stone, Metallurgical Products.

82 Sub-commission of Bella Vista, Province of Corrientes.—Stone containing red and yellow coloring substances; clays.

83 Calderon, Pedro, Province of Entre Rios.—Vegetable clay.

85 Fontes, V. M., & Negra, S., Province of Entre Rios.—Clay for whitewashing.

86 Bazan, Abel, Province of La Rioja.—Refractory bricks.

87 Barros, Jose, Province of La Rioja.—Refractory bricks.

89 Justice of the Peace of Zarate, Province of Buenos Ayres.—Black and ferruginous clays.

90 Lobo, Tristan, Province of Catamarca.—Chalk clay, tiles, and bricks.

91 Lafone Quevedo, Samuel A., Province of Catamarca. a White clay for bricks; refractory bricks. b Hard fossil-ground quartz.

92 Caballero, Eugenio, Province of Salta.—Graphite.

93 Medina, Luis R., Province of Catamarca.—Wheatstones from Concepcion.

94 Perez, Luisa, Province of La Rioja.—Mineral water.

95 Patron Bros., Province of Salta.—Mineral waters.

97 Schmidt, Antonio, Province of San Luis.—Mineral waters.

98 Escobar, Juan de D., Province of San Luis.—White-stone water.

99 Sub-commission of the Colony of San Carlos, Province of Santa Fe.—Vegetable clay.

100 Otamendi, Carlos, Province of Buenos Ayres.—Shells from the coast of Balcarce.

Metallurgical Products.

101 Gainza, Martin de, Province of Buenos Ayres.—Gold from Patagones.

102 Nell, Federico, Province of San Luis.—Gold and washed gold.

103 Bertram & Co., Province of San Luis.—Gold from the Descubridora mine.

104 Provincial Commission, Province of San Luis.—Gold from La Carolina mine.

105 Lafone Quevedo, Samuel A., Province of Catamarca.—Copper ingots.

Minerals, Ores, Stone, Metallurgical Products.

6 Sanchez, Francisco, Talca.—Carved stone from Talca.

7 Cadiz, Jose, Gabriel, Santiago.—Artificial marble balustrade, maniel, pilasters, and columns.

8 Government of Chili.—Copper in ingots.

9 Errazuriz, Maximiano, Santiago.—Strata of coal mine in Lebu.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
## MEXICO.

*(North of Nave, Columns 64 to 67.)*

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Ochva, Gaspen, Sanchez, City of Mexico.</strong>—Sulphur from the Volcano Popocatepetl.</td>
<td><strong>14 Quebradella Company, Zacatecas City.</strong>—Minerals.</td>
</tr>
<tr>
<td><strong>2 Mexican Mining Society, City of Mexico.</strong>—Minerals and rocks.</td>
<td><strong>15 Mala Noche Company, Zacatecas City.</strong>—Minerals.</td>
</tr>
<tr>
<td><strong>3 School of Engineers, City of Mexico.</strong>—Minerals.</td>
<td><strong>16 Ponce, Juan, Zacatecas City.</strong>—Minerals.</td>
</tr>
<tr>
<td><strong>4 National Museum, City of Mexico.</strong>—Minerals and rocks.</td>
<td><strong>17 Ramírez, S. &amp; C. J., City of Mexico.</strong>—Rocks.</td>
</tr>
<tr>
<td><strong>5 Barcena, Mariano, City of Mexico.</strong>—Livingstonite.</td>
<td><strong>18 Barcena, Manimo, City of Mexico.</strong>—Fossils, rocks, and geological maps.</td>
</tr>
<tr>
<td><strong>7 Natural History Society, City of Mexico.</strong>—Minerals.</td>
<td><strong>20 Zenteno, Estevan, Fempoal, Vera Cruz.</strong>—Coal.</td>
</tr>
<tr>
<td><strong>8 Government of the State of Durango, Durango City.</strong>—Iron ores.</td>
<td><strong>21 Gutierrez, Julian, &amp; Co., City of Mexico.</strong>—Marble from the State of Puebla.</td>
</tr>
<tr>
<td><strong>8a Muller, N., Chihuahua City.</strong>—Meteorite iron.</td>
<td><strong>22 Bocanegra, S., State of San Luis Potosi.</strong>—Marbles.</td>
</tr>
<tr>
<td><strong>9 Soto, Mayor C., State of Michoacan.</strong>—Minerals from the mineral district of Angangueo.</td>
<td><strong>23 State Government of Hidalgo.</strong>—Argilis.</td>
</tr>
<tr>
<td><strong>10 Rull, Miguel, City of Mexico.</strong>—Minerals.</td>
<td><strong>24 Bermegillo, Pio, State of Michoacan.</strong>—Cake of silver from Angangueo.</td>
</tr>
<tr>
<td><strong>11 Real Del Monte Company.</strong>—Minerals.</td>
<td><strong>26 Guadalupe Company.</strong>—Wrought and cast iron.</td>
</tr>
<tr>
<td><strong>12 State Government of Oaxaca.</strong>—Minerals.</td>
<td><strong>27 Esperon, José, Oaxaca City.</strong>—Wrought and cast iron.</td>
</tr>
<tr>
<td><strong>13 San Rafael Company.</strong>—Minerals from Zacatecas City.</td>
<td><strong>For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.</strong></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
SPAIN.

(South of Nave, Columns 16 to 18.)

Minerals, Ores, Stone.

1 Arrivillaga, Agustin, Fondón, Province of Almería.—Galena. 100
2 Fernandez, Diego, Cuevas, Province of Almería.—Argentiferous galena and barites. 100
3 Campos, Francisco, Fondón, Province of Almería.—Laminated galena. 100
4 Montoro, Francisco, Vera, Province of Almería.—Laminated galena. 100
5 Bachiller, Guillermo, Cuevas, Province of Almería.—Argentiferous galena with iron pyrites. 100
6 Cerezo, Gonzalo, Berja, Province of Almería.—Laminated galena. 100
7 Gonzalez, Gabriel, Laujar, Province of Almería.—Laminated galena. 100
8 Terriza, José, Berja, Province of Almería.—Laminated galena. 100
9 Rapalo, José, Almería, Province of Almería.—Galena. 100
10 Olmo, José del, Berja, Province of Almería.—Galena, stained with minimum. 100
11 Cavanillas, Juan, Cuevas, Province of Almería.—Argentiferous galena. 100
12 Correlo, Rafael, Almozita, Province of Almería.—Galena. 100
13 Abad, Jerónimo, Nijar, Province of Almería.—Pyrolusite. 100
14 Ayala, Antonio, Lucar, Province of Almería.—Staite. 100
15 Padilla, Francisco, Nijar, Province of Almería.—Calamine and carbonate of lead. 100
16 Blanco, Prudencio, Alcolea, Province of Almería.—Gray calamine. 100
17 Duran, Esteban, Almería.—Oxide of copper and calamine. 100
18 Ramirez, Luis, Lucar, Province of Almería.—Black oxide of cobalt. 100
19 Rio, Eustaquio, Huéscar-Overa, Province of Almería.—Arseniate of cobalt. 100
20 Real, José, Almería.—Carbonate of lead. 100
21 Gomez, Cristano de, Nijar, Province of Almería.—Carbonate of lead. 100
22 Trell, Miguel del, Berja, Province of Almería.—Carbonate of calamine. 100
23 Daza y Ruiz, Francisco, Purchena, Province of Almería.—Iron ore. 100
23a Daza y Ruiz, Seron, Province of Almería.—Iron ore. 100
23b Daza y Ruiz, Lucar, Province of Almería.—Cinnabar ore and cobalt. 100
24 Vivas Asqueros, Antonio, Pechina, Province of Almería.—Iron ore. 100
25 Linares, Clemente, Albanchex, Province of Almería.—Iron ore. 100
26 Villalobos Brothers, Berja, Province of Almería.—Sulphate of lead. 100
27 Hernandez, Secundino, Feria, Province of Badajoz.—Iron ores. 100
28 Successful Society, Alconchel Chelsea, Province of Badajoz.—Chakopirita. 100
29 Lambe & Co., Castuera, Province of Badajoz.—Galena and argentiferous lead. 100
30 Mateos y Morato, Santiago, Azuaga, Province of Badajoz.—Sulphate of lead. 100
31 Grappin, G. de, Llerena, Province of Badajoz.—Galena. 100
31a Grappin, G. de, Malpartida, Province of Cáceres.—Phosphate of lime. 100
31b Grappin, G. de, Aldeacentenera, Province of Cáceres.—Copper. 100
31c Grappin, G. de, various towns of the province of Cáceres.—Collection of ores. 100
32 Martinez de Santa Maria, Juan, Burguillos, Province of Badajoz.—Magnetic iron ore. 100
33 Llégé & de Planell, Juan, Gabay del Figar, Province of Barcelona.—Iron ore with manganese. 100
34 O'Daly, Olimpia Vallcarrega, Province of Barcelona.—Magnetic iron. 100
35 Anglada & Co., Pontons, Province of Barcelona.—Carbonate of zinc. 100
36 Provincial Commission, Atapuerca, Province of Burgos.—Stalactites. 100
37 Richard & Granducon, Rio-Escudo, Province of Burgos.—Hematites. 100
37a Richard & Granducon, Huelveta-abajo, Province of Burgos.—Hematites. 100
37b Richard & Granducon, Montemurillo de la Sierra, Province of Burgos.—Hematites. 100
38 Gutierrez, Julian, Olmos de Atapuerca, Province of Burgos.—Yellow and red ochre. 100
39 Oria, Eugenio, Pancorbo, Province of Burgos.—Oxide of iron. 100
40 Corporation of Pineda.—Micaceous iron. 100
41 Muñoz Bello, Francisco, Cáceres.—Phosphate of lime. 100
42 Gonzalez, Diego Bibiano, Cáceres.—Calcareous phosphates. 100
43 Rocandio, Jorge, & Sbarby, Manuel, Zarra y Cicavín, Province of Cáceres.—Calcereous phosphate. 100

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Sande Olivarres, Gerónimo de Garro-billas de Alcostar, Province of Cáceres.</td>
<td>Copper ore.</td>
</tr>
<tr>
<td>45</td>
<td>Miro Cerdà, various towns of the Province of Castellon.</td>
<td>Ores.</td>
</tr>
<tr>
<td>46</td>
<td>Provincial Board of Agriculture, Province of Castellon.</td>
<td>Galena and calamine.</td>
</tr>
<tr>
<td>47</td>
<td>Caminer, Jose, Ciudad-Real.</td>
<td>Ores.</td>
</tr>
<tr>
<td>48</td>
<td>Pique, Alfonso Emilio, Horcajo, Province of Ciudad-Real.</td>
<td>Ores.</td>
</tr>
<tr>
<td>49</td>
<td>Mines of Almaden, Almaden, Ciudad-Real.</td>
<td>Cinnabar ores and rocks.</td>
</tr>
<tr>
<td>50</td>
<td>Ducloux, Francisco Javier, Province of Barcelona.</td>
<td>Ores.</td>
</tr>
<tr>
<td>51</td>
<td>Gomez Ruiz, widow &amp; sons of Gabriel, San Julian del Llot, Province of Gerona.</td>
<td>Lead ore.</td>
</tr>
<tr>
<td>52</td>
<td>Hisern, Joaquin, Carataunas, Province of Granada.</td>
<td>Hematite iron.</td>
</tr>
<tr>
<td>53</td>
<td>Vasquez, Diego, Pitres, Province of Granada.</td>
<td>Quicksilver ore.</td>
</tr>
<tr>
<td>54</td>
<td>Corps of Mining Engineers, Huelva.</td>
<td>Sulphur of argentiferous antimony.</td>
</tr>
<tr>
<td>56</td>
<td>Ibarra, Jose Maria de, Huelva.</td>
<td>Galena.</td>
</tr>
<tr>
<td>57</td>
<td>Vasquez y Lopez, M., Zalamea la Real, Province of Huelva.</td>
<td>Peroxide of manganese.</td>
</tr>
<tr>
<td>58</td>
<td>Rielh y Gerdes, George, Mina Britzeria, Huelva.</td>
<td>Sulphur.</td>
</tr>
<tr>
<td>59</td>
<td>Solo, Emilio de, Alosno, Province of Huelva.</td>
<td>Peroxide of manganese.</td>
</tr>
<tr>
<td>60</td>
<td>Díaz y Gomez de Cadiz, Eduardo, Valverde del Camino, Province of Huelva.</td>
<td>Manganese ore.</td>
</tr>
<tr>
<td>61</td>
<td>Bull &amp; West, Diego, Valverde del Camino, province of Huelva.</td>
<td>Cuprous pyrites.</td>
</tr>
<tr>
<td>62</td>
<td>Tharsis Sulphur &amp; Copper Co. (limited), Alosno, Province of Huelva.</td>
<td>Ores and slags.</td>
</tr>
<tr>
<td>63</td>
<td>Rio Tinto Co. (limited), Province of Huelva.</td>
<td>Ores.</td>
</tr>
<tr>
<td>64</td>
<td>La Buena Fe, Society, Linares, Province of Jaen.</td>
<td>Laminated galena, etc.</td>
</tr>
<tr>
<td>65</td>
<td>La Familia Society, Linares, Province of Jaen.</td>
<td>Laminated galena and galena in dress.</td>
</tr>
<tr>
<td>66</td>
<td>La Inocencia Mining Society, Guarrroman, Province of Jaen.</td>
<td>Laminated galena and galena in dress.</td>
</tr>
<tr>
<td>68</td>
<td>English, Heirs of Juan Carlos, Linares, Province of Jaen.</td>
<td>Laminated and ground galena and galena in dress.</td>
</tr>
<tr>
<td>69</td>
<td>Acevino y Vazquez de Araujo, Enrique, Linares, Province of Jaen.</td>
<td>Laminated galena.</td>
</tr>
<tr>
<td>70</td>
<td>Sopwith, Thomas, Linares, Province of Jaen.</td>
<td>Laminated galena.</td>
</tr>
<tr>
<td>71</td>
<td>Bonaplata, Eduardo, Bailén, Province of Jaen.</td>
<td>Galena.</td>
</tr>
<tr>
<td>72</td>
<td>Figueroa, Ignacio, Linares, Province of Jaen.</td>
<td>Galena.</td>
</tr>
<tr>
<td>73</td>
<td>Amado Salazar, Enrique, Bailén, Province of Jaen.</td>
<td>Galena.</td>
</tr>
<tr>
<td>74</td>
<td>Lohnstein, Emilio, Linares, Province of Jaen.</td>
<td>Galena.</td>
</tr>
<tr>
<td>75</td>
<td>Arboledas, Martin, Linares, Province of Jaen.</td>
<td>Sulphate of lead.</td>
</tr>
<tr>
<td>76</td>
<td>Villanova, José Genaro, Linares, Province of Jaen.</td>
<td>Earth from a lead mine, and potter's antimony.</td>
</tr>
<tr>
<td>77</td>
<td>Polo Leoncio, Villafeliz, Province of Leon.</td>
<td>Iron ore.</td>
</tr>
<tr>
<td>78</td>
<td>Alonso, Casimiro, Leon.</td>
<td>Oxidized iron ore.</td>
</tr>
<tr>
<td>79</td>
<td>Bertrand, Casimiro, Alins, Lérida.</td>
<td>Ocellese, native iron.</td>
</tr>
<tr>
<td>80</td>
<td>Reynante y Cancio, Manuel, Riva deo, Lugo.</td>
<td>Ores.</td>
</tr>
<tr>
<td>81</td>
<td>Corps of Mining Engineers, Madrid.</td>
<td>Ores.</td>
</tr>
<tr>
<td>82</td>
<td>Naranjo y Garza, Felipe, from various towns of the Province of Madrid.</td>
<td>Ores.</td>
</tr>
<tr>
<td>83</td>
<td>Mining Engineers, Málaga.</td>
<td>Malachite copper ore.</td>
</tr>
<tr>
<td>83a</td>
<td>Mining Engineers, Marbella, Province of Málaga.</td>
<td>Magnetic iron.</td>
</tr>
<tr>
<td>83b</td>
<td>Mining Engineers, Estepeona, Province of Málaga.</td>
<td>Magnetic iron.</td>
</tr>
<tr>
<td>83c</td>
<td>Mining Engineers, Mijas, Province of Málaga.</td>
<td>Hydrated iron, galena, and magnetic iron.</td>
</tr>
<tr>
<td>83d</td>
<td>Mining Engineers, Istán, Province of Málaga.</td>
<td>Magnetic iron.</td>
</tr>
<tr>
<td>83e</td>
<td>Mining Engineers, Carratraca, Province of Málaga.</td>
<td>Hematites.</td>
</tr>
<tr>
<td>83f</td>
<td>Mining Engineers, Antequera, Province of Málaga.</td>
<td>Oligistic iron.</td>
</tr>
<tr>
<td>83g</td>
<td>Mining Engineers, Coin, Province of Málaga.</td>
<td>Hematites.</td>
</tr>
<tr>
<td>83h</td>
<td>Mining Engineers, Benahana, Province of Málaga.</td>
<td>Sulpho-arsenic nickel and sulphurous nickel.</td>
</tr>
<tr>
<td>83i</td>
<td>Mining Engineers, Benalmadena, Province of Málaga.</td>
<td>Hydrated iron.</td>
</tr>
<tr>
<td>83j</td>
<td>Mining Engineers, Alora, Province of Málaga.</td>
<td>Nickel.</td>
</tr>
<tr>
<td>83m</td>
<td>Mining Engineers, Almogia, Province of Málaga.</td>
<td>Malachites and pyrites of copper.</td>
</tr>
<tr>
<td>83n</td>
<td>Mining Engineers, Alhaurín el Grande, Province of Málaga.</td>
<td>Galena and carbonate of lead.</td>
</tr>
<tr>
<td>83o</td>
<td>Mining Engineers, Colmenar, Province of Málaga.</td>
<td>Galena and pyrites of copper.</td>
</tr>
<tr>
<td>83p</td>
<td>Mining Engineers, Nerja, Province of Málaga.</td>
<td>Galena.</td>
</tr>
<tr>
<td>83q</td>
<td>Mining Engineers, Archidona, Province of Málaga.</td>
<td>Oligistic iron.</td>
</tr>
<tr>
<td>83r</td>
<td>Blandin y Carrero, Manuel, Vera, Province of Navarra.</td>
<td>Iron ores.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
86 Vila, Francisco, Pentes, Province of Orense.—Tin ore. 100
87 Mining District of Oviedo, various towns of the Province of Oviedo.—Ores. 100
88 Acebal y Menendez, Benito, Carretea, Province of Oviedo.—Iron ore. 100
89 Uria Pinilla, Navia de Luarca, Province of Oviedo.—Iron ores. 100
90 National Factory of Trubia, Trubia, Province of Oviedo.—Iron ore. 100
91 Diestro y Lastra, Antonio del, Mier, Province of Oviedo.—Ores. 100
92 Somosa Plaiero, Ramon, Merza, Province of Pontevedra.—Magnetic iron. 100
93 Mining Society, Salamanca.—Tin ore. 100
94 Neeschourrer Bellesfrod & Co., from various towns and provinces.—Ores. 100
95 Mining & Foundry Co. of S. Santander.—Ores. 100
96 Buen Deseo Mining Society, Peñalcazar, Province of Soria.—Argentiferous lead ore. 100
97 Perez, Bernardo, Peñalczar, Province of Soria.—Argentiferous lead ore. 100
98 Director of the Company of Mines & the Manufactory del Pedrero, Casaalta de la Sierra, Province of Seville.—Iron ores. 100
99 Gomez, Jose Maria, Vimbo, Province of Tarragona.—Pyrites and barytes in powder. 100
100 Monner, Francisco, Las Borjas, Province of Tarragona.—Oligistic iron. 100
101 Brito & Sierra, Camañas, Province of Teruel.—Crystallized manganiferous ore, pyrolusite. 100
102 Maorad, Benito, Camañas, Province of Teruel.—Manganese. 100
103 Valdemoro, Juan Francisco, Teruel.—Oxide of iron. 100
104 Belles, James, Alharracin, Province of Teruel.—Oxide of iron. 100
105 Perez, Francisco, Linares, Province of Teruel.—Calamine. 100
106 Diego, Vicente de, Bilbao, Province of Vizcaya.—Iron ores. 100
107 Bourson, Miguel, Somorrostro, Province of Vizcaya.—Iron ore. 100
108 Bilbao Iron Ore Company (limited), Galdames, Province of Vizcaya.—Iron ore. 100
109 Zabalo, Andres, Illueca, Zaragoza.—Oligistic iron. 100
109a Monner, Francisco, Reus, Province of Tarragona.—Ores. 100
110 Rueda, Manuel, Mesones, Province of Zaragoza.—Oligistic iron. 100
111 Boiven y Senty, Adolfo, Maestu, Province of Alava.—Natural rock asphaltum, refined bitumen, pure and dry asphaltum. 100
112 Asphaltum Company of Maestu, Vitoria.—Asphaltum. 100
113 Mining Union, Calaf, Province of Barcelona.—Lignite. 101

114 La Perla Bergadana Mining Socie¬ty, Pont de Raventi, Province of Barcelona.—Mineral coal. 101
115 Gimenez y Puigals, Manuel, Barco¬los.—Mineral coal. 101
116 Orija, Eugenio, Brieva de Juarros, Province of Burgos.—Dry pit-coal. 101
117 Juarreña Society, San Adrian de Juarros, Province of Burgos.—Dry pit-coal. 101
118 Miró y Cerda, C., from various towns of the Province of Castellón.—Coal. 101
119 Metallurgical Coal-pit Company of Belmez, Peñarroya, Province of Cordoba.—Pit-coal, and coke. 101
120 El Veterano Mineral Society, Suro¬ca, Province of Gerona.—Pitcoal and coke; rocks, illustrating the geological composition of the coal districts of Surocca and Ogassa. 101
121 Board of Agriculture, Industry, & Commerce, Oviedo.—Coal and mineral coal. 101
121a Board of Agriculture, Industry, & Commerce, Mieres, Province of Oviedo.—Coal block, weighing 30 cwt. 101
122 Coal-pit Society of Munfor, Muñon, Pola de Lena, Province of Oviedo.—Min¬eral coal. 101
123 National Factory of Trubia, Trubia, Province of Oviedo.—Mineral coal and coke. 101
124 Garcia de los Rios, Eduardo, Mieres, Province of Oviedo.—Pit-coal. 101
125 Vigon, Brauilo, Carrandi, Province of Oviedo.—Anthracite coal. 101
126 Mines of Castilla, Barruelo, Prov¬ince of Palencia.—Pit-coal and coke. 101
127 Fernandez Castaneda, Telesforo, Reina, Province of Santander.—Lignite. 101
128 Pereire, Isaac, Villanueva del Rio, Province of Seville.—Coal. 101
129 Corps of Mining Engineers, Soria.—Impregnated asphaltum. 101
130 Peguero, Andries, Utrillas, Prov¬ince of Teruel.—Coal. 101
131 Sierra, Francisco, Utrillas, Prov¬ince of Teruel.—Coal. 101
132 Estiban, Cristobal, Libros, Prov¬ince of Teruel.—Briarstone. 101
133 Fernandez, Francisco, Havana, Island of Cuba.—Asphaltum. 101
134 Blanquer Ronda, Mariano, Callosa de Ensarría, Province of Alicante.—Black marble. 101
135 Serrano, Cardona & Co., Monóvar, Province of Alicante.—Tubing and pillar, with enclosure. 101
136 Jover, Francisco, Almeria, Pro¬vince of Almeria.—Construction stones. 101
136a Abelló y Boada, Pablo, Sarreal, Province of Tarragona.—Alabaster. 101
137 Daza, Francisco, Macael, Province of Almeria.—Marble. 101
138 Trell, Miguel del, Berja, Province of Almeria.—Marble for construction. 101
139 Chief Engineer of Highways, Val¬demolinos, Province of Avila.—Gran¬lite. 102

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Minerals, Stone.

140. Estevez, Manuel Benito, Badajoz.—Slates. 102
143. Provincial Commission of Villagallito, Province of Burgos.—Alabaster, marble, calcareous stone, slate, and whitestone. 102
144. Baldirzer, Santiago, Villorobe, Province of Burgos.—Slate. 102
145. Richard & Granducantagone, Barbadillo de Herreros, Province of Burgos.—Gravel. 102
146. Corporation of Villamartin, Province of Cadiz.—Jasper. 102
147. Corporation of Chiliana, Province of Cadiz.—Jasper. 102
148. Corporation of Grazailema, Province of Cadiz.—Colored marble. 102
149. Núñez, José María, Cádiz.—Collection of marbles and jaspers. 102
150. Peo y Hermes, Miguel Alfonso, San Miguel de Abona, Canary Islands.—Flagstone. 102
151. Garmas, Angel, Santa Cruz de Tenérife, Canary Islands.—Rock, lava, and volcanic products. 102
152. Society of Friends, Las Palmas, Canary Islands.—Jasper. 102
153. Provincial Board of Agriculture, Cadiz, Province of Castellon.—Marble and calcareous stone. 102
154. Corporation of Cabra, Province of Cordoba.—Marbles. 102
155. Lopez Seoane, Victor, Ferrol, Province of La Coruña.—Stones and marbles. 102
156. Corporation of Portilla de la Sierra, Province of Cuenc a.—Marbles. 102
157. Corporation of La Cieva, Province of Cuenca.—Marble. 102
158. Yañiz, Ambrosio, Las Majadas, Province of Cuenca.—Marbles. 102
159. Madero, Ciriño, Arcos de la Cantera, Province of Cuenca.—Calcareous stone. 102
160. Rubio Perez, Juan, Guejar, Province of Granada.—Serpentine. 102
161. Corporation of Fuente Heridos, Province of Huelva.—Marble. 102
162. Corporation of Galarova, Province of Huelva.—Marbles. 102
163. Gonzalez Molada, Justo, Alcaudete, Province of Jaen.—Construction materials. 102
164. Corporation of Castillo de Locubin, Province of Jaen.—Jasper. 102
165. Provincial Institute, Leon.—Marbles and alabasters. 102
166. Uleeschouer, Bellefroid, & Co., Unzanilla, Province of Leon.—Marble formed by calcareous fossils. 102
167. Institute of Secondary Instruction of Monpebedo, Province of Lugo.—Marble and slate. 102
168. Corps of Mining Engineers, Province of Malaga.—Marbles. 102
169. Corporation of Mijas, Province of Malaga.—Marbles. 102
170. Corps of Mining Engineers, Province of Murcia.—Marble, grit, construction stone, and alabaster. 102
171. Corporation of Pilona, Province of Oviedo.—Marbles. 102
172. Corporation of Salas, Province of Oviedo.—Marble. 102
173. Corporation of Cologua, Province of Oviedo.—Marble. 102
174. Odriozola, Joaquín de, Province of Segovia.—Construction stone. 102
175. Corporation of Linares, Province of Segovia.—Calcareous construction stone. 102
176. Corporation of Balisa, Province of Segovia.—Granite and siliceous stone. 102
177. Corporation of Aragonenses, Province of Segovia.—Stone. 102
178. Corporation of Moron, Province of Seville.—Jasper. 102
179. Corporation of Cantalucia, Province of Soria.—Marbles. 102
180. Corporation of Espeja, Province of Soria.—Marbles. 102
181. Garcia, Cayetano, Espejo, Province of Soria.—Marbles. 102
182. Gomez, José Maria, Sarel, Province of Tarragona.—Alabaster and marble in pietra. 102
183. Board of Public Works, Campospero, Province of Valladolid.—Calcareous stone. 102
184. Generés, José, Sarreal, Province of Tarragona.—Alabaster. 102
185. Board of Public Works, Villarmentero, Province of Valladolid.—Cry stallized gypsum. 102
186. Corporation of Ricla, Province of Zaragoza.—Marbles. 102
187. Corporation of Calatorao, Province of Zaragoza.—Black marble. 102
188. Corporation of Fuentes de Ebro, Province of Zaragoza.—Alabaster. 102
189. Boda, Jerónimo, Mataró, Province of Barcelona.—Artificial stone. 102
190. Navarro, Antonio, Las Palmas, Canary Islands.—Calcareous stone and powdered lime. 102
191. Lledó y Gomez, Cipriano, Cuenca.—White gypsum. 103
192. Fernandez, Gervasio, Torrubia de Campo, Province of Cuenca.—Alabaster. 103
193. Lopez, Simon, Torrubia del Campo, Province of Cuenca.—Powdered alabaster. 103
194. Corporation of Ayamonte, Province of Huelva.—Lime. 103
195. District of Mining Engineers, Province of Málaga.—Gypsum. 103
196. Corps of Mining Engineers, Province of Málaga.—White and black calcareous stone. 103
197. Corporation of Moron, Province of Seville.—Gypsum and lime. 103
198. Tomás, Antonio, Reus, Province of Tarragona.—Sulphate of barytes and lime. 103
199. Cervera, Luis, Montblanch, Province of Tarragona.—Sulphate of hydrated lime. 103
200. Barran, Leoncio, Alcalá de Guadaíra, Province of Seville.—Slack, quicklime, limestone, etc. 103
201. Climent, Hernandez, Francisco, Cardagente, Province of Valencia.—Artificial stone. 103

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
SPAIN.

Minerals, Stone.

202 Giralt, Nicolás, Regla, Cuba.—Lime. 103
203 Benavides, Mariano, La Roda, Province of Albacete.—Magnesian earth. 104
204 Saavedra Ramirez, Alejo, Somotin, Province of Almeria.—Silicate of magnesia. 104
205 Daza y Ruiz, Francisco, Somotin, Province of Almeria.—Silicate of magnesia. 104
206 Masoliver, Bartolomé, Barcelona.—Chalk and volcanic clay. 104
207 Grandouzantangue, Richard, Barbastro, Province of Huesca.—Argil. 104
208 Oria, Eugenio, Pancorbo, Province of Burgos.—Bricks. 104
209 Provincial Commissions of various towns, Province of Burgos.—Argil and clay. 104
210 Foundry & Delft Factory of Sargadelos, Cervo, Province of Lugo.—Crude materials for the manufacture of delft. 104
211 Bonante, Juan, Chantada, Province of Lugo.—Argil. 104
212 District of Mining Engineers, Murcia, Province of Murcia.—Silicate. 104
213 Provincial Board of Agriculture, Industry, & Commerce, Collera, Province of Oviedo.—Sparr. 104
214 Uria & Pinilla, Navia de Lurca, Province of Oviedo.—Refractory stone. 104
215 Factory of Trubia, Trubia, Province of Oviedo.—Argil, silicate, and lime. 104
216 Villar Cagide, Joaquín, Santa María de Abades, Province of Pontevedra.—Steatites. 104
217 Matheu, Antonio, Montblanch, Province of Tarragona.—Spanish white. 104
218 Corporation of Pinell, Province of Tarragona.—Refractory earth. 104
219 Corps of Mining Engineers, Zaragoza.—Argil. 104
220 District Mining Engineers, Igualada, Province of Lérida.—Graphite. 105
221 Villalonga y Perez, Antonio, Capdevila, Bañeres.—Trentoli. 105
222 Corporation of Cabra del Santo Cristo, Province of Jaen.—Whetstones. 106
223 Acabal y Menendez, Benito, Oviedo.—Grindstones. 106
224 Pegueru, Andrés, Utrilla, Province of Teruel.—Jet. 106
225 Pedro, Carmen de, La Rambla, Province of Teruel.—Jet. 106
226 Sierra, Francisco, Utrilla, Province of Teruel.—Jet. 106
227 Villalba, Gregorio, Utrilla, Province of Teruel.—Jet. 106
228 Sanz, Mariano, Patarrubio, Province of Teruel.—Jet. 106
229 Clarós, Pablo, Utrilla, Province of Teruel.—Jet. 106
230 Banquells & Rascon, Francisco, Novelda, Province of Alicante.—Sulphurous mineral water from Salinetas. 107
231 Trel, Miguel del, Berja, Province of Almeria.—Gypsum. 107
232 Mejías Moreno, José, Pechina, Province of Almeria.—Lamellated gypsum. 107
233 Alfonso Cortés, Manuel, Pozas, Province of Burgos.—Crude and refined salt. 107
234 Piñal, Felipe, Miranda, Province of Burgos.—Crude and refined salt. 107
235 Cerezian Society, Cerezos, Province of Burgos.—Sulphate of soda. 107
236 Constancia Society, Cerezos, Province of Burgos.—Sulphate of soda. 107
237 Riscal de Alegre, Marquis of, Alía, Province of Cáceres.—Clay marl. 107
238 Corporation of Santa-Ella, Province of Córdoba.—Medical mineral waters. 107
239 Corporation of Montoro, Province of Córdoba.—Sulphurous water. 107
240 López, José Maria, Lucena, Province of Córdoba.—Mineral water. 107
241 Marín Manuel, Villaharta, Province of Córdoba.—Mineral water. 107
242 Peraféta Gavigola, Francisca, Gerona.—Carbonic water. 107
243 Medinaceli, Duke of, Gerona.—Ferruginous and sulphur waters. 107
244 García, Gabriel, Gerona.—Ferruginous carbonic water. 107
245 Vilaret, José, Gerona.—Carbonic water. 107
246 Darnius, Count of, Gerona.—Ferruginous and sulphurous water. 107
247 Corporation of Marmolejo, Province of Jaén.—Acidulous and carbonic waters with iron. 107
248 Gutierrez Rodríguez, Cayetano, Mogrovejo, Province of Leon.—Mineral waters. 107
249 Borregan del Blanco, Domingo, Mogrovejo, Province of Leon.—Mineral waters. 107
250 Bathing Establishment, Ponferrada, Province of Leon.—Mineral waters. 107
251 Damian García, José, San Adrian de Vegaquemada, Province of Leon.—Mineral and medicinal waters. 107
252 Corporation of Navajun, Province of Logroño.—Mineral waters. 107
253 Diez Brothers, Grávalos, Province of Logroño.—Sulphurous waters. 117
254 Lopez Losada, Antonio, Incio, Province of Lugo.—Ferruginous waters. 107
255 Niera Gayoso, Dositeo, Lugo.—Sulphurous waters. 107
256 Pardo Montero, Ramon, Trasagarra, Province of Lugo.—Sulphurous waters. 107
257 Benevolent Societies, of various towns and provinces.—Mineral waters. 107
258 Corporation of Molina, Province of Málaga.—Mineral waters. 107
259 Corporation of Carratraca, Province of Málaga.—Mineral waters. 107
260 Corporation of Periana, Province of Málaga.—Mineral waters. 107

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
261 Corporation of Tolox, Province of Málaga.—Waters from Fuente Acuargosa. 107
262 Provincial Commission, Murela.—Waters from Archena. 107
263 Corporation of Verin, Province of Orense.—Mineral waters. 107
264 Corporation of Carballino, Province of Orense.—Thermal medicinal waters. 107
265 Gonzalez Alegre, José Las Caldas, Province of Oviedo.—Thermal waters. 107
266 Casario, Cayetano, Prelo, Province of Oviedo.—Alkaline sulphurous waters. 107
267 Cortines, Augustin de, Puente nausa, Province of Santander.—Sulphurous waters. 107
268 Calderon Revuelta, Francisco, Alceda, Province of Santander.—Mineral sulphurous water. 107
269 Gutierrez de Ceballos, José Ca’das de Besaya, Province of Santander.—Mineral waters. 107
270 Ana Micó, Widow of Ferrandis, Jativa, Province of Valencia.—Sulphurous and ferruginous waters. 107
271 Durege, Julio, San Diego de los Baños, Island of Cuba.—View of sulphurous baths and springs. 107

Metallurgical Products.

272 Richard & Granducontagne, Barbodillo de Herreros, Province of Burgos.—Soft iron and pig iron. 111
273 Corporation of Cobeta, Province of Guadalajara.—Iron and iron ore. 111
274 Arroyo, Juan, Cervantes, Province of Lugo.—Iron. 111
275 Ojeda Porras, José, Cervantes, Province of Lugo.—Iron. 111
276 Somova, Juan Manuel, Caurel, Province of Lugo.—Iron. 111
277 Lopez, José Maria, Puertomarin, Province of Lugo.—Iron. 111
278 Pounds & Delf Factory of Saragados, Servo, Province of Lugo.—Cast ingot. 111
279 Monriz, Gabriel, Lugo.—Horse bit. 111
280 Corral, Francisco, Triacastela, Province of Lugo.—Horse shoes. 111
281 Heredia, Sons of M. A., Malaga.—Iron, plates, boiler-plates, etc. 111
282 District Mining Engineers, Málaga.—Iron slag. 111
283 National Factory of Trubia, Oviedo.—Iron, steel, etc. 111
284 Uri & Pinilla, Nava de la Larea, Province of Oviedo.—Iron ingot. 111
285 Director of the Mining & Manuf acturing Company del Pedrero, Carallas de la Sierra, Province of Seville.—Iron castings and iron plates. 111
286 Belles, James, Albarracin, Province of Teruel.—Forged iron. 111
287 Valdemoro, Juan Francisco, Teruel.—Forged iron. 111
288 Ibarr & Co., Baracaldo, Province of Viscaya.—Iron. 111
289 Corp of Mining Engineers, Hu ela.—Copper cement and copper. 111
290 Villalobos Bros., Berja, Province of Almeria.—Lead. 113
291 Mines of Almadén, Province of Ciudad-Real.—Quicksilver ore. 113
292 Fiqueroa, Ignacio, Guarrorman, Province of Jaen.—Lead in pigs. 113
293 Velasco, Bros, Linares, Province of Jaen.—Lead bars. 113
295 Macia & Co., Demetrio, Penouts, Province of Orense.—Tin bar. 113
296 Vila Yanez, Francisco, Pentes, Province of Oviedo.—Tin. 113
297 El Porvenir Mining Society, Mi eres, Province of Oviedo.—Tin. 113
298 Alen, Pedro & Manuel, Santa Maria de Abeceor, Province of Pontevedra.—Tin. 113
299 Vazquez Guía, Francisco, Bera riv, Province of Orense.—Oxide of tin. 113
300 Rui & Tolon, Barcelona.—White metal. 114

Mining Engineering.

301 Piquet, Alfonso Emilio, Horcajo de los Montes, Province of Ciudad-Real.—Plan of the mines of Horcajo. 120
302 Mines of Almadén, Province of Ciudad-Real.—Plans of subterranean works, machines, etc. 120
303 Grappin, G., Salorino, Province of Cáceres.—Model of the mine Constan cia. 121
304 Sabate Brunet, Salvador, Bar celona.—Instruments for the exploration of hard rocks. 120

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
PHILIPPINE ISLANDS.

(South of Nave, Columns 16 to 18.)

Minerals, Ores, Stone, Metallurgical Products.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stones, Mining Products.</th>
<th>Metallurgical Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inspection of Mines, Province of Cebú.—Fossil charcoal and auriferous galena.</td>
<td>100</td>
</tr>
<tr>
<td>2 Con-ui, Isaac, Province of Cebú.—Sand with fossils, and fossil charcoal.</td>
<td>100</td>
</tr>
<tr>
<td>3 Manzano, Juan., Province of Albay.—Fossil charcoal.</td>
<td>100</td>
</tr>
<tr>
<td>4 Perez, Norverto, R.P.Fr., Province of Pangasinan.—Rock argil and volcanic tophus.</td>
<td>100</td>
</tr>
<tr>
<td>5 Provincial Commission of Camarines Norte.—Oxydized magnetite, chromate of lead, auriferous minerals.</td>
<td>100</td>
</tr>
<tr>
<td>6 Llanos, R.P.Fr. Antonio, Province of Lepanto.—Minerals and products of furnaces.</td>
<td>100</td>
</tr>
<tr>
<td>7 Veloso, Pascal, Province of Cebú.—Fossil charcoal and auriferous galena.</td>
<td>100</td>
</tr>
<tr>
<td>8 Anchuelo, Quiterio, Province of Bulacan.—Oligistic iron.</td>
<td>100</td>
</tr>
<tr>
<td>9 Inspection of Mines, Province of Camarines Norte.—Cupreous sand with native copper.</td>
<td>100</td>
</tr>
<tr>
<td>10 Inspection of Mines, Province of Bulacan.—Oxydized magnetite.</td>
<td>100</td>
</tr>
<tr>
<td>11 Commission of the District of Benguet, Province of Benguet.—Auriferous sand.</td>
<td>100</td>
</tr>
<tr>
<td>12 Inspection of Mines, Province of Camarines Sur.—Fossil charcoal.</td>
<td>100</td>
</tr>
<tr>
<td>13 Inspection of Mines, Province of Albay.—Fossil charcoal, argil, quartzose vein, jet, and sulphur.</td>
<td>100</td>
</tr>
<tr>
<td>14 Alonzo, Teodoro, Province of Manila.—Amorphous phosphorus.</td>
<td>100</td>
</tr>
<tr>
<td>15 Inspection of Mines, Province of Lyte.</td>
<td>100</td>
</tr>
<tr>
<td>a Sulphur.</td>
<td>100</td>
</tr>
<tr>
<td>b Marble.</td>
<td>102</td>
</tr>
<tr>
<td>16 Municipal Athenæum, Province of Manila.—Marble and jasper.</td>
<td>102</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
PORTUGAL.

(South of South Avenue, Columns 13 to 17.)

Minerals, Ores, Stone.

Minerals, Ores, Stones, Mining Products.

1 Antonio, Martins, Henriques, & Co., Mont Alto. — Antimony ore from Mont Alto. 100
2 Cortes Pereira Antimony Mine Exploring Co. — Antimony ore. 100
3 Antimony Mining Co. of Corte Pereira. — Antimony ore. 100
4 Blanch, Carlos Frederico, Lisbon. — Antimony ore from Herdade da Prata. 100
5 Barriga, Antonio F., Portalegre. — Quartz of Valle de Peso. 100
6 Cabeira Mining Co., Grandola. — Copper ore from the Cabeira mine. 100
7 Deliguy, Ernest, Lisbon. — Copper ore. 100
8 Elliott, George, & Ferreira Castello, José H., Lisbon. — Iron ores from Ares Zambujal and San Bartholomeu mines. 100
9 Elliott, George, Alvito. — Iron ores from San Bartholomeu and Zambujal mines. 100
10 Fearshead, F. Detlof, & Cruickshank, William, Bracal. — Lead and zinc ores from Bracal and Malhada mines; copper ore from Cança. 100
11 Giron, D. José, Lagoas do Paço. — Manganese ore. 100
12 Gomes, Almino, Mertola. — Manganese ore from the Paraizo, Ferragudo, and Calvo mines. 100
13 Malhada Mining Co., Malhada. — Copper ore from Malhada mine. 100
14 Monges Iron Co. (limited), Lisbon. — Iron ore from Serra des Monges. 100
15 Moraes, José Gonçalves, Arronches. — Iron, manganese, and argentiferous lead ores. 100
16 Mason & Barry, Mertola. — Copper ores from San Domingo. 100
17 Oliveira, Joao Correia, Sénhora de Castello. — Tin ore. 100
18 Oliveira, Bento Rodrigues de, San Pedro du Cova. — Anthracite, sulphuriferous of antimony, and galena. 100
19 Portuguese Copper Mining Co., Evora. — Specimens of ores from Basalto mine. 100
20 Portuguese Mining Co., Covelas. — Tin ore. 100
21 Perseverança Co., Oporto. — Antimony ore from Val de Ache, and tin ore from Logar d’Aborin. 100
22 Sequeira, Thomas, & Carneiro d’Andrade, Eduardo, Beja. — Copper ore from Juliana mine. 100
23 Schreck, Maximiliano, & Kemp, Mauricio, Oporto. — Antimony ore from Campo Redondo; manganese from Pinhal da Cunha. 100
24 Serrinha Tin Co. (limited), Oporto. — Tin ore from Serrinha da Cascia. 100
25 Telhadella Mining Co., Telhadella. — Copper ores. 100
26 Transtagana Mining Co., Lisbon. — Copper ores. 100
27 Velho, Agostinho Francisco, & others, Villa Real. — Lead ore. 100
28 Freixo, Visitante de, Oporto. — Argentiferous lead ore. 100
29 Zarzach, Ladislau, Oporto. — Lead ore from the Pego mine. 100
30 Department of Mines, Lisbon.
   a. Manganese, tin, and antimony ores; iron pyrites. 100
   b. Marbles. 100
31 Oliveira, Bento Rodrigues d’S. Pedro de Cova. — Lead and antimony ore. 100
   b. Mineral coal. 100
32 Industrial Union Co., Povoa de Varzim. — Coal. 100
33a Cabral, Frederico A. de V. P., Oporto. — Coal from Monte das Cava- dinhos. 100
33b Direction of the Public Works of Braga. — Building stones, etc. 102
34 Barreto, Antonio Tavares, Santarem. — Limestone from the Granja quarry. 102
35 Carvalho, Henrique M. de, Condéixa a Velha. — Samples of marbles from Condéixa quarries. 102
36 Brites, Augusto Pereira, Torres Novas. — Building stone. 102
37 Direction of the Public Works of Viana do Castello. — Building materials. 102
38 Vallongo Slate & Marble Quarries Co., Oporto. — Slabs and roofing slate. 102
39 Governor of the Civil District of Ponte Delgada. — Building materials. 102
40 Rato, Antonio Moreira, Lisbon. — Marbles. 102
41 Santos, Joaquim Antunes dos, Lisbon. — Samples of marble. 102
42 Salles, Joaquim José de, Lisbon. — Marbles. 102

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 57-59.
PORTUGAL.

Stone, Minerals, Metallurgical Products, Engineering.

47 Salles, Germano José de, Lisbon.—Marbles. 102
48 Besson, Viscount de, Cintra.—Marbles. 102
49 Ponta Delgada, Committee of.—Building materials. 102
50 Direction of the Public Works of Vizeu, Vizeu.—Building materials. 102
51 Direction of the Public Works of Oporto, Oporto.—Building materials. 102
52 Direction of the Public Works of Aveiro, Aveiro.—Building materials. 102
53 Direction of the Public Works of the Mondego river & Figueira bar, Coimbra.—Building materials. 102
54 Direction of the Public Works of Coimbra, Coimbra.—Building materials of the district. 102
55 Direction of the Public Works of Leiria, Leiria.—Building materials of the district. 102
56 Extremoz Marble Quarrying Co., Extremoz.—Marbles. 102
57 Rasca Cement Exploring Company, Lisbon.—Hydraulic cement. 103
58 Parochial Board of Sabacheira, Sabacheira.—Limestone. 103
59 Governor of the Civil District of Portalegre.—Phosphate of lime from Marvao. 103
60 Lisbon Dyeing & Cotton Printing Company, Lisbon.—Lime. 103
61 Ponta Delgada, Committee of.
   a Pozzolana and pumice. 103
   b Mineral waters of San Miguel, and analysis. 107
62 Neuville, Louis, Lisbon.—Kao-lin. 104
63 Coelho, Francisco, Torres Novas.—Clay. 104
64 Manilha, Francisco dos Santos Lopes, Valongo.—Whetstones. 106
65 Vidago Mineral Waters Company, Lisbon.—Mineral waters. 107
66 Pedras Salgadas Mineral Waters Company, Oporto.—Mineral waters. 107
67 Janson, J. H., & Co., Lisbon.—Soda water. 107
69 Freitas, Albino, José, Ega.—Mineral waters. 107
70 Fialho & Bro., Lisbon.—Mineral waters. 107
71 Committee of Administration, Sulphur baths of Castello de Vide.—Sulphurous mineral waters. 107

Metallurgical Products.

73 Mason & Barry, São Domingos.—Gold bar and silver bar. 110
74 Ferreira & Souza, Oporto.—Gold leaf. 110
75 Cardozo, José Pereira, jr., Oporto.
   a Gold and silver leaf. 110
   b Aluminium, platina, and tin leaf. 113
76 Beirolass, Manuel Antonio, Colleaga.—Horse shoes. 111
77 Department of Mines, Lisbon.—Iron from Moncorvo. 111
78 Perseverança Company, Oporto.—Tin ingot. 113
79 Tras-os-Montes Mining Company, Braganza.—Tin ingot. 113

Mining Engineering.

80 Department of Mines, Lisbon.—Plans of mines. 121
81 Mason & Barry, Mertola.—Plans of mines; model of a Roman wheel. 121
82 Silva, S. A. P. da, & F. A. Marques de Moura, Aveiro.—Plan of a salt pit, with description of same. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
**TURKEY.**

*(South of Nave, Columns 14 to 17.)*

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Wilkinson, Rizzo, &amp; Co., Koumarlar, Dardanelles.</strong> — Sulphur ore, sulphurous copper.</td>
<td>100</td>
</tr>
<tr>
<td><strong>2 Tapa, Daniel, Cian, Dardanelles.</strong> — Lead ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>3 Sarrai, Mouradite, Trebizond.</strong> — Argentiferous galena.</td>
<td>100</td>
</tr>
<tr>
<td><strong>4 Sarrai, Lokhia, Trebizond.</strong> — Iron pyrites.</td>
<td>100</td>
</tr>
<tr>
<td><strong>5 Schirin Agha, Tirepola, Trebizond.</strong> — Copper pyrites.</td>
<td>100</td>
</tr>
<tr>
<td><strong>6 Soleiman, Gueugine, Trebizond.</strong> — Galena.</td>
<td>100</td>
</tr>
<tr>
<td><strong>7 Omer, Oglou Osman, Lokhia, Trebizond.</strong> — Galena.</td>
<td>100</td>
</tr>
<tr>
<td><strong>8 Omer, Effendi, Ordou, Trebizond.</strong> — Argentiferous galena.</td>
<td>100</td>
</tr>
<tr>
<td><strong>9 Nimetoulah, Trebelau, Trebizond.</strong> — Copper ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>10 Nimetoulah, Kurelli, Trebizond.</strong> — Copper pyrites.</td>
<td>100</td>
</tr>
<tr>
<td><strong>11 Papparaki, Nicola, Sfakia, Crète.</strong> — Lignite.</td>
<td>100</td>
</tr>
<tr>
<td><strong>12 Nimetoulah, Mouradite, Trebizond.</strong> — Argentiferous galena.</td>
<td>100</td>
</tr>
<tr>
<td><strong>13 Moustapha, Effendi, Cherkech, Castamouni.</strong> — Chalk.</td>
<td>100</td>
</tr>
<tr>
<td><strong>14 Gonssan, Government of, Adana.</strong> — Iron pyrites.</td>
<td>100</td>
</tr>
<tr>
<td><strong>15 Mulesim Oulah, Tireboli, Trebizond.</strong> — Ferruginous sediment.</td>
<td>100</td>
</tr>
<tr>
<td><strong>16 Mulesim, Abdoulah, Tirebole, Trebizond.</strong> — Argentiferous galena, copper pyrites.</td>
<td>100</td>
</tr>
<tr>
<td><strong>17 Mandenê, Diarbekir.</strong> — Silver ore.</td>
<td>100</td>
</tr>
<tr>
<td><strong>18 Mulesim, Tireboli, Trebizond.</strong> — Cupreous pyrites.</td>
<td>100</td>
</tr>
</tbody>
</table>
| **19 Ligory, Effendi, Stankeny, Dardanelles.** a Manganese, iron ore, and sulphur ore. 100  
   b Emery. | 100 |
| **20 Kara-Hissar, Government of, Sivas.** — Argentiferous galena, aluminous earth. | 100 |
| **21 Ali, Hadji Diarbekir.** — Brimstone of the desert. | 100 |
| **22 Moustapha, Hadji, Nich, Danube.** — Iron stone. | 100 |
| **23 Adrianople, Government of.** a Powdered mica. 100  
   b Coal. 101  
   c Sand for mouldings. 104 |  |
| **24 Debré, Government of, Monastir.** — Sulphate of chalk. | 100 |

25 Aydin, Government of. — Argentiferous galena, lignite, iron ore. 100

26 Adana, Government of. — Sulphate of chalk and galena. 100

27 Gumuch Hané, Government of, Trebizond. — Argentiferous and cupreous galena. 100

28 Ichkodra, Government of, Monastir. — Sulphur ore. 100

29 Ichkloura, Government of, Monastir. — Brimstone, arsenical ore, and sulphate of copper. 100

30 Havret, Government of, Salonica. — Argentiferous galena. 100

31 Topouz, Oglou, Imbros, Dardanelles. a Lead ore. 100  
   b Coal. 104

32 Koniah, Government of. — Brimstone. 100

33 Micheré, Government of, Yanina. — Lignite. 100

34 Medina, Government of, Hidjaz. — Rock crystals. 100

35 Maghlè, Government of, Aydin. — Argentiferous galena, iron and chrome ores. 100

36 Miliitinous, Government of, Samos. a Tula. 100  
   b Yellow earth, argil. 104

37 Lapsaki, Government of, Dardanelles. — Brimstone. 100

38 Karssendi, Government of, Adana. a Copper and silver ore, lignite and galena. 100  
   b Grit sandstone. 102

39 Tdomane, Government of, Yanina. — Galena. 100

40 Trebizond, Government of. — Galena. 100

41 Uskup, Government of, Monastir. — Aluminous earth. 100

42 Samos, Government of. a Galena. 100  
   b White and colored marble. 102  
   c Argil. 104  
   d Emery. 106

43 Sulaimaneeyah, Government of, Bagdad. a Melted brimstone, cut rock crystal. 100  
   b Argil. 104

44 Smyrna, Government of, Aydin. a Lignite, argentiferous galena, iron ore, manganese. 100  
   b Emery, grindstones. 106

45 Syros, Government of, Salonica. — Lignite. 100

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Location</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>Souké, Government of, Aydin.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>a Iron ore.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>b Red sandstone.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td></td>
<td>c Tripoli.</td>
<td></td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>d Emery.</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>47</td>
<td>Saroukhan, Government of, Aydin.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>a Chrome ore.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>b Mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>48</td>
<td>Samakon Factory, Sophia, Danube.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>49</td>
<td>Ergain, Diarbekir.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>50</td>
<td>Doncl Aghop, Esine, Dardanelles.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>51</td>
<td>Dardalah, Mouradile, Trebizond.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>52</td>
<td>Pappazaki, Dimitri, Sfakia, Crète.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>53</td>
<td>Abdi Bey, Myteliane, Dardanelles.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>54</td>
<td>Abboullah Pey, Myteliane, Dardanelles.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>a Antimony.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>b Emery.</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>55</td>
<td>Azit Anelé, Olevek, Trebizond.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>56</td>
<td>Ulmu'ra'ti, Ahmed, Tripoli, Tripoli.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>57</td>
<td>Administration of the Mines, Constantinople. Collection of ores.</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>58</td>
<td>Mehemed Agha, Aleppo.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>59</td>
<td>Bridore, Government of, Bosnia.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>60</td>
<td>Djezipé, Diarbekir.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>61</td>
<td>Kratova, Government of, Monastir.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>62</td>
<td>Mosul, Government of, Bagdad.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>63</td>
<td>Nich, Government of, Danube.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>64</td>
<td>Panaloko, Government of, Bosnia.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>65</td>
<td>Ychtip Government of, Monastir.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>66</td>
<td>Ereili, Castamouni, Castamouni.</td>
<td></td>
<td>101</td>
</tr>
<tr>
<td>67</td>
<td>Serkiz, Aleppo.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>68</td>
<td>Razoula, Aleppo.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>69</td>
<td>Koyondja, Government of, Bosnia.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>70</td>
<td>Nenedés, Government of, Samos.</td>
<td></td>
<td>102</td>
</tr>
<tr>
<td>71</td>
<td>Nicolaki, Jovan Oglou, Dardanelles.</td>
<td></td>
<td>103</td>
</tr>
<tr>
<td>72</td>
<td>Sfakia, Government of, Crète.</td>
<td></td>
<td>103</td>
</tr>
<tr>
<td>73</td>
<td>Naoum Cassam, Aleppo.</td>
<td></td>
<td>104</td>
</tr>
<tr>
<td>74</td>
<td>Baktiar Bez., Panaloko, Bosnia.</td>
<td></td>
<td>104</td>
</tr>
<tr>
<td></td>
<td>a Pipe-clay.</td>
<td></td>
<td>104</td>
</tr>
<tr>
<td>75</td>
<td>Ali Effendi, Angora.</td>
<td></td>
<td>104</td>
</tr>
<tr>
<td>76</td>
<td>Myteliane, Government of, Dardanelles.</td>
<td></td>
<td>105</td>
</tr>
<tr>
<td>77</td>
<td>Osman Bin Mohamed, Bridore, Bosnia.</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>78</td>
<td>Ali, Hadji, Teké, Koniah.</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td>79</td>
<td>Yildis-Ki, Government of, Sivas.</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>a Emery.</td>
<td></td>
<td>106</td>
</tr>
<tr>
<td></td>
<td>b Mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>80</td>
<td>Bendissa, Government of, Aleppo.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Hot mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>81</td>
<td>Gesrichvoux, Government of, Aleppo.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>b Hot mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>82</td>
<td>Ersindjan, Government of, Erzeroum.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>83</td>
<td>Marach, Government of, Aleppo.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Mineral waters.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>84</td>
<td>Rikanié, Government of, Aleppo.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>85</td>
<td>Zeitoun, Government of, Aleppo.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Hot mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>86</td>
<td>Volonía, Government of, Yanina.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>87</td>
<td>Central Drug Store, della Sudda's.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Inigueul, Ichitli.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>88</td>
<td>Bin Cachi Mehemed, Aleppo.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>a Mineral water.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>b Metalurgical Products.</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>90</td>
<td>Giovan, Siros, Salonica.</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>a Gold-dust.</td>
<td></td>
<td>110</td>
</tr>
<tr>
<td>91</td>
<td>M e h e m e d a, Marach, Aleppo.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Horse shoes and nails.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>92</td>
<td>Moustapha, Hadji, Aleppo.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Iron.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>93</td>
<td>Ak-Hissar, Government of, Bosnia.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Iron.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>94</td>
<td>Kerschove, Government of, Bosnia.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Iron.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>95</td>
<td>Varach, Government of, Bosnia.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Iron.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>96</td>
<td>Karssendi, Government of, Adana.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Crude iron.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>97</td>
<td>Kara-Hissar, Government of, Sivas.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Iron.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>b Lead slag.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>98</td>
<td>Samakon Factory, Sophia, Danube.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Horse shoes.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>99</td>
<td>Abass Agha, Kuspuk, Monastir.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>100</td>
<td>Ligory Effendi, Stankeney, Dardanelles.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>a Copper.</td>
<td></td>
<td>111</td>
</tr>
<tr>
<td>101</td>
<td>Samos, Government of, Zinc.</td>
<td></td>
<td>113</td>
</tr>
<tr>
<td></td>
<td>For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RUSSIA.

(South of Nave, Columns 19 to 23.)

Minerals, Ores, Stone, Metallurgical Products.

Minerals, Ores, Stones, Mining Products.

1 Yeogoff Iron Works, Government of Perm.—Copper ores. 100
2 Pootiloff Iron Works Company, St. Petersburg.—Iron ores. 100
3 Administration of the Goroblagodati Mining District, Government of Perm.—Magnetic and other iron ores. 100
4 Administration of the Mining Districts in Western Poland. 100
a Iron ore, calamine, and lead blende. 100
b Coal. 101
c Refractory clay. 104
5 Administration of the Clonetz Mining District.—Lake iron ore. 100
6 Rogosloosky Crown Copper Works, Government of Perm.—Copper ores. 100
7 Demidoff, Paul, Prince of San Domenico, Nigni Tagil, Ural Mountains, Government of Perm.—Iron and copper ores. 100
8 Gessrick & Woerfel, St. Petersburg.—Siberian minerals and hard stones. 100
9 Kniaze Mikhailoff Crown Steel Works, Government of Orenburg.—Magnetic iron ore. 100
10 Mining School, St. Petersburg.—Minerals and palaeontological collection. 100
11 Bashkoff, Basil, Bogoyavlensk, & Verkhootoorg, Government of Cofa.—Copper ores. 100
12 Russian Rail Manufacturing Company, Government of Riazan, District of Trensk.—Iron ore. 100
13 Saltkinsky Crown Iron Works, Government of Orenburg.—Brown and sparry iron ores. 100
14 Sidoroff, Michael, St. Petersburg.
   a Iron ore. (Northern limits of Russia.) 100
   b Siberian graphite from the district of Toorookhansk. 105
   a Iron ore. 100
   b Graphite. 105
16 Russian Navigation & Trade Company, Odessa.—Specimens of anthracite coal. 101
17 Majovsky, T., & Stochelsky, M., Government of Pietrkoff, district of Bendzin.—Coal. 101
18 Sidoroff, Michael, St. Petersburg.—Bituminous coal, from underground fire burning since 1790. 101
20 Zievers, B. Wessenberg, Government of Est-land.—Portland cement. 103
21 Schmidt, C., Riga.—Cement. 103
22 Sytenko, John, Moscow.—Limestone and plaster. 103
23 Lain, Nicolas, Moscow.—Mineral water. 107

Metallurgical Products.

27 Mining Department, St. Petersburg.—Native platinum, osmiridum (purified), and platinum. 110
28 Miasky Government Gold Mines, Government of Orenburg.—Gold-bearing sands; illustration of gold washing machines. 110
29 Votkinsk Crown Iron Works, Government of Perm.—Iron (in bars), and cast steel. 111
30 Pootiloff Iron Works Company, St. Petersburg.—Cast and wrought iron, steel, twisted rail. 111
31 Gun Foundry, Perm.—Cast and wrought iron; steel sections of cast steel guns. 111
32 Kama Armor Plate Works, Government of Perm.—Armor plate. 111
33 Administration of the Goroblagodati Mining District, Government of Perm.—Cast iron projectile. 111
34 Administration of the Olonetz Mining Districts.—Cast and wrought iron; section of cast iron guns. 111
35 Demidoff, Paul, Prince of San Domenico, Nigni Tagil, Ural Mountains, Government of Perm.
   a Iron; pig bars, ingots, rails, sheets, slags, and flakes. 111
   b Copper ingots, bars, sheets; illustrations of style of working. 112
36 Russian Rail Manufacturing Company, Government of Riazan, District of Trensk.—Cast iron and iron wire. 111
37 Satkinsky Crown Iron Works, Government of Orenburg.—Cast iron. 111
38 Admiralty Tyora Works, near St. Petersburg.—Boiler plates. 111
39 Yoogoff Copper Works, Government of Perm.—Copper (in bars and ingots), and products of working. 112
40 Pashroff, Basal, Bogoyavlensk & Vennihotoorgi, Copper Works, Government of Oola.—Copper ingots, bars, rolled wire, and spangles; illustrations of methods of working. 112

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-45.
RUSSIA.

Metallurgical Products, Mining Engineering.

42 Ragoslovsky, Crown Copper Works, Government of Perm.—Illustrations of productions of copper. 112
43 Rastergaeff, Gregory, St. Petersburg.—Tinned iron sheets. 114

Mining Engineering.

44 Administration of Mines in Finland.—Helsingfors' editions and reports on local mine engineering and geology. 120

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
GLoucester Iron Works,
Gloucester City, New Jersey.

Cast Iron Gas & Water Pipes, Stop Valves, Fire Hydrants, Gas Holders, &c.

Office, Philadelphia. No. 6 North Seventh St.

Philadelphia Lead Works.
Established 1813.

John T. Lewis & Bros.,
Manufacturers of
White Lead, Red Lead, Litharge,
Orange Mineral, Sugar of Lead, Acetic Acid,
Linseed Oil, Painters' Colors.

Business Office, 231 South Front Street,
Philadelphia.
FIRE ARMS, Etc.

PRICES quoted, description given, and some SAMPLES shown, of the following Manufacturers' Goods, now on exhibition in the Main Building of the Centennial Exposition.

**JOS. C. GRUBB & CO.,**

Manufacturers' Agents. 712 Market St., PHILADELPHIA.

J. RUPERTUS, Empire Revolvers.
C. SHARPS, Pat. 4 Shot Repeaters.
F. WESSON, Breech-Loading Rifles.
WINCHESTER, Reptg. Rifles and Cartridges.
SHARPS, Target and Sporting Rifles.
FOREHAND & WADSWORTH, Revolvers.
COLT'S Patent Firearm Mfg. Co. "

JAMES PURDEY, London, Breechload'g Guns.  
JOHN RIGBY & CO., "  
E. M. REILLY & CO., "  
J. LANG & SONS. "  
ALBERT LANCASTER "  
CHAS. LANCASTER, "  
ALEX. HENRY, Edinburgh, "  
Harpoon and Bomb Lance Guns.  
W. & C. SCOTT & SON, Bir- 
mingham, "  

SMITH & WESON, Revolvers.  
WHITNEY, Rifles and "  
REMINGTON, " " and Breech- 
loading Double Guns.  
AMERICAN FLASK AND CAP Company.  
AMERICAN PERCUSSION CAP Association.  
WM. G. RAWBONE, Patent Creasers.  
PARKER BROS., American Breechloading Guns.  

P. WEBLEY & SON, Birmingham, Breech- 
loading Guns.  
W. W. GREENER, Birmingham, Breechloading Guns  
ELEY BROS., London, Shells, Wads, Caps, etc.  
PIGOU, WILKS & LAURENCE, London,  
Gunpowder.  
SELLIER & BELLOT, Percussion Caps.  

**BAEDER, ADAMSON & CO.,**

MANUFACTURERS OF

GLUE, SAND PAPER,

GROUND FLINT AND EMERY,  
EMERY PAPER AND EMERY CLOTH,  
CURLED HAIR AND STUFFING HAIR,  
MOSS, COW-HIDE WHIPS, FELT HAIR, AND FELTING.

FACTORIES:  
PHILADELPHIA, Pa.  
NEWARK, N. J.  
WOBURN, Mass.

STORES:  
Philadelphia, 730 Market Street.  
New York, 67 Beekman Street.  
Boston, 143 Milk Street.  
Chicago, 182 Lake Street.
### United States

**DEPT. II.—MANUFACTURES.**

**UNITED STATES.**

**Chemicals, Pharmaceutical Preparations.**

<table>
<thead>
<tr>
<th>Chemical Manufactures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1a</strong> Feuchtwanger, L., &amp; Co., New York, N. Y.—Polytechnic chemicals.</td>
</tr>
<tr>
<td><strong>3a</strong> Hance Bros. &amp; White, Philadelphia, Pa.—Solid and fluid extracts, sugar-coated pills.</td>
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<tr>
<td><strong>4a</strong> Fries, Alex., &amp; Bros., New York, N. Y.—P 48.</td>
</tr>
<tr>
<td><strong>5a</strong> Gordon, W. J. M., Cincinnati, O.—Chemicals, glycerine, sugar-coated pills, podophyllin, hydrastine.</td>
</tr>
<tr>
<td><strong>6a</strong> Rosengarten &amp; Sons, Philadelphia, Pa.—Sulphates of quinine and morphine, and other chemicals for use in medicine and the arts.</td>
</tr>
<tr>
<td><strong>8a</strong> Hirsh, Joseph M., Chicago, Ill.—Chemicals, alum, dried blood, alizarine, carbolic acid, coal tar products, etc.</td>
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<tr>
<td><strong>9a</strong> Campbell, Sam'l, Philadelphia, Pa.—P 47.</td>
</tr>
<tr>
<td><strong>9a</strong> Perumly and toilet articles.</td>
</tr>
<tr>
<td><strong>8a</strong> Williamson, D. D., New York, N. Y.—Bisulphite of lime, finings, beer coloring, cleansing powders, tannate of soda, etc.</td>
</tr>
<tr>
<td><strong>9a</strong> Kreitzer, M. C., Philadelphia, Pa.—Medical supply; perfumery, etc., in a marble show case.</td>
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<tr>
<td><strong>9a</strong> Scheffer, E., Louisville, Ky.—Preparations of pepsin.</td>
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<tr>
<td><strong>10a</strong> Keasby &amp; Mattison, Philadelphia, Pa.—Granular effervescent preparations, gelatine-coated pills, pharmaceutical specialties.</td>
</tr>
<tr>
<td><strong>11a</strong> Twining &amp; Schiedt, Philadelphia, Pa.—Fluid and solid extracts, sugar-coated pills, elixirs, concentrated preparations, chemicals, syrups, tinctures, powdered drugs.</td>
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<tr>
<td><strong>11a</strong> Shoemaker, Robert, &amp; Co., Philadelphia, Pa.—Fluid extracts; ground, crushed, and powdered drugs and spices.</td>
</tr>
<tr>
<td><strong>12a</strong> Powers &amp; Weightman, Philadelphia.—Sulphate of quina, salts of cinchona bark, sulphate of morphia; chemicals, medicinal, photographic, and for the arts.</td>
</tr>
<tr>
<td><strong>12a</strong> Morrison, Arthur B., Portland, Me.—Gold and silver solution for electrotyping without a battery; restorative for cleaning jewelry.</td>
</tr>
<tr>
<td><strong>13a</strong> Harrison Brothers &amp; Co., Philadelphia, Pa.—P 41.</td>
</tr>
<tr>
<td><strong>13a</strong> Chemicals, alum, sugars of lead, acetates of lime; sulphuric, nitric, muriatic, acetic, and pyroglucose acids.</td>
</tr>
<tr>
<td><strong>13a</strong> White lead, dry and in oil; colors for painters, lithographers, and calico printing.</td>
</tr>
<tr>
<td><strong>14a</strong> Central Ohio Salt Co., Columbus, O.—Salt from Athens county.</td>
</tr>
<tr>
<td><strong>15a</strong> Doerr &amp; Sloan, Philadelphia, Pa.—Lacto-phosphate of lime, iron, and cod-liver oil.</td>
</tr>
<tr>
<td><strong>16a</strong> Mellor &amp; Rittenhouse, Philadelphia, Pa.—Licorice and pharmaceutical extracts; glycerine composition for printers' rollers.</td>
</tr>
<tr>
<td><strong>17a</strong> Stearns, Frederick, Detroit, Mich.—Pharmaceutical products peculiar to United States, representing his catalogue, number 75, 128 pages, 166 classes, and 10,000 items.</td>
</tr>
<tr>
<td><strong>18a</strong> Dunton, Jacob, &amp; Co., Philadelphia, Pa.—Pills. Compressed lenticular non-excepting porous pills, made from dried powders, by pressure, without admixture; are as soluble after ten years as when first made, and much more readily dissolved than any freshly-made excipient pill. Process and machinery patented.</td>
</tr>
<tr>
<td><strong>19a</strong> Simes, Wm. F., &amp; Son, Philadelphia, Pa.—Camphor, sublimed and compressed into convenient blocks of 1 ounce and 4 ounces; is very durable, strong in natural oil, and perfectly pure.</td>
</tr>
<tr>
<td><strong>19a</strong> Tabony Chemical Works, Philadelphia, Pa.—Acids, chemical salts, etc.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
22 Bullock & Crenshaw, Philadelphia, Pa.—Sugar-coated pills; United States Pharmacopeia and recipes of eminent physicians, accurately compounded, readily soluble, and strictly reliable in every particular. P 41. 200
24 Savage, Keyser, & Stowell, Philadelphia, Pa.—Acids and salts. T 44. 200
25 Philadelphia Quartz Co., 9 North Front street, Philadelphia, Pa.—Silicate of soda, in its various forms, specially adapted to the different uses. T 45. 200
26 Coyne, Geo. S., Philadelphia, Pa.—Manufacturer and importer of dyewood lignin, tannin, extractives, dyestuffs, and chemicals generally. (Stores, 104 and 127 Church street, Philadelphia, Pa.; Chester Chemical Works, Delaware county, Pa.) T 44. a Acids and chemicals. 200 b Dyestuffs. 202
28 Condit, Hauson, & Co., Newark, N. J.—Metallic salts, electro-plating materials; hatters', dyers', jewelers', and manufacturers' chemicals. P 49. 200
30 Lewis, John T., & Bros., Philadelphia, Pa.—T 42. a Acids, salts. 200 b White and red lead; litharge, orange mineral; paints, colors, and oils. 200
31 Skillman Chemical Works, Philadelphia, Pa.—Chemical products, from tar and fine chemicals, known as Fresenius's tests. P 43. 200
32 Wyeth, John, & Bro., Philadelphia, Pa.—Pharmaceutical preparations, drugs, and compressed pills. P 41. 200
33 Waterloo Yeast Co., New York, N. Y.—Dry hop yeast cakes. T 47. 200
34 McKesson & Robbins, 91 Fulton street, New York, N. Y.—Gelatine-coated pills, aromatic elixirs, medicinal syrups; fluid and solid extracts, perfume extracts, essential oils, indigenous crude drugs. P 43. 200
38 Libby, John C., Philadelphia, Pa.—Baking yeast powder. T 47. 200
39 McIlvaine Brothers, Philadelphia, Pa.—Ground and powdered drugs, paints, etc. P 43. 200
40 Smith, Hanway, & Co., Baltimore, Md.—Baking powder. T 47. 200
43 Brown, Frederick, Philadelphia, Pa.—Essence of Jamaica ginger, and other pharmaceutical preparations. P 41. 200
44 Hagner Drug Milling Co., New York, N. Y.—Powdering, grading, flaking, crushing, and other mill work. T 51. 200
45 Bower, Henry, Philadelphia, Pa.—Glycerine, stearic and oleic acids; prussiate of potash, sulphate of ammonia. T 200. 200
46 Browning & Brothers, Philadelphia, Pa.—T 44. a Acetic acid, acetate of lime, lead, alumina and iron, sulph. copper. 200 b Naphtha. 201 c Dye-stuffs. 202
48 Leidy, Francis D., Philadelphia, Pa.—Soap powder, washing crystals. T 50. 200
50 Bean, Lewis U., Philadelphia, Pa.—P 49. a Pharmaceutical preparations, drugs, etc. 200 b Paints—dry and in oil. 200
51 Pfizer, Chas., & Co., New York, N. Y.—Pharmaceutical and chemical products; cream tartar, tartaric acid, refined borax, and camphor. P 49. 200
52 Preston & Merrill, Boston, Mass.—P 48. a Yeast powder. 200 b Sugar of lemons, flavoring extracts. 203
53 Meyer, Jas., jr., & Co., New York, N. Y.—Girondin disinfectant. Inodorous and colorless; does not injure any object or material it may be applied to; destroys and neutralizes almost instantly the most offensive odors, vapors, or gases; arrests putrefaction, prevents contagion, and is infallible as an agent for embalming. P 49.
56 Mackeown, Bower, Ellis, & Co., Philadelphia, Pa.—Drugs and chemicals. T 43. 200
58 Phillips & Jacobs, Philadelphia, Pa.—Illustration of the recovery of gold and silver from wastes in the industrial arts. T 46. 200
59 Dooley & Bro., New York, N. Y.—Baking powder. T 49. 200
60 White, Charles T., & Co., No. 54 Maiden Lane, New York.—Pharmaceutical chemicals, quinina, morphina, strychnia, and their salts; iodides, bromides, acids C. P., etc. Medals of merit for appearance and purity, Am. Institute, 1867-1870; Cincinnati, 1873; Cordova (Arg. Repub.), 1870; Vienna, 1873. P 43. 200
61 United States Salicylic Acid Works, Bronx, N. Y.—Salicylic acid and its preparations. P 47. 200
62 Gray, Daniel H., New York, N. Y.—Brimstone and flour of sulphur. T 42. 200
63 Follett, O. S., New York, N. Y.—White sugar of lead, chloroform, acetic and lactic acid, and its preparations. P 47. 200
64 King, Wm., Son, & Co., Philadelphia, Pa.—Crude and refined petroleums. T 41. 201

For location of objects, indicated by letter and figure, see Key to Notation, p. 25: ground plan, p. 26.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
112 Cook, Caleb, Provincetown, Mass.—Watch and clock oil. T. 50. 201
112a Williston, A. L., Northampton, Mass.—Indelible ink and marking pens. T. 46. 202
113 Hover, J. E., & Co., Philadelphia, Pa.—Chemical writing fluid; black ink, carmine, violet, and copying inks; mucilage. T. 47. 202
113a Prunier, Pierre, Philadelphia, Pa.—Indigo extract, indigo carmine, tannins, gallo-tannic acid, archil, greens, etc. P. 47. 202
114 Wetherill & Bro., Philadelphia, Pa.—White and red lead, litharge, orange mineral. T. 44. 202
115 Lucas, John, & Co., Philadelphia, Pa.—White lead, white zinc, colors, paints, varnishes, Swiss and imperial F. Keen greens. T. 44. 202
117a Reisinger Manufacturing Co., Harrisburg, Pa.—Chemical writing fluid. P. 68. 202
118 Keyes'ing Oil Co., Gambier, O.—Lampblack. V. 63. 202
120 Felton, Ray, & Sibley, Philadelphia, Pa.—Coach, furniture, and Japan varnishes. T. 40. 202
120a Rue, Mrs. S., Philadelphia, Pa.—Furniture polish. W. 53. 202
121 Reynold's, C. T., & Co., New York, N. Y. (Established 1770).—Paints, dry and in oil, fine colors, chemically pure; superfine quick-drying colors for coach and car painting; ready mixed paints for house and villa painting; laundry bleaching, in bags, ready for use; artists' materials, embracing prepared canvases for oil painting, Tyrian water-color tablets, drawing papers and materials; crayons, gilders' tools, brushes for art, painters' and decorators' brushes, grainer's special tools, painters' cutlery, wax-flower materials, etc. The whole line of goods exhibited were taken from their regular stock, made for practical use, and not display. P. 42. 202
121b Keystone Paint Co., Muncy, Pa.—Filler for coach, car, and safe painting; paint for school-house blackboards. T. 40. 202
123 Carter, Dinmore, & Co., Boston, Mass.—Writing fluid, inks, and mucilage; Lombard's inks and mucilage. T. 47. 202
124 Fromherz, Jos., Cincinnati, O.—Inks. T. 47. 202
125 Heller & Merz, New York, N. Y.—Ultramarine. T. 41. 202
126 Reynolds, S. & Sons, New York, N. Y.—Varnishes, and baking jansks. Manufacturers of coach, railway, cabinet, agricultural implements, and miscellaneous varnishes; baking jansks for all uses; bronzing and colored varnishes, of all colors, a specialty. T. 44. 202

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 36.
148 Moss, Geo. A., New York, N. Y.—Liquid bluing, powder blue, shoe blacking, ladies’ shoe dressing, writing inks, etc. T 47. 202
149 Adams White Lead Co., Baltimore, Md.—White lead and products, a new process securing excellence of body, color, softness, uniformity, and durability. T 40. 202
151 Moser, Chas., & Co., Cincinnati, O.—Colors, dry and pulp; paints in oil, coach colors, artists’ colors. T 47. 202
153 Wright, J. K., & Co., Philadelphia, Pa.—Printers’ and lithographers’ inks and varnishes. T 47. 202
154 Continental Manufacturing Co., Philadelphia, Pa.—Inks, writing fluids, mucilage, artists’ colors. T 47. 202
155 McCloskey, Bro., & Co., Philadelphia, Pa.—Paints and colors, ground in oil, dry, and in pulp. T 40. 202
156 Robinson & Pratt, Philadelphia, Pa.—Printing and lithographic inks and varnishes. T 52. 202
158 Prince’s Metallic Paint Co., Parryville, Pa.—Metallic paint and foundry facings. T 50. 202
159 Johnson, Chas. Eneu, & Co., Philadelphia, Pa.—Typographic and lithographic black and colored printing inks, varnishes, etc. T 47. 202
160 State of Oregon (by A. J. Dufur).—Paints and oils. V 56. 202
161 Maynard & Noyes, Boston, Mass.—Writing ink. T 47. 202
163 Rowland, Joseph S. C., Philadelphia, Pa.—Indelible, canceling, and copying ink, and writing fluid. T 47. 202
166 Foering, Geo. W., Locust Valley, L. I.—Stone county, Pa.—Saucon stencils; Geologically, and otherwise, a peculiar formation, rich in alumina and peroxide of iron, exhibiting the durability of the best ochres. T 50. 202
167 Peirce, I. Newton, Philadelphia, Pa.—Stone surface enamel colors, and samples. T 70. 202
168 Smith, Marshall L., Kimberton, Pa.—Silex mineral paint. T 70. 202

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Perfumery, Toilet Articles, Explosive Compounds, Pottery.

191a Hotchkiss, L. B., Phelps, N. Y.—Peppermint, spearmint, wintergreen, and pansey essential oils. P 47. 203
193 Blair's, H. C., Sons, Philadelphia, Pa.—Toilet articles. T 47. 203
194 Colgate & Co., New York, N. Y.—Pancy soaps and perfumery. P 47. 203
195 Watson, Richard H., Philadelphia, Pa.—Handkerchief extracts. De Vries's quadruple handkerchief extracts. These celebrate extracts are produced with great skill, from the finest articles known in perfumery, and for delicacy of perfumes, truthfulness to nature, and tenacity, they are particularly recommended; they are guaranteed to be of quadruple strength, and warranted not to turn rancid. Although not old extracts, they have taken favor immediately, and the best proof of their quality is their large and constantly increasing sales. A trial will convince you. P 47. 203
196 Hoyt, E. W., & Co., Lowell, Mass.—Cologne. P 47. 203
197 Read, Wm. H., Baltimore, Md.—Cologne, tooth wash, perfumery. P 47. 203
198 Worsley, Thos., & Co., Philadelphia, Pa.—Toilet and fancy soaps, and toilet powders. P 47. 203
199 Wright, R. & G. A., Philadelphia, Pa.—Extracts, cologne, cosmetics, pomades, oils, dentifices, toilet soaps, etc. P 47. 203
200 Wolf Brothers & Keech, Centreville, Mich.—Essential oils. P 47. 203
201 Aschenbach & Miller, Philadelphia, Pa.—Flavoring extracts and perfumery. P 47. 203
202 Fricke, Arthur, Philadelphia, Pa.—Perfumery. P 47. 203
203 Burnett, Jos., & Co., Boston, Mass.—Flavoring extracts, cologne water, and toilet articles. P 48. 203
204 Colton, J. W., Westfield, Mass.—Colton's select flavoring extracts of choicest fruits and spices. They are strictly pure, rich flavors of the fruits, and are great saving in actual cost, to all. In a sale of thousands of gross, not one particle of coloring or adulteration has ever been used. P 43. 203
205 Hale & Parshall, Lyons, N. Y.—Essential oils. P 47. 203
206 Atwood, Hermon W., New York, N. Y.—Cologne. The proprietor takes pride in comparing this product of home manufacture with the best imported colognes. Diligency of fragrance is combined with lasting and invigorating qualities. P 47. 203
208 Hambleton, J., & Son, Philadelphia, Pa.—Bay rum, pomades, cosmetics, colognes, extracts, hair tonics, etc. P 43. 203
209 Weaver, James B., Philadelphia, Pa.—Cologne, Florida water, bay rum. T 49. 203
209a Oriental Powder Mills, Boston, Mass.—Imitation samples of military, sporting, and blasting powder. P 43. 204
210 Barber Match Co., Akron, O.—Drawing-room and siphon matches. T 44. 204
211 Toy, Bickford, & Co., Simsbury, Conn.—Safety fuses. T 45. 204
211a Du Pont de Nemours, E. I., Wilmington, Del.—Powder canisters and salt-petre. T 40. 204
212a Zennig, R. H., & Co., New York, N. Y.—Wax matches and tapers. P 43. 204
213 Hazard Powder Co., Hazardville, Conn.—Sporting and blasting gunpowder. H 71. 204
214 Willis, Aug. L., Philadelphia, Pa.—Pyrotechnic fog signals. H 71. 204
214a Harris, H. G., New York, N. Y.—Balloon signals. H 68. 204

Ceramics—Pottery, Porcelain, Glass, etc.

215 Galloway & Graff, Philadelphia, Pa.—Terra-cotta statuary, vases, tazzas, pedestals, fountains, flower pots, garden edging, etc. B 72. 206
216 Neukemet, Philip, Philadelphia, Pa.—Fire bricks, clay retorts, gas-house tiles, and ornamental building brick. X 56. 206
216a Burns, Russell & Co., Baltimore, Md.—Pressed brick masonry. Y 60. 206
217 Moorhead Clay Works, Philadelphia, Pa.—Terra-cotta sewer and water pipes, drain and roofimg tiles, garden vases, chimney tops, and fuses. (Outside.) 206
218 Harvey & Adamson, Philadelphia, Pa.—Drain and sewer pipe, garden vases, statuary, chimney tops, fuses, etc. B 72. 206
218a Davis & Chaddock, Boston, Mass.—Fire bricks. Y 61. 206
220 Gossin, F., Philadelphia, Pa.—Terra-cotta ware, statuary, vases, fountains, pedestals, etc. B 69. 206
221 Bowman, O. O., & Co., Trenton, N. J.—Drain and sewer pipe, chimney tops, and fuses; garden vases and statuary. B 71. 206
221a Alexander, J. Park, Akron, O.—V 61.
222 Fritz, John, Philadelphia, Pa.—Terra-cotta work, hanging baskets, rustic flower pots, vases, fern cases, etc.; imitation gas logs. B 69. 206
222a Ogden, Isaac, Newark, N. J.—Drain pipe. Y 55. 206

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Pottery, Porcelain.


227 Union Mining Co., of Allegheny county, Md.—Fire brick. X 58: 206.

228 Wood Brothers, Hartford, Conn.—Drain tiles. W 53: 206.


229 Hall, A., & Son, Perth Amboy, N. J.—Brick used in chimney of New Jersey State Building. 206.


233 a Fire bricks, tiles, blocks, and slabs. 206.

233 b Clay gas retorts, furnaces, and muffles. 206.


233 d Fire brick. 206.

233 e Stove linings, heater fire-brick linings, portable clay furnaces. 206.

233 e Friese, C., Philadelphia, Pa.—Sturatory, vases, stumps, flower pots, hang- ing baskets, etc. T 76: 207.


234 a Diamantine front and fire bricks. 206.

234 b Street paving blocks. 206.

234 c Rockingham antique and yellow ware. 206.

235 Hicks, George C., & Co., Baltimore, Md.—Fire bricks. T 75: 207.

235 a Terra-cotta pipe, vases, clay, etc. 206.

235 b Fire bricks, gas retorts. 207.

235 c Tiles. 207.

236 Walker, N. U., Wellsville, O. (Outside.)

236 a Sewer pipe, terra-cotta ware, chimney top and statuary. 207.

236 b Fire tiles, stove linings. 207.

236 c Roofing tile. 207.


237 a Sewer and drain pipe; fine and common pottery. 206.

237 b Fire bricks. 207.


237 d Window glass. 214.

237 e Apothecaries’ and bottle glass. 215.

237 a Hampton, Cutter, & Son, Woodbridge, N. J.—T 64: 207.

237 b Fire brick. 207.


238 Dixon Crucible Co., Jersey City, N. J.—Graphite crucibles, retorts, etc. P 72: 207.

238 a Haws, A. J., Johnstown, Pa.—Fire brick bottoms for blast furnaces, rolling mills, etc. Y 60: 207.


238 c Kier Bros, Pittsburg, Pa.—Y 56: 207.

238 d Fire bricks. 207.

238 e Tiles. 208.


240 a Burlington Manufacturing Co., Burlington, Vt.—Samples of tile floor. 56: 208.


241 Young’s, Wm., Sons, Trenton, N. J.—Crockery and porcelain hardware trimmings. T 74: 209.

243 Empire China Works. James L. Jensen, Proprietor, Green Point, Brooklyn, E. D., N. Y.—Porcelain hardware and cabinet trimmings; also, patent lemon squeezers, wood frame, porcelain lined; porcelain blade knife sharpeners, etc. N 70: 209.


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 27-45.
<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
<th>Location</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>249</td>
<td>Thompson, C. C., &amp; Co., East Liverpool, O.—Pottery ware.</td>
<td>T 76.</td>
<td>210</td>
</tr>
<tr>
<td>250</td>
<td>Yates, Bennett, &amp; Allen, Trenton, N. J.—Dinner, dessert, tea, and toilet sets; crockery ware.</td>
<td>T 77.</td>
<td>210</td>
</tr>
<tr>
<td>252</td>
<td>Brunt, Bloor, Martin, &amp; Co., East Liverpool, O.—American white granite dinner, dessert, tea, and toilet decorated ware.</td>
<td>T 74.</td>
<td>210</td>
</tr>
<tr>
<td>253</td>
<td>Speyer Pottery Co., Trenton, N. J.—T 75.</td>
<td>210</td>
<td>212</td>
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<td>253</td>
<td>Baggott, S. &amp; W., East Liverpool, O.—Rockingham and yellow ware.</td>
<td>T 75.</td>
<td>210</td>
</tr>
<tr>
<td>253a</td>
<td>Glassow Pottery Co., Trenton, N. J.—T 73.</td>
<td>210</td>
<td>210</td>
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<tr>
<td>254</td>
<td>American Crockery Co., Trenton, N. J.—Chamber sets and table ware of bisque, white granite, and stone china.</td>
<td>T 75.</td>
<td>210</td>
</tr>
<tr>
<td>255</td>
<td>Greenwood Pottery Co., Trenton, N. J.—Ironstone china, decorated dinner and toilet sets.</td>
<td>T 74.</td>
<td>213</td>
</tr>
<tr>
<td>256a</td>
<td>Bullock, Charles, Trenton, N. J.—China ware.</td>
<td>T 77.</td>
<td>213</td>
</tr>
<tr>
<td>256a</td>
<td>Sallandrouze, S. P., Cincinnati, O.—Plate glass.</td>
<td>P 43.</td>
<td>214</td>
</tr>
<tr>
<td>256</td>
<td>Cohansy Glass Manufacturing Co., Bridgeport, N. J.—N. 49.</td>
<td>214</td>
<td>214</td>
</tr>
<tr>
<td>262</td>
<td>Gilbert, F. A., New Haven, Conn.—Combination table.</td>
<td>P 51.</td>
<td>217</td>
</tr>
<tr>
<td>262a</td>
<td>Lambie &amp; Sargent, New York, N. Y.—Adjustable table.</td>
<td>P 51.</td>
<td>217</td>
</tr>
<tr>
<td>264</td>
<td>Diamond Glass Co., Ravenna, O.—Double-thick glass from ground white sandstone, in windows of Ohio State Building.</td>
<td>214</td>
<td>214</td>
</tr>
<tr>
<td>266</td>
<td>Holzer, Wm., Philadelphia, Pa.—Druggists', chemists', philosophical, and fancy glassware.</td>
<td>N 32.</td>
<td>215</td>
</tr>
</tbody>
</table>

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26
Furniture and Objects of General Use in Construction and in Dwellings.

286 Excelsior Flint Glass Co., Pitts-
burg, Pa.—Glass lamp chimney, silvered
glass reflectors. N 49 to 51. 216
287 Rochester Tumbler Co., Pitts-
burg, Pa.—Glass tumblers. N 49 to
51. 216
288 Crystal Glass Co., Pittsburg, Pa.—
Moulded or pressed crystal glass table-
ware, etc. N 49 to 51. 216
289 Central Glass Co., Wheeling, W.
Va.—Pressed glassware. N 52. 216
—Window glass, glass shades; colored,
and corrugated glass. N 51. 216

Glassware, Furniture.

301a Sawyer & Buckley, Meriden,
Conn.—Chess and backgammon tables.
P 53. 211
302 Hart, Clarence A., Philadelphia,
Pa.—Military equipments, gold fringes,
etc. B 78. 217
302a Krase, Frederick W., Chicago,
III.—Gothic chairs. W 52. 217
303 Campbell, Wm., New York, N.
Y.—Spring rollers for window curtains. T
52. 217
—Inlaid checker board. (East Gal-
lery.) 217
305a Delaware Chair Co., Delaware,
O.—Double caneset chairs. T 58. 217
304a Stevens, C. A., & Albiz, W. H.,
Philadelphia, Pa.—Folding bedstead. P
54. 217
305b Phelps, Doremus, & Corbett, 294
and 296 Canal street, near Broadway,
New York, N. Y.—W. T. Doremus’ patent
chair base, patent rubber springs for
oscillating chairs, patent oscillating rubber-
spring chairs. Being combinations, af-
fording manufacturers a wide range in
the production of chairs for office, library,
or parlor use. P 53. 217
305a Smith, Wm. B., New York, N. Y.
—Improvement in counter show case. 
N 41. 217
306 Moore, York, & Howell, Philadel-
phia, Pa.—Parlor furniture, folding tables.
T 54. 217
306i Shroeder, F. H., & Cincinnati,
O.—Pulpit, with sounding board. P
47. 217
307a Loth, Henry, Philadelphia, Pa.—
Folding table, T 51. 217
307a Spofford, Jennie H., Philadelphia,
Pa.—Mattress bracket holders, mosquito
bar. P 50. 217
308 Ferrari, Guiseppe, New York, N.
Y.—Cabinet, richly carved, in Italian
style of fifteenth century. P 58. 217
308a Brigg, M., & Son, Rochester, N.
Y.—Fire and burglar proof safes. H
71. 217
309 Everitt, Elisha E., Philadelphia,
Pa.—Portable and stationary washstand
and writing desk combined; sofa bed. P
56. 217
309a Claes & Co., St. Louis, Mo.—
Silver-plated show case. T 60. 217
310 Schubeuter, J., St. Louis, Mo.—
Silver-plated show case. T 60. 217
311 Spiral Elliptic Spring Works, Cin-
na, O.—Springs for upholstering. P
53. 217
311a Brunswick Bros., Stephani, &
Hart Co., St. Louis, Mo.—Billiard table
and cue rack. T 54. 217
312 Woven Wire Web Bed Co., New
Britain, Conn.—Woven wire bed bottom. 
P 53. 217
313 Knell, Geo., Philadelphia, Pa.—
Sofa bed, invalid chair and bed, rocking
reclining chair, chair and lounge, photo-
graphie chairs. T 59. 217
313a Adams, Dan., Nashville, Tenn.—
Hat-rack and chairs made of wood from
"The Hermitage," the old home of An-
drew Jackson. V 72. 217

For values of exhibit, indicated by numbers at end of entries, see Classification, pp. 27-43.
DEPT. II.—MANUFACTURES.

Furniture and Decoration.


316 Sheppard, Arrison, & Sheppard, Philadelphia, Pa.—Curtains, decorations, and upholstered furniture. P 53. 217

316 Marcotte, L., & Co., New York, N. Y.—Library, (see II.) and dining-room (Louis XIV.) furniture. T 52. 217

317 Lever Spring Bed Co., Springfield, O.—Spring bed. P 52. 217

318 Lamb, J. & R., New York, N. Y.—Church furniture, metal work, embroideries, and decorations. P 43. 217


320 Wakefield Rattan Co., Boston, Mass.—Rattan furniture and ornamental ware. T 57. 217

321 White, Otis C., Hopkinton, Mass.—Stationary and portable head-rests for chairs, and car-seat backs. This is a new mechanical combination of single construction, which affords a complete opposition movement of great range, to all positions, without removing the head from the upholsteriy, and fastened by a single clamp. The portable kinds fold up to take but little space, make their own fastening to almost any form where support to the head is desired; they are simple, elegant, and thoroughly practical. Correspondence and orders solicited. T 59. 217

322 Lambie & Sargent, New York, N. Y.—Adjustable table. P 51. 217


324 Cutter, Ephraim, Cambridge, Mass.—Adjustable chair for supine postures. N 58. 217


325 Kaiser & Herzog, 1005 Walnut street, Philadelphia, Pa.—Decorative painting for ceilings and side walls, in the modern renaissance style, executed after original designs by the firm. P 56. 217

326 Steele, John, Louisville, Ky.—Folding opera chairs; church, lawn, and school seats. T 58. 217

327 Kimbel & Cabus, New York, N. Y.—Parlor furniture and decorations. P 56. 217

328 Veall, E. W., Worcester, Mass.—Patent folding chairs, in great variety. Business established 1861. I claim for my chairs durability, thoroughness of finish, simplicity in folding, and compactness when folded. Very extensive assortment of styles, adapted for parlor, drawing-room, library, veranda, and shipboard; also, a line suitable for tropical climates. On account of limited space allotted, am compelled to make a comparatively meager exhibit. T 57. 217

329 Cutler, A., & Son, Buffalo, N. Y.—Business desks, reading tables, patent automatic folding parlor tables. P 53. 217


331 Koechling B. H., New York, N. Y.—Opera folding chairs. P 51. 217

COLLECTIVE EXHIBIT OF THE SCHOOL OF DESIGN, UNIVERSITY OF CINCINNATI, OHIO. (South Gallery.) 217

331a Whittemore, R. L.—Laacoon.

331b Woodward, W. W.—Fugitive Slave.

331c Humphreys, Ella.—Illumination and frescoed ceiling.

331d De Camp, Essie.—Panel

331e Rettig, John.—Centre for ceiling and border for wainscoting.

331f Merrill, Susie.—Panel centre.

332 Seymour, H. J., Chair Co., Troy, N. Y.—Bent chairs, patent braided chairs and rockers, walnut dining and library chairs. T 58. 217

333 Cooper, Jas. W., & Bro., Philadelphia, Pa.—Fancy cabinet ware, woodcarvings, etc. P 57. 217

334 Stiles, Mrs. E. W., Philadelphia, Pa.—Combination desk. P 50. 217

335 Karcher's, Daniel M., Sons, Philadelphia, Pa.—Sideboard. P 60. 217


337 Schrenkeisen, M. H., New York, N. Y.—Upholstered rocking chair on castors. P 53. 217

338 Killian Brothers, New York, N. Y.—Easels, parlor table, music stand, table, card receiver. P 51. 217


340 Brown & Bliss, 159 Canal street, New York, N. Y.—Dining-room furniture, extension tables, sideboards, etc. Special manufacturers and exporters of dining-room furniture "en suite," including extension tables of every description, with patent slides and patent screw-leg corner block, also sideboards and side tables with leaves of extension table enclosed within. T 50. 217


342 Little, S. P., No. 203 Canal street, New York, N. Y.—Spring mattresses for under-mattress, or with mattress and bolster combined, and made to fold compactly for transportation, when desired; also, spring mattresses with straight frame and elastic edges; others so constructed that both sides and all the edges are alike elastic and most comfortable. A moderate outlay in these goods will insure a most exquisite bed. P 52. 217

343 Schenck, Jas. V., New York, N. Y.—Crescent spring mattress. P 51. 217

344 Paton, Robt., & Son, New York, N. Y.—Church and school furniture, Sunday-school and lecture-room sets. P 53. 217

345 Postawka, L., & Co., Cambridgeport, Mass.—The "X" piano taboret. P 60. 217


For location of objects, indicated by asterisk and figure, see Key to Notation, p. 25; ground plan, p. 26.
367 Swasey, I. N., M.D., Yonkers, N. Y.—Billiard tables; Trichorum table, a new principle in carpentry, securing a permanently level surface, and new built-up work samples from the French Manufacturing Co. of New York City. T 51. 217

369 Hover, H. F., Philadelphia, Pa.—Folding wardrobe and lounge. P 50. 217

367 Thole, B., St. Louis, Mo.—Book case. P 59. 217

368 Swasey, I. N., M.D., Yonkers, N. Y.—Billiard tables; Trichorum table, a new principle in carpentry, securing a permanently level surface, and new built-up work samples from the French Manufacturing Co. of New York City. T 51. 217

369 Hover, H. F., Philadelphia, Pa.—Folding wardrobe and lounge. P 50. 217

367 Thole, B., St. Louis, Mo.—Book case. P 59. 217

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
<thead>
<tr>
<th>DEPT. II.—MANUFACTURES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Furniture, Safes.</td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>1. School, church, office, and bank furniture;</td>
</tr>
<tr>
<td>desks, pews, pulpits, chairs.</td>
</tr>
<tr>
<td>217 b Marquetry flooring.</td>
</tr>
<tr>
<td><strong>391 Coburn Manufacturing Co., Philadelphia,—</strong></td>
</tr>
<tr>
<td>Canopy wardrobe and wardrobe arm. P 51.</td>
</tr>
<tr>
<td><strong>392 Rhoner, Frank, &amp; Co., New York, N. Y.—</strong> Reclining</td>
</tr>
<tr>
<td>chairs. P 53.</td>
</tr>
<tr>
<td><strong>393 Close, Thos., J., Philadelphia,—</strong></td>
</tr>
<tr>
<td>Reversible settees. N 63.</td>
</tr>
<tr>
<td>W 54.</td>
</tr>
<tr>
<td><strong>395 De Bock, Matthew, South Boston, Mass.—</strong> Cabinet,</td>
</tr>
<tr>
<td>work table, and frame. P 51.</td>
</tr>
<tr>
<td><strong>396 Paine’s Furniture Manufactory, Boston, Mass.—</strong></td>
</tr>
<tr>
<td>Pulpit and church furniture, case of designs. T 60.</td>
</tr>
<tr>
<td><strong>397 Brunswick, J. M., &amp; Balke Co., Chicago, Ill.—</strong></td>
</tr>
<tr>
<td>Billiard tables and materials; ivory and ten-pin balls. T</td>
</tr>
<tr>
<td>51.</td>
</tr>
<tr>
<td><strong>398 Collins &amp; Sturgeon, New York, N. Y.—</strong> Reclining</td>
</tr>
<tr>
<td>chair. T 53.</td>
</tr>
<tr>
<td><strong>399 Ellin, Robt., &amp; Co., New York, N. Y.—</strong> Eagle</td>
</tr>
<tr>
<td>lecurn carved in oak, sideboard, font, hall chairs, and</td>
</tr>
<tr>
<td>litany desk. P 52.</td>
</tr>
<tr>
<td><strong>400 Morse, L., &amp; Son, Athol, Mass.—</strong> Folding settee.</td>
</tr>
<tr>
<td>P 51.</td>
</tr>
<tr>
<td><strong>401 Hartshorn, Stewart, New York, N. Y.—</strong> Window-shade</td>
</tr>
<tr>
<td>rollers. T 51.</td>
</tr>
<tr>
<td><strong>402 Glenn, Frank, Philadelphia,—</strong> American buffet.</td>
</tr>
<tr>
<td>H 44 to 44.</td>
</tr>
<tr>
<td><strong>403 Walter Heywood Chair Co., Pittsburgh, Mass.—</strong></td>
</tr>
<tr>
<td>Chairs. Adapted for export to every foreign port and the</td>
</tr>
<tr>
<td>home trade. T 59.</td>
</tr>
<tr>
<td><strong>404 Whitney Manufacturing Co., South Ashburnham, Mass.—</strong></td>
</tr>
<tr>
<td>Chairs. W 50.</td>
</tr>
<tr>
<td><strong>405 Sawin, L. H., Gardner, Mass.—</strong> Canoe-seat chairs.</td>
</tr>
<tr>
<td>W 52.</td>
</tr>
<tr>
<td><strong>406 French, Julia B., Boston, Mass.—</strong> Cabinet and</td>
</tr>
<tr>
<td>bedstead. N 60.</td>
</tr>
<tr>
<td>tables and apportionment. P 54.</td>
</tr>
<tr>
<td><strong>408 Heywood Brothers &amp; Co., Gardner, Mass.—</strong> Cane and</td>
</tr>
<tr>
<td>wood seat and rattan chair, rattan furniture, chair,</td>
</tr>
<tr>
<td>cane, reeds, etc. W 50.</td>
</tr>
<tr>
<td><strong>410 Derby, Philander, Gardner, Mass.—</strong> Cane-seat chairs.</td>
</tr>
<tr>
<td>Manufacturer of, and dealer in, all varieties of cane and</td>
</tr>
<tr>
<td>wood-seat chairs, for home and export trade. W 51.</td>
</tr>
<tr>
<td><strong>411 Rath, Paul, New York, N. Y.—</strong> Bay-window curtain,</td>
</tr>
<tr>
<td>screen, and pedestal. P 41.</td>
</tr>
<tr>
<td><strong>412 Wilson, George, Chicago, Ill.—</strong> T. 59.</td>
</tr>
<tr>
<td>1. Folding bedstead and table combined, and recumbent</td>
</tr>
<tr>
<td>reading chair.</td>
</tr>
<tr>
<td>217 b Mangle.</td>
</tr>
<tr>
<td><strong>413 Hall’s Safe and Lock Co., Cincinnati, O.—</strong> Fire,</td>
</tr>
<tr>
<td>burglar, and fire and burglar proof safes, deposit vaults.</td>
</tr>
<tr>
<td>H 67.</td>
</tr>
<tr>
<td><strong>414 Herring &amp; Co., New York, N. Y.—</strong> Bank vaults and</td>
</tr>
<tr>
<td>doors; fire and burglar proof set. H 69.</td>
</tr>
<tr>
<td><strong>415 Farrel &amp; Co., Philadelphia, Pa.—</strong> Fire and burglar</td>
</tr>
<tr>
<td>proof safes. H 67.</td>
</tr>
<tr>
<td><strong>416 Terwilliger &amp; Co., New York, N. Y.—</strong> Fire andburglar</td>
</tr>
<tr>
<td>proof safes. H 70.</td>
</tr>
<tr>
<td><strong>417 Cortiss Safe Co., Providence, R. I.—</strong> Burglar proof</td>
</tr>
<tr>
<td>safes. H 67.</td>
</tr>
<tr>
<td><strong>418 Valentine &amp; Butler Safe &amp; Lock Co., New York, N. Y.—</strong></td>
</tr>
<tr>
<td>Burglar and fire proof safes. H 70.</td>
</tr>
<tr>
<td>**419 Marvin’s Safe Company, New York, N. Y.—Safes. H 69.</td>
</tr>
<tr>
<td><strong>420 Schermerhorn, Charles, New York, N. Y.—</strong> T 50.</td>
</tr>
<tr>
<td>a Towel stand and rack.</td>
</tr>
<tr>
<td>219 b Mirror.</td>
</tr>
<tr>
<td>a Tables.</td>
</tr>
<tr>
<td>217 b Mirrors.</td>
</tr>
<tr>
<td><strong>422 Dubernet, L., New York, N. Y.—</strong> P 52.</td>
</tr>
<tr>
<td>a Bamboo and fancy fire-gilt furniture. 217</td>
</tr>
<tr>
<td>b Paper, velvet, metal, and gilt frames. 220</td>
</tr>
<tr>
<td><strong>423 Feust &amp; Rice, New York, N. Y.—</strong> P 51.</td>
</tr>
<tr>
<td>a Cabinet ware.</td>
</tr>
<tr>
<td>217 b Mirror frames and brackets.</td>
</tr>
<tr>
<td>a Fancy cabinet ware.</td>
</tr>
<tr>
<td>217 b Carvings, eneals, pedesials, brackets, mosaie</td>
</tr>
<tr>
<td>veneer, etc.</td>
</tr>
<tr>
<td><strong>424a Earle, James S., &amp; Sons, Philadelphia, Pa.—</strong> P 49.</td>
</tr>
<tr>
<td>a Gift tables.</td>
</tr>
<tr>
<td>217 b Framed looking glasses, Venetian mirrors.</td>
</tr>
<tr>
<td>219 b Picture frames, brackets.</td>
</tr>
<tr>
<td><strong>425 Lowe, A. C., Philadelphia, Pa.—</strong> P 50.</td>
</tr>
<tr>
<td>a Gift bouquet tables.</td>
</tr>
<tr>
<td>217 b Looking glasses.</td>
</tr>
<tr>
<td>219 b Picture frames.</td>
</tr>
<tr>
<td>a Folding bed and crib, flexible-seat chairs,</td>
</tr>
<tr>
<td>spring beds.</td>
</tr>
<tr>
<td>217 b Looking glasses.</td>
</tr>
<tr>
<td>219 b Picture frames.</td>
</tr>
<tr>
<td><strong>427 McElvees, J. E., &amp; Son, Philadelphia, Pa.—</strong> T. 49.</td>
</tr>
<tr>
<td>a Gift chairs and tables.</td>
</tr>
<tr>
<td>217 b Mirrors.</td>
</tr>
<tr>
<td>219 c Fancy frames.</td>
</tr>
<tr>
<td>a Console tables.</td>
</tr>
<tr>
<td>217 b Mirrors.</td>
</tr>
<tr>
<td>219 c Cornices, portrait frames.</td>
</tr>
<tr>
<td>a Adjustable desk, school desk and seat.</td>
</tr>
<tr>
<td>217 b Cooking utensil.</td>
</tr>
<tr>
<td>224 c Stair rods.</td>
</tr>
<tr>
<td><strong>429 Reukaufl, Geo. C., Philadelphia, Pa.—</strong> T. 52.</td>
</tr>
<tr>
<td>a Bookshelves tables.</td>
</tr>
<tr>
<td>217 b Mirrors.</td>
</tr>
<tr>
<td>219 c Cornices, picture frames.</td>
</tr>
<tr>
<td>220 d Mantelpiece.</td>
</tr>
<tr>
<td><strong>430 Tiffany &amp; Co., New York, N. Y.—</strong> Silver and plated</td>
</tr>
<tr>
<td>ware, incrustations 0</td>
</tr>
<tr>
<td>H 41.</td>
</tr>
<tr>
<td>For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.</td>
</tr>
</tbody>
</table>
Corner of Belmont and Fountain Avenues,
NEAR THE LAKE.

FRENCH RESTAURANT,
LES TROIS FRÈRES PROVENCAUX.

The same which had such a great success in the Vienna Exhibition, in 1873.

CH. VERDIER,
of the MAISON DORÉE, of Paris, Proprietor.

Near the Lake, opposite the U. S. Government Building.

HIGHEST PREMIUM, A SILVER MEDAL, AWARDED BY AMERICAN INSTITUTE.

FURNALD & CHAMPION,
Manufacturers and Importers of
BRUSHES
AND
FEATHER DUSTERS,
No. 47 Warren Street,
NEW YORK.

PITTSBURGH
DAILY "EVENING CHRONICLE."

ESTABLISHED 1841.
The only Evening Paper in Pittsburgh receiving the Associated Press Dispatches.

Circulating chiefly among families of Western Pennsylvania, Eastern Ohio, and Western Virginia, no better medium for reaching the purchasing community can be selected.
Glen Echo Carpet Mills,
Germantown, Philad' a.

McCallum, Crease & Sloan
Manufacturers, Importers, Jobbers, and Retailers of
Carpetings,
1012 and 1014 Chestnut Street,
Philadelphia.
Furniture, Table Furniture, Decoration.

430a Mitcheson, Mrs. M. J., Philadelphia, Pa.—Moustache spoon. N 41. 218


433 Meriden Britannia Co., West Meriden, Conn.—Fine electro-plated table ware, articles of ornament and vertu. N 43. 218

434 Derby Silver Co., Derby, Conn.—Havi metal silver-plated cutlery and electro-plated and morocco-cased plated goods. P 46. 218

435 Krider, Peter L., Philadelphia, Pa.—Sterling silver ware. P 43. 218

436 Reed and Barton, Taunton, Mass.—Electro-plated nickel, silver and white metal table and presentation ware. N 47. 218

437 Legg, A., & Son, Philadelphia, Pa.—Silver and nickel-plated ware in hard metal. P 43. 218

439 Middletown Plate Co., Middletown, Conn.—Silver-plated ware. N 43. 218

440 Gorham Manufacturing Co., Providence, R. I.—Silver ware, fine plated plate, plate chests, silver and jewelry cases. N 47. 218

441 Manning, Bowman, & Co., West Meriden, Conn.—Nickel-plated ware. N 59. 218

442 Kann & Sons Manufacturing Co., Baltimore, Md.—Albata and britannia tea and table spoons. P 43. 218

443 Robbins, Clark, & Biddle, Philadelphia, Pa.—Silver ware. N 43. 218

444 Meriden Silver Plate Co., West Meriden, Conn.—Silver-plated and fine cut glass ware. N 43. 218

445 Holmes, Booth, & Haydens, Waterbury, Conn.—Silver-plated ware. T 47. 218

446 Mix, G. L., & Co., Yalesville, Conn.—Tea and table spoons; plated and britannia tea and coffee pots, water coolers, etc. N 51. 218

447 Hall, Elton, & Co., Wallingford, Conn.—Electro-plated table spoons, forks, ladles, knives, etc. P 43. 218

448 Sigler, C. J. & Paterson, N. J.—Embossed glass signs and table tops, glass letters, carved wood signs. T 49. 219

449a Sallandrouze, S. P., Cincinnati, O.—Venetian mirrors and hand glass. P 43. 219

450 Walker Glass Importing, Silvering, Manufacturing Co., New York, N. Y.—Venetian or crystal cut, engraved, distorting, and toilet mirrors. N 54. 219

451a Sharp, Henry E., Son, & Colgate, New York, N. Y.—Stained glass windows. (North Gallery.) T 239. 219

451 Florence Manufacturing Co., Florence, Mass.—Hand mirrors. B 70. 219

452 Newman, Geo. C., 806 Market street, Philadelphia, Pa.—P 51. 219

452a Schier, H., New York, N. Y.—P 53. 219

452b Lacquered mouldings (imitation of gold gilding) for picture frames and window cornices, and ornaments for same. His imitation of gilding is cheap and durable. 220


455 Boland, Fred., Philadelphia, Pa.—P 50. 220

456 Durand, Dominique, New York, N. Y.—Venetian looking glass. T 46. 219

457 Clark, C. W., Philadelphia, Pa.—Window shades, window shade cloth, and shade fixtures. T 52. 220

458 Johnston, Ed. S., Philadelphia, Pa.—Window shade rollers, window shades, lambrigue, cornices. T 52. 220

459 Gleason, W. B., & Co., West Camden street, opposite Chickering station, Boston, Mass.—Artificial wood ornaments for interior decoration, etc. Descriptive circulars will be found at the exhibit. O 28. 220

460 Refschneider, Felix, New York, N. Y.—Velvet frames, morocco and velvet miniature cases. P 52. 220

462 Pape, Bros., & Klugmann, Cincinnati, O.—Mouldings for picture frames, portrait and photograph frames. P 52. 220

463 Carter, A. A., Philadelphia, Pa.—Window screens. T 50. 220


464a Shorey, John, & Co., Lowell, Mass.—Shade fixtures. T 52. 220

465 Kilgore, Damon Y., Philadelphia, Pa.—Inside window blinds. These blinds, adjustable, artistic, lowering from the top, light, combining beauty with economy, overcome all defects of Venetian blinds. Patented. T 53. 220

466 McKay, Ferd. C. D., Paterson, N. J.—Self-regulating shade rollers. T 51. 220


468 Salem Shade Roller Manufacturing Co., Salem, Mass.—Control wood rollers, flying pins, automatic stops for bale shade rollers. T 50. 220

Colwell, F. E., & Co., Chicago, Ill.—Mouldings and picture frames, shade fixtures. P 51. 220

471 Louderback, Edwin, Philadelphia, Pa.—Rustic window shades of wood. T 49. 220

472 Lloyd Bros., Philadelphia, Pa.—Ventilating shade fixtures. T 50. 220

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-42.
### Furniture, Heating and Lighting Apparatus.

<table>
<thead>
<tr>
<th>Page</th>
<th>Company</th>
<th>City</th>
<th>Address</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>474</td>
<td>Hewett, William</td>
<td>Philadelphia</td>
<td>Pa.</td>
<td>Self-operating swing carriage for park and lawns. (Outside.)</td>
</tr>
<tr>
<td>474</td>
<td>Fisher, H., St. Louis</td>
<td>Mo.</td>
<td></td>
<td>Automatic swing. (Missouri Building.)</td>
</tr>
<tr>
<td>478</td>
<td>Providence Gas Burner Co.</td>
<td>Providence</td>
<td>R. I.</td>
<td>&quot;Novelty&quot; gas cooking stoves; ovens and heaters, burning without smoke or smell.</td>
</tr>
<tr>
<td>478</td>
<td></td>
<td></td>
<td></td>
<td>Gas burners, drop-light sockets, shade and globe holders, etc., manufactured from wrought brass.</td>
</tr>
<tr>
<td>479</td>
<td>Thackara, Buck, &amp; Co.</td>
<td>Philadelphia</td>
<td>Pa.</td>
<td>Gas fixtures, chandeliers, brackets, hall lights, reading lights, etc.</td>
</tr>
<tr>
<td>479</td>
<td>Miller &amp; Eastmead</td>
<td>New York</td>
<td>N. Y.</td>
<td>Ship and railroad lanterns.</td>
</tr>
<tr>
<td>479</td>
<td>Cornelius &amp; Sons</td>
<td>Philadelphia</td>
<td>Pa.</td>
<td>Gas fixtures, brasses, etc.</td>
</tr>
<tr>
<td>482</td>
<td>Kelly, S. S.</td>
<td>Philadelphia</td>
<td>Pa.</td>
<td>Gas brackets, pendants, brass fittings, etc.</td>
</tr>
<tr>
<td>484</td>
<td>Heywood, C. L., &amp;</td>
<td>Bruce, J. M.</td>
<td>Boston</td>
<td>Mass.</td>
</tr>
<tr>
<td>485</td>
<td>Willheim &amp; Newmann</td>
<td>Philadelphia</td>
<td>Pa.</td>
<td>Cast iron posts and brackets, street lanterns, mica reflectors, and car trimming.</td>
</tr>
<tr>
<td>486</td>
<td>Quarré, V., Co.</td>
<td>General Litho-</td>
<td></td>
<td>Graphics, 332 and 834 Arch street, Phila-</td>
</tr>
<tr>
<td>488</td>
<td>Miner, Jacob G.,</td>
<td>New York</td>
<td>N. Y.</td>
<td>Street lamps for gas or oil.</td>
</tr>
<tr>
<td>490</td>
<td>Bradley &amp; Hubbard Manufacturing Co.</td>
<td>West Meriden, Conn.</td>
<td>Kerosene and gas chandeliers, brackets and fixtures, lamps.</td>
<td></td>
</tr>
<tr>
<td>494</td>
<td>Miller, Edward, &amp; Co., Meriden, Conn.</td>
<td>N. 48</td>
<td>Bronze lamps and ornaments, lamp trimmings.</td>
<td></td>
</tr>
<tr>
<td>495</td>
<td>Hitchcock Lamp Co.,</td>
<td>Watertown, N. Y.</td>
<td></td>
<td>Lamps for animal, fish, or vegetable oils exclusively; no chimneys; burn twelve hours; fifteen car-candle power; odorless; smokeless; portable; for cars, shipping, factories, residences, etc.</td>
</tr>
<tr>
<td>498</td>
<td>Parkhurst, V. P., East Templeton, Mass.</td>
<td></td>
<td></td>
<td>Candle stand with flame regulator.</td>
</tr>
<tr>
<td>504</td>
<td>Wiler, Wm., Philadelphia, Pa.</td>
<td></td>
<td></td>
<td>Taper holders, gas torches and keys, etc.</td>
</tr>
</tbody>
</table>

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

505 Cleveland Non-explosive Lamp Co., Cleveland, O., and 42 Barclay street, New York.—Perkins & House's patent metallic kerosene or coal oil safety lamps and filling cans. Thousands of families now using this lamp testify to its superiority; because, it is perfectly safe from explosion, owing to its scientific structure; 2d, it will not break, being made of metal; 3d, it is rendered perfect safety from its patent drip-cup; 4th, it uses a very small amount of oil, in proportion to the light it gives, without odor; 5th, it gives a brilliant light, in consequence of its peculiar construction. Our filling can is perfectly safe from explosion, owing to its scientific structure—a flame cannot be communicated to the oil in it, either by accident or design. N 64. 223

506 American Calcium Light Co., Philadelphia, Pa.—Calcium light apparatus. T 43. 223


509 Lovell, F. H., & Co., New York, N. Y.—Kerosene burners, chimneys, wicks, lamps, etc. P 50. 223

510 United States Soapstone Manufacturing Co., Cincinnati, Ohio.—P 77.
   a Lava gas tips. 223
   b Soapstone griddles. 223

512 Cohanyse Glass Manufacturing Co., Bridgeport, N. J.—Fruit jars. N 49. 224

513 Lowentrank, P., Newark, N. J.—House furnishing goods. N 70. 224


515 Lowerre & Tucker, Newark, N. J.—Filling machines. N 71. 225

517 Lloyd, Supplee, & Walton, Philadelphia, Pa.—Filling machines. P 70. 225

517a Blackie & Charles, St. Louis, Mo.—Anti-freezing hydrant. (Missouri State Building.) 226

517b Wheeler, Wm. F., Boston, Mass.—Insecticidal devices. (In sec to Insect Building.) 226

518 Boughton, Jno. W., Philadelphia, Pa.—Wood carpet, parquet floors, and wainscots; adjustable window screens, and bars. T 56. 227


519a Canopy Frame Co., Willimantic, Conn.—Portal festoons and canopy frames. P 56. 227

520 Johns, H. W., New York, N. Y.—Asbestos roofing, sheathing, and lining. P 47. 227

521 Ehret, M., jr., Office, 404 Walnut street, Philadelphia, Pa.—Pavilion situated south of Main Building, to exhibit patent fire and waterproof granulated slag (composition) roofing. State and county rights for sale. (Outside.) 227

521a Miller, J. Wesley, Philadelphia, Pa.—Plumbing of eight rooms in Main Building. 227

522 Marion Blind Co., Brady, Pa.—Improved window blinds. T 53. 227

523 Reising, B. S., Manufacturing Co., Harrisburg, Pa.—Sash locks, fire holders, clothes hooks, cellar hoists, broom and wisp holders. P 63. 227

523 Walker, M., & Sons, Philadelphia, Pa.—Heavy wrought iron gates at north, south, east, and west entrances of Main Exhibition Building. 227

523a Peck, Kennedy & Co., New York, N. Y. (Outside.)
   a Flat floor, arch, and fire proof building material. 227
   b Brick and tile machine. 517
   c Radiator. 555

524 Fisher & Bird, New York, N. Y.—Marble mantels, tablet, marble wainscoting. The white marble mantel is of pure American statuary; the black one is of the finest quality of velvet black, both designed and executed in the highest style of art, at our works, by American artisans. T 50. 227

525 Groffs, J. W., Baltimore, Md.—Skylight over sidewalk. 227

526 Evans, C. B., Mantel & Grate Co., Cincinnati, Ohio.—Iron mantels. T 65. 227

527 Garry Iron Roofing Co., Cleveland, O.—Sections of corrugated iron roof. (Ohio State Building.) 227

528 American Sheet & Boiler-plate Cleveland, O.—Corrugated roofing iron and iron roofing tile. (Ohio State Building.) 227

530 House & Davidson, Cleveland, O.—Pair front doors. (Ohio State Building.) 227

530 Dobbins, R. J., Philadelphia, Pa.—Construction of Main Exhibition Building. 227

531 Quigley, Philip, Wilmington, Del.—Construction of Machinery Hall. 227

Yarns and Woolen Goods of Vegetable or Mineral Materials.

532 De Witt Wire Cloth Co., New York, N. Y.—Wire cord, rope, cloth, and work; dandy roll, cotton and wire fabrics. P 76. 228

533 Clinton Wire Cloth Co., Clinton, Mass.—Iron raling, wire cloth, netting, fencing, fire proof bath. T 68. 228

535 Woven Wire Mattress Co., Harris- fei, Conn.—Woven wire cloth used for a spring bed. P 53. 228


537 Wakefield Rattan Co., Boston, Mass.—Mats and matting. T 57. 228


539 Garsed Bros., Frankford, Pa.—Awnings and stickings. N 73. 230


540 Slater, Wm. S., Providence, R. I.—Bleached cotton goods. N 73. 230

541 Bailey, John T., & Co., Philadelphia, Pa.—Bags. B 68. 230

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.
Woven Goods.

541 Westport Manufacturing Co., Fall River, Mass.—Carpet warp and cotton batts. D 78. 230
542 Thornton, Samuel, & Sons, Philadelphia, Pa.—Cotton fabricts. N 76. 230
542 Alabama & Georgia Manufacturing Co., West Point, Ga.—Sheeting, N 79. 230
543 Berkeley Co., Providence, R. I.—Nainsooks, Victoria lawns, and cambrics. These fabrics are noted for their quality and finish, and are manufactured from either Sea Island, Egyptian, or Peider cotton. N 75. 230
543 Slater Cotton Co., Providence, R. I.—Brown and bleached cotton goods. D 78. 230
544 Clark Thread Co., Newark, N. J.—Spool cotton. N 76. 230
545 Sykes, Henry, Chicago, Ill.—Awnings and awning frames. Y 63. 230
546 Johnson, Emory, Neptune Twine Mills, Roxboro, Con.—Cotton seine twines, wetting cords, carpet warp, and knitting cotton, manufactured from superior stock and always of a uniform quality. Established in 1832. D 68. 230
547 Whitfield, F. E., Sen., Corinth, Miss.—Cotton yarns. N 75. 230
547 Lawrence, Waterbury, & Co., New York, N. Y.—Bagging. D 78. 230
548 Walcott & Campbell, New York Mills, Oneida county, N. Y.—Shirtings, wide sheetings, cottonades, and knitting yarns. N 75. 230
548 Lewiston Mills, Lewiston, Me.—Tickings, cottonades, chievot sheetings, duckings, seamless cotton bags. R 78. 230
549 Westbrook Manufacturing Co., Portland, Me.—Ship’s cotton duck. B 70. 230
549 Lawrence Manufacturing Co., Lowell, Mass.—Bleached and unbleached cotton goods. N 73. 230
550 Powhatan Mills, Providence, R. I.—“Pocahontas” and “Wealth of the Country” bleached and brown muslins, well adapted for family and shirt maker’s use. N 74.
551 Saratoga Victory Manufacturing Co., Boston, Mass.—Silicate, cambrics, and fancy cottons. F 75 and 74. 230
552 Chase Manufacturing Company, Chicopee Falls, Mass.—Cotton flannels, bleached and brown. F 73 and 74. 230
552 Fostdale Manufacturing Co., Providence, R. I.—Bleached cotton batts. N 75. 230
553 Great Falls Manufacturing Company, Rockingham, N. C.—Rockingham sheeting. N 75. 230
554 Peckham Manufacturing Company, Providence, R. I.—Kentucky jeans. B 76. 230
555 Androscoggin Mills, Lewiston, Me.—Sheeting, shirting, jeans, bags, etc. R 76. 230
556 Hill Manufacturing Company, Clinton, Me.—Bleached and unbleached sheetings and shirtings. R 78. 230
557 Continental Mills, Lewiston, Me.—Sheetings and shirtings. R 78. 230
558 Barker Mills, Auburn, Me.—Bleached and unbleached sheetings. R 78. 230
559 Smith, James Y., Manufacturing Co., Providence, R. I.—Bleached and brown cotton goods. N 74. 230
560 Evansville Cotton Manufacturing Co., Evansville, Ind.—Brown sheetings and drills, assorted yarns. N 74. 230
562 Hope Company, Providence, R. I.—Shirting. N 74. 230
563 Lonsdale Company, Providence, R. I.—Sheetings, cambric muslin, silesias, jacquets, Victoria lawns, sateens. N 74. 230
565 Gambrill, Sons & Co., Baltimore, Md.—Cotton duck for sails, tents, and awnings. D 78. 230
566 Wamsutta Mills, New Bedford, Mass.—Shirting and sheeting. N 74. 230
567 Shaw, James G., New Castle, Del.—Single-carded cotton warps. N 74. 230
568 Riddle, Jas., Son & Co., Wilmington, Del.—Brandywine Mills tickings. N 74. 230
569 Wauregan Mills, Wauregan, Conn.—Cotton goods. N 74. 230
570 Ponemah Mills, Taftville, Conn.—Plain and fancy cotton goods. N 74.
571 Gabriel, Henry, & Sons, Allenstown, Pa.—Counterpane, oed coverlets, quilts, and bed spreads. F 68. 230
572 Stafford & Co., Providence, R. I.—Cotton yarns, hosery cops, twilled goods. N 76. 230
573 Minot, Hooper, & Co., Boston, Mass.—Bleached cotton goods. F 69. 230
575 Farwell Mills, Lisbon, Me.—Bleached and brown cottons. R 78. 230
577 White, R. T., & Son, Philadelphia, Pa.—Rag carpet warps and cotton batts. D 78. 230
578 Clinton Manufacturing Company, Providence, R. I.—Bleached cotton goods. N 73. 230

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Woven Goods.


586 Ballou, Geo. C., & Son, Providence, R. I.—Brown, bleached, and colored cotton cloth. N 73.

587 Silver Spring Bleaching & Dyeing Co., Providence, R. I.—Bleaching, dyeing, and finishing the various grades and styles of cotton cloth. N 73.

588 Hooper, Wm. E., & Sons, Baltimore, Md.—Awnings, stripes, cotton duck. D 73.


591 Gale & Co., Boston, Mass.—Lawn and other tents, canopies, and clothes dryer. (Outside.)

592 Greene & Daniels, Pawtucket, R. I.—Ivory finish and six-cord spool cotton, gray, bleached, and dyed cotton yarns. N 76.

593 Fall River Bleachery, Fall River, Mass.—Bleached cottons, shirtings, and sheetings. N 76.


596 Naumkeag Steam Cotton Co., Salisbury, Mass.—Satteens, Pequot wide sheetings, bleached and unbleached, 5-4, 6-4, 7-4, 8-4, 9-4, 10-4; Pequot, 1-inch and 40-inch; El Dorado, 56 and 40 inch sheetings. The product of these mills has a reputation for softness and durability, and for general excellence; the cotton used is especially selected with a view to securing these qualities, and the greatest care is used in their manufacture. N 74.

597 Massachusetts Cotton Mills, Lowell, Mass.—Sheetings, shirtings, drills, etc. N 73.

598 Tremont & Suffolk Mills, Lowell, Mass.—Brown and bleached cotton flannels, twenty-six varieties, from the lightest to the heaviest grade, for summer, fall, and winter wear, from twenty-seven to thirty-six inches in width, superior in quality of material, grade, and finish; for classes of exquisit, indicated by numbers at end of entries, see Classification, pp 27-45.

Suffolk drills, blued, brown and bleached, Sheetings, shirtings, and corset jeans. N 73.


605 Shetucket Co., Norwich, Conn.—Fancy stripes, denims, ducks, cheviots. N 77.

606 Falls Co., Norwich, Conn.—Cotton duck, fancy colored duck tickings. N 77.

607 The Utica Steam Cotton Mills, Utica, N. Y.—Very heavy and fine brown and bleached sheetings and shirtings, from one to three yards wide. N 74.

608 Mount Vernon Co., Baltimore, Md.—Duck and sail twine. Manufacturers of cotton sail duck, enameling duck, hose and belting duck, U. S. canvas, bag, and cat duck; machine apron, and a superior article of duck for paper-makers' feltting; from seven to fifteen ounce army tent and awning duck, plain and in stripes; cotton canvas, from nine to one hundred and thirty inches wide; sail twine, all numbers. D 78.

609 Hadley Co., Boston, Mass.—Cotton yarns and warpings, spool cottons, threads; harness and seine twines. N 75.


612 Richardson, C. D., & Co., Philadelphia, Pa.—Tents. (Outside.)

613 Hale, B. S., & Co., Lawrence, Mass.—Fish lines. N 73.

614 Laconia Company, Biddeford, Me.—Sheetings, shirtings, drills, and jeans. R 78.

615 Pepperill Manufacturing Co., Biddeford, Me.—Sheetings, shirtings, drills, and jeans. R 78.


617a Trainer, D., & Sons, Linwood Station, Pa.—Cotton yarns and tickings. C 75.


Woven Goods.

626 Border City Mills, Fall River, Mass.—Printing cloths. B 77.
627 Clace Mills, Fall River, Mass.—Printing cloths. B 77.
628 Flint Mills, Fall River, Mass.—Printing cloths. B 77.
629 Granite Mills, Fall River, Mass.—Printing cloths. B 77.
630 Mechanics Mills, Fall River, Mass.—Printing cloths. B 77.
632 Metacomet Mills, Fall River, Mass.—Printing cloths. B 77.
633 Narragansett Mills, Fall River, Mass.—Printing cloths. B 77.
634 Osborn Mills, Fall River, Mass.—Printing cloths. B 77.
636 Sagamore Mills, Fall River, Mass.—Printing cloths. B 77.
637 Shove Mills, Fall River, Mass.—Printing cloths. B 77.
638 Slade Mills, Fall River, Mass.—Printing cloths. B 77.
639 Stafford Mills, Fall River, Mass.—Printing cloths. B 77.
640 Tecumseh Mills, Fall River, Mass.—Printing cloths. B 77.
642 Wampnanoog Mills, Fall River, Mass.—Printing cloths. B 77.
643 Wecta Moe Mills, Fall River, Mass.—Printing cloths. B 77.
645 Lyman Mills, Holyoke, Mass.—Brown and bleached sheetings and shirtings, drills, lawns, cambrics, cotton flannels, etc. F 69.
646 Great Falls Manufacturing Co., Great Falls, N. H.—Bleached and brown sheetings and shirtings. F 69.
647 Schum, Philip, Lancaster, Pa.—Coverlets and counterpanes. Well known manufacturer of genuine Lancaster quilts, coverlets, counterpanes, carpets, cradles, bureaus, and tidy covers, stockings, yarns, woolen carpet chains, etc. All kinds of dying done. These goods being all of my own manufacture, made of the very best of material, I guarantee them as represented and to give entire satisfaction in every respect. G 78.
651 Mississippi Mills, Wessington, Mass.—Yarns, cotton, cottonades. B 76.
652 Bullock, George & James M., Conshohocken, O.—Cotton warp. F 75.
663 Renfrew Manufacturing Co., South Adams, Mass.—B 75.
664 Gloucester Gingham Mills, Gloucester City, N. J.—N 76.
666 Whittenton Manufacturing Co., Taunton, Mass.—N 76.
668 Everett Mills, Lawrence, Mass.—N 76.
670 Sheetings, pillow muslins, shirtings, sile- sias. 230
671 Fancy cotton fabrics. 232

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Woven Goods, Felting, Yarn.

670 Hamilton Manufacturing Co., Lowell, Mass.—N 73.
   a Tickings, drillings, and cotton flannelettes. 230
   b Printed and dyed calicoes, shirting and awning stripes. 232

671 Holt, R., Paterson, N. J.—N 74.
   a Cotton and Turkish towels, terry cloth, dusters, etc. 230
   b Linen towels. 233

672 Stark Mills, Manchester, N. H.—N 74.
   a Seamless bags, sheetings, and drapes, over-all and double ducks. 230
   b Linen crash toweling. 233

   a Bleached shirtings, cambrics, silesias. 230
   b Printed linings, umbrella cloths, velvets. 231
   c Window hollands, tillottings, etc. 233

674 Bates Manufacturing Co., Lewiston, Me.—R 76.
   a Shirtings, shirtings, quilts, jeans, towels, knitting cotton, etc. 230
   b Ginghams, damask, silesias. 233
   c Linen checks. 233

675 Ripka & Elton Mills, Philadelphia, Pa.—Cotton manufactures. N 74. 233

676 Lancaster Mills, Clinton, Mass.—Fancy ginghams. N 77. 231

677 Belfast Mills, Philadelphia, Pa.—Ginghams. N 76. 231

678 Albion Print Works, Conshohocken, Pa.—Solid colors suitings, plain blacks, grays, mourning prints, shirtings, and printed articles for men. N 73. 232

678a Pacific Mills, Lawrence, Mass.—B 73.
   a Calicoes. 232
   b Lawas, percales. 233


681 Simpson, Wm., & Sons, 129 Chestnut-street, Philadelphia, Pa.—Calico prints in mourning, fancy, and shirting styles. Manufacturers and calico printers of the popular alpaca finish, solid blacks, Berlin solids of all colors, auline blacks, mourning prints, silver grays, Eddystone chocolates, hair cloth chievots, and fancy prints. These styles are all fast colors, and are printed exclusively on the best extra fine calico cloth. N 75. 233


683 Green, S. H., & Sons, Clyde Bleachery and Print Works, River Point, R. I.—Printed calicoes. N 74. 232

684 Richmond Manufacturing Co., Providence, R. I.—Printed calicoes. N 75. 232

685 Manchester Mills, Manchester, N. H.—Prints. N 73. 232

686 American Print Works, Fall River, Mass.—Printed calicoes, percales, cambrics, shirtings, indigo blues, greens, plumes, coquetters, etc. Special styles and colorings printed for export. N 75. 232


688 Merrimac Mills, Lowell, Mass.—Printed and dyed calicoes. N 73. 232

689 Stevens Linen Works, New York, N. Y.—Printed and twilled linen cloths and diapers. B 75. 233

690 Barbour Flax Spinning Co., Paterson, N. J.—Flax threads. N 76. 233

691 American Linen Thread Co., Mechanicville, Saratoga county, N. Y.—Flax, gilling, and machine threads, warp, filling, and twines. Manufacturers of patent linen thread (on spools and in skeins) of all kinds, numbers, and colors; also, gilling thread, of all numbers; machine, shire, carpet, fringe, whip, and Mckey threads, in all varieties; linen floss, selvage, and hose warp; hose filling, broom and brush twines; pink and variegated twines, from worsted; fine and tow yarns. All manufactured from the best foreign stock. H 75. 233

691a McCrossan & Farr, New York, N. Y.—Printed linen and cotton, and white cotton handkerchiefs. N 76. 233

692 American Linoleum Manufacturing Co., New York, N. Y.—Linoleum floor cloth. N 77. 234

694 Blabon, Geo. W., & Co., Philadelphia, Pa.—Floor, carriage, upholstery, and table oil cloths and window shades. N 77. 234

695 Virolet & Durlach, Elizabeth, N. J.—Floor oil cloths. F 73. 234


700 Brasher, Wm. M., & Co., Brooklyn, N. Y.—Floor oil cloths. F 71. 234

701 Reeve, R. H. & B. C., Camden, N. J.—Oil cloths. F 71. 234

702 Powers, D., & Sons, New York, N. Y.—Floor oil cloths. F 77. 234

Woven and Felted Goods of Wool and Mixture of Wool.

703 Shaffner & Stringfellow, Philadelphia, Pa.—Knitting cotton and Germantown wool. B 75. 235

704 Knox Woollen Co., Camden, Me.—Paper makers’ feltings and machine clothes. R 78. 235

704 Bacon, Chas. N., Winchester, Mass.—Felts for polishing, printing,_eraseing, etc.; cotton and wool wadding. N 74. 235

705 New England Co., Rockville, Ct.—Fine fancy camisieres, finest wool, fine spinning, indigo colors. The first mill in America to make fancy camisieres. B 75. 235

705a Noske, Henry, Philadelphia, Pa.—Woollen felts. F 72. 235

706 Philadelphia Worsted Spinners’ Association, Philadelphia, Pa.—Worsted yarns. F 75. 235

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Woven and Felted Goods.

707 Midnight Yarn Co., Philadelphia, Pa.—Woolen knitting and Germantown yarns, representing process of manufacture. B 77. 235

708 Thornton, Samuel, & Sons, Philadelphia, Pa.—Woolen fabrics. N 76. 235

709 Philips, James, jr., Fitchburg, Mass.—Fine worsted coatings and satins Hunt, Catlin, & Valentine, sole agents, 733 Franklin street, New York, N. Y. B 77. 235

709a Kirkman, James, Chester, Pa.—Doekskins. B 75. 235

710 Ledward, J., & Son, Chester, Delaware county, Pa.—Cassimeres and doekskins. B 76. 235

711 Horstmann, Wm. H., & Sons, Philadelphia, Pa.—Woolen knitting yarns. Those goods are known generally as Germantown, balmoral, cashmere, saxonia, and stocking yarns. They are particularly noted for brilliancy of color, variety of shades, evenness of thread, and the low prices at which they are sold. H 73. 235

712 Howe Woolen Co., New York, N. Y.—Fancy cassimeres. F 74. 235

713 Drygoods, L. & Co., New York, N. Y.—Felt skirts, embroidered and braided; Italian cloth skirts, trimmed and quilted. B 77. 235

713a Kent Woolen Co., Centreville, R. I.—Cassimeres. B 74. 235

713b Stillwater Woolen Mills, Stillwater, R. I.—Cassimeres. B 74. 235

714 Worumbo Manufacturing Co., Lisbon Falls, Me.—Moscow beaver and other overcoatings. R 73. 235

715 Bel Air Manufacturing Co., Pittsfield, Mass.—Fancy all-wool cassimeres. F 73. 235

716 Burlington Woolen Co., Winooski Falls, Vt.—Woolens, castorines, moscows, kerseys, broadcloths, doeks, elastic doeks, elystans. F 73 and 74. 235

717 Broad Brook Co., Broad Brook, Conn.—Fancy cassimeres. F 75. 235


719 Howard, R., & Son, Apponag, R. I.—Woolen stocking yarns, fancy and plain colors. B 75. 235

719a State of Oregon (by A. J. Dufur),—Woolen fabrics. H 71. 235

720 WansskucK Co., Providence, R. I.—Worsted coatings, overcoatings, kerseys. B 75. 235

721 Rodman, Robt., La Fayette, R. I.—Doekskins. N 75. 235

722 Sawyer Woolen Mills, Dover, N. H.—Silk and wool cassimeres, fancy doekskins, double and twist cassimeres. F 75. 235

722a Clinton Mills Co., Norwich, Conn.—B 74. a Tweeds and repellents. b Blankets. 235

723 Hinsdale Bros., Hinsdale, Mass.—Kerseys, beavers, worsted satins, etc. B 74. 235

724 Rockville Manufacturing Co., Rockville, Conn.—Fancy cassimeres and worsteds. B 74. 235

725 Hockanum Co., Rockville, Conn.—Fancy cassimeres and worsteds. B 74. 235

727 Eddy's, Jesse, Sons, Fall River, Mass.—Woolens for men's wear. P 74. 235

728 U. S. Bunting Co., Lowell, Mass.—Hunting, flags, worsted Damasks and morceens, skirtings, and dress buntins. N 76. 235

729 Middlesex Co., Lowell, Mass.—Woolen goods. B 77. 235

730 Shuler & Benninghofen, Hamilton, O.—Felts for paper-makers. B 78. 235

731 Uxbridge Woolen Co., Uxbridge, Mass.—Cassimeres. B 74. 235

732 Germania Mills, Holyoke, Mass.—Fекине, doekskins, and fur beavers, overcoatings. C 78. 235


734 Norwich Woolen Co., Norwich, Conn.—Blankets and repellents. B 73. 235

735 Union Manufacturing Co., Wolcottville, Conn.—Black doekskins. B 73. 235

736 Meriden Woolen Co., West Meriden, Conn.—Fancy cotton warp cassimeres and coatings. B 73. 235

737 Baltic Woolen Mills, Philadelphia, Pa.—Woolen goods. F 72. 235

738 Niantic Woolen Mills, Norwich, Conn.—Suitings and repellents. B 73. 235


740 Wood, Morrell, & Co., Woodside Woolen Mills, Johnstown, Pa.—Cassimeres made from half-blood wool. B 77. 235

741 Kirkman, James, Chester, Pa.—Doekskins. B 78. 235

742 Peirce, C. W. & J., Bristol, Pa.—G 78. a Polishing felts and crumb cloths. b Skirts. 238

743 Mississippi Mills, Wesson, Miss.—Wool fillings, jeans, cassimeres, tweeds, linseys. F 76. 235

744 Bullock, Geo., & Jas. M., Conshohocken Woolen Mills, Conshohocken, Pa.—Doekskins, moscows, beavers, cloth. P 75. 235

745 Fox, Henry, & Co., Urbana, O.—D 78. a Cassimeres, tweeds, satins, and yarms. b Flannels. 236

746 Belfast Mills, Philadelphia, Pa.—N 76. a Cheviots. b Dress goods. 239

747 Roy, Jas., & Co., West Troy, N. Y.—V 77. a Suitings and yarms. b Woolen shawls. 237

748 Fay, C. J., Camden, N. J.—F 74. a Felt roofing and siding. b Ceiling and floor carpeting. 238

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Woven Goods.

   a Cloths, fancy woolen goods. 235
   b Worsted opera shawls. 237

748 Bates Manufacturing Co., Lewiston, Me.—R 73.
   a Beavers and repellents. 235
   b Dress goods. 238

749 Lippitt Woolen Co., Providence, R. I.—F 73.
   a Elysian beaver overcoatings, fancy cassi-
      meres, and suiting. 235
   b Flannels. 236

   a Cassimeres, coatings, lastings, etc. 235
   b Woolen shawls. 237

751 Schofield, Seville, Philadelphia, Pa.—B 74.
   a Piece goods and coatings. 235
   b Blankets. 237

752 Camden Woolen Mills, Philadelphia, Pa.—B 96.
   a Woolen goods, cassimeres, suiting, cloak-
      ings, repellents. 235
   b Fluid opera flannels. 236
   c Dress goods, etc. 236

   a Paid dress shawls and dresses. 235
   b Flannels. 236
   c Dress, etc. 236

754 Washington Mills, Lawrence, Mass.—F 72 and 74.
   a Worsted coatings, cloakings, and repel-
      lents. 235
   b Flannels. 236
   c Worsted goods, shawls, and dress
      goods. 238

755 Landenberger’s, Martin, Sons, Philadelphia, Pa.—F 67.
   a Worsted coatings and yarns. 235
   b Shawls. 237
   c Dress goods. 238

756 Dobson, Jno. & Jas., Philadelphia, Pa.—H 77.
   a Cloths. 235
   b Blankets. 237
   c Carpets. 239

   a Coatings. 235
   b Shawls. 237
   c Worsted dress goods. 238

758 Pontousac Woolen Manufacturing Co., Pittsfield, Mass.—F 76.
   a All-wool cloths and repellents. 235
   b Sleeping car blankets and summer
      dusters. 237
   c Dress goods. 238
   d Carriage rugs. 239

759 Belvidere Woolen Manufacturing Co.—Flannels. F 74.
   a Worsted dress goods. 238

761 Ballard Vale Mills, New York, N. Y.—Fine white flannels. B 77. 236

762 Waunbeek Co. New York, N. Y.—Plain white flannels. B 77. 236

763 Norway Plains Co., New York, N. Y.—Plain white flannels. B 77. 236


765 Groveland Mills, New York, N. Y.—Scarlet, yellow, and blue plain flan-
   nels, scarlet and blue twilled flannels, scar-
   let and Shaker opera flannel. B 77. 236

766 Columbia Spring Co., New York, N. Y.—Fancy flannels. B 77. 236


768 Titus, E., & Sons, New York, N. Y.—White and Shaker flannels. B 77. 236

770 Gilbert, Geo. H., Manufacturing Co., Ware, Mass.—F 72.
   a Fluid—white, opera, silk warp, plain,
      moleskin, swansdown, gauze, medici-
      nated, etc. 235
   b Blankets. 237

771 Bachman, S., New York, N. Y.—Shawls. B 75. 237

772 Sandford Mills, Sanford, Me.—Carriage robes. B 73. 237

773 Johnson & Tyler, New York, N. Y.—Fine white blankets. B 77. 237

774 Bloodgood, Mrs. I. S., New York, N. Y.—Embroidered afghans. N 52. 237

775 Waterloo Woolen Manufacturing Co., Waterloo, N. Y.—Wollen shawls,
   B 77. 237

776 Bishop & Northrup, Wyandotte, Mich.—Wollen robes, mats, and dusters.
   F 74. 237

777 Mission Woolen Mills, San Francisco, Cat.—B 75.
   a Blankets. 237
   b Woolen fabrics. 236

778 Arlington Mills, Lawrence, Mass.—Black alpacas, in qualities; black
   hair brilliantries, in five qualities; figured
   mohair brilliantries, in two qualities; and
   roumain poplins, in assorted colors. The
   black alpacas and mohair brilliantries are
   “warp dyed,” and are made from the choicest
   materials, in the most thorough manner.
   Especial attention is invited to the
   softness of finish, brilliancy of color and
   texture, uniformity and perfection of
   manufacture. The roumain poplin is a
   “yarn dyed” fabric,—not dyed in the
   piece,—consequently, the strength of the
   fiber is preserved, and the color more
   permanent than if “piece-dyed.”
   The peculiarity of the finish is such that
   the goods will not cockle. F 77. 238

779 Pacific Mills, Lawrence, Mass.—Poplins, alpacas, serges, cashmeres,
   reps, jacquards, cretonnes, jacquets, and
   crepe. B 73. 238

780 Peckham Manufacturing Co., Providence, R. I.—Wollen and merino
   knitting yarns, tweeds, doekskins. B 76. 238

781 Manchester Mills, Manchester, N. H.—Worsted dress goods. N 73. 238

782 Turner, John, Norwich, Conn.—Dyed and printed worsted, woolen
   and cotton yarns, for weaving, knitting, etc.
   B 77. 238

783 Tunxis Mills, Poquonnock, Conn.—White and colored worsted yarns;
   process of manufacture from raw wool. B 76. 238

784 Farr Alpaca Co., New York, N. Y.—Alpacas, serges, cashmeres, fancy
   linings. B 74. 238

785 Hamilton Woolen Co., Southbridge, Mass.—Delaines, rejs. N 74. 238

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
800 Roxbury Carpet Co., Boston, Mass.—Tapestry carpeting. F and H 73 to 76.
801 Read Carpet Co., Bridgeport, Conn.—Two ply ingrain carpets. H 77.

Silk and Silk Fabrics, and Mixtures in which Silk is the predominating Material.

 a Twisted silk in gum, raw silk, cocoons. 242
 b Machine twist; sewings, embroidery, and saddlers' silks; buttonhole twist. 243
 a Raw silk and cocoons. 242
 b Machine and buttonhole twist, sewing and spool silk. 243
 a Thrown silk. 242
 b Silk fringes, passementerie, braids, cords, tassels. 249
807 Boissiere, E. V. de, Williamsburg, Kansas.—H 74.
 a Silk cocoons, raw silk, and silk-worm eggs, produced in Kansas. 242
 b Velvet ribbons. 248
808 Hamil & Booth, Paterson, N. J.—H 76.
 a Raw and thrown silks. 242
 b Dress goods, tie silks. 245
 c Silk. 247
 d Ribbons. 248
809 Newmann, Joseph, San Francisco, Cal.—H 75.
 a Cocoons, raw silk. 242
 b Twisted silk. 243
811 Brainerd, Armstrong, & Co., offices, 469 Broadway, New York; 301 Market street, Philadelphia; 13 German street, Baltimore.—Spool and skein silks, for families, merchant tailors clothing manufacturers, and shoe manufacturers. Handsome cabinets furnished to retailers. Having no western or southern office, we will make liberal arrangements with dealers, or responsible parties wishing to act as agents for those sections. H 75.
812 Morel, Chas., & Sons, Philadelphia, Pa.—Skein silks, dyed. H 76.
818 Cheney Brothers, Hartford and South Manchester, Conn.—H 75.  
819 Atwood & Richmond, Brooklyn, Conn.—Ounce silk machine twist, black and colors. H 77.  
816 Hayden, J. H., & Son, Windsor Locks, Conn.—Black sewing silk. H 76.  
817 Heminway, M., & Sons Silk Co., New York, N. Y.—Spool, embroidery, and saddlers' silk; machine and button hole twist, etc. H 73.  
820 Strange, Wm., & Co., Paterson, N. J.—Millinery and dress silks.  
823 Wright, Wm. P., Philadelphia, Pa.—Oiled silks and muslins. H 76.  
824 Weidmann & Greppo, Paterson, N. J.—Dyed silk, blacks and colors. H 76.  
831 Kohn, Tobias, Novelty Weaving and Bridging Works, Hartford, Conn.—Star and embroidery braids. H 76.  
836 Sutro Bros., New York, N. Y.—Embroidery braids, put up on patent cards, stating correctly the measurement of each skein. F 71.  
837 Nottingham Lace Works, Brooklyn, N. Y.—Guipure, thread, cashmere, and other laces and trimmings; hair nets. Manufacturers from original designs of guipure laces, thread, cashmere, Spanish and millinery laces, silk purlings, lace fringes, hair nets, etc.; also, a specialty of all desirable styles of silk lace ties and stock. Sent to A. G. Jennings, 428 Broome street, New York. H 75.  
838 Turner, John, Norwich, Conn.—Picture and furniture cords. B 77.  
840 Silver Lake Co., Boston, Mass.—Solid braided cords. F 68.  
842 Hapke, A. B., Harrisburg, Pa.—Knit goods and embroideries. F 69.  
843 Moore & Williams, Utica, N. Y.—Merino and cotton underwear. F 73.  
844 Sachse, F., & Son, S. E. corner Eighth and Vine streets, Philadelphia, Pa.—Finest American dress shirts; also, crépe, chiffon, fire, base-ball, yachting, and society shirts. F 69.  
844 Maize & Schwartz, Philadelphia, Pa.—Military uniforms. C 73.  
847 Chapman, Mrs. Dr. H. M., 219 South Eighth, and 336 South Fifth street, Philadelphia, Pa.—Patent skirt supporting; shoulder brace, puff corset. Requires no padding; allows the form its natural shape without pressure. F 60.  
847 Wyoming Valley Knitting Co., Pittston, Pa.—Hosiery and underwear. F 73.  
849 Moeller, C. H., St. Louis, Mo.—Netted underwear. F 71.  
850 Fall River, Merino Co., Fall River, Mass.—Ladies' and men's underwear. F 73.  

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Clothing, Ornaments.


851a Welden, Dana, & Co., San Francisco, Cal.—Stocking supporters, ladies' belts, etc. F 71.


852a Dudley Hosier Co., Newton Lower Falls, Mass.—Knit underwear, hosieriy. F 73.

853 Michaelis & Kaskel, 653 Broadway, New York, N. Y.—Shirts, underwear, and pajamas; anti-rheumatic flannels, and embroideries. Manufacturers of the finest dress shirts and underwear, to order only; embroiderers, and importers of gentlemen's furnishing goods; depot for Dent's London-made kid gloves, Cartwright and Warner's merino underwear, and Martin's umbrellas; sole agents in the United States for Lairitz's celebrated anti-rheumatic flannels and medicinal preparations. Office, during the exhibition, at the Transcontinental Hotel, opposite the Main Building. F 67.

853a Leighton, Chas., New Orleans, La.—Shirt. F 71.


856 Devlin & Co., Clothiers, Broadway, corner Grand Street; Broadway, corner Warren street, New York, N. Y.—Military uniforms, for army, navy, and national guard; gentlemen's dress and business suits; duck vests, robes-de-chambre, breakfast jackets, and shirts; also, boys' and youths' clothing. F 67.

856a Hemple, J. C., Baltimore, Md.—Rubber cloth diaper. F 72.

857 Prindle, G. H., Philadelphia, Pa.—Muffs and boas, caps, cloaks, afghans, caps, hoods, designs for bed spreads. F 72.


858 Moore, George, New York, N. Y.—Bias and bias neck cutter. H 71.


859 Thomas, A. W., Philadelphia, Pa.—Bustle, skirt elevator, bosom forms. F 72.


861 Conrad Bros., Philadelphia, Pa.—Shirts, collars, cuffs, etc. F 67.


862a Oliver, Thomas, New York, N. Y.—Transfer for measuring and cutting coats. F 63.


867 Horstmann, Wm. H., & Sons, Philadelphia, Pa.—Military and theatrical goods, Military, society, regalia, church, and theatrical goods; flats, coats, hatters, bonnets, Army, navy, national guard, and band equipments, in great variety: regalia, jewels, and properties for the Military Blue Drill Pages, chapters, LODges, mandemeries, Scottish Rite, and other societies; Knights Templar uniforms a specialty. A full line of materials and trimmings suited to all the above lines. F 73.

868 Demoest, Mme., New York, N. Y.—Fashion patterns and bulletin, dress-cutting system, corsets, shoulder brace, skirt and stocking suspenders. F 63.

869 Nasha-wannuch Manufacturing Co., Easthampton, Mass.; factories, Easthampton, Mass.; salesrooms, 74 and 76 Worth street, New York.—Elastic rubber suspenders and webs. Manufacturers of elastic suspenders, frills, and webs, in silk, worsted, and cotton; new styles, plain and figured, in great variety, constantly produced. This company successfully introduced in this country the "Goodyear's" patent vulcanized rubber, in woven elastic goods, and continues its use very extensively. F 67.

871 Thompson, E. O., merchant tailors, 138 Walmont street, Philadelphia, Pa.—Clothing. Exemplification of mechanical and artistic tailoring is displayed in these garments, made to order for competition, designed, also, to illustrate accurate and national workmanship, in their embellishment, by trimmings made of the national colors and coins; also particular merit is claimed for the perfect fitting pantaloons, cut according to the process patented by the exhibitor. F 71.

872 Sternberger, L. & S., Philadelphia, Pa.—White shirts. Manufacturers of the "Ellipse" fine white shirts; shirt fronts, drawers, overalls, etc. F 68.

873 Norfolk & New Brunswick Hosier Co., New Brunswick, N. J.—Ladies', gentlemen's, and children's knitted underwear; shirts, vests, pants, and drawers; ladies' and misses' union dresses; gentlemen's and boys' undergarments; ladies' half hose; children's merino and wool hose and three-quarter socks, in various colors. We manufacture only full fashioned or regular made goods of fine qualities. H. J. Libby & Co., agents, No. 57 White street, New York. F 70.

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 20.
PROVIDENT
LIFE AND TRUST COMPANY,
OF PHILADELPHIA.
INCORPORATED 3 MO. 23, 1865.
ASSETS, over $3,000,000
Strictly Mutual. Distinguished for careful selection of risks, prudent investment of funds, great economy, and liberality to its policy-holders.

DAVID F. CONOVER & CO.,
Successors to WM. B. WARNER & CO.,
IMPORTERS, MANUFACTURERS, AND
Wholesale Dealers in
WATCHES AND JEWELRY,
Southeast corner Chestnut and Seventh Streets, first floor,
PHILADELPHIA.
American Watch Wholesale Salesroom.
David F. Conover. B. Frank Williams. C. Edgar Righter.

HORSTMANN, BROTHERS & CO.,
FIFTH AND CHERRY STS.,
PHILADELPHIA, PA.,
Manufacturers and Importers of
Military, Society Regalia, Church, and
THEATRICAL GOODS,
BANNERS, FLAGS, BUNTING.
1814. 1876.

PRESBYTERIAN BANNER,
PITTSBURGH, PA.
OLDEST RELIGIOUS NEWSPAPER.
ESTABLISHED JULY 5, 1814.
BEST MEDIUM FOR FIRST-CLASS ADVERTISING WEST OF NEW YORK.

No one will fail to notice the mammoth cake of this world-renowned soap, exhibited by its manufacturers, and weighing 1000 pounds. Its purity and merits are well known. One trial will show the most skeptical its superiority.

Don't leave town without getting some for trial. Make your grocer keep it. Look over our exhibit of genuine letters in its praise.

NATHAN E. MORGAN. CHAS. B. HEADLY.

Morgan & Headly,
Manufacturers of
Spectacles,
Fine Jewelry, Chains, Bracelets,
18-Karat Plain Rings, etc. Diamonds a Specialty.

Artisan Hall, 611 and 613 Sansom St.
Philadelphia.
Our case is No. 3731, Centre of Main Building.

MINTON'S TILES,
As exhibited in the British Section, Main Building, by
Messrs. Minton, Hollins & Co.,
(The Founders of the Manufacture in 1840) and as laid by us in the Capitol at Washington.

A Large Stock of all kinds on hand, imported and for sale by
MILLER & COATES, Agents,
279 Pearl Street, New York.

THE "PITTSBURGH COMMERCIAL,"
A Political, Literary, Commercial, and General Newspaper,
Devoted to the Best Interests of the People.

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Huddell & Seitzinger,
Miners and Shippers of Coal
207 Walnut Street,
Philadelphia.

New York Office,
111 Broadway.
Boston Office,
13 Kilby Street.

Samples of Coal on Exhibition in Mineral Annex.

PHILADELPHIA.
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>874</td>
<td>Warner Bros., New York, N.Y.</td>
<td>250</td>
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<td>875</td>
<td>Bowers, Jas., &amp; Co., Newark, N.J.</td>
<td>250</td>
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<td>876</td>
<td>Alkinson, Henry, Philadelphia, Pa.</td>
<td>250</td>
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<td>877</td>
<td>Zänner, Henry, Philadelphia, Pa.</td>
<td>250</td>
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<td>879</td>
<td>Borin, L., Philadelphia, Pa.</td>
<td>250</td>
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<td>880</td>
<td>Wilson, J. H., Philadelphia, Pa.</td>
<td>250</td>
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<td>881</td>
<td>Foy &amp; Harmon, New Haven, Conn.</td>
<td>250</td>
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<td>882</td>
<td>America Hosiery Co., New Britain, Conn.</td>
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<td>883</td>
<td>Worcester Corset Co., Worcester, Mass.</td>
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<td>884</td>
<td>Boston Comfort Corset Co., Boston, Mass.</td>
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<td>885</td>
<td>Palmer &amp; Williams, Boston, Mass.</td>
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<td>886</td>
<td>Denham, T. M., &amp; Brother, New Bedford, Mass.</td>
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<td>887</td>
<td>Rockhill &amp; Wilson, Philadelphia, Pa.</td>
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<td>888</td>
<td>Lowell Hosiery Co., Lowell, Mass.</td>
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<td>889</td>
<td>Wanamaker &amp; Brown, Philadelphia, Pa.</td>
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<td>892</td>
<td>Hughes, Thos., &amp; Co., Bristol, Pa.</td>
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<td>893</td>
<td>Strahan, Hodgson, &amp; Co., New York, N.Y.</td>
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<td>894</td>
<td>American Suspender Co., Waterbury, Conn.</td>
<td>250</td>
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<td>895</td>
<td>Brewster Bros &amp; Co., Birmingham, Conn.</td>
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<td>897</td>
<td>Gabriel, Henry, &amp; Sons, Allen- town, Pa.</td>
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<td>898</td>
<td>American Molded Collar Co., Boston, Mass.</td>
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<td>899</td>
<td>Frost, Geo., &amp; Co., Boston, Mass.</td>
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<td>900</td>
<td>Sweet, Orr, &amp; Co., factory, Wappinger's Falls, N.Y.</td>
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<td>901</td>
<td>Bickford, Dana, New York, N.Y.</td>
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<td>902</td>
<td>Beatty Hosiery Mills, Philadelphia, Pa.</td>
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<td>903</td>
<td>Landenberger's, Martin, Sons, Philadelphia, Pa.</td>
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<td>904</td>
<td>United States Corset Co., New York, N.Y.</td>
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<td>905</td>
<td>Sharpless &amp; Sons, Philadelphia, Pa.</td>
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<td>906</td>
<td>Rothschild Bros. &amp; Gutman, New York, N.Y.</td>
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<td>907</td>
<td>Cameron, Wm., &amp; Son, Philadelphia, Pa.</td>
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<td>908</td>
<td>Dress Reform Co., Boston, Mass.</td>
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<td>909</td>
<td>Otis Co., Ware, Mass.</td>
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<td>910</td>
<td>Hayden, James, Philadelphia, Pa.</td>
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<td>911</td>
<td>Peck &amp; Greene, Brooklyn, N.Y.</td>
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<td>912</td>
<td>Star Knitting Co., Cohoes, N.Y.</td>
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<td>913</td>
<td>Parsons, J. H., &amp; Co., Cohoes, N.Y.</td>
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<td>914</td>
<td>Brookside Hosiery Mills, Troy, N.Y.</td>
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<td>915</td>
<td>McDonnell, Kline, &amp; Co., Amsterdam, N.Y.</td>
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<td>916</td>
<td>Bennett, E., Brooklyn, N.Y.</td>
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<td>917</td>
<td>Coon &amp; Van Volkenburgh, Troy, N.Y.</td>
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<td>918</td>
<td>Eilis Manufacturing Co., Watertown, Mass.</td>
<td>250</td>
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UNITED STATES.

Clothing.

collar is made to fit the neck perfectly and easily, is controlled exclusively by t. is company. These goods have been awarded the first prize at several exhibitions. F 70.

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-47.
Clothing, Ornaments, Jewelry.

  a Ladies' dresses, trousers, neck-ties, scarfs, and furnishing goods. 250
  b Embroidery, lingerie. 252
All articles contained in this exhibit are of A., C. & Co.'s own manufacture, and
are their exclusive establishment, Nos. 142 and 1414 Chestnut street, above Broad street, Philadelphia, will be found
goods of a similar character, in great variety.

920 Pettengill & Sawyer, East Cambridge, Mass.—F 70.
  a Waterproof oil clothes. 250
  b Waterproof hats. 252

920a Brady, Edward, Philadelphia, Pa.—U 63.
  a Collars for men's wear. 252
  b Buttons. 254


F 70. 253

923 Magle, Fortune, New York, N. Y.—Material for kid glove manufacturing,
and kid gloves. B 73. 251

924 Stetson, John B., & Co., Philadelphia, Pa.—Soft and stiff felt hats in various
stages of manufacture. B 68. 251

925 Walton, Maison, New York, N. Y.—Bonnets and round hats. F 71. 251

926 Littleton Saranac Buck Glove Co., Benton, Mass.—Grain tanned gloves.
B 69. 254

927 New York Catholic Protectorcy, New York, N. Y.—Shoes. V 53. 251


929 Nonnenberger, Christian, Philadelphia, Pa.—Hatters' blocks and tools.
B 69. 252

930 Fenton, J. H., & Bro., Philadelphia, Pa.—Gentlemen's dress, silk, soft
and stiff felt, and other hats. B 70. 251

931 Groton & Herman, Newark, N. J.—Hat blocks and flanges, hatters' tools.
B 70. 251


934 Hays, Daniel, Groversville, N. Y.—Buckskin and peccary skin gloves, gaunt-
ets, and mittens. B 71. 251

  a Straw hats; hats. 253
  b Furs, robes, fur caps, turbans, gloves, etc. 256

935 Jeannisson, Lewis, & Son, Johnson-
town, N. Y.—Gloves. B 71. 253

937 Haverhill Hat Co., Haverhill, Mass.—Wool hats. B 69. 251

938 Solmans, Alden, South Norwalk, Conn.—Felt hats. B 70. 251


940 Amidon's Son, T. H., New York, N. Y.—Hats and caps. B 70. 253

941 Dunlap & Co., Hatters, 174 Fifth
avenue and 590 Broadway, New York, N. Y.; manufactory and wholesa-
department, 161, Mercure street, New York, N. Y.—Gentlemen's silk, felt, straw and opera hats; ladies' riding hats. B 70. 251

942 Kennedy, Thos., & Bro., Philadelphia, Pa.—Wax figure in bridal costume;
trimmed bonnets and hats. F 72. 251

943 Schiller, Jos., & Co., St. Louis, Mo. —Hats for gentlemen's wear. B 69. 251

945 Hutchinson, John C., Johnstown,
N. Y.—Men's lined dogskin, calfskin, and lambskin gloves and gauntlets. B 70. 251

946 Northrup, W. S. & M. S., & Co., Johnstown, N. Y.—Fine lamb, real calf,
and buckskin castor unlined gloves. Most glove dealers know the reliability of gloves made
by this firm. B 71. 251


948 Miller, Geo. F., Jacksonville, Fla. —B 74.
  a Palmetto hats. 251
  b Florida curiosities. 254

949 Bancroft, J. S., & Co., New York, N. Y.—Hats and caps, boys' and child-
hood's hats. B 72. 251

950 Kursheed & Co., 190 to 194
South Fifth avenue, New York, N. Y.—
Standard manufacturers—Embroderiers, puffs, plaitings, and flutings, made on patented
machines; ladies' collars and cuffs, ties, collarlets, lock-stitch all-over
tuickings, and tucked frockings. F 69. 252

950a Beatty & Thorne, New York,
N. Y.—Hat, badge, and ornamental printing in gold, silver, etc. P 78. 252

951 Bentley, Jeff. O., Philadelphia, Pa.—Embroidered, braided, and stamped
goods; indelible marking, designs, stamps. F 72. 252

951a Roberts & Hevell, Newark, N. J.—
T 65.
  a Dress, hat, and shoe trimmings. 252
  b Metal fancy goods, notions. 254
  c Metal, hat, and bag trimmings. 255

952 Sarrant, Jos. W., Philadelphia,
Pa.—Embroidery and braiding designs,
hand worked and printed. F 72. 252

953 Thomas, Joel, Philadelphia, Pa. —Ruches, ladies' and infants' caps, ruf-
fings, and collarlets. F 71. 252

954 Clickerman, L. M., Philadelphia,
Pa.—Embroidery on linen cambic. F 65. 252

955 Palmer & Kendall, Middletown,
Conn.—Mosquito net canopies with attach-
ments, machine-tentered wide fabrics, mos-
quitos netting, cords, and window lines. F 77. 252

956 Bedichiner, Isaac, Philadelphia, Pa.—Masquer masks, society jewels, pins,
and emblems in gold and silver. N 43. 253

956a Barrows, H. F., & Co., New York,
N. Y.—Plated jewelry. P 43. 253

957 Muhr's, H., Sons, Philadelphia, Pa.—Gold finger rings. P 43. 253

957a Celluloid Novelty Co., New York,
N. Y.—Celluloid jewelry. N 43. 253


For location of objects, indicated by letter and figure, see Key 10 Notation, p. 25; ground plan, p. 18.
Jewelry, Toys, Fancy Articles.


962 Goggin, Jas., New York, N. Y.—Suites of jewelry, and jewel cases of shell, jet, and bog oak. P 59.

963 Neher, Chas., Philadelphia, Pa.—Hair jewelry. P 43.

964 Starr & Marcus, New York, N. Y.—Diamonds, pearls, precious stones, rich jewels, and stone cameos. N 41.


966 Cottier, C., & Son, N. Y.—Imitation of precious stones and fancy cut stones. P 44.

967 Tillinghast, Mason & Co., Providence, R. I.—Imitation diamond jewelry. N 43.


970 Hamilton P. Hunt, Providence, R. I.—Plated chains and buckle bracelets. P 43.

971 Kipling’s, R., Sons, New York, N. Y.—Precious and imitation stones for jewelry. N 43.


977 Galena Oil Works (limited), Franklin, Pa.—Silver card baskets and cases. P 47.


979 Pratt, D. G., Cambridgeport, Mass.—Wood and ivory turned goods. N 57.


979e Weintroub, Paul, Philadelphia, Pa.—Fancy articles of olive wood from Jerusalem. T 54.


985d Watson, Brock, Philadelphia, Pa.—Fancy articles carved from nuts and fruit stones; wood relics. H 69.

986d Potter, W. K., Providence, R. I.—Tortoise shell goods, combs, jewelry, etc. P 43.


987d Goodwin, W. C., New Haven, Conn.—Hot-air toys, pins, games, novelty, and recording bank. N 71.

988d Bloodgood, Miss, Do, Etta, New York, N. Y.—Shell wax, wax flowers, leaves, shells, fruit, etc.; illuminated and rustic crosses. P 42.


990e Jackson, Samuel C, New York, N. Y.—Silverware and jewelry trays and cases, fancy wood boxes. N 43.

992 Wahl, Emil, Philadelphia, Pa.—Fancy bone work, dominoes, chessmen, crochet needles, buttons, jewelry, etc. N 43.

993d India Rubber Comb Co., New York, N. Y.—Hardware rubber combs, syringes, drinking flasks; surgical, telegraphic, and photographic goods, etc. Manufacturers of hard rubber comb, syringes, drinking flasks, whip sockets, inkstands, oilers, thimbles, doll-heads, martingale rings, tumblers, rulers, funnels, scoops, dice cups, soap trays.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
<thead>
<tr>
<th>MANUFACTURES.</th>
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<tr>
<td>castor rolls, napkin rings, whip handles, salad spoons and forks, gas faucets, mustard spoons; photographic, telegraphic, electrical, and surgical goods, and all kinds of special goods; sheet, rod, and tubing. B 67.</td>
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<tr>
<td>994 Leiner, Moritz, New York, N.Y.—Ear cleaners, filtering racks, sponge baskets, bath and bottle brushes, prolon. B 65.</td>
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<tr>
<td>996 Althea, Sons, &amp; Co., New York, N. Y.—Albums and backgammon boards. P 76.</td>
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<td>987 Birch, John S., New York, N. Y.—Watch key that will wind any watch. P 43.</td>
</tr>
<tr>
<td>988 Ellis, Knapp, &amp; Co., New York, N. Y.—Umbrellas and parasols. B 70.</td>
</tr>
<tr>
<td>998a Feust &amp; Rice, New York, N. Y.—Toys, jardiniers, and parlor ornaments. P 51.</td>
</tr>
<tr>
<td>990 Buffalo Decorating Co., Buffalo, N. Y.—Artificial ivy and autumn leaves. P 62.</td>
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<tr>
<td>1000 Hopkins &amp; Robinson Manufacturing Co., Akron, O.—Smoking pipes. T 44.</td>
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<tr>
<td>1000z Smithers, Mrs. G. H., New York, N. Y.—Wax flowers and figures; sheet wax. F 70.</td>
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<tr>
<td>1001 Orange Judd Co., New York, N. Y.—Crandall’s building blocks. T 73.</td>
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<tr>
<td>1003 Dickinson, Mrs. C. J., Chicago, Ill.—Wax flowers, leaves, Inuit, ferns, etc. P 42.</td>
</tr>
<tr>
<td>1004 Tobin, Joseph F., No. 82 Duane street, New York, N. Y.—Whalebone goods. Manufacturer of dress, corset, whale, cane, probe, huck’s, brush, ribbon, round and half-round bone. F 72.</td>
</tr>
<tr>
<td>1005 Mabie, Todd, &amp; Bard, New York, N. Y.—Tooth-picks. N 43.</td>
</tr>
<tr>
<td>1007 Riley &amp; Lynch, Newark, N. J.—Bag and umbrella trimmings, military metal goods, masonic ornaments, etc. M 67.</td>
</tr>
<tr>
<td>1008 Celluloid Manufacturing Co., Newark, N. J.—Toilet brushes, etc., made from celluloid, N 43.</td>
</tr>
<tr>
<td>1009 American Mechanical Toy Co., N. Y.—Mechanical toys. F 70.</td>
</tr>
<tr>
<td>1010 Leonard, Theo., Paterson, N. J.—Pure white beeswax bleached by sun, wax tapers or gaslighters, sheet wax and gilded brass moulds for wax flowers. N 56.</td>
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<tr>
<td>1011 Bradley &amp; Hubbard Manufacturing Co., West Meriden, Conn.—Bronzes, cast bells. N 47.</td>
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<tr>
<td>1013 Carlisle, Henry, &amp; Son, Philadelphia, Pa.—Tortoise shell and horn combs, jewelry sets, and fancy articles. N 52.</td>
</tr>
<tr>
<td>1014 Althof, Bergmann, &amp; Co., New York, N. Y.—Tin and mechanical toys. F 76.</td>
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For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Fancy Articles, Traveling Equipments, Stationery.

1039 Spaulding, D. S., Mansfield, Mass.—Tortoise shell jewelry, back combs, and fancy goods. N 43. 254
1040 Seevy, J. A., Boston, Mass.—Articles of whalebone, for whips, canes, corsets, dresses, etc. F 71. 254
1041 Eureka Manufacturing Co., Boston, Mass.—Air pistols. H 71. 254
1042 Joslin, Palmer, & William, New York, N. Y.—Horn and rubber goods, fancy back combs, and jewelry. N 43. 254
1043 Hildreth, Milo, & Co., Northboro, Mass.—Horn and tortoise shell combs and jewelry. N 43. 254
1044 Mahn, L. H., Jamaica Plains, Mass.—Base balls. F 71. 254
1045 Porter Brothers & Co., New York, N. Y.—Buttons and presses for attaching same. H 71. 254
1045a Holland, J. C., New York, N. Y.—Needles. F 71. 254
1046 Harris, S., & Sons Manufacturing Co., Clinton, Mass.—Dressing and fancy combs, imitation jet and shell chains. F 71. 254
1050 Moutoux, Emil W., New York, N. Y.—Hair pictures and devices for breastpins. P 52. 254
1051a Conrad, Wm. C., Middletown, Pa.—Cane. T 61. 254
1052 Ansley, Fred W., St. Augustine, Fla.—Jewelry made from native Florida material. H 63. 254
1054 Platt Bros. & Co., Waterbury, Conn.—Buttons. H 71. 254
1055 Cheshire Manufacturing Co., West Cheshire, Conn.—Buttons. H 71. 254
1056 Frey, C. J., & Son, Naugatuck, Conn.—Thimbles. H 71. 254
1057 Comstock Dickinson Ivory Co., Center Brook, Conn.—Ivory fine combs. H 71. 254
1058 Blake & Johnson, Waterbury, Conn.—Satin finish hair pins. H 71. 254
1059 Ives, Blakeslee, & Co., Bridgeport, Conn.—Silk covered ventilated metallic garters. H 71. 254
1059a Ladd, S. J., Providence, R. I.—Gold thimbles. N 43. 254
1060 Peacock, H. H., Philadelphia, Pa.—Fancy cases in morocco, velvet, and marquetere, for jewelry, etc.; physicians' cases. P 63. 254
1061 Rumpf, Chas., Philadelphia, Pa.—Fancy leather goods, dressing case, work boxes, pocketbooks, thimbles, etc. H 69. 255
1061a Langfeld, J., & Sons, Philadelphia, Pa.—Pocketbooks, satchels, and fancy leather articles. F 70. 255
1062 Kolb, G. F., & Son, Philadelphia, Pa.—Cases for jewelry and silverware. H 71. 255
1062a Arms Manufacturing Co., Northampton, Mass.—Pocketbooks, photograph cases, chess boards, etc. B 75. 255
1063 Rumpsey C. F., 116 & 118 North Fourth St., Philadelphia, Pa.—Fancy leather goods, pocketbooks, cigar and match cases, bankers' cases, dressing cases, writing desks, satchels, traveling bags, etc. Any article exhibited is kept in store, and any similar goods will be made to order at short notice. B 68. 255
1064 Spitzer, George W., 33 Maiden Lane, New York, N. Y.—Fans, jewelry cases, and fancy leather goods. Manufacturer of fancy leather goods. Our specialties are jewelry cases and fans. These are the only fans of the kind made in this country. B 71. 255
1064a Parkhurst & Gridley, Newark, N. J.—Shawl and book strip. P 68. 255
1065 Liktely, McDonald, & Rockett, Cleveland, Ohio.—Fancy leather work, gun case, etc. B 70. 255
1067 Mawson, Ed. S., & Sons, Philadelphia, Pa.—Seal skins, muffs, caps, gloves; seal, sable, and mink skins, etc. B 68. 256
1068 Fishblatt, Lewis, Philadelphia, Pa.—Ladies' furs and carriage robes. B 70. 256
1069 Mahler, M., New York, N. Y.—Furs. B 67. 256
1070 Reisky, N. C., Philadelphia, Pa.—Ladies' furs, gentlemen's driving goods, sleigh robes, Indian painted buffalo robes. B 69 and 71. 256
1071 Boos, F., & Bro., 449 Broadway, New York, N. Y.—Furs, souches, coats, muffls, boas, caps, robes, gloves, fur trimmed caps and skins of all kinds. B 69 and 71. 256
1072 Kaehler, Otto, Philadelphia, Pa.—Stuffed animals, raw and dressed skins, fur robes, fancy furs, etc. B 68. 256
1076 Duryce & Hallett, Rahway, N. J.—Dressed and dyed furs. H 68. 254
1077 Burnett, W. H. & Co., Newark, N. J.—Furs, fur cloaks, and fur-lined mantles. B 68. 256

Paper, Blank Books, and Stationery.

1078 Dixon Crucible Co., Jersey City, N. J.—Pencils of graphite. P 72. 256
1079 McGill, Geo. W., New York, N. Y.—McGill's patent fasteners, for binding papers of all descriptions; sampling for woolen, dry, and fancy goods, and for all descriptions of light binding; McGill's patent hanging rings and brackets for hanging cards, calendars, etc.; one hundred different patterns of fasteners and rings; McGill's patent letter clips, punches, presses, copying press, water cup press, etc. Factor for New England, H 71. At Waterbury, Conn.; warehouses, at 49 Chambers street, New York, and 18 Federal street, Boston. P 73. 256

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.
1080 Hoskins, W. H., Philadelphia, Pa.—Paper, envelopes, designing, engraving, printing, and lithography. P 75. 258
1082 Tiffany & Co., New York, N. Y.—Stationery. N 42. 258
1082a Pottin Register Manufacturing Co., Philadelphia, Pa.—Bank check. P 57. 258
1083 Goldsborough, John, Philadelphia, Pa.—Ribbon machine and hand stamps, perforating and canceling stamps. P 77. 258
1084 American Lead Pencil Co., New York, N. Y.—Lead pencils, materials, and process of manufacture. P 74. 258
1085 Fairchild, Leroy W., & Co., New York, N. Y.—Gold pens, pencil and pen cases, toothpicks and desk holders of gold and silver, etc. Awarded highest premium at Paris, Vienna, 1873; and gold and silver medals from other fairs wherever in competition. N 43. 258
1086 Faber, Eberhard, New York, N. Y.—Lead pencils, penholders, rubber goods, and stationers’ articles. P 73. 258
1087 Cooke, O. K., & Co., New York, N. Y.—Revolving hand stamps, seal presses, rubber stereotypes, check protectors, combined pad and rack. P 77. 258
1088 Johnson, E. S., New York, N. Y.—Gold pens, pencils, and cases. N 43. 258
1089 Muller’s, Nicholas, Sons, New York, N. Y.—Bronze stationery ware, inkstands. P 76. 258
1090 Janentzky & Co., Philadelphia, Pa.—Artists’ materials, oil colors, water colors, paint boxes, artists’ canvass, adjustable drawing table, artists’ brush and color stand, sketching easels, and other articles appertaining to the fine arts, all of our own manufacture. P 77. 258
1091 Bergner, Theo., Philadelphia, Pa.—Drawing boards, parallel rulers, and section lines for draughtsmen’s use. P 76. 258
1092 Hawkes, Geo. F., New York, N. Y.—Gold pens, gold, silver, pearl, and rubber pencils; fountain pen. N 43. 258
1093 Lipman, Hymen L., Philadelphia, Pa.—Eyelit machines, combining punch and riveter. P 74. 258
1094 Brower Bros., New York, N. Y.—Inkstands, paper weights, sponge cups, letter files, etc. P 74. 258
1095 Aiken, Lambert, & Co., 12 Maiden Lane, New York, N. Y.—Choice gold pens, penholders, cases. All goods sold guaranteed of same excellency as those on exhibition. N 43. 258
1096 Buck, T. S., & Co., Davenport, la.—Rubber type forms, rubber dating stamp. P 77. 258
1097 Stiles, Mrs. E. W., Philadelphia, Pa.—Book paper-file, revolving inkstand. P 30. 258
1098 Youngs, Wm. J., & Sons, Philadelphia, Pa.—Hand stamp. N 57. 258
1099 Stoddard, Richard T., Boston, Mass.—Book supporter. P 74. 258
1100 Young, W. A., Jacksonville, Fla.—Pencil sharpeners. H 68. 258
1101 Bender & Phillips, Hohokus N. J.—Sheet wax. N 56. 258
1102 McBie, Todd, & Bard, New York, N. Y.—Gold pens, cases, penholders, N 43. 258
1103 Hall, P. W., Austin, Texas.—Postage stamp and ticket holders. N 68. 258
1104 Drake, Louis, Philadelphia, Pa.—Porcelain and stationery. Specimens of steel and copper plate engraving, die sinking, printing, illuminating and designing. All work exhibited executed in our establishment. P 74. 258
1105 Parkhurst & Gridley, Newark, N. J.—Stationers’ goods. P 68. 258
1106 Foley, John, New York, N. Y.—Gold pens, pencils, and penholders. N 43. 258
1107 Chase, John S., Union Paste & Sizing Co., 200 Mulberry street, New York, N. Y.—Preserved flour paste, for bookbinders’ and general use. Eurock fine pastes, for office, library, and household. P 77. 258
1108 Mason & Co., Philadelphia, Pa.—Engraving, fine stationery, illuminating, stamping, and copper plate printing. P 73. 258
1109 Somers, D. M., Greenport, Brooklyn, N. Y.—Penholders. P 72. 258
1110 Holland, John, Cincinnati, O.—Gold pens, pencil cases, penholders. N 43. 258
1111 United States Soapstone Manufacturing Co., Cincinnati, O.—Soapstone slate pencils, crayons for blackboard or metals, tailors’ markers, hair crimpers and curlers, boot powder, shoemakers’ blocks, foundry facings; manufacturers of soapstone goods of any description. P 77. 258
1112 Hart, Bliven, & Mead Manufacturing Co., New York, N. Y.—Stationery for the desk, paper files, clips, etc. P 70. 258
1113 James, Samuel, Philadelphia, Pa.—Artists’ rotary color and brush-stamp. P 77. 258
1118 Esterbrook Steel Pen Co., Camden, N. J.—Pens and penholders. P 72. 258
1119 Eagle Pencil Co., New York, N. Y.—Lead and mechanical pencils, copying crayons, penholders, stationery, wooden and brass articles. P 76. 258
1121 Rowland, Joseph S. C., Philadelphia, Pa.—Canceling ink-pad. T 47. 258

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
of this class manufactured in the ordinary manner. J. G. Ditman & Co., Philadelphia, agents for Centennial. P. 74. 259

1140 Campbell, Hall, & Co., New York, N. Y.—Safety paper, for protection from cut paper. P. 74. 259

1142 Weston & Hollingsworth, Boston, Mass.—Steel plate, chrome, and woodcut paper. P. 77. 259

1143 Crane Brothers, Westfield, Mass.—Bank ledger, record, and linen fabric papers. P. 74. 259

1144 Hurlbut Paper Co., South Lee, Mass.—Writing and blank book papers. P. 75. 259

1145 Seymour Paper Co., Windsor Locks, Conn.—P. 75.


1147 Francis & Loutrel, New York, N. Y.—P. 74.

1148 Haldeman Paper Co., Lockland, Ohio.—P. 77.

1149 Jessup & Moore, Philadelphia, Pa.—Copperplate, lithograph, and book papers, news paper. P. 74. 260


1155 Tangeman, Geo. P., Hamilton, Ohio.—P. 77.


1157 Mann, Wm., Philadelphia, Pa.—Blank books for banks, parchment copying books. P. 75. 261

1158 Altemus & Co., Philadelphia, Pa.—Photograph albums, scrap books, etc. P. 76. 261

For classes of exhibits, indicated by numbers at end of entries see Classification, pp 27-45.

1123 Morton, James, New York, N. Y.—Gold pens, gold, celluloid, and pearl pens and penholders. N. 43. 258

1124 Donovan, J. W., Detroit, Mich.—Record file covers, classified directory. P. 58. 258


1128 Cohen, Chas. J., 26 South Fifth street, Philadelphia, Pa.—P. 74.

1129 Byron, Weston, Dalton, Mass.—Ledger and record paper. Linen, strong, double-sized paper for books, where great strength and long use are required. P. 75. 259

1130 Owen Paper Co., Housatonic, Mass.—First-class linen ledger papers, bond and thin linen papers; tinted wedding royals and folio, plain and patent finishing, bristol boards and staple writing papers of all kinds. P. 73. 259

1131 Southworth Co., Mianneque, Mass.—Writing papers. P. 75. 259

1132 Mount Holly Paper Co., Mount Holly Springs, Pa.—Writing papers. P. 73. 259

1133 Whiting Paper Co., Holyoke, Mass.—Fine papers. P. 77. 259

1134 Crescent Mills, Springfield, Mass.—Writing papers. P. 74. 259

1135 Holyoke Paper Co., Holyoke, Mass.—Writing papers. P. 74. 259

1136 Carson & Brown Co., Dalton, Mass.—Writing paper. P. 74. 259

1137 Parsons Paper Co., Holyoke, Mass.—Writing paper. Manufacturers of white and tinted writing and envelope papers, of every description. P. 74. 259

1138 Crane & Co., Dalton, Mass.—Bond, bank-note, parchment, letter, and note paper. P. 74. 259

1139 Parker, Joseph, Son, & Co., New Haven, Conn.—Treasury and commercial blotting paper. Treasury blotting paper is well known for its durability and great absorbent quality, cleanliness in use; grows soft and pliable by exposure, and never hardens on the desk. It will absorb more ink than the same thickness of papers found in most books of the same price. P. 74. 259

1141 Edsall, D. A., New York, N. Y.—Rubber hand stamps, stereotypes, folding rack pads. P. 77. 258
1159 Murphy's, W. F., Sons, Philadelphia, Pa.—Blank books, made to order for actual use. P 77. 261

1159a Lippincott, J. B., & Co., Philadelphia, Pa.—Blank books of their own manufacture. T 72. 261

1160 Thomas, Chas. F., Wilmington, Del.—Index for public records, and mercantile accounts. P 76. 261

1161 Kohler, Ignatius, Philadelphia, Pa.—Samples of bookbinding; samples of hand-finished ornamental, artistic, tool-worked bibles, and large royal photograph albums, holding from 6 to 1000 pictures. (Hand-finished by Ig. Kohler himself.) T 74. 261


1163 Walker, Evans, & Cogswell, Charleston, S. C.—Blank books, law blank case. P 74. 261

1163a Robinson, Savage & Co., Cleveland, O.—Russia bound register books. (Ohio State Building) 261

1164 Appleton, D., & Co., Philadelphia, Pa.—Bookbinding. (Gallery) T 73. 261

1164a Hindsill, Henry M., Grand Rapids, Mich.—Office scratch-books. T 77. 261

1165 Sandford & Co., Cleveland, O.—Full Russia bank books. P 77. 261

1165a Beckett & Cervi, Cambridge, Mass.—Specimens of bookbinding. T 74. 261

1166 Siddall Bros., Philadelphia, Pa.—Vellum printing, conveyancers' envelopes, and job and book printing. P 74. 261

1167 Lange, Little, & Co., New York, N. Y.—Wood cut, railroad, and job printing. T 78. 261

1168 American Tract Society, New York, N. Y.—Bookbinding. T 76. 261

1169 Oldach & Mergenthaler, Philadelphia, Pa.—Bookbinders' work. T 75. 261


1171 Reed, A., & Co., Philadelphia, Pa.—Ornamental bookbinding. T 74. 261


1172 Lindsay & Blakiston, Philadelphia, Pa.—Specimens of binding. T 73. 261

1173 Boorum & Pease, New York, N. Y.—Blank books. P 75. 261

1174 Bradley & Gilbert, Louisville, Ky.—P 75.

Bradley & Gilbert, Louisville, Ky.—P 75.

a Blank books, specimens of printing. 261

b Bonnet boards, tile paper boxes. 261

1175 Kerr, N. M., & Co., Philadelphia, Pa.—Paper boxes, jewelers' findings. 261

1175a Richardson, J. N., Boston, Mass.—Playing cards. P 78. 261


1177 American Paper Box Co., Philadelphia, Pa.—Fancy paper boxes. P 74. 261

1178 Porter & Bainbridge, New York, N. Y.—Cardboard, stationery, papeteries, etc. N 72. 261

1179 Dennison & Co., Boston, Mass.—Jewelers' paper boxes, cards, tags, labels, seals, tissue papers, sealing wax; jewelers' and surgical cotton. P 75. 261

1180 Osborn, Bennet, Newark, N. J.—Paper boxes. P 73. 261

1181 Dennison & Brown, Portland, Me.—Wood pulp and products, paper boxes, etc. P 77. 261

1182 Cornell & Shelton, Birmingham, Conn.—Folding paper boxes. P 74. 261


1184 Rhode Island Cardboard Co., Pawtucket, R. I.—Cardboard, cards for printers and photographers, manilla tag stock. P 74. 261

1185 McClement Brothers, Philadelphia, Pa.—Embossed business cards, embossed labels, cut and gummed, and impressions from notarial and society seals. P 74. 261


1188 Beck, Charles, Philadelphia, Pa.—P 76.

Beck, Charles, Philadelphia, Pa.—P 76.

a Cards, cardboard. 261

b Cards, colored, glazed, enameled, and embossed papers. 261


a Bonnet and carpet boards. 261

b Paper carpet and building paper. 261

1189 Davey, W. O., & Sons, Jersey City, N. J.—P 77.

Davey, W. O., & Sons, Jersey City, N. J.—P 77.

a Binders' trunk and box boards. 261

b Oakum. 266

1190 Stiewagon, Jos., & Sons, Philadelphia, Pa.—Raw roofing paper; prepared roofing and sheathing paper; carpet and sheathing paper. P 76. 263

1193 Grice, Jas., & Sons, Downingtown, Pa.—Wrappers for paper manufacturers. P 77. 263

1194 Gordon, A. Dunlop, Philadelphia, Pa.—Building and manila concrete tiles. P 74. 263

1195 Case Brothers, South Manchester, Conn.—Paper boxes. P 74. 263

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
E. D. & W. A. FRENCH,
S. E. corner Third and Vine Streets,
CAMDEN, N. J.,
OPPOSITE PHILADELPHIA, PA.,
SLATE MANTELS,
AND PAINTERS' AND BUILDERS' SUPPLY DEPOT

Third and Vine, Camden, N. J.
S. P. KITTLE,
MANUFACTURER OF
Spring Beds and Bedding,
Bed and Table Linen, Spiral Springs, Feathers, Hair, etc., etc.
BUY WHERE A THING IS MADE.

Half Border and Double Border
SPRING BEDS.
Hotels, Steamboats, and the Trade Supplied.
203 and 205 Canal Street, New York.
See Goods in Main Building, P 52, No. 3228.
THOMAS WATTSON & SONS,

PHILADELPHIA,

COMERCIANTES COMISIONISTAS,
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COMMISSION MERCHANTS,

Receive on consignment West India and South America Pro-
duce. Buy and Ship all sorts of American Pro-
duce and Manufactures.

ASPHALTUM FOR SALE.

IMPORTANT TO ADVERTISERS.

THE UNITED PRESBYTERIAN,

PUBLISHED AT PITTSBURGH, PA.,

Has a larger circulation than any Religious News-
paper in the West, and, as an advertising
medium, is unsurpassed.

H. J. MURDOCH & CO.,
Editors and Proprietors.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Weapons, Ammunition, Medicines.

1231 Stevens, J., & Co., Chicopee Falls, Mass.—Breechloading shotguns, rifles, and pistols. They now supply thoroughly well-made strong, and close-shooting breech-loading double shotguns, 10 or 12 gauge twist, $40.00; laminated steel, $45.00; extra finish, $55.00. Their rifles and pocket rifles shoot with wonderful accuracy. Circulars and full particulars on application to their agent, Charles Folson, 53 Chambers street, New York, or H 71 Main Building. H 71. 265

1232 Stoddard, Charles J., Washington, D. C.—Cartridge-loading implement. H 75. 265

1233 Gatling, Richard J., Hartford, Conn.—Battery gun. This celebrated machine gun fires from 800 to 1,000 shots per minute, has great accuracy, and the larger calibres have an effective range of over two miles. Manufactured by the Gatling Gun Company, at Hartford, Conn. H 70. 266

1234 Witty, Calvin, New York, N. Y.—Breechloading field cannon. H 65. 266

1235 Nekervis, W. M., Philadelphia, Pa.—Model of Parrott gun, with caisson complete. H 72. 266

1236 South Boston Manufacturing Co., Boston, Mass.—Bronze and steel rifle cannon, boat howitzer. H 71. 266

1237 Boon, B., West Medford, Mass.—Miniature field artillery, limber, and field carriages. H 72. 267

1239 Ridgway, John, Heirs of, Boston, Mass.—Revolving battery. H 65. 267

1239a Stevens Institute of Technology, Hoboken, N. J.—Model of the Stevens battery. T 67. 267

1239b Paulding, Kemble, & Co., Cold Spring, N. Y.—Model of gun carriage. H 72. 267

1240 Ames Manufacturing Co., Chicopee, Mass.—United States regulation, masonic, and society swords. H 72. 268

1241 Collins & Co., New York, N. Y.—Machetes, swords, bayonets, etc. N 68. 267

1242 Gaylord Manufacturing Co., Chicopee, Mass.—Presentation and society swords. N 70. 268

1243 Wurthlein, Wm., Philadelphia, Pa.—Parlor or gallery rifles and mechanical targets. H 72. 269

1244 Krider, John, Philadelphia, Pa.—H 72.

1245 Providence Tool Co., Providence, R. I.—Breechloading rifles for military, target, and sporting purposes. Manufacturers of "Peabody-Martini" rifles, for military, target, and sporting purposes. The standard arm of Great Britain, noted for strength, accuracy, simplicity, and beauty; 1,500,000 shots have been fired at the factory from 300,000 of these rifles, without accident; also manufacturers of heavy hardware, ship-chandlers' and sail-makers' hardware, nuts, bolts, hinges, etc. H 72. 269

1246 Tryon, E. K., jr., & Co., Philadelphia, Pa.—Muzzle loading rifles, shotguns, revolvers, gunmakers' tools, etc. H 70. 269

1247 Harder, J., & Son, Lock Haven, Pa.—Single, double, and three-barrel guns. Manufacturers of all kinds of muzzle-loading guns. H 71. 269

1248 Parker, Chas., Meriden, Conn.—Double-barreled breechloading shot guns. H 70. 269

1249 Harrington & Richardson, Worcester, Mass.—Revolving firearms with shell ejector. H 74. 269

1250 Burton, Bethel, Brooklyn, N. Y.—Military and sporting magazine rifles, bayonets, portable cartridge reloaders. H 72. 269

Medicine, Surgery, Prosthesis.

1252 Boericke & Tafel, 635 Arch street, Philadelphia, Pa.—Official homeopathic medical preparations, books and periodicals. Manufacturing homeopathic pharmacists. Complete assortment of homeopathic medicines, in their different degrees and forms, for physicians, families and druggists; sugar of milk, pods, cases, corks, vials. Publishers of homeopathic literature. N 50. 272


1253b Wallace Bros., Statesville, N. C.—Wholesale dealers in southern roots, herbs, barks, flowers, seeds, etc., of fine quality. Orders solicited. N 58. 272

1253c Dick, Dunlap, 35 & 37 Wooster street, New York.—Tasteless n. d. icles. These soft capsules are acknowledged by the most eminent physicians as a true method to administer nauseous medicines, which often detract from, if they do not destroy, the beneficial effects of some of the most valuable remedies prescribed. No patent or proprietary medicines are put up in soft capsules, Explanatory circulars free at every drug store in the United States. These capsules were admitted to the last Paris Exposition. T 59. 272

1254 Seabury & Johnson, New York, N. Y.—Plasters. T 44. 272

1255 Mitchell, Geo. E., Lowell, Mass.—Surgical, medicinal, and pharmaceutical plasters and plaster compounds, lung protectors. N 53. 272

1256 Fehr, Julius, Hoboken, N. J.—Compound tinctum—baby powder. The hygienic dermal powder, useful for infants and adults, containing most valuable therapeutical properties. N 52. 272

1257 Randle, Wm. H., Baltimore, Md.—Immunizing medicines. N 52. 272

1258 Tims, Wm., Paterson, N. J.—Homeopathic pellets. N 52. 272

1259 Wilson, B. O. & G. C., Boston, Mass.—Pressed medicinal herbs, leaves, flowers, seeds, roots, barks, etc. N 52. 272

1260 Smith's Homeopathic Pharmacy, New York, N. Y.—Homeopathic preparations in tinctures, triturations, and globules, cases for professional and family use. N 54. 272

1261 Ayer, J. C., & Co., Lowell, Mass.—Cherry pectoral, cathartic pills, sarsaparilla, ague cure, hair vigor. N 52. 272

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Medicines, Surgical Appliances.

1862 Blair's, H. C., Sons, Philadelphia, Pa.—T. 47.

1863 Hance Bros. & White, Philadelphia, Pa.—Conical plate drug mill and fillers.


1864 Bishop, Joaquin, Sugartown, Chester Co., Pa.—Platina crucibles, stills, bottles, blowpipe tubes, ignition tubes, etc. Manufacturers of platinum crucibles, ignition tubes, stills, bottles, wire, and articles used by analytical chemists; refining and melting of scrap or native grain platinum. Old platinum bought and taken in exchange. P 40.


1866b Longaker, H. D., Allentown, Pa.—Surgical and anatomical specimens of malignant tumors. T 47.


1868a Vaughan, W. R., Council Bluffs, la.—Iloi trusses and supporters. N 56.

1869 Everett, B. C., Philadelphia, Pa.—Trusses, supporters, shoulder braces, elastic stockings, belts, and artificial limbs. N 56.


1870a Day, G. Hayden, Bennington, Vt.—Fracture splints. N 55.

1871 Tiemann, Geo., & Co., No. 67 Chatham street, New York, N. Y.—Manufacturers of surgical instruments and orthopedic appliances. Established in 1866; branch store, 107 East Twenty-Eighth street, New York; steam factory, 81, 83, and 85 Loerum street, Brooklyn, E. D. Exhibit a most complete and compact operating set, containing, in ten compartments, over one hundred and eighty instruments, ample for every modern operation; specimens of operating cases used in America; Heine's osteotome for resection; Tiemann & Co.'s new rotating-blade osteotome; Tiemann & Co.'s new apparatus for fracture of arm and leg; anatomical syringe; Dawson's cautery battery, smallest battery known; Tiemann & Co.'s patent and other aspirators; patent steam atomizer; patent automatic and other hypodermic syringes; laryngo-scopes; ophthalmologists', aurists', gynecologists', and other instruments; a variety of entirely new instruments of American origin, etc., etc. All articles exhibited are Tiemann & Co.'s own manufacture. Their catalogue, bound in cloth, numbering four hundred and twenty-six pages, and containing over fifteen hundred engravings, can be obtained in New York for the cost of binding—seventy-five cents. N 57.

1871a Newbauer, Wm. G., Long Island City, N. Y.—Medical-plaster spreading machine. P 47.


1873a Ahl, David, Newville, Pa.—Adaptable porous splints. P 72.


1877 Perry, Vincent, Germantown, Pa.—Elastic bandages for surgical purposes. N 57.

1878 National Surgical Institute, Indianaapolis, Ind.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56.


1881 Blank, Wm., & Son, Philadelphia, Pa.—Artificial limbs and appliances. N 58.


1887 Darrach, S. A., Newark, N. J.—Wheel crutch and attachments; vulcanized rawhide spine support. N 58.


1890a Beckel, August, & Son, Philadelphia, Pa.—Crutches.

1891 Hinkle & Mayon, San Francisco, Cal.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
1292 Handy & Boland, Atlanta, Ga.—
Surgical and mechanical appliances,
splints, operating chairs, crutches, sup-
porters, and trays. N 56. 276

—Surgical and orthopedical instruments;
artificial limbs. N 53. 276

1294 Triumph Truss Co., New York,
N. Y.—Truss and supporter. N 53. 276

1295 Kern, Horatio G., Philadelphia,
Pa.—Surgical and dental instruments. N 56.
276

1296 Foster, James A., Philadelphia,
Pa.—Artificial limbs. These limbs are
manufactured at Philadelphia, Pa.; Cin-
cinnati, O.; St. Louis, Mo.; Chicago,
I.; and Detroit, Mich. Illustrated descrip-
tive pamphlets free. N 53. 276

1297 Pingree, Luther F., Portland, Me.
—Artificial limbs. N 53. 276

1298 Otto, F. G., & Sons, New York, N.
Y.—Surgical instruments and orthopedic
appliances. N 57. 276

1299 Bartlett, Butman, & Packer, Bos-
ton, Mass.—Trusses. N 51. 276

1300 Frecs, C. A., New York, N. Y.
—Artificial limbs and extensions. N 56. 276

1301 Palmer, B. Frank, L.L.D., Phila-
delphia, Pa.—New patent leg and arm,
safety socket united to the stump, secur-
ing positive comfort. Original patent,
1846; new patent, perfected, 1873. New
automatic system, for universal motion,
power, and sound applied to writing,
printing, music, etc. Original writing
machine (type-writer) made in 1851, per-
fected in 1876. N 54. 276

—Hard rubber trusses, abdominal support-
ers, pleurisies, plastic surgical hos-
siery, bandages, etc. N 53. 276

1303 McElroy, P. J., East Cambridge,
Mass.—Glass and family syringes, feed-
ing and drinking tubes, nipple shields,
medicine droppers, etc. N 51. 276

—Artificial limbs and braces. N 58. 276

1305 Rowand, John R., Philadelphia,
Pa.—Gynaecological apparatus. N 51. 276

1307 Allen & Johnson, Philadelphia,
Pa.—Surgical and mechanical appliances,
splints, operating chairs, crutches, sup-
porters, and trays. N 56. 276

1308 Pitt, John P., Philadelphia,
Pa.—Surgical and gynaecological appar-
tus; artificial steel leg. N 57. 276

1309 Philadelphia Truss Co., Phila-
delphia, Pa.—Trusses, supporters, shoulder
braces, elastic stockings, belts; combina-
tion truss and supporter. N 57. 276

1310 Gunning, Thomas Brian, 34 East
Twenty-first street, New York, N. Y.
—Fractured jaw appliances, including Sec-
retary Seward's; illuminating heads; cleft
palate appliances; teeth plates; regulating
plates. N 51. 276

1311 Spillman, Henry, New Orleans,
La.—Trusses, supporters, and shoulder
braces. N 58. 276

1312 Davis, James T., New York, N.
Y.—Artificial human eyes. N 54. 276

1313 Teufel, J. J., office and factory,
No. 103 South Eighth street, Philadel-
phia, Pa.—N. 54. 276

1314 Codman & Shurtleff, Boston,
Mass.—N 57.

a Surgical instruments, apparatus and appli-
cances.

b Dental instruments, furniture, and mate-
rials; laboratory tools, etc.

—Artificial teeth, tools, and materials for
their manufacture. N 54. 276

1316 Neve, Edward, Omaha, Neb.
—Artificial teeth. N 58. 276

—Artificial teeth and models. N 59. 276

1318 Brown, E. Parmly, Flushing, N.
Y.—Gold fillings in human teeth, dentists' cases,
dental improvements. N 57. 277

1319 White, Samuel S., Philadelphia,
Pa.—Artificial teeth, instruments, chairs,
dental engines, stools, latches, brackets,
speckled gold, corium wheels, etc. N 55.
277

1320 White, Chas. A., Philadelphia,
Pa.—Celluloid apparatus and dental trays,
process of forming sets of artificial teeth,
artificial dentures. N 56. 277

1321 Metcalf, David H., Battle Creek,
Mich.—Tinman's pattern sheets and
squares. N 68. 286

1322 Allen, J., & Son, New York, N.
Y.—Artificial dentures. N 57. 277

1323 Abbey, Chas., & Sons, Philadelphia,
Pa.—Dentists' fine gold foil, soft and non-adhesive, and adhesive. Our specialty
for fifty years. N 58. 277

1324 Bonwill, W. G. A., Philadelphia,
Pa.—Electro-magnetic mallet for filling
teeth, carving marble, chiseling metals, and
as an autographic printing press; dental chair and engine. N 59. 277

1325 Taylor, J. Hare, Philadelphia, Pa.
—Tooth paste, etc. N 57. 277

1326 Wardle, S., Cincinnati, O.
—Specimens of dentistry. N 58. 277

1327 Neall, Daniel W., Camden, N. J.
—Porcelain teeth. N 57. 277

1329 Crowther, D. W., Hagerstown,
Md.—Mechanical and operative dentistry.
N 56. 277

1330 Scott, Quincy A., Pittsburgh, Pa.
—Atmospheric disk for holding artificial
teeth in the mouth, dental specimens,
dentrifice. N 56. 277

1331 Ludwig, Schmidt, & Mohl, Hous-
ton, Texas.—Enamel; specimens of teeth.
N 59. 277

1332 Taliaau, William, jr., New York,
N. Y.—Gold and silver leaf, gold and pla-
tina filling for dentists' use. N 63. 277

1334 Cutter, Ephraim, Cambridge,
Mass.—Adjustable chair for invalids. N 58.
278

Hardware, Edge Tools, Cutlery, Me-
tallic Products.

1335 Collins & Co., New York, N. Y.
—Cast steel tools; sledges. N 67. 280

1336 Elgin National Watch Co., Elgin,
III.—Watchmakers' tools. P 67. 280
1349 Matlby, Curtiss, & Co., New York, N. Y.—Nail puller. P 77. 280
1350 Kohler, Martin, Philadelphia, Pa.—Knee-rest for tailors. N 70. 280
1351 Carter, Henry, New York, N. Y.—Moulders' and plasters' tools. N 70. 280
1352 Sinsz, Philip, Baltimore, Md.—Glaziers' diamonds, machinery for circular and oval cutting, engravers' points, carbon tools. P 70. 280
1353 King, Josiah, & Son, New York, N. Y.—Planes and tools for wood workers. N 71. 280
1354 Booth, John, & Son, Philadelphia, Pa.—Carpenters' tools and sundries. N 69. 280
1355 Barton, D. R., Tool Co., Rochester, N. Y.—Machinists' edge tools. N 75. 280
1356 American Shovel Co., Birmingham, Conn.—Shovels and scoops. F 68. 280
1357 Johnson, Wm., Hedenberg Works, Newark, N. J.—Carpenters' and other mechanics' tools and hardware. N 69. 280
1358 Hampton, Chas. F., Ardmore, Pa.—Augers and bits. N 71. 280
1359 Ten Eyck Axe Manufacturing Co., Cohoes, N. Y.—Axes, carpenters' edge tools, etc. N 68. 280
1360 White, Wm., Newark, N. J.—Axes, hatchets, adzes, bush hooks, stone hammers, picks, etc.; carriage shaft-couplings. P 71. 280
1361 Selsor, Geo., & Co., Philadelphia, Pa.—Hammers, edge and railroad tools, coffee mills, saw cutters, tacks, and nails. N 68. 280
1362 Star Tool Co., Middletown, Conn.—Machinists' and carpenters' tools; squares, levels, gauges, standard steel rules, etc.; blind trimmings. These goods are of the finest finish; the squares are perfectly accurate and of different varieties, adapted to the wants of workers in wood or iron; the levels graduated on spring-tempered steel, and are made only by this company. P 67. 280
1363 Gardam, William, & Son, New York, N. Y.—Index plates, dividing and diametrical calipers. 280
1364 Snell Manufacturing Co., Fiskdale, Mass.—Augers, auger bits, and boring machines. P 71. 280
1365 Buck Bros., Riverlin Works, Milbury, Mass.—Shank and socket firmer chisels and gouges, plane irons, screw drivers, nail sets, etc. N 69. 280
1367 Foerster & Kraner, Newark, N. J.—Tools. N 63. 280
1368 Davis Level & Tool Co., Springfield, Mass.—Adjustable levels and plane and iron planes. P 75. 280
1369 DeWitt, Morrison, & Kelley, Philadelphia, Pa.—Carpenters', millwrights', gasfitters', pump, and car builders' machine and auger bits. These are the celebrated arrow brand for boring all kinds of wood. P 71. 280
1370 Shepherd & Lloyd, Philadelphia, Pa.—Scales, glass cutters, hard presses, and hardware specialties. N 71. 280
1371 Rowland, B. S., Co., Philadelphia, Pa.—Shovels, spades, and scoops; driving and ditching tools. N 71. 280

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Hardware, Tools, Cutlery.

1371 Verkes & Plumb, Philadelphia, Pa.—Edge tools, hammers; railroad, mining, and blacksmiths’ ladders. N 70. 250

1372 Bailey, Leonard, & Co., Hartford, Conn.—L外籍 planes, try squares, bevels. N 68. 250

1373 Mayo, M. C., Boston, Mass.—Plane. P 71. 250

1374 Miller, Edward, & Co. Meriden, Conn.—N 48. a Machine oilers. 250
b Timmer’s hardware. 250

1375 Bemis & Call Hardware & Tool Co., Springfield, Mass.—Machinists’ tools. P 72. 250

1376 Newton, C. C., Dunkirk, N. Y.—Twisted drill taps, dies, and reamers. T 60. 250


1379 Donaldson, J. W., Massillon, Ohio.—Block stamps for stamping garments for braiding and embroidery. P 68. 250

1380 Bailey Wringing Machine Co., New York, N. Y.—Metallic bench planes, spokeshaves, box scrapers, etc. N 69. 250

1381 Klein, Logan, & Co., Birmingham Tool Manufactury, Birmingham, Pa.—Picks, mattocks, fire shovels, etc. N 71. 250

1382 Crossman, A. W., & Son, West Warren, Mass.—Carpenters’ hand tools. N 70. 250


1384 Ohio Tool Co., Columbus, O.—Planes, screws, edge tools, plane irons, handles, etc. N 71. 250

1385 Palmer, Wm. F., Berry street, bet. Fourth & Fifth streets, San Francisco, Cal.—Edge tools. All tools warranted of excellent cutting qualities. N 70. 250

1385a Rue, Theodore, Philadelphia, Pa.—Stencils and tools, nickel-plated signs and numbers, steel stamps. T 54. 250

1386 Taylor, Thomas, cor. Eddy & Friendship streets, Providence, R. I., P. O. box 993.—Bloodstone burnishers. Bloodstone burnishers and reflectors made to order. N 71. 250

1387 Smyth & Pennington, Paterson, N. J.—Files and rasps. N 69. 250

1388 Whitney Manufacturing Co., South Ashburnham, Mass.—Tools used in manufacturing chairs. W 50. 250

1389 Franklin, Mrs. Esther P., Philadelphia, Pa.—Marking stencils and branding irons. T 58. 250

1390 Sandusky Tool Company, Sandusky, O.—Planes, plane irons, bench and hand screws, chiseled and file handles. P 71. 250

1391 Hopkins, C., Waltham, Mass.—Watchmakers’ tools. N 68. 250

1392 Tower, John J., New York, N. Y.—Plows, plow irons, plow bits, and mowers. N 68. a Carpenter’s planes, wrenches, adjustable clamps. 250 b Hardware, tools, and iron cutlery. 250

1393 Harrison & Kellogg, Troy, N. Y.—N 68. a Screw wrenches. 250 b Flat, tinmed, japanned, and nickel-plated mashine iron castings to order, in all varieties; extra refined air-furnace irons. (Low freight rates all the year.) 250

1394 Wills, Edwin S., Philadelphia, Pa.—N 69. a Tools. 250 b Wood screws, etc. 250

1395 Miller’s Falls Co., Miller’s Falls, Mass.—P 71. a Mechanics’ tools. 250 b Hardware. 250

1396 Lloyd, Supplee & Walton, Philadelphia, Pa.—N 70. a Hardware, gauges, spoke shave. 250 b Locks. 250

1397 Vatterlein, John, Plainfield, N. J.—N 69. a Carpenter’s gauges. 250 b Gate hardware. 250

1398 L lenentrant, P., Newark, N. J.—N 70. a Mechanics’ tools. 250 b Hardware. 250

1399 Hart, Bliven, & Mead Manufacturing Co., New York, N. Y.—P 70. a Carpenters’ tools. 250 b Carpenter’s’ saddlers’, and carriage hardware; gong door bells. 250

1400 Hotchkiss’s Sons, Bridgeport, Conn.—N 72. a Hand drills, saw sets, currycombs. 250 b Pruning shears. 250 c Harness snaps, bull rings. 250

1401 Beaver Falls Cutlery Co., Beaver Falls, Pa.—Table, pocket, and miscellaneous cutlery. Special exhibits, large carving knife and fork, nine and a half feet long, cost $150; revolving knife, with three hundred and sixty-five blades. N 70. 250

1402 Barney, E. H., Springfield, Mass.—Skates, perforating stamp, show case and counter combined. Barney & Berry’s celebrated “Club All-clamp and Rink Skates,” patented 1859, 1866, 1873. I show the advantage of a screw fastening for operating clamps on metal-topped skates; also, originality of the design, fine quality, workmanship, and finish. N 68. 250

1403 Will & Finck, San Francisco, Cal.—California cutting sets and cutlery, bar tools. P 71. 250

1404 Union Hardware Co., Wolcottville, Conn.—Skates, skate straps, skate handles, wood turning, dog collars, etc. N 69. 250


1406 Goldschmidt, Herrmann, New York, N. Y.—Razor strops. N 71. 250

For location of objects, indicated by letter and figure, see Key to Notification, p. 25; ground plan, p. 26.
1408 Herder, L., & Son, Philadelphia, Pa.—Shears and scissors. N 60. 281
1409 Russell, John, Cutlery Co., Green River Works, New York, N. Y.—Table cutlery, butchers', hunters', painters', and druggists' knives, etc. N 67. 281
1410 Shipley, Howard W., Philadelphia, Pa.—Pocket cutlery. P 71. 282
1413 Meriden Cutlery Co., New York, N. Y.—Table cutlery. N 69. 281
1414 Holley Manufacturing Co., Lakeville, Conn.—Pocket cutlery. P 71. 281
1415 Lamson & Goodnow Manufacturing Co., Shelburne Falls, Mass.—Table and butchers' cutlery. N 70. 281
1416 United States Steel Shear Co., Meriden, Conn.—Nid cast steel scissors and shears. N 71. 281
1417 Miller Bro. Cutlery Co., West Meriden, Conn.—Pocket cutlery. N 70. 281
1418 Heinisch's, R., Sons, Newark, N. J.—Tailors' shears, scissors, and trimmings. N 69. 281
1419 Wiss, J., Newark, N. J.—Cutlery, shears, and scissors, hand and pole pruning shears. P 68. 281
1420 Plimpton, J. L., New York, N. Y.—Parlor skates. P 71. 281
1421 Friedman & Lauterjung, New York, N. Y.—Razors. P 70. 281
1422 Funke, Leopold, St. Louis, Mo.—Knife with three hundred and sixty-six blades. T 60. 281
1423 Robbins, Clark & Biddle, Philadelphia, Pa.—Cutlery. N 43. 281
1424 Gesswein & Reichhelm, New York, N. Y.—Polishing implements and materials. N 70. 281
1425 Northfield Knife Co., Northfield, Conn.—Pocket cutlery. N 71. 281
1426 Breeden & Nelke, New York, N. Y.—Spring scissors and shears. P 71. 281
1428 Marx Bros., New York, N. Y.—Folding pocket scissors. N 69. 281
1429 Winslow, Samuel, Worcester, Mass.—Skates. H 71. 281
1430 Brady, Edward, Philadelphia, Pa.—U 63.
   a Metal boot fastening. 283
   b Model of iron fort. 283
1431 Willis, Aug. L., Philadelphia, Pa.—Ice creeper. H 71. 281
1432 Peck & Snyder, New York, N. Y.—Table and pocket cutlery. H 71. 282
1433 New York Knife Co., Walden, N. Y.—Table, pen, and pocket cutlery. N 67 281
1434 Mitchell, J. E., Philadelphia, Pa.—Carpenters', engravers', opticians', and cutters' sundries; oilstones, razor boxes, etc. P 67. 282
1435 Boyd & Chase, New York, N. Y.—Arkansas and Washita oilstone. N 69. 282
1436 Zucker & Levett, New York, N. Y.—Hard and soft rouge and composition for polishing metals. T 52. 283
   a Sand and emery paper, emery cloth, emery, corundum, flint. 281
   b Glue. 652
   c Curled hair. 669
1438 Nittinger, Edward, Philadelphia, Pa.—Quartz paste for sharpening knives, etc. T 52. 283
1439 Tucker, Geo., New York, N. Y.—Polishing compositions. N 68. 282
1440 White, T. R., Philadelphia, Pa.—Sandlimes, for cleaning marble, metal, glass, etc. T 54. 282
1441 Harrison, W. H., & Bros., Philadelphia, Pa.—Lod and elevated fire grates, firesides, fireplaces, etc. T 52. 283
1443 Dixon, Thos. S., & Sons, Philadelphia, Pa.—Grates, firesides, fireplace fittings, and gas logs. T 49. 283
1444 Manly, M. M., & Son, Philadelphia, Pa.—Wrought iron hand rails, mouldings, and bridge railings. T 60. 283
1446 Lalance & Grosjean Manufacturing Co., New York, N. Y.—Stamped iron culinary ware. T 68. 283
1448 Tin Plate Decorating Co., New York, N. Y.—Decorated tin plates, boxes, cans, etc. N 70. 283
1449 Miller & Krips, 716 & 718 Cherry street, Philadelphia, Pa.—Plain and ornamental bronze; white bronze, brass, German silver, and zinc castings. Also, sole manufacturers of bronze reliefs, a new style of mounting; bronze relief made to order, from life or photograph. P 72. 283
1450 Demuth, Wm., & Co., 501 Broadway, New York, N. Y.—Show figures in metal and wood, meerschaum and brier pipes, with rubber and amber mouthpieces; smokers' articles in general. P 69. 283
1451 Mott, J. L., Iron Works, New York, N. Y.—Fountains, vases, statuary, settees, aquaria, aquarium fountains, drinking fountains, candleabra, lamp pillars, crests, castings, railings, gates, summer houses, band stands, stable fixtures. N 54. 283
1452 Paxon, Comfort & Co., New York, N. Y.—Zinc monuments. T 64 and outside. 283
1453 Woods, Sherwood, & Co., Lowell, Mass.—White hstitial wire ware, comprising an extensive line of household, table, and fancy goods, such as fruit, cake and jewel baskets, tea and coffee strainers, castors, toilet articles, etc. N 72. 283

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
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<tr>
<th>DEPT. II.—MANUFACTURES.</th>
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<tbody>
<tr>
<td>Wrought and Cast Metal Work, Hardware.</td>
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<tr>
<td>1448 Rohrman, J. Hall, &amp; Son, Phila.—Tea, coffee, and spiceeadies; water coolers and decorated japanned tinware.</td>
<td>P 70.</td>
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<tr>
<td>1450 Champion Fence Co., Kenton, O.— Wrought and malleable iron fence and wire. The several varieties claimed for the champion iron fence are: 1st.—The longitudinal rail is rolled in T shape, thus giving the greatest lateral strength, also horizontal strength, when put up in fence, without bolts, rivets, or forging whatever, leaving the iron as it comes from the rolls. 2d.—As the arched or cylindrical form of the iron resists the greatest strain, the pickets are rolled concave, convex, with a flange on each side, forming the strongest picket that can be made from the same amount of iron. 3d.—The ornaments used, together with the different connecting parts, are made of refined malleable iron, or stamped from wrought iron plates, and of any desired form, and at one-tenth the cost of making them by the forged process. 4th.—The pickets are driven into the ornaments and passed to nearly the top of the picket, at the rear of the ornaments. There are lugs and clips, which are clinched, combining ornament and picket together, forming a strong and durable top-head for the picket. 5th.—The fence is put together with clips; these are slipped on the T rail, and the sides of the ornaments form circles, or segments of circles, thus rendering them adjustable to any and all grades or angles. 6th.—The panels are connected with a compound clamp, which holds them firmly together, at the same time allowing for the expansion and contraction of the iron. 7th.—That we have in the combination of our rail and picket the strongest and most ornamental fence that can be made, from the same amount of material. 8th.—That we can, by our adjustable posts, keep our fence in perfect line; also, that we can set the fence upon coping or stone walk of any grade, the same as upon our iron foundation. 9th.—That we can pack the fence for shipment, in compact bundles, and put it upon the ground as conveniently as a wooden fence can be put up. 10th.—That we manufacture the fence without the use of any costly and cumbersome machinery, being virtually made when the iron comes from the foundry and the rolls. 11th.—The brackets upon which the fence is set is of cast iron, eighteen inches wide at the bottom, and six inches at the top; twenty-eight inches in length, which is set in the ground; upon this foundation is placed a height iron post, adjustable front and rear, and also adjustable at the top, while at the bottom it would be stationary, or vice versa. Upon this post we also adjust the height upon which the fence is set. One of the beauties of our invention is, that we make a fence that looks light, yet strong and durable. (Ohio State Building.)</td>
<td>283.</td>
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<tr>
<td>1451 Beving Bros. Manufacturing Co., East Hampton, Conn.— Bell metal kettles.</td>
<td>283.</td>
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<td>1452 Armbruster, Jacob H., Philadelphia, Pa.—Organ and sash weights. (Organ, East Gallery.)</td>
<td>284.</td>
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<td>1454 Ray, Edw. L., Boston, Mass.—Brass spring curtain fixture. (Ornamental Gallery.)</td>
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<td>1455 Stewart &amp; Mattson, Philadelphia, Pa.—Building hardware, locks, door knobs and trimmings.</td>
<td>N 69.</td>
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<td>1456 Dexter Spring Co., Hultin, Pa.—Carriage springs.</td>
<td>T 60.</td>
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<td>1458 Cleveland Steel Horseshoe Co., Cleveland, O.—Steel horseshoes and bars, hand shoe formers.</td>
<td>T 59.</td>
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<td>1462 Smith &amp; Egge, Bridgeport, Conn.—Locks, hinges, chains, etc.</td>
<td>N 71.</td>
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<td>1463 Wells &amp; Hope Co., Philadelphia, Pa.—Metallic show cards and advertising signs; decorative glass printing.</td>
<td>P 72.</td>
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<tr>
<td>1464 Stafford Manufacturing Co., New York, N. Y.—Stencil combinations, machine cut alphabets and figures; key-rings, checks, and badges.</td>
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<td>1465 Corbin, P. &amp; F., New Britain, Conn.—House trimmings and miscellaneous hardware.</td>
<td>N 72.</td>
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<tr>
<td>1468 Stanley Works, New Britain, Conn.—Wrought iron bolts, japanned, bronzed, and plated; hinges, door bolts, etc.</td>
<td>P 71.</td>
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<tr>
<td>1474 Dunbar, Hobart, &amp; Whidden, South Abington, Mass.—Tacks, brads and nails, steel shanks, heel plates, etc.</td>
<td>285.</td>
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<tr>
<td>1475 Hildebrand &amp; Wolff, Philadelphia, Pa.—Trunk locks, padlocks, dead-latches, door springs, etc.</td>
<td>P 69.</td>
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For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Hardware, Locks, etc.

1469 Carr, Crawley, & Devlin, Philadelphia, Pa.—Building, cabinet, carriage, and saddlery hardware; malleable iron, brass, and steel castings. N 70. 284

1470 Hall’s Safe & Lock Co., Cincinnati, O.—Bank and time locks. H 67. 284

1471 Whitaker & Skirm, Trenton, N. J.—Iron chains, chute nails. T 65. 284

1472 Gould’s, M., Sons, 83 & 85 Duane street, New York, N. Y., and 424 Commerce street, Philadelphia.—Stair rods, step plates, dog collars, upholstery, and trunk hardware. Manufacturers of stair rods, stair plates, dog collars, step ladders, trunk rivets, and all kinds of trunk hardware; also, a general line of upholstery hardware. Factory, Newark, N. J. N 71. 284

1473 Morton, Thos., New York, N. Y.—Sash chain and attachments for suspending windows, doors, etc. T 49. 284

1474 Mallory, Wheeler, Co., New Haven, Conn.—Door locks and knobs, padlocks, etc. N 69. 284

1475 Gaylord Manufacturing Co., Chicopee, Mass.—Cabinet locks. N 70. 284

1476 Union Manufacturing Co., New Britain, Conn.—Plain and ornamental butt hinges. N 69. 284

1477 Mersereau, W. T. & J., Newark, N. J.—Stair rods and plates, dog collars and muzzles, bridle fronts, and upholsterers’ hardware. N 71. 284

1478 Marvin’s Safe Co., New York, N. Y.—Locks. H 69. 284

1479 Bohannan, Wilson, Brooklyn, N. Y.—Brass spring padlocks and car locks. P 68. 284

1480 Union Steel Screw Co., Cleveland, O.—Bessemer steel wood screws, with samples showing stages of manufacture. T 59. 284

1481 Clark & Co., Buffalo, N. Y.—Nickel-plated builders’ hardware. N 71. 284

1482 Van Wagener & Williams, 82 Broad street, New York, N. Y.—Spring hinges and door springs of the leading kinds, for screen and other doors, gates, etc. All articles of superior manufacture. N 69. 284

1483 Gong Bell Manufacturing Co., East Hampton, Conn.—Bells. P 72. 284

1484 Romer & Co., Newark, N. J.—Locks for railroad switches, cars, prisons, stores, etc. N 71. 284

1485 Cowell, J. J., & Co., Newark, N. J.—Builders’ and trunk hardware. Manufacturers of trunk and builders’ hardware, sash pulleys, trunk rollers, catches, handle caps, stay hinges, clamps, etc. Also malleable and gray iron small castings. N 71. 284

1486 Middletown Tool Co., Middletown, Conn.—Plane irons, harness snaps, washer cutters, hitching chains, plane-makers’ hardware, etc. P 71. 284

1487 Whipple, H. J. P., West Meriden, Conn.—Door-knob attachment. P 68. 284

1488 McEachern, Daniel, Wilmingt0n, Del.—Cast iron Centennial chain, each link representing a State and giving the Governor’s name. Q 78. 284

1490 Tiebout, W. & J., New York, N. Y.—Brass, galvanized, and ship chandlery hardware. H 66. 284

1491 Parker & Whipple Co., West Meriden, Conn.—Doorknob attachment and adjustment. N 69. 284

1492 Thorn, Stephen S., 39 Oliver street, Newark, N. J.—Brass, copper, and iron wire ferrules, from 3/8 to 3/4 inches, for paint brushes—these ferrules warranted not to burst or expand; bonnet and liming wire. N 69. 284

1493 Worrell Bank Lock Manufacturing Co., Philadelphia, Pa.—Bank lock. H 70. 284

1496 Herring & Co., New York, N. Y.—Safe, bank, and time locks. H 69. 284

1497 Neuman, R., & Co., Newark, N. J.—Sash chain and traveling bag frames, and bag trimmings. P 68. 284

1498 Van Alen & Co., Northumberland, Pa.—Cut nails and spikes. T 66. 284

1499 Blake Bros. Hardware Co., New Haven, Conn.—Hardware for builders’, cabinet makers’, and carriage makers’ use. P 69. 284

1500 Miller, D. K., Lock Co., Philadelphia, Pa.—Locks. P 70. 284

1501 Eagle Lock Co., Terryville, Conn.—Trunk and cabinet locks. H 67. 284

1502 Judd, Hubert L., New York, N. Y.—Upholstery and fancy hardware. N 69. 284

1503 Coleman Eagle Bolt Works, Philadelphia, Pa.—Carriage bolts, nuts, and axle clips. P 71. 284

1504 Meeker, D. M., & Son, Newark, N. J.—Iron, bronze, and German silver castings. N 71. 284

1505 Hall, P. W., Austin, Texas.—Combination door, drawer, and trunk locks. P 68. 284

1506 Norwalk Lock Co., South Norwalk, Conn.—Door locks, knobs, padlocks, and builders’ hardware. N 70. 284


1508 Arms, Bell, & Co., Youngstown, Ohio.—Bolts, latches, and washers. N 63. 284

1509 Wheeling Hinge Co., Wheeling, W. Va.—Hinges, butts, wrought goods, and washers. N 68. 284

1511 Vandenuz & Tift, Cincinnati, O.—Bells. T 53. 284

1512 American Screw Co., Providence, R. I.—Ginger pointed screws of iron, brass, and steel; coach, hand rail, and machine screws; rivets; stove and tire bolts. P 69. 284

1513 Branford Lock Works, New York, N. Y.—Rim and mortise door locks and latches, brass and steel keys, door knobs, lock furniture. P 63. 284

1514 Easton Lock Works, Easton, Pa.—Rim and mortise locks and latches; safety locks and night latches. N 72. 284

1515 Wilson, John, Chicago, Ill.—Fire nozzle. P 69. 284

1516: Keystone Hardware Manufacturing Co., Reading, Pa.—Hardware. P 69. 284

1516 Quigley, W. E., Waterbury, Pa.—Hand-made horseshoes. T 71. 284

For classes of exhibits, indicated by numbers a* end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Hardware, Rubber Goods, Cordage, etc.

1517 Evans, F. H., Brooklyn, N. Y.—Expansion bolts and screw fastenings; photographs of other manufactures. P 69. 284

1519 Field, A., & Sons, Taunton, Mass.—Tacks, brads, nails, etc. P 68. 284

1520 Valentine & Butler Safe & Lock Co., New York, N. Y.—Safe locks. H 70. 284

1521 Lewis, Oliver, & Phillips, Pittsburg, Pa.—Wagon and heavy hardware, fence pickets, etc. T 64. 284

1522 New Britain Lock Co., New Britain, Conn.—Key register; dial, bank, safe, and time locks. N 72. 284

1523 American Wire & Screw Nail Co., cor. Madison and State streets, Covington, Ky.—Common, bright, smooth, and barbed wire nails with sharp points; small, large, depressed heads and without heads. Moulding nails, wire cigar-box nails, iron and brass oval head escutcheon pins. Wire screws, wood nails (patented). These nails have round, tapering points, and screw thread till under the head. Are to be driven with a hammer as quick as common nails, but turn easily while driving under the hammer. Wire nails of every description, also blued, tinned, and colored nails. P 71. 284

1524 Buckman, Ira, Brooklyn, N. Y.—Torsion spring hinge, automatic window lock, and door furniture. 284

1525 Riverside Iron Works, Wheeling, W. Va.—Nails and spikes. T 64. 284

1526 Turner & Seymour Manufacturing Co., Walcottville, Conn.—Brass and iron upholstery goods and hardware, and notions goods. N 68. 284

1527 Sargent & Greenleaf, Rochester, N. Y.—Chronometer, bank, safe, and flat key locks. H 72. 284

1528 Wilcox, Wm., Manufacturing Co., Middletown, Conn.—Padlocks, plate locks, and keys. N 71. 284

1529 King, J. M., & Co., Waterford, N. Y.—Stocks and dies, and plug taper taps, rollers, etc. N 71. 284

1530 Keyless Padlock Co., New York, N. Y.—Keyless padlocks. N 70. 284

1531 Lyon, Sylvanus, New York, N. Y.—Locks. N 72. 284

1532 Johns, H. W., New York, N. Y.—Tacks, etc. P 47. 284

1533 Barton, W. E., East Hampton, Conn.—Belts. N 71. 284

1534 Clarke Combination Lock Co., Baltimore, Md.—Combination keyless locks. P 63. 284

1535 Orbeton, Wm. W., Boston, Mass.—Screw braces and hinges. N 63. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

1536 Glendale Elastic Fabrics Co., Easthampton, Mass.—Woven and braided rubber fabrics. F 68. 285

1537 Easthampton Rubber Thread Co., Easthampton, Mass.—India rubber thread and rubber in process of manufacture. F 68. 285


1539 Sellers, Chas. P., Philadelphia, Pa.—Corn brooms and whisks. T 46. 286


1540a Isaacs, M. C., & Co., Chicago, Ill.—Wire brooms, casting, and file brushes. N 71. 286

1541 Leiner, M., New York, N. Y.—Brushes and ear cleaners. T 65. 286

1541a Kerr, Hugh S., Philadelphia, Pa.—Sponge brushes. B 71. 286

1542 Lovell, G. H. & M. F., Philadelphia, Pa.—Ear brush. T 50. 286

1542a Pollock & Son, Newark, N. J.—Brushes, buffs, etc. N 68. 286

1543 Miles, Bros., & Co., New York, N. Y.—Brushes. N 69. 286

1544 Grand Rapids Brush Co., Grand Rapids, Mich.—Brushes. N 72. 286


1546 Bowman, C. A., & Bro., Madison, Ind.—Clothes brushes made of broom corn. T 46. 286

1547 Johns, H. W., New York, N. Y.—Brushes. P 47. 286

1548 Florence Manufacturing Co., Florence, Mass.—Hair brushes. B 70. 286


1552 Vyse, Robt. H., Brooklyn, N. Y.—Rope, sash cord, and round belting. B 66. 287

1553 Hooper, Wm. E., & Sons, Baltimore, Md.—Twine. D 78. 287

1554 Hart, A. H., & Co., 90 White street, New York, N. Y.—Elm flax mills; flax twines for upholsterers, sail, brushes, milliners, etc.; flax yarns, silk threads, etc. B 67. 287

1555 Wall’s, William, Sons, New York, N. Y.—Ships rigging; rope and cordage. F 78. 287


1557 Hart, Clarence A., Philadelphia, Pa.—Painted silk banners. B 78. 288


1558 Lilley, M. C., & Co., Columbus, O.—Masonic goods and society supplies. Manufacture society furniture, jewels, regalia, uniforms, banners, band and military goods. Price lists upon application. P 65. 288

1559 Wilson, J. H., Philadelphia, Pa.—Regalions, flags, and banners. F 70. 288

1560 New England Bunting Co., Lowell, Mass.—Bunting. B 75. 288

1561 Salisbury & Co., New York, N. Y.—Dressing flags, engraving, designing, lithographing, and printing; original manufacturers of American, election, and other decorations—all nations—in sets or single. H 77. 288

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
ESTABLISHED 1841.

HERRING'S SAFES.
AWARDED HERRING'S SAFES.

WORLD'S FAIR, LONDON.
EXPOSITION UNIVERSELLE, PARIS.

"FIRE TRIED, TIME PROVEN."

HERRING'S BANKERS' SAFES.
Security against the powerful tools and ingenious devices of the scientific Burglar.

Herring's Infallible Bank Lock
Affords the security of both a Combination and Time Lock,
INSURING PROTECTION AGAINST MASKED BURGLARS
MANUFACTURED BY

HERRING & CO.,
251 & 252 BROADWAY, NEW YORK,
56-60 SUDBURY ST., BOSTON.
E. C. PRATT, BRO. & CO.,
29 MERCER ST.,
NEW YORK,
SOLE AGENTS FOR
JOHN ENGLISH & CO.'S
CELEBRATED PINSTUCK
NEEDLES
See Show Case in Main Building, Class 254, Siding 4.

ALSO,
PEARL BUTTONS,
ON PATENT CARDS, MOUNTED IN SQUARES
OF ONE DOZEN EACH.

FISH LINES,
FISH HOOKS,
SMALL WARES,
ETC., ETC.
1562 Piton, Camille, Philadelphia, Pa. —Trophies representing America, Europe, Asia, and Africa. (Name and Centre Transcript.) 268

1563 Tremain, Chas., Manlius, N. Y.—Paper barrels; cheese and fruit packages. P 57. 269

1564 Trasel, Edward G., New York, N. Y.—Paper mache household ware, chamber sets, pais, cuspadors, etc. P 64. 269

1565 Wakefield Rattan Co., Boston, Mass.—Rattan baskets. T 57. 269

1566 Beaudett, Homer J., Greenpoint, N. Y.—Fancy scroll work. P 50. 269

1567 Waters, E., & Sons, Troy, N. Y.—Boat barrels, camp stoves, seats, packages for volatile liquids, etc., made of paper. B 73. 269

1568 Jennings Brothers, 352 Pearl street, New York, N. Y.—Japanese paper ware. Their manufacture of pails, basins, pitchers, spitoons, cuspadors, etc., are thoroughly waterproof, durable, and ornamental; are not affected by the climate. T 68. 269

1569 Preston & Merrill, Boston, Mass.—Wooden boxes. P 48. 269

1570 Dorman Manufacturing Co., New York, N. Y.—Baskets, urns, carriage bodies, etc. P 59. 269

1571 Faxon, Comfort, & Co., Philadelphia, Pa.—Burial robes and dresses; casket trimmings. B 73 and outside. 290

1572 Smith, Wm. M., West Meriden, Conn.—Casket trimmings, handles, name plates, and ornaments. N 43. 290

1573 Rogers, C., & Bros., West Meriden, Conn.—Gold and silver plated coffee and casket trimmings. F 72. 290

1574 Chase, F. & P. F., Penn Galvanic Works, Philadelphia, Pa.—Galvanized iron goods, sheet iron, water pipe, boilers, hardware, shipsmithing, railings; bar, hoop, and chain iron. P 68. 291

1574 a Danby, Geo., & Co., Philadelphia, Pa.—Galvanized sheet iron, mantels, cornices, railings, etc. Y 59. 291


1578 Kittredge Cornice & Ornament Co., Salem, O.—Sheet metal cornices, doors, shutters, and pavilion; architectural ornaments, light wrought iron work. (Outside.) 291

1579 Falstrom & Tomqvist, Passaic City, N. J.—Galvanized iron cornice and ornamental sheet iron work for buildings. P 68. 291


1582 Brown & Owen, Philadelphia, Pa.—Cemetery inclosure, ornamental iron work, and wrought iron pipe. (Outside.) 291

1583 Cornell, J. B. & J. M., 141 Centre street, New York, 9 Studio Buildings, Boston, 477 Walnut street, Philadelphia. —All kinds of heavy and light wrought and cast iron work for buildings and bridges; cast iron fronts, stairs, columns, girders, lamp posts, etc.; wrought iron columns, girders, beams, railings, sheet bath, etc.; steel and iron rolling shutters, fire-proof columns, burglary proof safes and vaults. Works cover six acres of ground. P 70. 291


1585 Zinc Roofing & Ornamenting Works, Chicago, Ill.—Ornaments in pressed and cast zinc, brass, and copper; zinc statues, emblematic signs, etc. P 69. 291

1586 Buringer Brothers, Dayton, O. —Ohio coat-of-arms of galvanized iron. (In guide of Ohio State Building.) 291


Carriages, Vehicles, and Accessories.

1587 Blake Bros. Hardware Co., New Haven, Conn.—Trucks for moving open barrels and kegs. P 69. 294

1588 Newichawanick Co., South Berwick, Me.—Horse blankets and goods for horse clothing. R 78. 296

1588 a Hopkins & Robinson Manufacturing Co., Akron, O.—Animal pokes. 296

1589 Pettingell & Sawyer, East Cambridge, Mass.—Horse and wagon covers. F 76. 296

1590 Eager, P. B., Tower, & Co., Boston, Mass.—Oiled horse covers. C 78. 296


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Great Britain.

(North of Nave, Columns 23 to 38.)

#### Chemical Manufactures.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hutchinson, John, &amp; Co., Widnes, Lancashire</td>
<td>Soda ash, soda crystals, caustic soda, bicarbonate of soda, salt cake, bleaching powder, and sulphur recovered from vat waste.</td>
<td>Liverpool</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td>Corbett, John, Stoke Prior Salt Works, Worcestershire</td>
<td>Refined salt.</td>
<td>Worcestershire</td>
<td>200</td>
</tr>
<tr>
<td>3</td>
<td>Richards, Kearne, &amp; Gasquione, Malkins Bank Alkali Works, Sandbach, Cheshire</td>
<td>Soda ash, bicarbonate of soda.</td>
<td>Sandbach, Cheshire</td>
<td>200</td>
</tr>
<tr>
<td>5</td>
<td>Brunner, Mond, &amp; Co., Northwich, Cheshire</td>
<td>Alkali or carbonate of soda.</td>
<td>Widnes, Cheshire</td>
<td>200</td>
</tr>
<tr>
<td>6</td>
<td>The Desoto Alkali Co. (limited), Widnes, Lancashire</td>
<td>Caustic soda, and black ash or ball soda.</td>
<td>Widnes, Lancashire</td>
<td>200</td>
</tr>
<tr>
<td>7</td>
<td>Runcorn Soap &amp; Alkali Co. (limited), Liverpool</td>
<td>Bleaching powder, soda ash, crystals of caustic soda, and refined alkali.</td>
<td>Liverpool</td>
<td>200</td>
</tr>
<tr>
<td>8</td>
<td>Muspratt Bros. &amp; Huntley, Liverpool</td>
<td>Soda ash, caustic soda, bleaching powder, soda crystals, and bicarbonate of soda.</td>
<td>Liverpool</td>
<td>200</td>
</tr>
<tr>
<td>9</td>
<td>Muspratt, James, &amp; Sons, Liverpool</td>
<td>Soda ash, cream caustic soda, bleaching powder, chloride of potash, salt cake, and brimstone.</td>
<td>Liverpool</td>
<td>200</td>
</tr>
<tr>
<td>10</td>
<td>Spencer, Peter, Manchester</td>
<td>Crystallized alum, in block and crystals, and a new alumino-ferric compound for precipitating sewage and for paper making.</td>
<td>Manchester</td>
<td>200</td>
</tr>
<tr>
<td>11</td>
<td>Higgin, Thomas, &amp; Co., Liverpool</td>
<td>Salt. (Agricultural Hall.)</td>
<td>Liverpool</td>
<td>200</td>
</tr>
<tr>
<td>12</td>
<td>The Newcastle Chemical Works Co. (limited), Newcastle-on-Tyne</td>
<td>Soda ash, alkali, bleaching powder, crystals and bicarbonate of soda, caustic soda, chloride of calcium.</td>
<td>Newcastle-on-Tyne</td>
<td>200</td>
</tr>
<tr>
<td>13</td>
<td>White, John &amp; James, Shawfield Works, Glasgow</td>
<td>Bichromate of potash.</td>
<td>Glasgow</td>
<td>200</td>
</tr>
<tr>
<td>14</td>
<td>Liver Alkali Works Co. (limited), Liverpool</td>
<td>Caustic soda.</td>
<td>Liverpool</td>
<td>200</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
PRIZE MEDAL.
BARLOW & JONES, LIMITED,
Spinners, Printers & Manufacturers
by Power,
LONDON, 1862.
TOILET AND MARSEILLES QUILTS,
COUNTERPANES, ALHAMBRAS, SHEETS,
SHEETINGS, COTTON BLANKETS, TOWELS TOILET COVERS & MATS,
SKIRTS, QUILTINGS,
WHITE AND PRINTED DAMASKS, PLAIN AND FANCY MUSLINS, &c.
2, Portland Street, Manchester, England.
American Agent—Mr. D. A. LINDSAY, No. 54, Howard Street, New York.

W. & C. SCOTT & SON Winners of the International Gun
of Merit of Shooting Qualities, System of Action, Workmanship, &c. &c.
PATENTEES & MANUFACTURERS OF GUNS & RIFLES for
Canada and the United States.
London Address, 10, 67. CASTLE ST., REGENT CIRCUS.

PREMIER GUN WORKS, BIRMINGHAM, ENGLAND.

W. W. GREENER'S
PATENT TREBLE WEDGE-FAST BREECHLOADER,
The Winning Gun at the great London Gun Trials, in all the classes, for
improved boring. Will kill game at over 100 yards.
In the Press, "CHOKE-BORE GUNS, AND HOW TO LOAD FOR ALL KINDS OF GAME." By W. W. Greener, Author of "Modern Breechloaders."

ST. MARY'S WORKS. BIRMINGHAM.

DAVID SMITH & CO., LIMITED, Wool Extractors, HALIFAX, and the
MILL HILL WOOL & RAG EXTRACTING COMPANY, LIMITED, HUDDERSFIELD,
WHOSE INTERESTS ARE AMALGAMATED.

Extracted Wools.
Neither bugs, lice, fleas, moths nor vermin will live in cloths, blankets or rugs made of these Wools; nor will they lodge in any bed, bedding or stuffings made therewith. On account of their chemical properties and the manner in which they are manipulated, goods manufactured with these Wools are not subject to mildew. Contracts may be entered into for regular supplies of them. Samples supplied.

ALEX. HENRY,
Gun and Rifle Manufacturer,
By Special Appointment to their Royal Highnesses
the Prince of Wales & the Duke of Edinburgh.

Manufactury, 12, SOUTH SAINT ANDREW STREET, EDINBURGH, N.B. London Branch, 118, PALL M'LL.
BRITISH ADVERTISEMENTS.

EDWARD & JOHN BURKE'S
CELEBRATED
EXTRA FOREIGN STOUT
AND
ALLSOPP'S BURTON ALES
To be obtained at the Restaurants in
the Exhibition Buildings,
And sold by all first-class Liquor Dealers, Restaurateurs, Hotels &c.,
in the whole of the United States.

JOSEPH HAMBLET,
Percy Blue Brick Works,
WEST BROMWICH, Staffordshire,
MANUFACTURER OF
VITRIFIED BLUE BRICKS, COPINGS, TILES, PIPES,
AND EVERY VARIETY OF
TERRA METALLIC IMPERISHABLE PAVINGS,
&c., &c.

PRICES AND BOOKS OF ILLUSTRATIONS ON APPLICATION.

JOHN G. McGEE & CO.,
BELFAST, IRELAND,
INVENTORS AND SOLE MAKERS OF THE
CELEBRATED "ULSTER" COAT.
See SHOW CASE, Class 250, E 27.

W. BARTLETT & SONS,
MANUFACTURERS OF
NEEDLES, SEWING MACHINE NEEDLES,
FISH HOOKS AND FISHING TACKLE,
ABBEDY MILLS, REDDITCH, ENGLAND.
GREAT BRITAIN. 145

Chemicals, Ceramics.

56 Perks, Samuel, Hitchin Herts.—
Essential oil of lavender, extract lavender
flowers, etc. 203

57 Thielay, Eugene Henry, London.—
Hair tincture, dyes, and bleaching
liquid, tonics, and cultivators. 203

58 Rimmel, Eugene, London.—
Perfumery and toilet articles; perfumed
vaporizers, etc. 203

59 Evans, Sogs, & Co., Liverpool, and
Evans, Lester, & Evans, London.—
Perfumery. 203

59a Sturge's Montserrat Co. (limited),
Broad street, Birmingham.—Essences. 203

60 Bryant & May, Fairfield Works,
London.—Safety matches, wax vestas
and vesuvians, decorated metal and other
boxes. 204

62 Bickford, Smith, & Co., Tuckingmill,
Cornwall.—Safety fuses for blasting opera-
tions. 204

63 Pigou, Wilks, & Laurence (limited),
London.—Military, sporting, African,
and mining powders of every description. 204

64 Lacey, Richard George, Coast Guard
Station, Leigh, Essex.—Rocket apparatus
for throwing lines from one ship to another.
205

Ceramics—Pottery, Porcelain, Glass,
etc.

65 Peake, Thomas, The Tileries, Tun-
stall, Staffordshire.
a Paving and facing bricks. 206
b Ridge, roofing, and flooring tiles; orna-
mental tiles for garden borders, skirtings,
and mural decorations. 208

66 Hamblet, Joseph, Piercy Blue Brick
Works, West Bromwich, Staffordshire.
a Vitrified blue bricks, coplings, plinths,
stable-floor bricks, and quarries. 206
b Ridges, roofing tiles, and terra metallic
pavings. 206

67 Wood & Ivery, Albion Brick Works,
West Bromwich, Staffordshire.—Blue
terra metallic building and fancy bricks;
mouldings, coplings, footpath paving
bricks, grooved stable floor bricks, termi-
nals; terra metallic vases, trusses, etc. 206

68 Johnson & Co., Ditchling Pottery,
Sussex.—Terra-cotta as applied to build-
ing purposes; terminals, vases, ridge tiles,
and general terra-cotta work. (Agricul-
tural Hall.) 206

69 Matthew, John, Royal Potteries,
Worthing-super-Mare, Somerset.—
Terra-cotta vases, fountains, and baskets;
garden pottery, etc. 206

70 Watcombe Terra-Cotta Co.
(limited), Watcombe, South Devon.—Terra-
cotta, painted vases and plaques, stat-
teues, etc.; frescoes for mural adornment,
and architectural terra-cotta speci-
mens. 206

71 Brooke, Edward, & Sons, Fieldhouse
Fire Clay Works, Huddersfield, Yorkshire.
a Sanitary tubes.
b Fire bricks and clay for furnaces; sewer
ventilators; silica fire bricks for fur-
naces. 207

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
72 Stiff, James, & Sons, London.
a. Terra-cotta jars, bottles, tiles, vases, medallions, water filters, refrigerators, air bricks, stoves, and stove linings, tablets with figures in bas-relief, figures for church and other decorations; sanitary ware, sewer traps, drain pipes, etc. 206
b. Terra-cotta stoves and stove hinges. 207
c. Files. 208
d. Chemical stoneware, water filters, refrigerators, etc. 210

73 Jennings, George, London.—Appliances for ventilation, terra-cotta bricks, etc.; stoneware drain pipes, gully traps. 206

74 Holland, William Thomas, Yrisymud, South Wales.
a. Architectural terra-cotta, bricks and tiles, sanitary pipes and ware. 206
b. Fire bricks and fireproof cements. 207
c. Ceramic goods, earthenware, or faience, in table, tea and toilet services, etc. 213

75 Lindsay & Anderson, Lilliehill Fire Clay & Terra-Cotta Works, Dunfermline, Scotland.
a. Fountain in terra-cotta, bust and pedestal. 207
b. Fountain, bust, pedestal, and statue of Sir James Y. Simpson, nymphs at fountain, garden vases and pedestals, sewage pipes and sanitary appliances, collection of terra-cotta. 206
c. Gas-stove in terra-cotta, fire-clay bricks, chimney cans. 207

76 Doulton, hy., & co., London.—Terra-cotta goods for architectural purposes; sanitary pottery in salt-glazed stoneware, queensware; vitrified metallic bricks and pavings. 206

76a Eastwood & Co., (limited), London.
a. Building, paving, ornamental, and fire bricks; Staffordshire blue bricks, grooved paviers. 206
b. Red paving and roofing tiles; ridges and clinkers. 208


77 Brownhills Pottery Co., Tunstall.
a. Red-stone and black glazed ware. 206
b. Floor and roof tiles, ridge ornaments, etc. 208
c. Jugs. 210

d. Earthenware dinner, dessert, and toilet ware. 213

78 Dean, Henry, Rugby, Warwickshire.—Stoneware drain traps and yard gullies of different patterns. 206

78a Maw & Co., Benthall Works, Bursley, Shropshire.
a. Architectural majolica, and terra-cotta. 206
b. Geometrical mosaic, encaustic, and majolica tiles. 208

79 Tinworth, George, London.—Panels in terra-cotta, illustrative of Scripture, and articles in colored stoneware. 206

80 Daniell, A. B., & Son, London.
a. Porcelain and pottery, ornamental vases, candelabra, etc.; fountains, jardinières, grotto fountains, vases, etc. 206
b. Dinner, dessert, tea, and coffee services; toilet services. 213

80 Harper & Moores, Stourbridge.—Fire clays, prepared clays, fire bricks, crucibles, melting pots, bricks for smelting furnaces, etc. 207

81 Cliff, John, Runcorn, near Liverpool.—Fire brick. 207

82 Patent Plumbago Crucible Co., Battersea Works, London.—Portable furnaces; flint pots for glass melting; crucibles for jewelers, assayers, dentists, etc.; founders' blacking. 207

83 Price, J. & C., & Bros., Bristol.— Ale bottles, spirit jars, barrels, preserve jars, water filters, feet warmers, etc.; stoneware. 207

a. Ironmongers', artists', and gardeneware; earthenware goods; signboard letters. 206
b. Spirit barrels. 210
c. Dinner, dessert, toilet, and tea ware; porcelain slates, menu tables, etc. 213

85 Doulton & Co., London.—Man-telpieces, stoves, hearth, and fenders of clay; crucibles, furnaces, muffles, in fire clay and plumago. 207

86 King Bros., Stourbridge.—Fire brick, gas retorts, etc. 207

88 Davidson, T., Jr., & Co., Caledonian Pipe Works, Glassow.—Clay tobacco pipes; white clay pipes, fitted with fancy mouthpieces and cases. 207

88a Doulton & Watts, Lambeth Pottery, London.
a. Stone ware for chemical works. 207
b. Tile decorations. 208
c. Stoneware for manufacturing purposes; pulpit and font in fine art pottery faience. 209
d. Stoneware for domestic purposes. 210

89 The Campbell Brick & Tile Co., Stoke-on-Trent.—Encaustic, geometrical majolica, and all kinds of glazed tiles and mosaics, bricks, and roofings. 208

90 Craven, Dunill, & Co., Jackfield Works, near Ironbridge, Shropshire.—Tiles for pavements and hearths; ornamental slays for fireplaces; tiles for walls and furniture. 208

91 Minton, Hollins, & Co., Minton's China Works, Stoke on Trent.—Tiles, tile-mosaic, tile fender, chimney piece, fire grate, flower vases, etc. 2-8

92 Stanley Bros., Midland Tile Works, Nuneaton, Warwickshire.—Perforated tiles for malt kiln floors. 208

93 Brown-Westhead, T. C., Moore, & Co., Cauldon Place, Staffordshire Potteries.
a. Tiles and sanitary ware. 206
b. China, earthenware, statuary, porcelain, and majolica ware. 209
c. Druggists' and perfumers' goods. 210
d. Dinner, dessert, and toilet services. 213

93a Matthews, Edward, & Son, London.—Decorative tiles. 209

93b Minton China Works, Stoke upon Trent.—Enamelled tiles, etc. 208

93c Colthurst, Symons & Co., Bridge-water.—Bricks and tiles. (In Agricultural Hall.) 208

94 Brownfield Wm., & Son, Cobridge, Staffordshire Potteries.—China, majolica, ironstone china, parian, earthenware, stoneware, etc. 210

95 Edwards, J., & Son, Burslem, Staffordshire.—Ironstone whiteware. (In Agricultural Hall.) 210

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
WHEREAS—It having come to the knowledge of W. B. and Son that certain manufacturers are trying to introduce a spurious imitation of the above goods, less in substance and strength, made from very inferior materials. W. B. and Son, wishing to maintain the reputation they have so many years enjoyed for making the stoutest, most durable and approved Tweed for Riding Trousers, and at the same time wishing to protect their own interest as well as that of their friends, have determined to stamp each piece of their Tweed every two-and-a-half yards, "Bliss, Chipping Norton."

The above-mentioned goods supplied direct from W. B. and Son, only to WHOLESALE HOUSES AND SHIPPERS, as heretofore.

Having started an additional new mill, full of the best machinery, they can now supply any quantity of perfect Tweeds, punctually delivered.
FIVE PRIZE MEDALS AWARDED.

GOODALL'S HOUSEHOLD SPECIALTIES.
A single trial solicited from those who have not yet tried these splendid preparations.

GOODALL'S BAKING POWDER
THE BEST IN THE WORLD.
The cheapest because the best, and indispensable to every household, and an inestimable boon to housewives. Makes delicious Puddings without eggs, Pastry without butter, and beautiful light Bread without yeast. Sold by Grocers, Oilmen, Chemists, &c., in 1d. Packets: 6d., 1s., and 2s. Tins.
Prepared by GOODALL, BACKHOUSE & Co., LEEDS.

YORKSHIRE RELISH.
THE MOST DELICIOUS SAUCE IN THE WORLD.
This cheap and excellent Sauce makes the plainest viands palatable, and the daintiest dishes more delicious. To Chops and Steaks, Fish, &c., it is incomparable. Sold by Grocers, Oilmen, Chemists, &c., in Bottles, 6d., 1s., and 2s. each.
Prepared by GOODALL, BACKHOUSE & Co., LEEDS.

GOODALL'S QUININE WINE.
The best, cheapest, and most agreeable tonic yet introduced. The best remedy known for Indigestion, Loss of Appetite, General Debility, &c. Restores delicate invalids to health and vigour. Sold by Chemists, Grocers, &c., at 1s., 1s. 1d., 2s., and 2s. 3d. each Bottle.
Prepared by GOODALL, BACKHOUSE & Co., LEEDS.

DR. HASSALL'S FOOD FOR INFANTS, CHILDREN, AND INVALIDS.
DR. ARTHUR HILL HASSALL, M.D., the inventor, recommends this as the best and most nourishing of all Infants' and Invalids' Foods which have hitherto been brought before the public. It contains every requisite for the full and healthy support and development of the body, and is, in a considerable extent, self-digestive. Recommended by the "Lancet," and Medical Faculty, &c. Sold by Druggists, Grocers, Oilmen, &c., &c., in Tins, 6d., 1s., 2s., 3s., 6d., 8s., 1s., and 2s. each. A Treatise by Arthur Hill Hassall, M.D., London, on the "Alimentation of Infants, Children, and Invalids, with hints on the general management of children," sent post free on application to the Manufacturers, GOODALL, BACKHOUSE & Co., LEEDS.

The following PRIZE MEDALS have been awarded—
Nismes, 1863; Cologne, 1865; Paris, 1872;
 Havre, 1868; Beauvais, 1869; Marseilles, 1874;
Paris, 1875;
AND SEVERAL HONOURABLE MENTIONS.

ENGLISH ROOFING & SHEATHING FELTS,
MANUFACTURED AND EXPORTED BY
D. ANDERSON & SON, BELFAST, IRELAND,
And 23 & 23½, BILLITER STREET, CITY, LONDON, ENGLAND.
Sole Makers and Patentees for the U.S. of America of
ANDERSON'S PREPARED ROOFING FELT,
Ready Coated and Sanded, especially for HOT CLIMATES.

BLOOD, WOLFE & CO.'S

XXX DUBLIN STOUT

AND

PALE ALES,

LIVERPOOL AND LONDON, ENGLAND.

Agents in all principal cities in the United States.
GREAT BRITAIN.

Ceramics, Furniture.

96a Gardner, Peter, Dunmore Pottery, by Stirling, Scotland.—Rockingham teapots. 210

97 Edwards, John, Fenton, Staffordshire.—Ironstone china and porcelain de tea, dinner, toilet, and jug serving, (In Agricultural Hall). 213

98 Bailey, W. & J. A., Alloa, Scotland.—Rockingham earthenware teapots. 213

98 Powell & Bishop, Hanley, Staffordshire.—Dinner, dessert, tea, and toilet services, white granite, etc. 213

99 Hetley, J., & Co., London.—Glass shades; glass used in trom graphical, building, and horticultural purposes. 214

100 Chance Bros., & Co., Glass Works, near Birmingham.—Glass for optical instruments. 214

101 Kilner Bros., London.—Glass bottles and glass, for useful and scientific applications. 215

102 Aire & Calder Glass Bottle Co., Ltd., London.—Glass bottles, combination stoppers, packing cases, corks, straw envelopes. 215

108 Green, James, & Nephew, Thames Cut Glass Works, London.—Table glass, cut and engraved table decorations; flower stands, glass chandeliers, and lustre candlesticks. 216

109 Millar, John, & Co., Edinburgh.—Engraved and cut glass. 216

109a Jenkinson, Alexander, Edinburgh.—Venetian glass in antique shapes. 216

Furniture and Objects of General Use in Construction and in Dwellings.

110 Cox & Sons, London.—Chimney piece, embossed mantel board, ebonized corner cupboard, carved oak furniture, bronze ornament, stained glass church window, wrought iron pupil body, lecterns, church plate, wrought iron and brass work, art tiles and plaster; won the challenge prize of the National Musical Union, etc. 217

110a Turner, George, & Co., London. a Hammock bedstead and sofa, mosquito curtains. 217 b Camp oven. 222

111 Wright & Mansfield, London.—Cabinet furniture of the 18th century. 217

112 Hems, Harry, Exeter.—Alabaster stame; carved oak chest made out of ancient beams (nearly 600 years old) from the choir of Salisbury Cathedral. 217

113 Peyton & Peyton, Bordesley Works, Birmingham.—Metallic bedsteads. 217

114 Morton, W. Scott, & Co., Art Furniture Works, Edinburgh.—Decorative furniture, ebonized and decorated cabinet, sideboard. 217

115 Hart, Son, Peard, & Co., London. a Artistic metal work (chiefly for ecclesiastical purposes), stove grates, etc. 217 b Stove grates, etc. 222 c Gas fixtures. 223

116 Shoolbred, James, & Co., London.—Furniture in the Jacobean and Queen Anne styles; bedroom furniture in the Anglo-Indian style; curtains and carpets. 217

116a White, William George, London.—Steel safe. 217

117 Barnard, Bradly, London.—Furniture and hammock. 217

118 Cooper & Holt, London.—Furniture, sideboard, portion of bedroom suite, decorative drawing-room furniture. 217

119 Phipson, Miss Emma, Monk Sherborne, Basingstoke, Hants.—Sideboard, ladies' work table, dressing glass, and candlesticks. 217

119a Chatwood, Samuel, London.—Fire and burglar proof safes. 217

120 Ward & Co., London.—Barr arranged as dumb waiter to hold tray and lamp. 217

122 Arthur, Frederick, London.—Cabinet work and fittings for Royal School of Art needlework exhibits. 217

123 Wethered, Edwin Robert, Woolwich, Kent. a Hammock. 217 b Friction pulley block, exhibited as a fire-escape. 227

124 Matthews, Edward, & Son, London.—Stained glass windows, mural brasses. 217

125 Barnard, Bishop, & Barnards, Norfolk Iron Works, Norwich. a Stoves. 222 b Mantles. 225 c Ornamental wrought and cast iron gates, palisades, pavilions, etc. 710 d Lawn mowers, hose reels, garden rollers, and iron garden requisites. 720

125a Howard & Sons, London.—Household furniture. 217

126 Singer, J. W., & Son, Frome, Somerset.—Artistic metal work, altar crosses and candlesticks, alms dishes, and mural brass plates for churches. 217

126a Sage, Frederick, London.—Airtight show cases, velvet show stand, etc. 217

127 Knight, Miss Mary, London.—Bedstead. 217

128 Jeffreys, Charles, London. a Show cases, bronzed shop fittings, and show stands. 217 b Cut glass mirrors. 219 c Reflecting lamps. 223

129 Royal School of Art Needlework, London.—Artistic needlework and embroidery in applique, crewels, and silk. 217

130 Macintosh, James, London.—Decorative doors and panels; imitations of woods and marbles, decorative designs and paper-hanging. 217

130a Collmann, L. W., London.—Piano in carved satinwood case, etc. 217

130b Watson & Son, Bombay, East India.—Indian furniture, etc. 217

131 Collinson & Lock, London.—Furniture in all papers, and textile fabrics in the old English style. 217

131a Neal, John, London.—Table ware. 218

132 Goggin, Jeremiah, Dublin. a Table ornaments, drinking cups, tankards, etc. 218 b Mirrors. 219

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Table Furniture, Heating and Lighting Apparatus, Woven Goods.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>132 Bailey, W. &amp; J. A., Alloa, Scotland.—Engraved table glass.</td>
<td>216</td>
</tr>
<tr>
<td>133 a Gill, James, London.—General engraving on metals, etc.</td>
<td>216</td>
</tr>
</tbody>
</table>
| 134 Elkinston & Co., Birmingham. a Solid silver and electro-silver plate for domestic use; decorative table plate reeded with electro-gold and oxidized silver.  
  b Cloisonné and champhéle enamels on silver and copper.  
  c Works of art in gold, silver, and other metals; bronzed statuary.  
  d Antique art treasures, in metal, from the South Kensington Museum. | 454 |
| 137 Kent, George Barton, & Co., London. a Ivoride mirrors.  
  b Photograph stands. | 219 |
| 138 Engert, A. C., & Co., London.—Ornamental mouldings for picture frames and architectural decorations. | 220 |
| 139 Hieronimus, W., London.—Frame mouldings, window cornices, decorating mouldings, etc. | 220 |
| 140 Heaps & Wheatley, Brotherton, Yorkshire.—Oil cooking stove, gas stove, water boilers, etc. | 222 |
| 143 Steel & Garland, Wharncliffe Works, Sheffield.—Steel grates, with porcelain tiles; fenders, encaustic tile hearths, stoves with china tiles, fire irons, etc. | 222 |
| 144 Smart, Walter, Buckhurst Hill, Essex.—Sub-fire oven. | 222 |
| 146 Petcham, Mark, & Co., London.—Stoves and grates with appliances; decorated china for fireplaces. | 222 |
| 147 Perkins, A. M., & Son, London.—Steam oven for marine use. (In Machinery Hall.) | 222 |
| 148 Thornton, Ebenezer, Bradford, Yorkshire.—Cooking stove for gas or solid fuel. | 222 |
| 148 a Clay, Randolph, London.—Flexible gas tubing. | 223 |
| 149 Gardner, John, & Sons, London.—Lamps, Arctic expedition lamps, traveling can teens. | 222 |
| 150 Field, J. C., & J., London.—Night lights and candle guard. | 223 |
| 151 Partridge & Co., Birmingham.—Brass gaseliers, brackets, etc. | 223 |
| 152 Skelton & Co., London.—Street lamp, with reflectors. | 223 |
| 152 a Kent, George, London.—Knife cleaning machine. | 224 |
| 153 Etzenberger, R. Z., London.—Patent coffee filter, etc. | 224 |
| 154 a Cheavin, George, Boston, Lincolnshire.—Water filters. (In Agricultural Hall.) | 225 |
| 154 Jennings, George, London.—Lavatories, baths, closets, urinals, and latrines; water meters and water waste preventors. | 226 |
| 155 Bullivant, Thomas, London.—Sash window. | 227 |
| 156 Edwards, G., London.—Sliding window sashes and frame. | 227 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Yarns and Woven Goods of Vegetable or Mineral Materials.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>157 Brown, J. B., &amp; Co., London.—Galvanized wire netting for including poultry, pheasants, dogs, etc. (In Agricultural Hall.)</td>
<td>228</td>
</tr>
<tr>
<td>157 a Engert &amp; Rolfe, London.—Felts for roofing, fibrous asphalt, etc. (In Agricultural Hall.)</td>
<td>228</td>
</tr>
<tr>
<td>158 Greening, N., &amp; Sons, Warrington.—Woven wire. (In Agricultural Hall.)</td>
<td>228</td>
</tr>
<tr>
<td>158 a McTear &amp; Co., Belfast, Ireland.—Roofing, ship sheeting, and inodorous felt; model of roof.</td>
<td>228</td>
</tr>
<tr>
<td>159 Cox Bros., Camperdown Linen Works, Dundee, Scotland.—Jute yarns, twines, etc.</td>
<td>229</td>
</tr>
<tr>
<td>160 Sandeman, Frank Stewart, Manganese hutton Works, Dundee, Scotland.—Linen and jute yarns, carpet yarns, burlaps, bag-gings, canvas paddings, scrim cloth, horse covers, and lap robes.</td>
<td>230</td>
</tr>
<tr>
<td>161 Laird, William, &amp; Co., Canmore Linen Works, Forfar, Scotland.—Textile fabrics, washed damasks, fancy toweling, horecloths, sheetings, osnaburgs, staur covering, seamless bags, hessians, striped beddings, paddings, ducks, buckram, etc.</td>
<td>230</td>
</tr>
</tbody>
</table>
| 162 Johnson, Jabez, & Fildes, Manchester. a Quilts and bedcovers, toilet or bureau covers, brocades, damasks, dimities, muslins.  
  b Printed cretons, towels, dress fabrics, etc. | 232 |
| 163 Dewhurst, John, & Sons, Belle Vue Mills, Skipton, Yorkshire.—Sewing cotton, refined and in various stages of manufacture. | 230 |
| 164 Brook, Jonas, & Bros., Meltham Mills, Haddersfield.—Spool cotton, white and colored; crochet and embroidery cotton. | 230 |
| 164 a Greenmount Spinning Co., Greenmount Factory, Dublin. a Cotton goods for domestic and clothing purposes.  
  b Linen goods. | 230 |
| 165 Neilson, Storer, & Sons, Thorn Mills, Johnstone, near Paisley.—Yarns; knitting, mending, and other cottons; yarns for lace, curtain, and fancy dress manufacturers. | 230 |
| 165 a McBride, Robert, & Co., Belfast. a Cotton goods.  
  b Mixed cotton and linen goods. | 230 |
| 166 Clark, John, jr., & Co., Glasgow, Scotland.—Spool cotton. | 230 |
| 167 Swainson, Billey, & Co., Fisherswick Mills, Preston.—Bleached cotton fabrics. | 230 |
| 167 a Turner, George, & Co., London.—Tent. | 230 |
| 168 Barlow & Jones (limited), Manchester.—Toilet quilts, covers, and mats; cloakings, cotton towels, blankets, alhambras, and counterpanes, plain and fancy muslins, etc. | 230 |
Established 1801.

JONAS BROOK & BROTHERS

Meltham Mills, near Huddersfield,

MANUFACTURERS OF

SEWING, CROCHET, AND EMBROIDERING COTTON,

DEPÔTS:

49, Cannon Street, London, E.C.
36, Fountain Street, Manchester.
10, Garthland Street, Glasgow.
93, Boulevard de Sebastopol, Paris.

BROOK'S PATENT GLACE SPool COTTON,

BROOK'S SIX CORD SOFT FINISH SPool COTTON,

BROOK'S PATENT GLACE THREAD, IN WHITE, BLACK, AND COLORS.

The extraordinary strength, smoothness, and durability obtained by this invention have secured for it great popularity, and it is consequently much imitated in inferior qualities. This Cotton is always labelled "BROOK'S PATENT GLACE THREAD," and without their name and crest (a GOAT'S HEAD), the words "Glace," or "Patent Glace," do not denote that it is of their manufacture. BROOK'S PATENT NINE AND SIX CORDS will be found of very superior quality, and are strongly recommended wherever a SOFT COTTON is preferred.

EXHIBITION PRIZES.


ONLY DIPLOMA OF HONOUR. VIENNA. 1873.
BRITISH ADVERTISEMENT

PURE IRISH LINENS.

Established 1830.

York Street Flax Spinning Co., Ltd.,
BELFAST, IRELAND.
FLAX SPINNERS, POWER-LOOM WEAVERS, BLEACHERS & MERCHANTS,
MANUFACTURERS OF
DRESS LINENS,
CLOTHING GOODS & HOUSEHOLD LINENS.

MANUFACTURES.

DRESS LINENS.
Irish Linen Brocade, Viennese Dress Linen,
Natural Dress Linen, Grenadines,
Printed Lawns.

CLOTHING.
Brown Diagonal Drills, Plain,
Brown Diagonal Drills, Fancy Stripe,
Brown Diagonal Tweeds,
Bleached Drills and Ducks,
Brown Ducks and Duck Coatings,
Canvas & French Elastic Ducks,
Pale Hollands,
Blay Linens.

HOUSEHOLD.
Light Shirting Linen,
Light Fronting Linen,
Super Fronting Linen,
Medium Family Linens,
Heavy Family Linens,
Sheetings,
Interlinings,
Drawer Linens.

BRANCHES & AGENCIES.

NEW YORK... 154, Church Street.
NEW ORLEANS... Messrs. Anderson & Simpson.
PARIS... 38, Rue des Jeuneurs.
LONDON... 2, Russia Row, Milk Street.
MANCHESTER... 12, Piccadilly.
Woven Goods.

169 Ashworth, Edmund, & Sons, Egerton Mills, Bolton, Lancashire.—Cotton in various stages of manufacture; yarns, sewing—dings; crochet, embroidery, knitting, mending, and glove cottons, linen finish thread.

170 Pearson, Thomas, & Son, Victoria Mills, Little Bolton.—Quilts, quiltings, toilet covers, and mats.

171 Hawkins, John, & Sons, Manchester.—Plain and twilled calicoes and prints.

172 Ferguson Bros., Holme Head Works, near Carlisle.—Satteens.


174 Simpson & King, Manchester.—Printed cotton furniture fabrics.


176 Normand, James, & Sons, Dysart, Fifeshire, Scotland.—Linens for house—keeping, shoe linings, etc.

177 Ewart, William, & Sons, Belfast, Ireland.—Linens fabrics.

178 The York Street Flax Spinning Co. (Limited), Belfast.—Linen piece goods, drills, ducks, sheetings, shirtings, and frontings.

179 Matier, Henry, & Co., Belfast.—Bleached and printed linens; handkerchiefs, plain, hemstitched printed, and embroidered.

180 Ainsworth, Thomas, Cleator Mills, Cleator, Cumberland.—Linens threads and towels.

181 Ulalthorne & Co., London.—Shoe and saddlers' threads.

182 Fenton, Connor, & Co., Linen Hall, Belfast.—White linens, cambric, table linens, linen ducks, drills, etc.; printed shirtings and lawn dress goods.

183 Brown, John S., & Sons, Belfast.—Table linen, diapets, sheetings, Shirting linen, lawns, linen and cambric handkerchiefs.

184 Richardson, J. N., Sons, & Owden, Belfast.—Linen goods.

185 Dickson, Furguson, & Co., Belfast.—Linens bleached and unbeached.

190 Dunbar, McMaster, & Co., Gilford, Ireland.—Linens threads.

191 Nairn, Michael, & Co., Kirkaldy, Scotland.—Floor oil cloths.


193 Hall, Thomas, Edinburgh.—Hand painted cloths in imitation of tapistry, for wall decoration.


195 Boulinikon Floor Cloth Manufacturing Co. (limited), Manchester.—Floor cloth.

Woven and Felted Goods of Wool, etc.


197 Brown, John S., & Sons, Belfast.—Yarns.


200 Dunbar, McMaster, & Co., Gilford, Ireland.—Gray and bleached yarns.

201 Mahony, Martin, & Bros., Barneym, Ireland.—Tweedings, boating serges, worsted coatings, railway traveling wraps.

202 Anderson, David, & Son, Lagan Felt Works, Belfast, Ireland.—Kooting, flooring; and ship sheathing felt, lining felt, hair felts for covering boilers and steam pipes. (In Machinery Hall.)

203 Bliss, William, & Son, Chipping Norton, Oxon. a Tweeds, woolen serges, and saddlers' woollens.

a Shawls.

b Mats and rugs.

204 Briggs, J. F., & Co., Huddersfield, Yorkshire.—Beavers, coatings, cheviot, castimeres, carriage and lively cloths, doekains, elysians, meltons, kerseys, pilots, rugs, vestings and quiltings, velvets, union cloths, wities, and reversible coatings.

205 Carr, Isaac, & Co., Twerton Mills, Bath.—Woolen cloths, meltons, twills, beavers.

206 Bubb & Co., Southfields Mills, near Stroud.—Woolen cloths; billiards, government, and piano cloths.

207 Marling & Co., Ebley and Stanley Mills, Stroud, Gloucestershire. —Raw, scoured, and dyed wool; woolen cloths, beavers, venetians, doekins, deerskins, cassimeres, etc.

208 King, William, Gilroyd and Albert Mills, Morley, Leeds.—Union and melton cloths.


211 Hargreaves & Nusseys, Farneley Low Mills, Leeds.—Coatings, overcoatings, kerseys, meltons, woolen cloths.

213 Davies, Robert S., & Sons, Stonehouse Mills, Gloucestershire. —Cloths, doekins, venetians, meltons, coatings, beavers, etc.

214 Little, T. W., & Co., Leeds.—Mallable cloths, waterproof tweeds, twills, meltons, blue and black deerskins, and diagnals.
## Woven Goods, Silk, Clothing.

### Silk and Silk Fabrics.

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>232</td>
<td>Sheldon &amp; Fenton, London.—Sewing silks, tailor's twist, machine silks, etc.</td>
</tr>
<tr>
<td>233</td>
<td>Rickards, Charles Ayscough, Bell Buck Mills, near Leeds.—Sewing and machine silks, twists; embroidery, knitting, and crochet silks.</td>
</tr>
<tr>
<td>234</td>
<td>Milner, Wm., &amp; Sons, Leek, Staffordshire.—Sewing silks.</td>
</tr>
<tr>
<td>238</td>
<td>Norris &amp; Co., London.—Silk for furniture and upholstery purposes.</td>
</tr>
<tr>
<td>238a</td>
<td>Stewart, Moir, &amp; Muir, Glasgow.—Curtains for window and decorative purposes and for use in the British section.</td>
</tr>
<tr>
<td>239</td>
<td>French &amp; Co., St. Mary's Mills, Norwich.—Black crape.</td>
</tr>
<tr>
<td>239a</td>
<td>Simon, May, &amp; Co., Nottingham. a Nets; Shetland scarfs, shawls, elastic webs, etc.</td>
</tr>
<tr>
<td>239b</td>
<td>Welch, Margetson, &amp; Co., London. a Scarfs, ties, and silk handkerchiefs.</td>
</tr>
<tr>
<td>240</td>
<td>Stevens, Thomas, Stevengraph Works, Coventry.—Jacquard loom at work; ribbons, neckties, sashes, badges, and emblematical regalia; navy hat ribbons, gold and silver face, silk-centred satchets.</td>
</tr>
<tr>
<td>241</td>
<td>Heymann &amp; Alexander, Nottingham. a Nets, quilings, trimmings, etc.</td>
</tr>
</tbody>
</table>

### Clothing, Jewelry, and Ornaments; Traveling Equipments.

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>246</td>
<td>McLintock, James, &amp; Sons, Barnsley, Yorkshire. a Down quilts, skirts, jackets, and dressing gowns; dress improvers. b Slippers.</td>
</tr>
<tr>
<td>247</td>
<td>Welch, Margetson, &amp; Co., London. a Linen collars, shirtings, etc. b Umbrellas.</td>
</tr>
<tr>
<td>248</td>
<td>Sykes, Josephine, &amp; Co., London. a Corsets and ladies' belts.</td>
</tr>
<tr>
<td>249</td>
<td>Hitchcock, Williams, &amp; Co., London. a Costumes of mixed fabrics.</td>
</tr>
<tr>
<td>250a</td>
<td>Connor, Mrs., Dublin. a Patchwork quilt.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
BRITISH ADVERTISEMENT.

PIM BROTHERS & CO.

MANUFACTURERS OF

Irish Poplins and Irish Linens.

HAVE BEEN AWARDED PRIZE MEDALS FOR THEIR POPLINS WHEREVER EXHIBITED,

THE GREENMOUNT SPINNING COMPANY.

(PI-M BROTHERS & CO.)

AGENT FOR UNITED STATES:
GEORGE RIGGS, 77 FRANKLIN ST., NEW YORK.
WILLIAM EWART & SON,
Flax Spinners, Linen Manufacturers, Bleachers and Merchants.
BELFAST, NEW YORK. AND MANCHESTER.

FLAX SPINNING MILLS AND WEAVING FACTORIES—CRUMLIN ROAD
and MOUNTAIN MILLS, Ligoniel.
OFFICES, WAREHOUSE, and WEAVING FACTORY—BEDFORD STREET.
BLEACH GREEN—GLENBANK.

SPINNERS OF FLAX AND TOW YARNS.
MANUFACTURERS, BLEACHERS, DYERS, AND FINISHERS OF LINENS AND UNIONS.

Brown, Bleached and Printed Drills; Imperial and Brown Ducks.
Canvas; Clothing and Dress Goods; White and Printed Lawns; Hollands; White Shirting Linens; Sheetings;
Damasks; Table Napkins; Diapers; Handkerchiefs; &c., &c., &c.

The Works employ 3,200 hands, and contain 31,000 Spindles and 1,500 Power Looms.
### GREAT BRITAIN. 151

**Clothing, Jewelry, Fancy Goods.**

| 251 | Smyth & Co., Balbriggan, Ireland. —Balbriggan hosiery, lace hose, light stockings. 250 |
| 251a | Turner, George, & Co., London. —Military and traveling equipments; appliance for picketing huts. 250 |
| 251b | Hennock-valise and canteen. 255 |
| 252 | Roe, William Allen, Leicester. —Boots and shoes. 251 |
| 253 | Lobb, John, London. —Gentlemen's and ladies' boots. 251 |
| 254a | Dash, Osmond, Brighton. —Hats and caps. 251 |
| 254b | Umbrellas. 254 |
| 250 | Lincoln, Bennett & Co., London. —Hats. 251 |
| 251a | Humbert, Hermann, London. —Hats and bonnets; bat and bonnet shapes. 251 |
| 253a | Debenham & Freebody, London. —Gloves. 251 |
| 254 | Tress & Co., London. —Hats; pith and felt solar hats and helmets. 251 |
| 254a | Jacoby, M., & Co., Nottingham. —Valenciennes and silk guipures; imitation cashmere, lace curtains. 252 |
| 255 | Smith, George John, London. —Irish lace made by the Industrial Poor. 252 |
| 255a | Heymann & Alexander, Nottingham. —Silk, wool, and cotton laces. 252 |
| 256a | Dunraven, the Countess of, Adare, County Limerick, Ireland. —Embroidery on lawn; robes, pocket handkerchiefs, insertion for dresses, pincushion cover, etc. 252 |
| 256b | Simon, May, & Co., Nottingham. —Lace curtains, valances. 252 |
| 257 | Goggin, Jeremiah, Dublin. —Jewelry. 253 |
| 257a | Reading-stands, walking-canes, pipes, etc. 254 |
| 258 | Francati & Santamaria, London. —Jet ornaments, brooches, earrings, bracelets, necklaces, etc.; jet cameo mosaiques, carved by Roman cameo cutters. 253 |
| 259 | Neal, John, London. —Gold and silver jewelry, precious stones. 253 |
| 257b | Aitchison, James, Edinburgh. —Scottish jewelry, in gold and silver; Highland ornaments, and stones found in Scotland. 253 |
| 258 | Gibson, William, Belfast. —Gold, diamond, and Irish bog oak jewelry. 253 |
| 258a | Walking-sticks and table ornaments. 254 |
| 259 | English, John, & Co., Feckenham, Worcestershire. —Needles; fishhooks; steel pins; hairpins; bodkins. 254 |
| 256a | Davis & Wilson, Birmingham. —Whip, walking-stick, and umbrella mountings; African chiefs' canes; whips and general whip materials. 253 |

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**277 Millward, Henry, & Sons, Redditch. —Needles, sewing machine needles, fishhooks.** 254

**278 Turner, R., & Co., Old Factory, Redditch. —Needles, pins, fishhooks, etc., displayed in a glass case, forming model of the exhibition of 1851.** 254

**279 Swaine & Adeney, London. —Whips, whip lashes, thongs, and sockets; horns, canes, and walking-sticks; sporting apparatus.** 254

**280 Smith, John Wright, Leicester. —Self-acting needles used in hosiery frames.** 254

**281 Kent, George Barton, & Co., London. —Ivory paper knives and shoe lifts.** 254

**282 Evans, David, Studley, Redditch. —Needles for hand and machine sewing.** 254

**283 Fenton, James, Birmingham. —Pearl buttons.** 254

**284 Kirby, Beard, & Co., Birmingham. —Pins, needles, hairpins, fishhooks, etc.** 254

**284a Elrick, Charles Gray, Aberdeen, Scotland. —Dressing combs; real and imitation shell, side braid, and high Spanish combs, etc.** 254

**285 Sangster & Co., London. —Umbrellas, parasols, sunshades, whips, canes.** 254

**286 Smith, James, & Son, Astwood Bank, near Redditch. —Needles, showing stages of manufacture; bodkins, hairpins, and fancy cases for holding needles.** 254

**287 Hayes, Crossley, & Co., London. —New shape sewing needles, machine needles, pins, bodkins, and specimens in various stages of preparation.** 254

**288 Cooke Bros., Birmingham. —Safety pins, curtain hooks, and fancy nails.** 254

**289 Woodfield, William, & Sons, Easemore Works, Redditch. —Needles, sewing machine needles, fishhooks, etc.; sail whale, and fancy needle cases.** 254

**290 Martin, William Henry, London. —Umbrellas, walking-sticks, whips.** 254


**293 Hoe, Richard, & Sons, London. —Leather portmanteaus, hat cases, and bags.** 255

**294a Ward, Marcus, & Co., London. —Fancy leather work.** 255

**295 Harrington, J., & Co., London. —Imitation leather hat linings, shoes and shoe linings, wall decorations, parasols, belts, dispatch boxes, dressing and jewel cases, glove and handkerchief boxes, etc.** 255

**297 Bussey, Geo. G., & Co., London. —Chili leather portmanteaus, trunks, traveling bags, and leather and waterproof goods for shooting and traveling purposes.** 255

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Greener, William Wellington, Birmingham.—Sporting guns and rifles; breechloading guns. 265
Rigby, John, & Co., Dublin.—Guns and rifles and their accessories. 265
Henry, Alexander, Edinburgh.—Breechloading express rifles, fowling-pieces, harpoon and bomb-lance guns; military arms and target rifles. 265
Clay, Randolph, London.—Converter for breechloading firearms. 265
Dougall, James Dalziel, Glasgow.—Long-range shotguns and rifles. 265
Lancaster, Charles, London.—Guns, rifles, cannon; drawings and models of the evil bored. 265
Scott, W., & C., & Sons, Premier Gun Works, Birmingham.—Sporting firearms, revolvers, gun materials. 265
Needham, J. & G. H., London.—Breechloading double guns. 265
Perdue, Jas., London.—Guns, rifles, etc. 265
Lancaster, Alfred, London.—Sporting guns and rifles. 265
Soper, William, Reading.—Rifles. 265
Lang, J., & Sons, London.—Guns and rifles. 265
Eley Bros. (limited), London.—Paper and metal cartridge cases (empty), sporting and military percussion caps, gun waddings. 265
Webley, P., & Son, Birmingham.—Sporting breechloading guns, rifles, and revolvers. 265
Hewitt, William, Bristol.—Breechloading gun, gun carriage. (In Machinists Hall). 266
Needham, John, Sheffield.—Daggers. 268
Brookes & Crookes, Atlantic Works, Sheffield.—Sportsmen’s and bowie knives. 268
Buchanan, James, Glasgow.—Sea fishhooks. 269
Ryder, William Henry, Birmingham.—Fishing tackle. 270
Green, E. C., Cheltenham.—Sporting guns, with their appurtenances; cleaning rods, with attachments; cartridge-loading implements, nipple keys, gun cases and bags. 269
Tolley, J. & W., Pioneer Works, Birmingham.—Sporting breechloading shot guns, implements, cartridge cases, lubricators, bullets, and primers for reloading cartridges. 269
Williams & Powell, Liverpool.—Breechloading guns. 269

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
JOHN CLARK, JR. & CO.'S

MILE END, GLASGOW,

BEST

Six-cord Spool Cotton

ON BLACK SPOOLS,

IS UNRIVALLED

FOR

HAND AND MACHINE USE.

BRANCH AGENCIES:

58 Summer St., Boston, 535 Market St., San Francisco,

31 Bank St., Philadelphia.

THOMAS RUSSELL,

SOLE AGENT FOR THE U. S.

No. 19 Mercer Street, New York.

AGENCY IN CANADA:

BIRKS & WILSON, 1 ST. HELEN ST.,

MONTREAL.
JOHN DEWHURST & SONS,
Cotton Spinners,
AND MANUFACTURERS OF
SEWING COTTON,
Remarkable for its strength, pliability, evenness, and freedom from knots. It meets all the requirements of the different kinds of Sewing Machines, and is equally suitable for hand use.

JOHN DEWHURST & SONS,
BELLE-VUE MILLS,
SKIPTON, YORKSHIRE
COTTON SPINNERS FROM A.D. 1794.
SEWING COTTON MANUFACTURERS FROM A.D. 1870.

AGENTS IN THE UNITED STATES,
MESSRS. WILSON & MERRILL, BOSTON.
GREAT BRITAIN.

Medical and Surgical Appliances, Hardware, Cutlery, Vehicles.

339 Gerrard, Alfred William, London.—Mustard plasters. 272

340 Evans, Sons, & Co., Liverpool.—Vegetable, animal, and mineral drugs; pharmaceutical products and accessories. 272

341 Usher, Rufus, Bodicote, Oxon.—Medicinal rhubarb; extract of henbane and dried henbane leaves; photograph of henbane plants. 272

342 Mackay, John, Edinburgh.—Articles of diet for invalid and table use. 273

343 Mellin, Gustav, London.—Non-farinaeous food for infants and invalids. 273

344 Goodall, Backhouse, & Co., Leeds.—Food for infants and invalids. 273

345 Lynch & Co., London.—Druggists' sundries and surgical instruments; spinal apparatus, chest protectors, feeding bottles, spray producers, poison bottles, etc. 276

346 Glasgow Apothecaries Co., Glasgow.—Surgical appliances and antiseptic dressings. 276

347 Mayer & Meltzer, London.—Surgical instruments. 276

348 Lee, Robert James, London.—Steam draft inhaler and disinfector. 276

348a Haywood, J. S., Nottingham.—Surgical bandages, belts, trusses, etc. 276

349 Turner, Archibald, & Co., Leices- ter.—Surgical bandages and bandages. 276

350 Pulvermacher, Isaac Louis, Lon- don.—Electrical instruments for medical purposes. 276

353 Liverpool Spun Oakum Co., Liver- pool.—Oakum, stypticum; pure antiseptic dressing for hospital use. 276

353a Clay, Randolph, & Co., London.—Portable invalid bed tray. 278

354 Turner, George, & Co., London.—Ambulances. 278

Hardware, Edge Tools, Cutlery, and Metallic Products.

355 Ward & Payne, Sheffield.
   a Tools for carpenters, joiners, coachmakers, shipwrights, millwrights, masons, bricklayers, tanners, curriers, engravers, die- sinkers, plasterers; wood, stone, and metal carvers and turners, etc. 280
   b Sheep shears. 281

356 Smith, John & Samuel, Low Bridge Works, Keighley, Yorkshire.—Engineers' and machinists' tools. (In Machinery Hall.) 280

357 Baker, William, London.—Awls, bodkins, needles for saddlers, packers, and upholsterers; screwdrivers. 280

358 Addin, J. B., & Sons, Arctic Works, Sheffield.—Tools for carving stone and wood; turning tools for iron, brass, ivory, hard wood, etc.; carpenters' tools. 280

359a Needham, John, Sheffield.—Cut- lery, table and dessert knives and forks, fish eaters. 281

359a Wostenholm, George, & Son (limited), Sheffield.—Cutlery. 281

359b Brooks, Henry, & Co., London.—Metal stoppers and collapsible tubes for artists' colors. 281

359d Burnand, James, & Co., Sheffield.—Table cutlery, etc. 281

359f Needham, John, Sheffield.—Cut- lery. 281

360 Neal, John, & Co., London.—Table, dessert, and fish cutlery. 281

360a Brookes & Crookes, Atlantic Works, Sheffield.—Pen, pocket, and table knives, scissors, razors, and dressing case instruments, cutlery. 281

360b Ryder, William Henry, Bir- mingham.—Taps for drawing effervescing wines or aerated waters. 281

360c Mayer & Meltzer, London.—Cut- lery. 281

361 The Patent Nut & Bolt Co. (limited), London Works, near Birmin- gham.—Iron bolts, nuts, screws, rivets, and washers; fish and sole plates; fish bolts, spikes, and fang bolts. 284

362 Francis, Thomas, & Co., Bir- mingham.—Nails. 284

363 Baker, Christopher, & Sons, Bir- mingham.—Coffin furniture; cabinet and general brass fittings; rails, stair rods, nails, and bolts. 284

364 The Phosphor Bronze Co. (limited), London.—Phosphor bronze tools, locks, tubes, wire, sheet, steam fittings, parts of machinery, etc. 284

365 Adams, Robert, London.—Hinges and shoes, secure fastening bolts, weather-tight sill bars for French casements, etc. 284

366a Turner, George, & Co., London.—Screw anchor peg. 284

367a Ullathorne & Co., London.—Heel balls and shoe findings. 284


Fabrics of Vegetable, Animal, or Mineral Materials.

368 Low, Son, & Haydon, London.— Brushes. 286

369 Kent, George Barton, & Co., Lon- don.—Brushes. 286

370 Culmer, W., & Sons, London.— Brushes used in decorative art. 286

371 Bevis, Henry, London.—Silk ban- ner with emblematic designs. 288

372 Spill, Daniel, London.—Ivoride. 289

372a Barnard, Bradly, London.—Bas- sinettes, baskets, etc. 289

Carriages, Vehicles, and Accessories.

373 Winwood, Charles Sandford, Lon- don.—Brougham, caisse, landau, Victoria, Parisian, and Stanhope phaeton. 292

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Vehicles.

374 Mulliner, H., & Co., Northampton.—Carriages. 292
375 McNaught & Smith, Worcester.—Barouche, landau, and broughams. 292
376 Thorn, Charles, Norwich. 292
a Carriages.
b Shooting and baggage cart.
377 Roberts, John, Manchester.—Parisian phaeton. 292
378 Hooper & Co., London.—Carriages and drawings. 292
380 Peters, Thomas, & Sons, London.—Carriages. 292
381 Thompson, Charles, London.—Perambulator. 293
381a Roberts, Digby, Coventry.—English bicycle. 293
382 Hawkins Bros., Hatherton Works, Walsall.—Bits, stirrups, spurs, chains, buckles, and general saddlery iron work. 296

383 Hudson, Samuel, Dublin.—Trace and shaft tug safety buckles; safety stirrup. (In Swaine & Adney's case.) 296
384 Martin, Robert, Old Charlton, Kent.—Horse clipping machines; circular cutters for cutting the teeth of the above machines. (In Machinery Hall.) 296
385 Pollock, Sydney, London.—Apparatus for checking runaway and unmanageable horses. 296

387 Goodall, Chas., & Son, London.—Card printing. 474
388 Cohné, Sigismund, London.—Bearings requiring no lubricant. 573
389 Parkinson Bros., Burnley.—Spiced pickling vinegar. 660

(N.B.—Certain exhibits in this Department, from Great Britain, are installed in Agricultural Hall, and catalogued in Part IV.)

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-45.
BRITISH ADVERTISEMENT.

A. LAMOTTE,
3, RUE ELZÉVIR, PARIS,
COMMISSION AGENT
For Chemical Products, Drugs, Colours, Dyes, and all Raw Material.

Agent for Merchants, Growers and Manufacturers at Industrial
and Commercial Exhibitions.

SHELL BOX MANUFACTURERS,
J. JOHNSON & CO.,
Charterhouse Works,
LONDON, ENGLAND.

SHELL COTTAGES,
HANDKERCHIEF & GLOVE BOXES,
TOY FURNITURE,
And all kinds of Ornamental Boxes.
EXCHANGE
Fire Insurance Company,
172 BROADWAY,
Corner Maiden Lane, NEW YORK.

ASSETS, JANUARY 1, 1876.

Cash Capital . . . . . $200,010.00
Surplus . . . . . . . . 224,317.95
Total Assets . . . . . $424,327.95

R. CARMAN COMBES, President.
ASHER TAYLOR, Vice-President.
C. S. VAN NORDEN, Ass't Vice-Pres't.
GEORGE W. MONTGOMERY, Secretary.
THOMAS B. PECK, Ass't Sec'y.

BRANCH OFFICE,
Southwest corner Fourth and Library Sts., Philadelphia.
MORDECAI D. EVANS, Manager.
NEW ZEALAND.

Manufactures, Education and Science.

<table>
<thead>
<tr>
<th>Chemicals.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Horler, John, Woolston, Canterbury. — Soap and mould candles.</td>
<td>204</td>
</tr>
<tr>
<td>2 Innes, W. M., Port Chalmers, Otago. — Cod-liver oil.</td>
<td>201</td>
</tr>
<tr>
<td>3 Louisson, T. B., Nelson. — Paint made from hematite ore.</td>
<td>202</td>
</tr>
<tr>
<td>4 Johnstone Brothers, Nelson. — Umbrella and red pigments made from hematite ore.</td>
<td>202</td>
</tr>
<tr>
<td>5 Grayling, W. S., Taranaki. — Extract of towaia (Weinmannia racemosa); extract of hinu (Eldeocarpus dentatus).</td>
<td>202</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ceramics. — Pottery, Porcelain, Glass, etc.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Kennedy Bros., Nelson. — Fire bricks.</td>
<td>207</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Furniture and Objects of General Use in Construction and in Dwellings.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Greenfield &amp; Stewart, Wellington. — Panel door made of rimu (Dacrydium cupressinum).</td>
<td>227</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yarns and Woven Goods of Vegetable or Mineral Materials.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Government of New Zealand. — Specimens of fabrics made from phormium tenax.</td>
<td>233</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Woven and Felted Goods of Wool, etc.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Webley Bros., Nelson. — Nelson tweeds made from New Zealand wool.</td>
<td>235</td>
</tr>
<tr>
<td>10 Cook, James, Nelson. — Woollen rugs, woven and dyed at Nelson.</td>
<td>239</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clothing, Jewelry, and Ornaments, Traveling Equipments.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11 Taylor, B. K., Wanganui. — Hat made of kiekie (cordyline).</td>
<td>251</td>
</tr>
<tr>
<td>12 Liardet, H. E., Wellington. — Fancy articles made from feet and bones of sea birds.</td>
<td>254</td>
</tr>
<tr>
<td>6 Feathers, muffs, collarettes, wristlets, etc.</td>
<td>256</td>
</tr>
<tr>
<td>13 Taylor, Mrs. Richard, Wanganui. — Ornamental satchel and table mat.</td>
<td>254</td>
</tr>
<tr>
<td>15 New Zealand Commissioners. — Garments and ornaments of the Maoris.</td>
<td>257</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fabrics of Vegetable, Animal, or Mineral Materials.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Moyle, Edward, Taranaki. — Cord made from phormium tenax.</td>
<td>287</td>
</tr>
<tr>
<td>17 Bevan, Thomas, jr., Otaki, Wellington. — Rope made from Maori dressed phormium, fish line, horse halter, lead line, twine.</td>
<td>287</td>
</tr>
<tr>
<td>18 Bevan &amp; Sons, Otaki, Wellington. — Cord and twines made from Maori dressed phormium.</td>
<td>287</td>
</tr>
<tr>
<td>19 Kinross &amp; Co., Hawke Bay. — Cordage and twines made from Maori dressed phormium.</td>
<td>287</td>
</tr>
<tr>
<td>20 Grant &amp; Co., Otago. — Cordage made from phormium.</td>
<td>287</td>
</tr>
<tr>
<td>21 Auckland Patent Steam Rope Co. — Phormium rope.</td>
<td>287</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutions and Organizations.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26 Colonial Museum, J. Hector, Director. — Garments and ornaments of the Maoris.</td>
<td>312</td>
</tr>
<tr>
<td>27 National Museum at Washington, J. Henry, Secretary. — Garments of the Maoris.</td>
<td>312</td>
</tr>
<tr>
<td>27a New Zealand Commissioners. — Weapons of the Maoris.</td>
<td>312</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering, Architecture, Maps, etc.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28 Government of New Zealand. — Geological maps of New Zealand, by James Hector.</td>
<td>335</td>
</tr>
<tr>
<td>29 Geological Survey Department, James Hector, Director. — Geological plans and sections.</td>
<td>335</td>
</tr>
<tr>
<td>30 Canterbury Museum, J. von Haast, Director. — Geological plans and sections.</td>
<td>335</td>
</tr>
<tr>
<td>31a Hector, J. — Relief Model of New Zealand, geologically colored.</td>
<td>335</td>
</tr>
<tr>
<td>32 Government of New Zealand. — Topographical map of the colony, engraved by E. Ravenstein.</td>
<td>335</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Physical, Social, and Moral Condition of Man.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>33 National Museum, Washington, J. Henry, Secretary. — Canoe paddles of Maoris; skulls of Maoris and Moriori from the Chatham Islands.</td>
<td>340</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Education and Science, Art, Agriculture.

34 Woon, R. W., Wanganui.—Canoe paddles of the Maoris. 349
35 Government of New Zealand.—Statistics and census of New Zealand for 1874, prepared by W. R. E. Brown, Registrar-General. 345
36a Hector, J.—Transactions and Proceedings of the New Zealand Institute, Vols. I. to VII. 345
36b Vogel, Sir Julius.—Hand-book of New Zealand. 345

Painting.

35c Geological Survey Department, James Hector, Director.—Water color sketches by W. M. Cooper. 411

Engraving and Lithography.

35d New Zealand Commissioners.—Pictures from W. L. Buller's "Birds of New Zealand," drawn by J. H. Keulemans. 422

Photography.

36 Burton Bros., Dunedin.—Views of scenery of South Island. 430
36a Bothamley, A. T.—Photographs of Maoris. 430
37 Government of New Zealand.—Views of scenery, etc., by H. Deveril. 430
38 Taranaki Committee.—Views of New Plymouth and surrounding country. 430
38a Hector, J.—Photographs exhibiting domestic life of the Maoris. 430
39 Mundy, D. L.—Views of scenery, foliage, buildings, gold mining, etc. 430

Railway Plant, Rolling Stock, etc.

40 Government of New Zealand.—Photographs of engines and engineering works used in New Zealand. 570

Arboriculture and Forest Products.

41 Cruickshank, J. D., Upper Hutt Saw Mills, Wellington.—Section of trunk of rimu (Dacrydium cupressinum), red pine of settlers. 600
42 Westland Committee.—Specimens of woods with bark. 600
43 Taranaki Committee.
   a Specimens of woods. 601
   b Barks of the Atawhero and the Pukatea; earth used by the Maoris as a mordant for dyes. 602
   c Dried ferns; fungus exported as food to China; esculent fern root; birds' nest fungus and curious parasite. 604
44 Black, W. B., American Coach Factory, Wellington.—Specimens of woods. 601
45 New Zealand Commissioners.—Specimens of woods. 601
46 Grayling, W. S., Taranaki.—Bark of hinu; blue earth, used by the Maoris, mixed with shark oil, as blue paint. 602

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.

Agricultural Products.

47 Colonial Museum, Wellington, James Hector, Director.—Tanbarks, native to New Zealand. 602
49 Walker, Renwicks & Co., New York.—Kauri gum. 603
50 Forbes, R. W., New York.—Kauri gum. 603

Animal and Vegetable Products.

58 Wilson, Thomas, Woolston, Canterbury.—Saddle, harness, and shoemakers' leather; fancy colored skins for shoe-makers and bookbinders. 652
59 Armitage, Taranaki.—Dressed kid and calf leather. 652
60 Morris, Thomas, Oamaru, Otago.—Gentleman's town saddle. 652
   a Specimens of kiwi; skeleton and bones of moa. 652
   b Egg of the kiwi, and model of egg of moa. 653
62 Gilmour, John, Christchurch.—Hams and bacon. 656
63 New Zealand Provision & Produce Company, Christchurch.—Preserved meats. 656
64 Nairn, David, Addington, Canterbury.—Tomato sauce. 656
65 Trent Brothers, Woolston, Canterbury.—Chicory in different stages of preparation. 657
66 Smith, James, Nelson.—Fruit wines. 660
67 Henderson & Farrah, Wanganui.—Ale and porter. 660

Horticulture.

68 Coates, Laning, Christchurch.—Live ferns. 707
NEW SOUTH WALES.

(North of Nave, Columns 10 to 17.)

Manufactures, Education, Art.

Chemical Manufactures.
1 Read, R. B., Randwick.—Extract, leaves, and berries of Smilacis glycyphylla, or Australian sarsaparilla. 200
2 Barrett & Co., Sydney.—Aerated waters and cordials. 200
3 Gilroy & Hurst, Sydney.—Baking, custard, egg, and butter powders. 200
4 Hunt, A. M., & Co., Goulburn.—Baking powders. 200
5 Swaia & Co., Parramatta.—Washing fluid and soap. 201
6 New South Wales Shale & Oil Co., Sydney.—Kerosene oil, etc. 201
7 New South Wales Commissioners, Sydney.—Stearine candles. 201
8 Layton, Fred., Grafton, Clarence river.—Soap and candles. 201
9 Underwood, Thomas, Paddington.—Paints and paint pigment. 202
10 Hoff, M. Camille, Nakatakinna, New Caledonia.—Indigo. 202

Ceramics—Pottery, Porcelain, Glass, etc.
11 New South Wales Commissioners.—Churns, jars, etc. 210

Furniture, etc.
12 Lyons, Cottier, & Co., Sydney.—Stained glass staircase window—subject, "Captain Cook." 219
13 Hudson Brothers, Steam Joinery Mills, Sydney.—Window sashes, outside hall door, inside four-panel door, drapery panel door, French casements, cedar table legs. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.
14 Read, John Cecil, Darlinghurst, Sydney.—Mats and matting made of cocoa fibre yarn, by aborigines of New South Wales and Frazer's Island. 299
15 Rudder, E. W., Kempsey.—Linens. 233

Woven and Felted Goods of Wool, etc.
17 New South Wales Commissioners. 235
18 Jennings, P. A., Sydney.—Rug of tanned platypus skin. 239
19 New South Wales Commissioners, Wallaby skin rug. 239

Clothing, Jewelry, and Ornaments, Traveling Equipments.
20 Jennings, P. A., Sydney.—Collaret and cuffs of platypus skin. 259
21 Midgley, Mrs., Cook's River.—Wool flowers, copied from Australian native flowers. 254
22 Layton, Fred., Grafton.—Furs and skins of opossum, kangaroo, wallaby, and platypus. 256

Paper, Blank Books, and Stationery.
23 Government Printing Office, Sydney.—Blank books and printing. 261

Medicine, Surgery, Prothesis.
24 Spencer, John, Sydney.—Mechanical dentistry. 277

Fabrics of Vegetable, Animal, or Mineral Materials.
25 New South Wales Commissioners, Sydney.—Brushware. 284
26 New South Wales Commissioners, Sydney.—Manila rope, New Zealand flax rope, and lines. 281
27 Green, R., Sydney.—Cradles, flower stand, chair, perambulator; cane and willow work. 289

Carriages, Vehicles, and Accessories.
28 John Robertson, Sydney.—Buggy. 292
29 New South Wales Commissioners.—Lady's side saddle. 296
30 New South Wales Commissioners, Sydney.—Saddlery. 296

Educational Systems, Methods, and Libraries.
30a Government Printing Office, Sydney.—Books. 306
30b Sutherland, George.—Christian psychology. 306
30c Australian Museum.—Collection of birds, animals, etc. 312
30d New South Wales Commissioners.—Collection of birds. 312

Photography.
30e New South Wales Commissioners.—Photographs. 430
30f Holtermann, B. O.—Photographs. 430
30g Barnet, James.—Photographs. 430
30h Richards, Thomas.—Photo-lithographs. 47

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Forest and Agricultural Products, Animal and Vegetable Products.

Arboriculture and Forest Products.
31 Macarthur, Sir W., assisted by Hill & Hanrahan & J. Hassell.—Woods of southern districts. 600
32 Moore, Charles.—Woods indigenous to the northern districts. 600
33 Shoobert, James, Sydney.—Iron bark and turpentine timber. 600
34 Derepas, W., Yarongara Station.—Boree, and straight and curly yarran timber. 600
35 Hedgson, George, Redfern.—Timber from Bellingger river. 600
36 Penzer, J., Bundamar, near Dubbo.—Timber. 600
37 Du Faur, E., Sydney.—Timber from Mount Victoria. 600
37a New South Wales Commissioners.—Woods indigenous to New South Wales. 600
38 Hudson Bros, Botany Road, Redfern.—Timber. 600
39 Derepas, R., Yarongara. 603
a Yarran gum. 603
b Quondong nuts. 605
40 Harling, Mrs., & H. H. Field, Sydney.—Pressed ferns. 604
41 Moore, Charles, Botanic Gardens, Sydney.—Seeds, ginger-root, and bitter bark. 605
42 Hemmings, F. W., Loma Loma, Fiji.—Dried coconut. 605
43 Ryder Bros, Mango Island, Fiji.—Dried coconut. 605

Agricultural Products.
44 Lovegrove, W., Terrara, Shoalhaven river.—Maize. 620
45 Ryder Bros, Mango Island, Fiji. 620
a Maize. 620
b Beans. 621
c Turmeric and turmeric powder. 622
46 Peden, M. J., Bega.—Maize. 620
47 Demestre, E., Shoalhaven.—Maize. 620
48 Egkins, James, Grafton, Clarence river.—Maize. 620
49 Blain, C. R., Grafton, Clarence river.—Maize. 620
50 Macarthur, Sir W.—Maize. 620
51 Lewis Bros, Tamworth.—Wheat. 620
52 Dalton Bros, Orange.—Wheat. 620
53 Nelson Bros, Orange.—Wheat. 620
54 Jaeschke, Gustave, Clarence river.—Cigars and tobacco leaf. 623
55 Schweigert, W., & Co.—Cigars. 623
56 Muirhead, R., Grafton, Clarence river.—Cigars. 623
57 Hoff, M. Camille, Nakutakina, New Caledonia.—Coffee. 623

Land Animals.
58 Jennings, P. A., Sydney.—Stuffed platypus. 637

Water Animals, Fish Culture and Apparatus.
60 Hemmings, F. & W., Loma Loma, Fiji.—Bêche de mer. 643

Animal and Vegetable Products.
61 Secombe, R., Milton, Ulladulla.—Preserved milk. 652
62 Wright, Davenport, & Co., Sydney.—Leather. 652
63 Forsyth, J., & Sons, Sydney.—Leather. 652
64 Alderson & Sons, Sydney.—Leather. 652
65 Bell, H., Sydney.—Tallow and neat’s-foot oil. 652
66 Hewitt, T. G., Grafton, Clarence river.—Tallow and neat’s-foot oil. 652
67 Berry, J. S., Botany, Sydney.—Neat’s-foot oil and glue. 652
68 Layton, Fred., Grafton, Clarence river.—Beeswax. 654
69 Sydney Meat Preserving Co., Sydney.—Preserved meats. 656
70 Squires, Elam, Penrith.—Preserved fruits, jams, and jellies. 656
71 Hoff, Camille, Nakutakina, New Caledonia.—Preserved pineapples. 656
72 Biddell Bros, Sydney.—Preserved lemons and oranges. 656
73 Moore, Charles, Botanic Gardens, Sydney.—Preserved lemons and oranges. 656
74 Watson Bros, Young.—Flour. 657
75 Lewis Bros, Tamworth.—Flour. 657
76 Cohen & Levy, Tamworth.—Flour. 657
77 Dalton Bros, Orange.—Flour. 657
78 Nelson Bros, Orange.—Flour. 657
79 Waters, James, Ravensdale, Brisbane Water.—Arrowroot. 658
80 Cole, W., & Son, Tomago, Hunter river.—Arrowroot. 658
81 Laurie, W. & L., Gloucester, Port Stephens.—Arrowroot. 658
82 Ryder Bros, Mango Island, Fiji.—Arrowroot. 658
83 Payne, George, Grafton, Clarence river.—Arrowroot. 658
84 Champion, George, Ulmarra, Clarence river.—Arrowroot. 658
85 Munn, A. L., Merimbula.—Maizena. 658
86 Colonial Sugar Refining Co.—Refined sugars. 659
87 Martin, George, Grafton, Clarence river.—Sugar. 659
88 Chowne, E. G., Ulmarra, Clarence river.—Sugars. 659
89 Biddell Bros, Sydney.—Confectionery. 659
90 New South Wales Co, Clarence river.—Raw sugars. 659
91 Fallon, James T., Albury.—Wines. 660
92 Munro, A., Bebeah, Singleton.—Wines. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-45.
### Textile Substances of Vegetable or Animal Origin

<table>
<thead>
<tr>
<th>Number</th>
<th>Exhibitor</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>Hemmings, F. &amp; W., Loma Loma, Fiji.</td>
<td>— Cotton.</td>
<td>665</td>
</tr>
<tr>
<td>104</td>
<td>Ryder Bros., Mango Island, Fiji.</td>
<td>— Cotton.</td>
<td>665</td>
</tr>
<tr>
<td>105</td>
<td>Hoff, Camille, Nakutakina, New Caledonia.</td>
<td>— Cotton.</td>
<td>665</td>
</tr>
<tr>
<td>106</td>
<td>Moore, Charles, Botanic Gardens, Sydney.</td>
<td>— Vegetable fibres of various kinds.</td>
<td>666</td>
</tr>
<tr>
<td>107</td>
<td>Rudder, E. W., Kempsey.</td>
<td>— Fibre of gigantic nettle tree.</td>
<td>666</td>
</tr>
<tr>
<td>107a</td>
<td>Cox, E. K.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107b</td>
<td>Cox, G. H.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107c</td>
<td>Cox, F. &amp; A.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107d</td>
<td>Lamb &amp; Roberts</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107e</td>
<td>Tindal, E. &amp; A.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107f</td>
<td>Clive &amp; Hamilton</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107g</td>
<td>Bussington, J. B.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107h</td>
<td>Loder, Andrew</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>107i</td>
<td>King, P. G.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>108</td>
<td>Ramsay, D., Sydney.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109</td>
<td>Shanahan &amp; Jennings.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109a</td>
<td>Henty &amp; Balfour</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109b</td>
<td>Learmonth, L.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109c</td>
<td>White, F. R.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109d</td>
<td>Caughey, S. M.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109e</td>
<td>Campbell, D. H.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109f</td>
<td>Wilson, A.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109g</td>
<td>Loder, A.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109h</td>
<td>Lethbridge, G. L.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109i</td>
<td>Lowe, A. H., Dynevor.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109j</td>
<td>Hume, E. B.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109k</td>
<td>Bowman, E. &amp; A.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109l</td>
<td>Brown, T., &amp; Co.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109m</td>
<td>Goll, P. H.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109n</td>
<td>Gilbert, A. R.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109o</td>
<td>Macdonald, J. L.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109p</td>
<td>Allen, J.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>109q</td>
<td>Brodribb, W. A.</td>
<td>— Wool.</td>
<td>667</td>
</tr>
<tr>
<td>110</td>
<td>May, J. M., Randwick, near Sydney.</td>
<td>— Silk materials from the grain to the manufacture, produced by the inmates of the Asylum for Destitute Children, Randwick.</td>
<td>668</td>
</tr>
<tr>
<td>111</td>
<td>Thorne, George, Sydney. — Cocoons and cards of eggs desiccated and pierced, grown at Claremont, Rose Bay, Sydney.</td>
<td></td>
<td>668</td>
</tr>
</tbody>
</table>

### Agricultural Engineering and Administration

<table>
<thead>
<tr>
<th>Number</th>
<th>Exhibitor</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>Bell, H., Sydney.</td>
<td>— Bonedust.</td>
<td>661</td>
</tr>
<tr>
<td>113</td>
<td>Berry, J. S., Botany.</td>
<td>— Bonedust.</td>
<td>661</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Chemical Manufactures.
1 Bosisto, Joseph, Richmond, Melbourne.—Chemical and pharmaceutical preparations obtained from the eucalyptus or gum trees of Australia, and other indigenous vegetation. 200
3 Hood & Co., Melbourne.—Chemical and pharmaceutical preparations. 200
4 Lewis & Whitty, Fitzroy.—Washing and baking powders, ball blue. 200
5 Stringer & Co., Melbourne.—Baking powder. 200
6 Sullivan, Joseph, Melbourne.—Man’s filter; disinfectants flake specific and lick, hydrated silicate of aluminium. 200
7 Woodward, George, Kew.—Guano, deodorants, block of deodorized night-soil. 200
8 Watts, Charles, & Son, Emerald Hill.—Neat’s-foot and trotter oil. 201
94 Apollo Stearine Candle Co. (limited), Footscray.—Stearine and paraffin candles, and products. 201
9 Kitchen & Sons, Melbourne.—Stearine and large carriage candles. 201
10 Borthwick, Alex., Melbourne.—Varnishes, anti-fouling composition for ships’ bottoms, enameled cast iron pedestal pillars, anti-corrosive paint. 202
11 Bowman, John S., Melbourne.—Colonial crayons. 202
12 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Crayons. 202
13 Lewis & Whitty, Melbourne.—Blacking. 202
14 Hogg, S. P., & Co., Melbourne.—Curry powder. 203
15 Lewis & Whitty, Fitzroy.—Hair oil, essences, curry powder. 203
16 Perry, Hunter, & Co., Sandhurst.—Safety fuse. 204

Ceramics.—Pottery, Porcelain, Glass, etc.
17 Birmingham & Lacy, Brunswick.—Red building and white pressed and moulded bricks. 206
18 Nolan, Luke, Brunswick. a Stoneware drain pipes. 206 b Bronze vases, stone porous jugs, patent damp-proof for floor ventilation. 210
19 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne. a Fire-clay crucibles. 207 b Encaustic tiles, trusses, vases, etc. 208 c Earthenware and pottery. 210 d Glassware. 210
20 Adams, R. T., Melbourne.—Filters. 210
21 Bendigo Pottery Co., Sandhurst.—Earthenware woron for still. 210
23 Ferguson & Urie, Melbourne.—Stained glass for windows. 214
24 Gledhill, Melbourne.—Glass bottles. 215
25 Melbourne Glass Bottle Works Co., Emerald Hill.—Glass bottles. 215
26 Mount & Co., Emerald Hill.—Glassware. 215

Furniture, etc.
27 Aleck & Co., Melbourne.—Blackwood billiard table with appliances; console table. 217
28 Carr & Sons, Melbourne.—Window blinds, window sash, with Venetian shutters, etc. 217
29 Davis, J., Richmond.—Window sash. 217
30 Hodgson Bros., Sandhurst.—Self-acting Venetian blind, spring roller blind. 217
31 McEwan, James, Melbourne.—Side-board. 217
32 Muschialli, Lewis, Melbourne.—Pier glass, console table. 217
33 Baker, John, Emerald Hill.—Safety steps. 220
34 Wiegmann, August, Melbourne.—Basketware cradles, perambulators, chairs and flower stands, baskets. 221
35 Walker, A. R., Melbourne.—Gas cooking stoves. 222
36 Shaw, Alfred, & Co., Melbourne.—Millet brooms and whisks. 224
37 Guthrie, G. D., Epsom, Sandhurst.—Collection of pottery ware for household use, etc. 224
38 Bogle, Andrew, & Co., Melbourne.—Boot and shoe brushing and cutters’ polishing and sharpening machine. 224
39 Draper & Sons, Melbourne.—Earth-closets and fittings. 226

Yarns and Woven Goods of Vegetable or Mineral Materials.
40 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Flax, ropes, lines, twines, etc. 229
41 Donaghy, Michael, Geelong.—Ropes and lines. 229

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

42 Miller, James, & Co., Melbourne.—Ropes and lines. 229
43 McPherson, Thomas, Melbourne.—Corn sacks, wool packs, and sugar bagging. 229

Woven and Felted Goods of Wool, etc.
44 Barwon Woollen Mill Co., Geelong. a Tweeds. 235 b Blankets. 237
45 Gray, Alexander, & Co., Albion Woollen Mills, Geelong.—Plain and fancy tweeds. 235
46 Ballarat Woollen Co., Ballarat.—Shawls, tweeds, blankets. 237
47 Director of Botanic Gardens, Melbourne.—Dyed woolen cloth and silk. 238
48 Robertson, John, Melbourne.—Dyed Angora goat's fleece. 240
49 Zoological and Acclimatisation Society, Melbourne.—Angora goat's hair. 240

Silk and Silk Fabrics.
50 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Silk cocoons from the Acclimatisation Society, Victoria, and Mrs. Bladen Neill; cultivated silk, in cocoons and hanks, also bleached, dyed, and worked upon llama. 242
51 Timbrell, Ann, Collingwood. a Cocoons produced by silkworms from Japan, France, Italy, and Greece. 243 b Silk (raw material in hank). 243 c Victorian silk, worked on Brussels net. 246
52 Victoria Ladies' Sericulture Co. (limited), Castlemaine.—Silk, desiccated and pierced cocoons. 242

Clothing, Jewelry, and Ornaments, Traveling Equipments.
53 Ford Brothers, Melbourne. a Fith hats, in felt, silk, merino, etc. 257 b Fith sunshades for horses. 258
54 Inspector-General of Penal Department, Melbourne.—Boots and shoes. 251
55 Rosier, John, Melbourne.—Boots and shoes. 254
56 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne. a Myall pipes; rouille boxes of myall wood. 254 b Address-case of inlaid leather. 255
57 De Richelieu, Madam F., Windsor.—Ornaments made from fish scales, etc. 254
58 Pausacker, Evans, & Co., Melbourne.—Registered edge, solid leather portmanteaus. 255

Paper, Blank Books, Stationery.
59 Botanic Gardens, Director of, Melbourne.—Paper made from various barks, stems, and stems and leaves. 260
60 Ramsden, Samuel, Melbourne.—Various grades of paper, including cartridge, printing, and wrapping paper. 260

Weapons, etc.
61 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne. a Aboriginal weapons, native axe. 268

Medicine, Surgery, Prothesis.
62 Stanway, W., South Yarra.—Models of chairs for invalids. 279

Hardware, Edge Tools, Cutlery, and Metallic Products.
63 Danks, John, Melbourne.—Valves, cocks, lubricators, injectors, etc. 284
64 McIwraith, John, Melbourne.—Gas pipe and tin tube. 284

Fabrics of Vegetable, Animal or Mineral Materials.
64a Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Victorian and English ensigns. 288

Carriages, Vehicles, and Accessoires.
(For farm vehicles and railway carriages, see Departments of Agriculture and Machinery.)
65 Stevenson & Elliott, Melbourne.—Landaus. 292
66 Bothwell, Wade, Melbourne.—Harness, saddles, whips, etc. 296
67 Glenister, W. A., Geelong.—Axes, Colling's crank, etc. 296
68 Stoneman, Alfred, Richmond.—Carriage springs. 296

Sculpture.
69 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Medals of the Victorian Intercolonial Exhibition, 1875; seals of the Melbourne Public Library, University, and Exhibition of 1852. 402

Painting.
70 Campbell, O. R., Windsor.—Crossing the Plains. 410
71 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Heraldic painting on panels. 410
72 Curtis, J. W., Melbourne.—Track off the Point Nepean road. 410
73 Guerard, E. Von, Melbourne.—Pulpit rock, Phillip Island, Ballarat, c. 1873. 415
74 Johnston, H. J., Melbourne.—Summit Sunset. 415
75 Whitehead, Isaac, Melbourne.—Dandenong State Forest. 41

Engraving and Lithographing.
77 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Lithographs of fossils, roots, and seeds. 423

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Photograph.

8 Ararat, Shire Council of, Ararat.—Photographic views and statistics of the shire. 430

9 Batchelder & Co., Melbourne.—Photographs of persons born in the colony of Victoria. 430

8 Beuck, Henry, Gippsland.—Photographs of Victorian native flowers. 430

8 Chuck, T. F., Melbourne.—Photographs of persons born in the colony of Victoria. 430

8 Colac, Shire Council of, Colac.—Photographic views of the district. 430

83 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne. (1) Photographic views of scenery, public and private buildings, cattle, etc. 430 (2) Biographical charts of the schools of Victoria and the Venetian state schools. 430

84 Creswick, Borough Council of, Creswick.—Photographic views and statistics of the Borough. 430

85 Darebin Shire, Council of, Eastbourne.—Photographic views and statistics of the shire. 430

86 Echuca, Borough Council of, Echuca.—Photographic views and statistics of the Borough. 430

87 Emerald Hill, Borough Council of, Emerald Hill.—Photographic views. 430

88 Hotham, Town Council of, Hotham.—Photographic views and statistics of the town. 430

89 Johnstone, O'Shannessy & Co., Melbourne.—Photographs of persons born in the colony of Victoria, photographs colored in oil. 430

90 McDonald, D., St. Kilda.—Photographic views. 430

92 Phoenix Foundry Co. (limited), Ballarat.—Photograph of locomotives, engine, and tender, manufactured for the Victorian government. 430

93 Prahran, Town Council of, Prahran.—Photographic views and statistics of the town. 430

94 Robertson Brothers, Colac.—Colored photographs of cattle, bred by exhibitors. 430

95 Sandhurst, City of, Sandhurst.—Photographic views and statistics of the city. 430

96 Stewart & Co., Melbourne.—Photographs of persons born in the colony of Victoria. 430

97 Surveyor General of Victoria, Melbourne.—Photographic views of botanical and other gardens. 430

98 Wangaratta, Shire Council of, Wangaratta.—Photographic views and statistics of the shire. 430

99 Willett, G., Ballarat.—Colored photographs. 430

100 Wilson, Sir Samuel, Ercildoun.—Photographs; team of Hereford bullocks, bred by himself; prize sheep; his residence, etc. 430

101 Melbourne, City of.—Photographic views of city. 430

Industrial and Architectural Designs, etc.

102 Dowling, William, Emerald Hill.—Centre flowers, trusses. 412

103 Heathcote, T. S., Carlton.—Painted panels. 412

104 Murphy, Edward, Sandridge-road.—Centre flowers, and ventilators, ornamental chimney cap. 412

105 Patterson Brothers, Carlton.—Tablets of imitation wood and marble. 412

106 Pepper, George, Windsor.—Plasterers' models, ceiling and wall ventilators. 412

Machines, Tools, etc., of Mining, Chemistry, etc.

107 Morrison, L. K., Melbourne.—Abyssinian tube-wells and pumps, with boring apparatus. 501

108 White, David, Stawell.—Safety hook, to prevent accidents from over-winding in mining claims. 432

109 O'Malley, Edmund, Melbourne.—Ventilating safety cage, for mines. 504

110 Harkness, A, & Co., Victoria Foundry, Sandhurst.—Disk, fitted on screwed stamper shank, and showing principle; cam or wiper. 505

111 Perry, Davis, & Co., Sandhurst.—Stamper gittings. 505

Railway Plant, Rolling Stock, etc.

112 Cornish & Co., Melbourne.—Seats for railway carriages. 571

113 Stoneman, Edward, Richmond.—Railway truck spring. 573

Aerial, Pneumatic, and Water Transportation.

114 Cornish & Co., Melbourne.—Life-preserving buoys, mattresses, belts, rafts, etc.; seats, couches, and mattresses for ships. 590

Arboriculture and Forest Products.

115 Bass River Steam Saw-Mills, Bass river.—Blue gum timber. 590

116 Director of Botanic Gardens, Melbourne. (1) Carpological collection; barks, polished woods, fibre and tow prepared from barks, leaves, and stems. 600 (2) Resins, gums, oceo fat, and caoutchouc. 603

117 Lands and Agriculture, Department of, Melbourne.—Native woods. 600

118 Commissioners for Philadelphia Exhibition, Melbourne. (1) Boxes, paper knives, and tubs, made of Victoria woods. 601 (2) Myall and grass-tree gum, rubber and rubber stamp. 603

119 Clark, John, & Sons, Melbourne.—Wattle bark. 602

Agricultural Products.

120 Taylor, John, Allansford.—Adel- side wheat, grown at Merunga, near Warrnambool. 600
Agricultural, Animal, and Vegetable Products.

120 Patience, John, Ichuca.—Purple straw wheat. 620
120d Wright, Thomas Spencer, Rochester.—Purple straw wheat. 620
120c Kelly, Mortimer, Bridgewater.—Wheat. 620
120d Patterson, J. Matthew, Loddon.—Wheat. 620
121 St. Arnaud Pastoral & Agricultural Society, St. Arnaud.—Short oats, Wheat, barley. 620
121a O'Reilly, Thomas, Toolamba.—Wheat. 620
121d Adams, John, Warring.—Wheat. 620
121c Smith, George, Ballard.—White Tuscan wheat. 620
122 Scott, James, Indigo, Chillern.—Wheat. 620
123 Commissioners for Philadelphia Exhibition, Melbourne. a Collection of varieties of wheat and grass-tree plant. 620
124 O'Keefe, Andrew, Adelaide Vale, Clare Inn.—Purple-straw wheat. 620
125 Myring, Joseph, Campbell's Creek, Clements—Barley. 620
126 Adams, James, Warring.—White Tuscan wheat. 620
127 Laidlay, John, Bundoora, Plenty-road.—Wheat. 620
128 McNair, Angus, Bellerine East.—New fodder- pea. 620
129 Stewart & Ferguson, Indigo, Chil tern.—Wheat. 620
130 Connor, James, Allansford.—Fox till oats, grown at Merunga, near Warrnambool. 620
131 Schmitt, Lewis, Mornington.—Wheat. 620
132 Buckely, Edward, Newbridge, Loddon.—Red-straw wheat from counties of Gladstone and Bendigo, oats. 620
133 Jack, John, Oxley Plains, Ovens District.—T rampont white wheat, grown on chocolate soil after English grass. 620
134 Northeastern Pastoral & Agricultural Society, Murchison.—Wheat grown by J. McNab, Tabilk. 620
134 Catlin, James, Runnymede.—Purple-straw, white Tuscan and other wheats. 620
135 Moncrieff, John, Tabilk, Goulburn river.—Purple-straw and white wheat. 620
136 Gilmour, Andrew, Colomsky, Blaughter.—Oats from parish of Ballyrogan. 620
136 Ararat Flour Mill Co. (limited).—Prime miller's wheat. 620
137 Ross, Thomas, Dry Diggins, near Maryborough.—Purple-straw wheat. 620
138 Pojacz, Angus, Chapman, Moyston.—English barley, Tartarian oats, purple-straw and white wheat. 620
139 West Bourke Pastoral & Agricultural Society, Romsey.—White Tuscan wheat, grown by Hon. T. F. Hamilton. 620
140 Aboriginal Mission Station, Coranderrk.—Hops. 623
141 McKenzie, James F., & Co., Melbourne.—Coffe, chicory, cocoa, and chocolate made from Trinidad nuts; mustard, spices. 623

Land Animals.

142 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne. a Water fowl, stuffed by Chas. French. 635
143 St. John, F., Melbourne.—Ducks, plover, grousé, quail, black swan, etc. 635
144 Grimwood, Thomas, Fern Tree Gully.—Quail, snipe, laprrial. 635
145 Gaskell, Joseph, Melbourne.—Australian snipe. 635
146 Robertson, W. W., Richmond.—Australian native birds. 635
147 Gaskell, Joseph, Melbourne.—Wild animals. 637
148 Godfrey, F. R., Melbourne.—Wild animals. 637
149 McCoy, Prof., Melbourne University.—Wild animals, and black swan. 637
150 French, C., Melbourne.—Australian longicorn, buprestis, lepadoptera. 637
151 Timbrell, Ann, Cellingwood.—Japanese silk worms, modeled in wax. 638

Water Animals, Fish Culture and Apparatus.

153 St. John, F., Melbourne.—Fish. 641

Animal and Vegetable Products.

154 Bird, George, Inkerman, Lyndhurst.—Cheese. 651
155 Pierce, G. G., Melbourne.—Cheese. 651
156 Riddle, J., Lancefield.—Cheese. 651
157 Clark, John, & Sons, Melbourne.—Leathers, skins, hides. 651
158 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Rugs made from skins of Victorian animals. 652
159 Fink, M., Geelong.—skins. 652
160 Quinn, H. S., Richmond.—Dyed and white wool mats, kangaroo glove leather. 652
161 Brearley Brothers, Geelong.—Sole leather. 652
162 Dunkell & McBride, Melbourne.—Sash lines, whip gut, gut lathe bands, sausage casings. 652
163 Pearse Brothers, Fremantle, Western Australia.—Hides, leather, skins. 653
164 Fitts, Charles, & Sons, Emerald Hill.—Leather. 653
165 Penal Department, Inspector-General of, Melbourne.—Leather. 653
166 Wallis & Co., Richmond.—Leather, goat skin nut. 653
167 Bennett, T. K., Melbourne.—Preserved meats. 656
173 Director of Botanic Gardens, Melbourne.—Jams. 656

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Animal and Vegetable Products, Textile Substances.

<table>
<thead>
<tr>
<th>DEPT. II.—MANUFACTURES.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>174 Zorn, Edward, Clayton's-road, near Oakleigh.—Tomato and Oakleigh sauces.</td>
<td>666</td>
</tr>
<tr>
<td>175 Wright, Payne, &amp; Co., South Yarra.—Fruit jams.</td>
<td>666</td>
</tr>
<tr>
<td>176 Watson &amp; Paterson, Melbourne.—Hams, bacon, mesa pork.</td>
<td>666</td>
</tr>
<tr>
<td>177 Western Meat Preserving Co., Colac.—Preserved meats.</td>
<td>666</td>
</tr>
<tr>
<td>178 Melbourne Meat Preserving Co., Melbourne.—Preserved meats.</td>
<td>666</td>
</tr>
<tr>
<td>179 Lyon, George, Beechworth.—Tomato sauce.</td>
<td>666</td>
</tr>
<tr>
<td>180 Grant, Mrs., Richmond.—Tomato sauce.</td>
<td>666</td>
</tr>
<tr>
<td>181 Comport, Henry, Cheltenham.—Tomato sauce.</td>
<td>666</td>
</tr>
<tr>
<td>182 Stringer &amp; Co., Melbourne.—Mixed pickles, sauces, curry powder.</td>
<td>666</td>
</tr>
<tr>
<td>182a Boddy, Edward, Nagambie.—</td>
<td>666</td>
</tr>
<tr>
<td>182b Hood, F. &amp; J., Melbourne.—Malt.</td>
<td>666</td>
</tr>
<tr>
<td>183 McKenzie, Jas. F., &amp; Co., Melbourne.—Oatmeal, groats, broke meal.</td>
<td>666</td>
</tr>
<tr>
<td>183a Martin, P. J., Melbourne.—Malt.</td>
<td>666</td>
</tr>
<tr>
<td>184 Trouette &amp; Blandied, Great Western, Ararat District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>184a Myring, Joseph, Campbell's Creek, Castlemaine.—Malt.</td>
<td>666</td>
</tr>
<tr>
<td>185 Best, Joseph, Great Western, Ararat District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>185a Perrin, William, jr., Richmond.—Malt.</td>
<td>666</td>
</tr>
<tr>
<td>186 Docker, F. G. &amp; J. B., Wangaratta, Beechworth District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>187 Evans, Henry, Beechworth District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>188 Mellon, Francis, Dunolly, Castlemaine District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>189 Botten, William, Eddington, Castlemaine District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>190 Jung, Otto, Castlemaine, Castlemaine District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>191 Schroeder, Castlemaine, Castlemaine District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>192 Crippa, Fabrizio, Hepburn, Castlemaine District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>193 Greer &amp; Co., Echuca, Echuca District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>194 Vetterl, John, Echuca, Echuca District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>195 Weber, Jacob, Geelong, Geelong District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>196 Deppeler, Jacob, Gheringhap, Geelong District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>197 Ritchie, John, Murcheboluc, Geelong District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>198 Bear &amp; Ford, Tabilk Vineyard, near Seymour, Goulburn District.—Wine.</td>
<td>666</td>
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<tr>
<td>199 Egli, F., Tabilk, Goulburn District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>200 Schmitt, Franz, Berwick, Melbourne District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>201 Francis, Charles, Sunbury, Melbourne District.—Wines.</td>
<td>666</td>
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<tr>
<td>202 St. Hubert's Vineyard Co., Yering, Melbourne District.—Wines.</td>
<td>666</td>
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<tr>
<td>203 Johnston, J. S., Craiglie Vineyard, Sunbury, Melbourne District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>204 Maplestone, Charles, Ivanhoe Lodge, Heidelberg, Melbourne District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>205 Branche, Charles, Sunbury, Melbourne District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>206 Snowden, E. G., Boroondara, Melbourne District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>207 Smith, G. S., Wahgunyah, Melbourne District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>208 Pohl, Carl, Strathfieldsaye, Sandhurst District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>209 Bruhn, Albert, Strathfieldsaye, Sandhurst District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>210 Fuchs, Adolph, Strathfieldsaye, Sandhurst District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>211 Fischer, August, Shamrock Vineyard, Emu Creek, Strathfieldsaye, Sandhurst District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>212 Shaw, F. K., Goornong, Sandhurst District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>213 Grosse, Frederick, Strathfieldsaye, Sandhurst District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>214 Grosse, Fred., Toorongo Vineyard, Bendigo, Sandhurst District.—Wine.</td>
<td>666</td>
</tr>
<tr>
<td>215 Greiffenhagen, Wm., Strathfieldsaye, Sandhurst District.—Wines.</td>
<td>666</td>
</tr>
<tr>
<td>216 Brown, H. J., Australian Distillery, Melbourne.—Geneva spirits of wine.</td>
<td>666</td>
</tr>
<tr>
<td>217 Fuller, Alfred, Kew.—Ale, stout.</td>
<td>666</td>
</tr>
<tr>
<td>218 Henelly, James, Melbourne.—Ale.</td>
<td>666</td>
</tr>
<tr>
<td>219 Latham, Edward, Carleton Brewery, Carleton.—Ale, porter.</td>
<td>666</td>
</tr>
<tr>
<td>220 Martin, P. J., Melbourne.—Ale.</td>
<td>666</td>
</tr>
<tr>
<td>221 Reed, Henry, &amp; Co., South Yarra.—Vinegar.</td>
<td>666</td>
</tr>
<tr>
<td>222 Steward, James, Eaglehawk, Sandhurst.—Ale.</td>
<td>666</td>
</tr>
<tr>
<td>223 Treacy, John, &amp; Co., Geelong.—Ale, stout.</td>
<td>666</td>
</tr>
<tr>
<td>224 Warrenheip Distillery Co., Ballarat.—Whisky, Geneva spirits of wine.</td>
<td>666</td>
</tr>
<tr>
<td>225 Guest, T. B., &amp; Co., Melbourne.—Fancy biscuits.</td>
<td>666</td>
</tr>
<tr>
<td>226 Smith &amp; Son, West Melbourne.—Biscuits.</td>
<td>666</td>
</tr>
<tr>
<td>227 Swallow &amp; Aricll, Sandridge.—Biscuits.</td>
<td>666</td>
</tr>
</tbody>
</table>

Textile Substances of Vegetable or Animal Origin.

| 228 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Cotton. | 666 |
| 229 Atkinson, Wm., Camperdown.—Cotton. | 666 |
| 230 Longmire, Thomas, Kooroochong, Sunnecat.—Flax stalks and seeds. | 666 |
| 231 McPherson, Thomas, & Co., Melbourne.—Jute. | 666 |
| 232 Armstrong, Alex., Warramitine, Shelford.—Wool. | 666 |
| 233 Arnold, George, & Co., Melbourne.—Assorted wools grown by James Gibson, Cleveland, Tasmania; Wm. Gibson & Son, Scone, Tasmania; F. Russell, Langi Willi and Carramah, Victoria; Wm. Cumming, Mt. Fyans, Victoria; A. M. Campbell, Melaluka, Victoria; John | 666 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

234 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne—Wools; wool from S. Robertson, Geelong.

235 Cumming, Thomas F., Stony Point.

236 Currie, John Lang, Larra, Derimullum—Wools.


238 Elder, W. & N. G., Elder, Rookwood—Wools.


240 Grevches, Edward G., Berriallock, Skipton—Wool.

241 Hastings, Cunningham, & Co., The Australian Wool Stores, Melbourne—Fleece of wool from the following breeders: H. Cattamore, Tolegorga; C. W. Simson, Mundagqui; Godfrey & Chambers, Peveysea; F. L. Parker, Quiamong; Everett & Watson, Tchelary and Nyang; Wm. Lang, M. L. A., Wargam; Hon. Phillip Russell, M. L. A., Carham and Langi Willi; John L. Currie, Larra; Thomas Dowling & Sons, Jellalabad; executors of late A. Russell, Mawallock; Wm. Lewis, Stoneleigh; Ewan McPherson, Binduck; Godfrey McKinnon, Goonambill; Russell & Shaw, Elwah; Rutherford Brothers, Numurkah; Robert Simons, M. L. A., Langi Kal Kit; Nichol & Telford, Tallarowonga; Knight & Lydiard, Kooringah; Mount Battery Co., Mount Battery; Alfred Chenery, Delatite; Alexander Wilson, Mount Emu; J. G. Reeves, Footscray.

242 Henty, Edward, Portland—Wools.

243 Reeves, Isaac G., Footscray, Melbourne—Wool.

244 Russell, Thomas, Barunah Plains, Mount Hesse—Wool.

245 Rugridge, William, Farnham Park, Warrnambool—Fleece.

246 Rutherford, Andrew, Como, Kensington, Geelong—Wool.

247 Synnot, Monkton, Melbourne—Wool.

248 Synnot, George, & Co., Geelong—Wool.

249 Thomas, C. T., North Sandridge—Dressed skin of pure Romney ewe, bred by R. Muldown, Boos.

250 Timms Brothers, Mount Hesse, Beeac—Wools.

251 Watson, Alexander, Warrabrie—Fleece.

253 Wilson, Sir Samuel, Oakleigh Hall, East St. Kilda.—Wools and machinery.

254 Wilson, John, Lismore.—Wool.

255 Howard, John, near Albury.—Sample cocoons of mulberry silk-worms, with wound silk in its natural colors; floss silk; Japanese and Italian grain; banks of suffocated and pierced cocoons.

Machines, Implements, and Processes of Manufacture.

256 Lennon, Hugh, North Melbourne.—Double-farrow plow.

257 Bodington, Robert, Carlton.—Sheep support on rollers.

Ornamental Trees, Shrubs, and Flowers.

258 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Tree ferns from Dandenong State Forest and Mount Macedon; tode ferns from Mount Macedon.

260 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Fac-similes of specimens of fruit, the originals of which were selected during the past season, modelled and arranged by Thomas McMillan:

- Apples and pears from Josiah Trevestan, Ballarat; Chas. Draper, Hazelghen; H. U. Cole, Twoford; Robert Whatmough, Greensborough; Horticultural Society of Victoria; John Harrison, Essendon; John Smith & Sons, Riddell's Creek; T. C. Cole, King & Sons, Fyansford; Geelong and Western District Agricultural and Horticultural Society; W. L. Hunt, Malvern; Chas. Allen, jr., South Brighton; Thos. Christian, Mount Macedon; W. Lawford, Doncaster; J. Carson; J. Roberts; H. Boyce; Mr Freike, Carlsruhe; C. May, Sunbury; J. C. Cole, Richmond; J. D. Roberts, Hawthorne; Robt. Hepburn, Hawthorne, A. Stuart, Toorak; Geo. Kilroy, Caulfield; J. Weber, Geelong; Jas. Lang, Harcourt, Sir Redmond Barry; J. Banks, Flemington; Mr. James, Ballarat; Jos. Bosisto, Richmond; and Joseph Webber, Wanganyah.

- Quinces from Sir Redmond Barry and J. Weber, Geelong.

- The medlar and the loquat.

- Peaches from C. A. Lawford, R. Whatmough, Mooloomon, South Australia; J. McDonald, G. & W. D. Agricultural and Horticultural Society.

- Nectarines from R. Whatmough and market.

- Apricots, plums, cherries, and olives europe.

- Grapes, mulberries, figs, pomegranates, and oranges.

- K. apples from Mr. Graham and the Melbourne Botanical Gardens.

- Gooseberries from Thos. Lang & Co. and P. Moss, Buninyong.

- Black, red, and white currants from Thos. Lang & Co.

- Raspberries from Henry Boyce

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-46.
SOUTH AUSTRALIA.

(North of Nave, Columns 10 to 17.)

COLLECTIVE EXHIBIT.

Minerals, Chemicals, Manufactures, Clothing.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Clark, F., &amp; Sons, Adelaide.—Iron ores</td>
</tr>
<tr>
<td>2 Balhannah Mining Co., Adelaide.— Copper ores and bismuth</td>
</tr>
<tr>
<td>3 North Yelta Mine, near Adelaide.— Copper ores</td>
</tr>
<tr>
<td>4 Moonta, Wallaroo, and other mines, near Adelaide.—Copper ores</td>
</tr>
<tr>
<td>5 Crabb, R. S., Adelaide.—Azurite and malachite from the burra burra mine, near Adelaide</td>
</tr>
<tr>
<td>6 South Australian Commissioners.—Specimens of gold quartz from the northern territory</td>
</tr>
<tr>
<td>7 Coozoong Oil &amp; Coal Co.—&quot;Coozoongile,&quot; a mineral samnhoul</td>
</tr>
</tbody>
</table>

COLLECTIVE EXHIBIT OF AURIFEROUS QUARTZ, FROM THE NORTHERN TERRITORY OF SOUTH AUSTRALIA, BY THE COMMISSIONERS, FOR THE FOLLOWING OWNERS:  

| 6 Ayliffe, I. H., W. Union Mine |
| 7 Becker, I., Yam Creek |
| 8 Brese & Starke, Extended Union Mine |
| 9 Caledonia New Amalgamated Co |
| 10 Golden Stream Claim |
| 11 Griffiths, W. K., South Union Mine |
| 12 Grove Hill Co. |
| 13 Gunn, J. H., Britannia Reef |
| 14 Lewis, John, Pine Creek |
| 15 Bernardo, M., Pine Creek |
| 16 New Telegraph Co. |
| 17 Sandy Creek Claim |
| 18 Shepperd, E., John Bull Reef |
| 19 Sandy Creek Puddling Co. |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

| 20 Tripp, J. P., Lady Alice & Union Reef |
| 21 Union Prospectors Co. |
| 22 Whitelaw, E. H., Pine Creek |
| 23 Westcott, J. S., & Wisendunger, I., North Union Mine |
| 24 South Australian Commissioners, Adelaide.—Marble, sandstone, and slate from quarries near Adelaide |

Chemical Manufactures.

| 25 Barnard, George L., Adelaide.—Olive oil |
| 26 Davenport, Samuel, Adelaide.—Olive oil |

Yarns and Woven Goods of Vegetable or Mineral Materials.

| 27 Knight, J. G., Adelaide. |
| a String made from human hair |
| b Native bag used by Lubras (women) |

Clothing, Jewelry, and Ornaments, Traveling Equipments.

| 28 Steiner, Henry, Adelaide. |
| a Shell necklace, gold brooch and earrings; shell brooch and earrings set in gold |
| b Silver-mounted emu vases and ornaments; silver oxidized-metal-figured piano candlesticks |

| 29 Davenport, Samuel, Adelaide.—Emu eggs made up in imitation of jewelry |

| 30 Nitscke, W., Adelaide.—Copper vase, cross, and pipe; silver cups made from a dollar and a five-franc piece; teapot made from a shilling |

| 31 Knight, J. G., Adelaide.—Aboriginal ornaments from the northern territory of South Australia |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Manufactures, Education, Art, Agriculture.

32 Steiner, Henry, Adelaide.—Silver-mounted emu egg inkstands. 254
33 Wendt, J. M., Adelaide.—Silver-mounted emu egg inkstand. 254
34 South Australian Commissioners, Adelaide.—Skins of indigenous birds and animals of South Australia made into muffls, collarettes, etc. 256

Military and Naval Armaments, Ordnance, Fire Arms, and Hunting Apparatus.
35 Knight, J. G., Adelaide.—Aboriginal weapons from the northern territory of South Australia. 269

Hardware, Edge Tools, Cutlery, and Metallic Products.
36 South Australian Commissioners, Adelaide.—Iron castings made from Adelaide ore. 263

Educational Systems, Methods, and Libraries.
37 South Australian Commission, Adelaide.—Herbarium, comprising specimens of all the known plants indigenous to South Australia, prepared by Dr. Schomburgk, director of the Botanic Gardens at Adelaide. 301
38 Adelaide Museum, Adelaide, F. G. Waterhouse, curator.—Collection of birds, mammals, reptiles, skins of animals, and eggs of South Australia. 301

Engineering, Architecture, Charts, Maps, and Graphic Representations.
39 South Australian Commissioners, Adelaide.—Statistical records and maps relating to South Australia, compiled by the Surveyor-General. 335

Photography.
40 Scott, G. B., South Australia.—Photograph of northern territory of South Australia. 430
41 South Australian Commission, Adelaide, South Australia.—Photographs descriptive of town, pastoral, and farming life in South Australia, the Adelaide Botanic Gardens, suburban views, and mining. 430
42 Angas, G. H., Collingwood, near Adelaide.—Photographs of stud stock. 430

Arboriculture and Forest Products.
43 Hardy, Arthur, Mt. Lofty, near Adelaide.—Cork from tree raised from an acorn imported from Spain in 1864. 620
44 Davenport, Samuel, Adelaide.—Tools, useful and ornamental. 620
45 South Australian Commissioners, Adelaide.
   a Woods, useful and ornamental, from the northern territory of South Australia, forwarded by J. B. Scott, government resident, woods from the neighborhood of Adelaide, collected by Mr. Mais, engineer in chief, and others. 620
   b Fungi, supplied by W. B. Hughes, northern territory of South Australia. 620
   c Red berries (seeds of the creeping licorice) and corkscrew pine seeds, from J. E. Kelsey and W. B. Hughes, northern territory of South Australia. 620

46 Wilke, H., & Co., Port Adelaide.—Barks for tanning; ground and chopped mimosa (black wattle), and ground acacia. 602
47 Knight, J. G., Adelaide.—Bark from the northern territory of South Australia. 624

Pomology.
48 South Australian Commissioners, Adelaide.—Wax models of fruit taken from originals grown in South Australia. 610

Agricultural Products.
49 Carling, Thomas, Adelaide.—Wheat. 620
50 Riggs, John, Adelaide.—Wheat. 620
51 Young, C. B., Adelaide.—Wheat. 620
52 South Australian Commissioners, Adelaide.
   a Wheat, barley, oats, and rye. 620
   b Peas. 621
   c Linseed; hemp, rape, sunflower, prairie and rib grass seed. 624
53 Kelsey, J. E., Mt. Gambier, Adelaide.—Hops, grown in volcanic soil. 623

Water Animals, Fish Culture and Apparatus.
54 Cardwell, Robert, Port Essington, northern territory of South Australia.—Trepang, cured at the fishery, Port Essington, northern territory of South Australia. 644

Animal and Vegetable Products.
55 Kemp, W., Adelaide.—Sheepskin mats. 652
56 Angas, J. H., Collingwood, near Adelaide.—Sheepskins; skins of the spotted emu. 652
57 South Australian Commissioners, Adelaide.
   a Dressed skins of the kangaroo, wallaby, and other indigenous animals; also, skins made up in designs. 652
   b Emu eggs. 653
   c Raisins, plums, figs, and currants. 654
   d Wines. 660
58 Davenport, Samuel, Adelaide.
   a Skins of native animals and birds. 652
   b Emu eggs. 653
59 Bagot, E. M., Adelaide.—Extract of meat. 656
60 Hardy, Thomas, Adelaide.
   a Raisins and currants. 656
   b Wine. 660
61 Murray, Alexander, near Adelaide.
   a Jams, jellys, and marmalades. 656
61a McEwen, George, Adelaide.—Assorted jams. 656
62 Dunn, John, & Co., Adelaide.—Flour. 657
63 Magarey, Thomas, & Co., Adelaide.—Flour. 657
64 Cowan, Thomas, & Co., West Adelaide.—Flour. 657
65 Gilbert, Joseph, Pewsey Vale, Adelaide.—Wine. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 2745.
Wines, Textiles.

66 Clark & Crompton, Adelaide—Wines.
67 Richman, J.W., Watervale.—Wines.
68 Quick, H. C., Marden, Adelaide.—Wines.
69 Ross, R. D., Highercombe, Adelaide.—Wines.
70 Kaines, John H., Adelaide.—Wines.
71 Auld, Patrick, Magill, Adelaide.—Wines.
72 Barnard, G. L., Adelaide.—Wines.
73 Hornabrook, C. A., Adelaide.—Wines.
74 White, George, Rosefield, Adelaide.—Wines.
75 Baker, Isabella, Morialta, Adelaide.—Wines.
76 Gillard, Joseph, Adelaide.—Wines.
77 Ind, G. F., Paradise, Adelaide.—Wines.
78 Foote, Henry, Adelaide.—Wines.
79 Holbrook, J. D., Adelaide.—Wines.
80 Kelly, Dr., Tintara, Adelaide.—Wines.
81 Salter, W., & Son, Saltram, Adelaide.—Wines.
82 Davenport, Samuel, Beaumont, Adelaide.—Wines.
83 Martin, James, Gawler, Adelaide.—Wines.
84 Young, C. B., Adelaide.—Wine.
85 Wright, E. W., Horne Park, Adelaide.—Wines.
86 Bickford, A. M., & Sons, Adelaide.—Bitters, quinine wine, and lime-juice cordial.
87 Davis, F. C., Adelaide.—Bitters and cordials.
88 Nitschke, W., Adelaide.—Cordials and liquors.

Textile Substances of Vegetable or Animal Origin.
89 Angas, J. H., Collingrove, Adelaide.—Wool.
90 Keynes, Joseph, Keynton, Adelaide.—Wool.
91 Murray, John, Murrayvale, Adelaide.—Wool.
92 Graham, Thomas, Adelaide.—Wool.
93 Browne, W. J., Moorak, Adelaide.—Wool.
94 Hayward, Armstrong & Co., Woolnoka, Adelaide.—Wool.
94a Crozier, W., Adelaide.—Wool.
95 McFarlane, Allan, Wellington Lodge, Adelaide.—Wool.
95a Price & Browne, Adelaide.—Wool.
96 Wurm, Frederick, Adelaide.—Silk and silk cocoons.

Agricultural Engineering and Administration.
97 Dalwood, W. F., Adelaide.—Guanaco from Browse Island, off west coast of Australia.
CAPE OF GOOD HOPE.

(South of North Aisle, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures, Education and Science.

Minerals, Ores, Stone, Mining Products.

1 Cape Copper Mining Co. (limited), Cape Town.—Copper ores from Ookiep, Spectakel, Narrap, Karoolushb, and Kilderman mines, Little Namaqualand. 100

2 Bright, H. C. R., Mowbray, near Cape Town.—Copper ores and collection of minerals. 100

2a Muskett, E. B.—Galena from Banghock mine, Hope Town division. 100

3 Dickson, W. W., Cape Town.—Black oxide of manganese, from Hercules mine. 100

4 Stonestreet, Samuel, Kemberly Diamond Field.—Diamonds and associated rocks. 100

5 Vice, G., Stormbergen. a Sulpetre from the Stormbergen. 100

b Coal from the Stormbergen. 101

6 Wilson, A., Gas Works, Cape Town.—South African coals,okes, and ashes. 101

Metallurgical Products.

7 Cape Copper Mining Co. (limited), Cape Town.—Copper. 111

Chemical Manufactures.

8 Smithers, J. & G., Cape Town.—Soaps. 201

Furniture and Objects of General Use in Construction and in Dwellings.

9 Moulton, R., Swellendam.—Work-box constructed of South African woods. 217

10 Lesar, W., Cape Town.—Table constructed of various colonial timbers. 217

Yarns and Woven Goods of Vegetable or Mineral Materials.

10a Cawood, Hon. S., Grahamstown.—Cotton table cloth. 230

Clothing, Jewelry, and Ornaments, Traveling Equipments.

11 Perry, Mrs., Cape Town.—Melon seed necklaces, bracelets, etc. 253

12 Gladwin, J. P., Kafirland.—Hair of Pondoimise, surmounted by ring of Euphorbia jap; ivory earrings of Pondoimise baboon skin; dress of witch doctor. 253

13 Local Committee, Cape of Good Hope. a Native articles of dress—necklaces, armlets, earrings etc. 253

b Native aprons, head-dress, etc. 234

14 Ayliff, Mrs., Grahamstown.—Skeletonized flowers. 254

Weapons, etc.

15 Local Committee of Cape of Good Hope.—Knife, kierie of rhinoceros horn. 268

16 Vigors, P., Cape Town.—Native weapons, Kafrassegais, Bushman axe. 268

Medicine, Surgery, Prosthetics.

17 Aulet, W. H., Paarl.—Vegetable drugs and medicines. 272

18 Barkly, Sir H., Governor of Cape Colony.—Bitter barks used by Kafr doctors in fever cases. 279

Fabrics of Vegetable, Animal, or Mineral Materials.

19 Local Committee of Cape of Good Hope.—Kafir beer and milk pots, Kafir and Basuto baskets. 289

Educational Systems, Methods, and Libraries

20 Solomon, C., Cape Town.—Map of South Africa. 300

23 Solomon, Saul, & Co., Cape Town.—Specimens of bookbinding. 306

24 Local Committee of Cape of Good Hope.—Catalogue of South African Public and Sir G. Grey’s libraries; University calendar; repos of South African Museum, Public Library, and Botanic Gardens; Dr. Bloek’s Bushman Research. 306

25 Juta, J. C., & Co., Cape Town.—Books. 306

26 Mabille, A., Morija, Basutoland.—Books printed, bound, and published at Morija Mission Station, Basutoland. 306

27 Stewart, G., Lovedale, Kafirland.—Books printed, bound, and published at the Lovedale Kafir Mission Institution. 306

Engineering, Architecture, Maps, etc.

28 Local Committee of Cape of Good Hope.—Models of harbor works and dry docks at Cape Town. 339

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Art, Agricultural, Animal, and Vegetable Products.

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dunn, E. I., Cape Town.</td>
<td>Geographical sketch map of Cape Colony.</td>
</tr>
<tr>
<td>Ayliff, Reuben, Grahamstown.</td>
<td>Photographs of Cape Town, harbor, works, etc.</td>
</tr>
</tbody>
</table>

**Paintings.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hermann, W., Cape Town.</td>
</tr>
<tr>
<td>View in Keewa Forest, Cape Colony.</td>
</tr>
<tr>
<td>View of Three Anchor Bay, near Cape Town.</td>
</tr>
</tbody>
</table>

**Coppen, F., Cape Town.** Water color sketches. 411

<table>
<thead>
<tr>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sketch of Hangklip, a spur of the Stormbergen, Queenstown division.</td>
</tr>
<tr>
<td>Sketch of the Mac Mac Falls, Lydenburg gold fields, South African Republic.</td>
</tr>
</tbody>
</table>

**Hays, Miss Anna, Cape Town.** Water color sketch of the native population of Cape Town. 411

**Hermann, W., Cape Town.** Six water color sketches of colonial scenery. 411

**Thwaites, Miss F. C., Cape Town.** Six water color drawings of indigenous Cape flowers. 411

**Engraving and Lithography.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruton, C. I., Cape Town.</td>
</tr>
<tr>
<td>Views in Cape Town.</td>
</tr>
<tr>
<td>View of Kloof Lodge, near Cape Town.</td>
</tr>
<tr>
<td>Views of scenery around Cape Town.</td>
</tr>
</tbody>
</table>

**Barnard, S. B., Cape Town.** Photographs of Cape Town, natives, etc., in a look. 430

**Ferneyysey, C. D., George.** Photographs of colonial scenery. 430

**Arboriculture and Forest Products.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holland, B. H., Alexandria, Cape Colony.</td>
</tr>
<tr>
<td>Mossop &amp; Garland, Cape Town.</td>
</tr>
<tr>
<td>Smithers, J. G., Cape Town.</td>
</tr>
<tr>
<td>Dale, D., Cape Town.</td>
</tr>
</tbody>
</table>

**Agricultural Products.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
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</thead>
<tbody>
<tr>
<td>Barry &amp; Herdon, Mossel Bay.</td>
</tr>
<tr>
<td>Barry &amp; Nephews, Cape Town.</td>
</tr>
<tr>
<td>Jongh, J. S. de, Cape Town.</td>
</tr>
<tr>
<td>Powrie, E., Mossel Bay.</td>
</tr>
</tbody>
</table>

**Land Animals.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
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</table>

**Water Animals, Fish Culture and Apparatus.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merriman, John, Cape Town.</td>
</tr>
<tr>
<td>Moodie, D., Swellendam.</td>
</tr>
</tbody>
</table>

**Animal and Vegetable Products.**

<table>
<thead>
<tr>
<th>Artist, Location, Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dier &amp; Diets, Port Elizabeth.</td>
</tr>
<tr>
<td>Benningfield &amp; Son, Natal.</td>
</tr>
<tr>
<td>Mossop &amp; Garland, Cape Town.</td>
</tr>
<tr>
<td>Local Committee, Cape of Good Hope.</td>
</tr>
<tr>
<td>Dickson, W. W., Cape Town.</td>
</tr>
<tr>
<td>A Pair of horns and head.</td>
</tr>
<tr>
<td>Ostrich eggs.</td>
</tr>
<tr>
<td>Vigors, P., Cape Town.</td>
</tr>
<tr>
<td>Clipp, G. W.</td>
</tr>
<tr>
<td>Local Committee of Cape of Good Hope.</td>
</tr>
<tr>
<td>Douglass, A., Grahamstown.</td>
</tr>
<tr>
<td>Powrie, E., Mossel Bay.</td>
</tr>
<tr>
<td>Barry &amp; Nephews, Cape Town.</td>
</tr>
<tr>
<td>Volsteedt, P. J., Cape Town.</td>
</tr>
<tr>
<td>Merwe, J. H. van der, Robertson.</td>
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<tr>
<td>Merriman, John, Cape Town.</td>
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<tr>
<td>Falck, J. A. H., Montagu.</td>
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<tr>
<td>Clear, E., Cape Town.</td>
</tr>
<tr>
<td>Heydenrych, B. G. P., Cape Town.</td>
</tr>
<tr>
<td>Ryn, J. H. van, Cape Town.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Wines, Textiles, Flower Work.

75 Renen, S. van, & Co., High Constantia.—Red and white wines. 660
75a Cloete Brothers, Constantia.—Red and white wines. 660
76 Anderson & Marison, Cape Town.—Pentace, pale, and golden sherry wines. 660
76a Cloete, H., Bellevue, Constantia.—Red and white wines. 660
77 Green, E. K., Cape Town.—Red, white, and sherry wines. 660
78 Collison, H. C., Cape Town.—Sher- ty, Madeira, Pentace, and Constantia wines. 660
78a Cloete, J. P., Groot Constantia.—Red and white wines. 660
79 Joubert, W. A., Stellenbosch.—Dry white wine. 660
80 Paarl Wine and Brandy Co., Paarl.—Red and white wines. 660
81 Rosenberg, S., Cape Town.—Brandy. 660
82 Barry & Nephews, Cape Town.—Brandy. 660
83 Collison, H. C., Cape Town.—Cog- nac. 660
84 Hauf, Dr., Robertson.—Brandy. 660
85 Marais, H. H., Robertson.—Cape sherry wine and Congo brandy. 660
86 Villiers, A. J. J. de, Cape Town.—Sherry, port, and red wines. 660
87 Villiers, A. B. de, Paarl.—Red and white wines. 660

Textile Substances of Vegetable or Animal Origin.
88 Cawood, Hon. S., Grahamstown.—Cotton. 665
89 Grewar, John W., Uitenhage.—Wool. 667
90 Priest, W., Graff Reinet.—Wool. 667
91 Rubidge, C., Graff Reinet.—Wool. 667
92 Stewart, A. C., Port Elizabeth.—Wool. 667
93 Court, P. W., Port Elizabeth.—Wool. 667
94 Barry & Nephews, Cape Town.—Wool. 667
95 Barry, Arnold, & Co., Cape Town.—Wool. 667
96 Dier & Dicts, Port Elizabeth.—Wool. 667
97 Stewart, A. C., & Co., Port Eliza- beth.—Angora hair. 669

Ornamental Trees, Shrubs, and Flowers.
98 Villiers, Miss de, Fransche Hoek.—Articles made of everlasting flowers. 709
99 Smuts, Miss G., Cape Town.—Arti- cles made of everlasting flowers. 909

JAMAICA.
(North of Nave, Columns 15 to 17.)
COLLECTIVE EXHIBIT.

Chemicals, Woven Goods, Clothing.

Chemical Manufactures.

1 Reynolds, John N.—Salt. 200
2 Frith & Murphy.—Salt. 200
3 Grant, Charles.
   a Bisulphite of lime. 200
   b Chewstick powder and odontine. 203
4 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Essential oils. 203
5 Auvrav, P. E.—Odontine. 203

Yarns and Woven Goods of Vegetable or Mineral Materials.

6 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Palm and plantain leaf mats. 229

Clothing, Jewelry, and Ornaments, Traveling Equipments.

7 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Palm leaf hats. 231
   b Baskets and fans from leaves; shell bas- kets; walking sticks; bamboo whip; tor- toise shell combs, necklaces; napkin rings and egg cups; dolls and fans made of lace bark. 254
7a Nash, Mrs.
   a Hats made of dagger plant, lace bark, and strainer fibre. 254
   b Dagger plant and lace bark ornaments, comprising fans, flowers, baskets, etc.; earrings and brooch made of lobster shell. 254
8 Brooks, Mrs. G.—Dollies and fans made from lace bark, etc. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Manufactures, Agricultural, Animal, Vegetable Products.

8a Reid, William.—CocoanutShellOrnaments; walking sticks, etc. 254

Paper, Blank Books, and Stationery.

9 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Rulers. 258
   b Paper stock. 260

Medicine, Surgery, Prothesis.

10 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Cinchona barks, jalap, sen- na, aloes, etc. 272

Hardware, Edge Tools, Cutlery, and Metallic Products

11 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Razor strops made from stems of plants. 281

Fabrics of Vegetable or Mineral Materials.

12 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Brushes from the penitentiary. 286
   b Ropes from sisal hemp; coir; wild cotton, cocoanut, etc. 287
   c Bamboo baskets. 289

Carriages, Vehicles, and Accessories.

13 Brass, John, & Son.—Carriage harness and riding saddle. 296

Arboriculture and Forest Products.

14 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Cedar and juniper shingles; lancewood, etc., for carriage building; cashew, etc., for railway sleepers; pimento leaves, juniper wood, etc., for making perfumery. 600
   b Mahogany, cedar, bullet tree, brazillet, lignum vitae, ebony, satinwood, rosewood, etc. 631
   c Logwood, fustic, annatto, turmeric, etc.; divi-divi, mangrove, catechu, guanga, etc. 602
   d Dried ferns. 604

15 Pantrepant Estate.—Lace bark. 600

15a Fisher.—Concrete for tanning. 602

Agricultural Products.

16 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Peas and beans. 623
   b Ginger, pimento berries, nutmegs, vanilla, cayenne pepper, etc.; tobacco, tea, cocoa, and chocolate; coffees from the following parties: John McLean, Francis Calimer, John Davidson, Mrs. Mackaverly, Mrs. Lascelles, Dr. Stephens, James Harrison, Ernest Elliott, and Geo. Henderson. 623

16a Thompson & Weitzmann.—Tobacco. 623

16b Espent, W. B.—Cigars. 623

17 Soutar & Co.—Tobacco and cigars. 623

17a Major, Dr.—Nutmegs. 623

18 Richards, W. S.—Coffee. 623

Animal and Vegetable Products.

18a Fisher.—Leather. 652

19 Grant, Charles.—Beeswax. 654

20 Brass, John, & Son.—Honey and beeswax. 654

20a Fegan.—Bleached wax. 654

21 Auvray, P. E.—Bleached wax. 654

22 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Candied fruits and preserves; pickles, etc.; fruits preserved in alcohol; meal made from plantains, bananas, cassava, bread, and other fruits. 656
   b Corn, rice, and flour. 657
   c Starch, arrowroot, etc. 658
   d Sugars from the following parties: W. S. Richards, Albion estate and Constant Spring estate; Louis Verley, Mona estate; Ernest Elliott, Dog estate; James Harvey, Hills dive estate; Joseph Reid, Caymannas estate, and J. McPhail. 659
   e Rums from the following parties: David Galloway, Vale Royal estate; William Vickers, Prime, and other estates; M. C. Macdowall, Appleton estate; James Harrison, Hordley and other estates; Plato Elphick, Belvidere estate; W. S. Richards, Hopewell estate; Ernest Elliott, Dog and other estates; Louis Verley, Mona estate; W. C. Steer, Elenheim estate; F. Hall, Mexico estate; James Harvey, Hillside estate; Joseph Reid, Camanas estate; J. Wray & Nephew, George J. Penado, Alberga & Mitchell. 660

f Cocoanut, castor, groundnut, and other oils. 662

22a Espent, W. B.—Rum. 660

23 Gadpaille, Charles.—Rum. 660

23a Wray, J., & Nephew.—Orange and ginger wine, pimento dram, lime-juice, etc. 660

24 Melville, James.—Rum and Palerian wine. 660

25 Desnoes, P., & Son.—Rum, ginger cordial, orange wine, pimento dram, etc. 666

25a Alberga & Mitchell.—Orange and ginger wine, pimento dram, chutney, etc. 660

26 Nunes, Robert.—Rum. 660

27 King, Alexander, & Co.—Rum and lime-juice. 660

Textile Substances of Vegetable or Animal Origin.

28 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
   a Wild cotton. 665
   b Sisal hemp, China grass, pineapple, coir, bamboo, mahoe trumpet tree, bastard, cedar, and other fibres, etc. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
Manufactures, Agricultural, Animal, Vegetable Products.

Chemical Manufactures.
1 Sargent, D., Inagua.—Specimens of salt and table salt. 200
2 Meadows, John G., Inagua.—Salt and table salt. 200

Furniture and Objects of General Use in Construction and in Dwellings.
3 Robertson, Mrs. S. E.—Epergne. 218
4 Dorsette, Thomas.—Dripstone for filtering water. 224

Clothing, Jewelry, and Ornaments, Traveling Equipments.
5 Minns, Albert C. J.—Necklaces, locket, pin and earrings, bracelets, solitaires and studs, vest button, spoon, and paper knife. 253
6 Dupuch, Joseph.—Card tray, bread platters, and walking canes. 254
7 Grant, Misses Julia and Mary.—Mimosa bean ornaments, card tray, watch cases, mats, and cross. 254
8 Armbrister, James A.—Walking canes. 254
9 Centennial Exhibition Committee, Nassau.—Mimosa bean card basket, bags, and bracelets, manufactured by Messrs. Jarret, Nassau; tortoise back, cleaned and polished by J. K. Saunders, Nassau; palmetto fans and hats, manufactured by Mrs. John Taylor, Inagua. 254
10 Evans, Ellen, G. E.—Shell cross, basket, and bridal wreath. 254
11 Atwell, Misses.—Memorial wreath, cornucopia, brooches, and earrings, made of shells and fish scales. 254
12 Symonett, Mrs. Matthew.—Palm tree, and watch stand. 254
13 Wallace, Alexander C.—Walking canes. 254
14 Eldon, Mrs. James.—Case containing orange tree. 254
15 Garner, Mrs. Maria E.—Basket, fruit basket, bridal wreath, and sprays. 254

Fabrics of Vegetable, Animal, or Mineral Materials.
16 Carrol, Richard E., Long Island.—Rope made of aloe fibre. 287
17 Centennial Exhibition Committee, Nassau.—Palm tree rope. 287
18 Knowles, Joseph A., Long Island.—a Rope and net made out of wild fig tree bark. 287
b Palmetto baskets and mat. 289

Arboriculture and Forest Products.
19 Knowles, Joseph A., Long Island.—Wild fig tree bark. 600
20 Sawyer, R. H. & Co.—
a Stopper wood; slip's knees of sabiu wood; bark. 600
b Mahogany, sabiu, satin, bull, cedar, and coconut woods. 601
c Green ebony, braziletto wood, and logwood. 602
d Myrtleberry wax. 603
21 George, John S.—a Specimens of bark and palmetto leaves, yellow pine and cedar woods. 600
b Mahogany, sabiu, satin, stopper, orange, and lignum vitae woods. 601
c Logwood, braziletto, and green ebony. 602
d Wax made from myrtleberry. 603
22 Saunders, Samuel P.—Vegetable sponge. 604

Agricultural Products.
23 Boyd, Adam.—Tobacco and coffee, cultivated in New Providence. 623

Water Animals, Fish Culture and Apparatus.
24 Sawyer, R. H. & Co.—Conch shells. 643
25 Troo, P. A.—Bahama shells, collected and arranged by J. K. Saunders. 645
26 Saunders, Samuel P.—Small shells. 645
27 George, John S.—Queen conch shells. 645

Animal and Vegetable Products.
28 Sawyer, R. H. & Co.—Sponges. 653
29 George, John S.—Beeswax. 654
a Arrowroot and cassava starch. 658
30 Centennial Exhibition Committee, Nassau.—Assorted preserved fruits, assorted pickles; pimento manufactured of native fruits by Daphne Fife. 656

Textile Substances of Vegetable or Animal Origin.
31 Sawyer, R. H., & Co.—Specimens of cotton produced principally at Long Island. 665
32 Saunders, S. P.—Cotton. 665
33 Brice, D. A.—Cotton. 665
34 Centennial Exhibition Committee, Nassau.—Liver of the pita and pineapple plants, plantain, banana, and aloe trees, and esquimo grass; wool made from leaves of the forest pine, pita plant, banana tree, and plantain. 666

Agricultural Engineering and Administration.
35 Saunders, Samuel P.—Cave earth (fertilizer). 683

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37—45.
BERMUDAS.
(North of Main Aisle, H 16.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art, Agriculture.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Furniture and Objects of General Use in Construction and in Dwellings.

1 Bermuda, Government of.—Inlaid tables. 217

Clothing, Jewelry, and Ornaments, Traveling Equipments.

2 Trimmingham, J. a Bermuda straw plait, bonnets, etc., palmetto plait, and articles made from the palmetto leaf. 253

5 Wreath of shell work. 254

3 Middleton, T. D.—Articles in point lace, from Somerset Island. 252

4 Smith, Mrs. R. T.—Fine point lace. 253

5 Ness, Miss.—Point lace sleeveless basque. 252

6 Ness, Miss C.—Point lace sofa pillow. 252

7 Lines, Mrs.—Point lace. 252

9 Bermuda, Government of.—Walking canes. 254

Medicine, Surgery, Prothesis.

10 Hugh, J. B.—Medicinal herbs and drugs. 272

Educational Systems, Methods, and Libraries.

11 Education, Board of.—School-map of the Bermudas. 300

12 Thorpe, Mrs. W.—"Afternoon in Bermuda." 306

13 Wilkinson, Major H. J.—"The Sand Hills." 306

14 Anon.—Bermuda flowers from nature. 306

Engineering, Architecture, Maps, etc.

15 Bermuda, Government of.—Large general map of the Bermudas, details by Royal Engineers and Major Crawford, R.A.; diagram showing the monthly mean temperature of Bermuda compared with other places of winter resort, drawn by Lieut. Colonel Bland, R.E.; fac-simile of the earliest published map of Bermuda, from Norwood's survey of 1616. 335

Physical, Social, and Moral Condition of Man.

18 Bermuda, Government of.—Examples of the ancient records of the colony of Bermuda, from 1616; title deeds, or original grants of land of the Bermuda Company, 1688-9.

Photography.

19 Somerset, Col. Fitzroy, R.E.—Photographs of Bermuda scenery, by the Royal Engineers. 430

20 Hugh, J. B.—Photographs of Bermuda scenery. 430

Aerial, Pneumatic, and Water Transportation.

21 Hinson, Dr.—Model of a Bermuda yacht, cutter-rigged. 594

22 Admiralty, Lords of the.—Model of her Majesty's floating dock at Bermuda; sectional drawing of same. 596

Arboriculture and Forest Products.

24 Several Contributors.—Sections and specimens of woods. 603

25 Astwood, Mrs.—Bird's-eye cedar, and other ornamental woods. 601

Pomology.

26 Committee, The.—Bananas and other fruits. 611

Marine Animals, Fish Culture and Apparatus.

27 Bermuda, Government of.—Conch shells used by cameo cutters; an extinct land shell of relatively large size; Sp. of hyaline; corals, millipores, corallines, sea fans, and sea rods. 645

Animal and Vegetable Products.

28 Bermuda, Government of.—Sponges. 658

29 Hugh, J. B.—Dried and preserved fruits. 658

30 Tucher, Tho. Fowle.—Arrowroot. 658

31 Bertram, J. T.—Arrowroot and Tous les Mois. 653

Textile Substances of Vegetable or Animal Origin.

32 Peniston, W.—Fibre prepared from the leaves of fourcroye gigantea. 665

Machines, Implements, and Processes of Manufacture.

33 Bermuda, Government of.—Tools used in freeing the ground of the roots of sage and wild mimosa. 672

Ornamental Trees, Shrubs, and Flowers.

34 Bermuda, Government of.—Flowers, ferns, and ornamental plants. 700
BRITISH GUIANA.

(North of Main Aisle, F 16.)

COLLECTIVE EXHIBIT.

Manufactures, Agricultural and Vegetable Products.

Clothing, Jewelry, and Ornaments;
Traveling Equipments.

1 Great Diamond Plantation.—Rice straw ornaments. 254

Medicine, Surgery, Prosthesis.

2 Fresson, William.—Drugs and other medicinal productions of the colony. 272

Agricultural Products.

3 Mackey, T. H.—Greenheart wood, nearly 100 years old. 600

Animal and Vegetable Products.

4 Great Diamond Plantation.—Rice. 609

5 Fresson, William.—Starches. 658

6 Bel Air Plantation.—Vacuum pan sugar. 659

7 Columbia Plantation.—Common process sugar. 659

8 Greenfield Plantation.—Vacuum pan sugar. 659

9 La Bonne Intention Plantation.—Vacuum pan sugar. 659

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

10 Met-en-Meerzorg Plantation.—Vacuum pan sugar. 659

11 Ogle Plantation.—Vacuum pan sugar. 659

12 Leonora Plantation.
   a Vacuum pan and other sugars. 559
   b Rum. 660

13 Uitvlugt Plantation.—Vacuum pan sugar. 659

14 Vreeman-Hoop Plantation.—Common process sugar. 659

15 Versailles Plantation.—Vacuum pan sugar. 659

16 Great Diamond Plantation.
   a Vacuum pan sugar. 659
   b Rum. 660

17 Hope Plantation.
   a Vacuum pan sugar. 659
   b Rum. 660

18 Tuschen de Vrienden Plantation.
   a Vacuum pan sugar; molasses. 659
   b Rum. 660

19 Lusignan Plantation.—Rum. 660

Textile Substances of Vegetable or Animal Origin.

20 Godfrey, B. J.—Plantain, silk grass mahoe, sweet brier, and monkey apple fibres. 666
## CEYLON.

(North of North Avenue, Columns 15 to 17.)

### COLLECTIVE EXHIBIT.

Minerals, Manufactures, Education, Art, Agriculture.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products.</th>
<th>Arboriculture and Forest Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Armitage Bros., Colombo.—Tin and plumbago.</td>
<td>7 Armitage Bros., Colombo.</td>
</tr>
<tr>
<td></td>
<td>a Woods.</td>
</tr>
<tr>
<td></td>
<td>b Dye woods.</td>
</tr>
<tr>
<td></td>
<td>c Gutta-percha and gums.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clothing, Jewelry and Ornaments, Traveling Equipments.</th>
<th>Agricultural Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Armitage Bros., Colombo.</td>
<td>8 Armitage Bros., Colombo.</td>
</tr>
<tr>
<td>a Straw hats.</td>
<td>a Coffee, spices, tobacco, and cigars.</td>
</tr>
<tr>
<td>b Canes.</td>
<td>b Seeds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fabrics of Vegetable, Animal, or Mineral Materials.</th>
<th>Water Animals, Fish Culture and Apparatus.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Armitage Bros., Colombo.</td>
<td>9 Armitage Bros., Colombo.—Mother-of-pearl and other shells.</td>
</tr>
<tr>
<td>a India-rubber.</td>
<td></td>
</tr>
<tr>
<td>b Ropes.</td>
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</thead>
<tbody>
<tr>
<td>4 Armitage Bros., Colombo.—Almanacs and other books.</td>
<td>10 Armitage Bros., Colombo.</td>
</tr>
<tr>
<td></td>
<td>a Coco de mer</td>
</tr>
<tr>
<td></td>
<td>b Vegetable tallow.</td>
</tr>
<tr>
<td></td>
<td>c Tapioca.</td>
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<tr>
<td></td>
<td>d Sugars.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sculpure.</th>
<th>Textile Substances of Vegetable or Animal Origin.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Armitage Bros., Colombo.—Elephant, carved in plumbago.</td>
<td>11 Armitage Bros., Colombo.</td>
</tr>
<tr>
<td></td>
<td>a Cotton.</td>
</tr>
<tr>
<td></td>
<td>b Fibres.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Photography.</th>
<th>STRAITS SETTLEMENT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Armitage Bros., Colombo.—Photographs.</td>
<td>(North of North Avenue, Columns 15 to 17.)</td>
</tr>
<tr>
<td></td>
<td>Manufactures, Art, Agriculture.</td>
</tr>
</tbody>
</table>

### Straits Settlement.

<table>
<thead>
<tr>
<th>Silk and Silk Fabrics.</th>
<th>Manufactures, Art, Agriculture.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Silk floss from Rungpore.</td>
<td>4 Meyer, Behn, &amp; Co., Singapore.—Nuts.</td>
</tr>
<tr>
<td>b Dyed silk from Rungpore.</td>
<td></td>
</tr>
<tr>
<td>c Silk thread from Bengal, Gyah, and Rungpore.</td>
<td></td>
</tr>
<tr>
<td>d Silk lace from Jubbulpore.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Photography.</th>
<th>Agricultural Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a Grass.</td>
</tr>
<tr>
<td></td>
<td>b Tea, coffee, spices, etc.</td>
</tr>
<tr>
<td></td>
<td>c Seeds.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Arboriculture and Forest Products.</th>
<th>Textile Substances of Vegetable or Animal Origin.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a Woods from Singapore, Madras, Bombay, and Nagpore.</td>
<td>a Cotton boll, seed, and flake.</td>
</tr>
<tr>
<td>b Dye-woods, galls, bark, etc.</td>
<td>b Hemp and fibres.</td>
</tr>
<tr>
<td></td>
<td>c Wool.</td>
</tr>
<tr>
<td></td>
<td>d Cocoon silk.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
GOLD COAST.

(North of Main Aisle, B 16.)

Minerals, Manufactures, Machinery, Agriculture.

Minerals, Ores, Stone, Mining Products.

1 Colonial Government.
   a Granite. 250
   b White clay—used in medicine, and to "chalk" divorced wives. 104

Chemical Manufactures.

2 Colonial Government. — Palm and other oils. 204

3 Melton, W. — Palm, coconut, groundnut, and other oils. 201

Ceramics—Pottery, Porcelain, Glass, etc.

4 Colonial Government.
   a Goldsmith's furnace and crucibles. 207
   b Earthenware. 210

Furniture and Objects of General Use in Construction and in Dwellings.

5 Colonial Government.—Native stools; desk, and envelope case. 217

Yarns and Woven Goods of Vegetable or Mineral Materials.

6 Crowther, Bishop.
   a Niger mats. 229
   b Cotton goods. 230

7 Colonial Government.
   a Mats and baskets of grass. 229
   b Cotton fabrics; Whydah and Agney cloth. 235

Woven and Felted Goods of Wool, etc.

8 Colonial Government.—Woolen fabrics. 238

Silk and Silk Fabrics.

9 Colonial Government.—Silk fabrics. 245

Clothing, Jewelry, and Ornaments; Traveling Equipments.

10 Colonial School, Cape Coast.—Wool knitting. 250

11 Crowther, Bishop.—Slippers. 251

12 Colonial Government.
   a Sandals, hats, etc. 251
   b Jewelry. 253
   c Fans, pipes, walking-sticks, etc. 254
   d Leather satchel and leather work. 255

Paper, Blank Books, Stationery.

13 Colonial Government.—Book for keeping gold accounts. 256

Weapons, etc.

14 Crowther, Bishop.—Dagger. 258

15 Colonial Government.—Swords, daggers, bows and arrows. 258

Fabrics of Vegetable, Animal, or Mineral Materials.

16 Colonial Government.
   a Kopes. 287
   b Basket ware. 285

Scientific and Philosophical Instruments and Methods.

17 Colonial Government.—Drums, guitars, flute, horn, etc.; strings for musical instruments. 227

Sculpture.

18 Colonial Government.—Carved wooden figures, ladles, etc.; carved image exhibited at native funerals. 405

Machines and Implements of Spinning, Weaving, Paper Making, etc.

19 Colonial Government.—Looms for manufacturing cotton yarns. 421

Arboriculture and Forest Products.

20 Colonial Government.
   a Odoom wood. 600
   b Ornamental woods. 601
   c Gums, resin, etc. 603

Pomology.

21 Colonial Government.—Nuts. 611

Agricultural Products.

22 Colonial Government.
   a Beans. 612
   b Pepper. 623
   c Seeds, gourds, etc. 624

23 Davison, Mrs.—Coffee (produced in eight months, from the seed). 623

Animal and Vegetable Products.

24 Colonial Government.
   a Skins. 652
   b Beeswax. 654
   c Starch. 658

25 Nugent, Mr., Cape Coast.—Arrow-root. 658

26 Melton, W.—Colored starch. 658

Textile Substances of Vegetable or Animal Origin.

27 Colonial Government.—Fibres of bamboo, pineapple, etc. 656

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
**MAURITIUS.**

*(North of North Avenue, Columns 15 to 17.)*

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**COLLECTIVE EXHIBIT.**

Manufactures, Education and Science, Agriculture.

<table>
<thead>
<tr>
<th>Chemical Manufactures.</th>
<th>Agricultural Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lomière, A.—Salt.</td>
<td>Arboriculture and Forest Products.</td>
</tr>
<tr>
<td>2 Foucaud, Mme. Vve.—Slippers, cigar case, baskets, etc., made of Palmiste leaves.</td>
<td>7 Horne, J.—Mauritius Botanical Gardens; native woods.</td>
</tr>
<tr>
<td>3 Boulton, L.—Medicinal plants.</td>
<td>8 Flore Mauricienne.—Vanilla.</td>
</tr>
<tr>
<td>4 Boulton, L.—Transactions of the Royal Society of Arts and Sciences of Mauritius, from 1870 to 1873.</td>
<td>9 Bouton, H. &amp; E.—Mauritius Coffee.</td>
</tr>
<tr>
<td>5 Kyshe, J.—Mauritius Almanac, 1874.</td>
<td>10 Mauritius, Flore Mauricienne.—Preserved fruit.</td>
</tr>
<tr>
<td>6 Moco, S.—Photographs.</td>
<td>11 Marie, François.—Arowroot.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
QUEENSLAND.

(North of North Avenue, Columns 10 to 15.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art, Agriculture.

Chemical Manufactures.
1 Berkley & Taylor, Brisbane.—Dugong oil.  293
2 Ching, John.—Dugong oil.  293
3 Daintree, Richard.—Essences from Queensland vegetables.  293

Ceramics—Pottery, Porcelain, Glass, etc.
4 Mount Marley Co.—Fire brick.  207
5 Silk and Silk Fabrics.
6 Clarke, David.—Eucalyptus medicinal preparations.  227

Hardware, Edge-tools, Cutlery, and Metallic Products.
7 Hipwood & Sutton.—Bells made of Queensland metal.  283
8 Queensland, Government of.— Saddlery made by prison labor.  296

Educational Systems, Methods, and Libraries.
9 Bailey, F. M.—“Ferns of Queensland.”  230
10 Clarke, David.—Catalogue of plants and seeds.  306
11 Groom, W. H.—“Account of Tooowoomba and Vicinity.”  306
12 Hartmann, C. H.—“Fruits, Flowers, and Timbers of Queensland.”  306
13 Hockings, A. T.—Catalogue of seeds and plants.  256
15 Diggins, Silvester.—“Ornithology of Australia.”  306
16 Government Printing Establishment.—Bound books, pamphlets, and printed matter.  306
17 Lukin & Gresley, Brisbane.—Copies of the “Queenslander.”  293


19 Proprietors of volumes of Queensland journals.—Journals with summary, prepared for the Centennial Exhibition.  306

20 Robertson.—Maryborough almanac.  306
21 Sloter, Geo., & Co.—Sloter’s almanac.  306
22 Thorne & Greenwell, Brisbane.—Queensland almanac and directory.  306
23 Willmett, Townsville.—Almanacs of Northern Queensland.  306

Engineering, Architecture, Maps, etc.
24 Brisbane Tin Company.—Model showing strata of tin country.  335

25 Government Lithographic Establishment.—Maps, plans, charts, etc.  335

Photography.
26 Commissioners for Queensland.—Views of Ipswich, Rockhampton, Marlborough, Townsville, and Warwick.  430
27 Daintree, Richard.—Colored photographs.  430
28 Mackay, Angus.—Colonial views.  339
29 Wright, J. P.—Photographic views of Brisbane.  430

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.
30 Repetti, Joseph.—Model of quartz-crushing machine.  505

Arboriculture and Forest Products.
32 Daintree, Richard.
 a Collection of polished timbers.  600
 b Guns from Queensland vegetables.  603
33 Hill, Walter, Botanical Curator, Brisbane.
 a Collection of timbers in the rough.  630
 b Queensland nuts.  603
 c Bark for tanning.  602
34 Mackay, Angus.—Common timbers.  604
35 O’Shauneys, P. A., Rockhampton.—Timbers of northern Queensland.  630
36 Pettigrew, William.—Pick and axe handles of Queensland woods.  604

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Agricultural, Animal, and Vegetable Products.

37 Carey, J. W.—Work-box of various finished woods. 621

Agricultural Products.

40 Downs, George, Gowrie.—Barley. 620
41 Enderitch, H., Toowoomba.—Wheat. 620
42 Free, A., Warwick.—Wheat. 620
43 Free, George, Warwick.—Wheat. 620
44 Mackay, Angus.—Queensland maize. 620
45 Walker, R. F., Toowoomba.—Wheat, barley, and oats. 620
46 Grimes, S. & G., Brisbane.—Arrowroot. 622
47 Marks.—Arrowroot. 622
48 Tahey, F., Nerang.—Arrowroot. 622
49 Alexander, W. R., Redbank. a Coffee and tea. 623 b Castor oil seeds. 623
50 Boreham, J. H.—Chutney and spices. 623
51 Chubb, F. E., Ipswich.—Coffee beans. 623
52 Hill, Walter, Botanical Gardens.—Leaf tobacco. 623
53 Hoeker, J. H., Brisbane.—Cigars, cigarettes, leaf and manufactured tobacco. 623
54 McFarlane.—Chili peppers. 623
55 Mahony, Albert River.—Leaf tobacco. 623

Land Animals.

56 Richland, G., Cardwell.—Butterflies of northern Queensland. 638

Water Animals, Fish Culture and Apparatus.

57 Ching, John, Wide Bay.—Dugong calf, preserved in spirits. 640

Animal and Vegetable Products.

58 Stephens, T. B., Ekinin Tannery.—Leather and skins. 652
59 Ching, John, Wide Bay.—Dugong skull, tusks, etc. 652
60 Hayes, W. H., Candied pineapple, rockmelon, citron, ginger, lemon and orange peel. 656
61 Neden Bros., Toowoomba.—Flour. 657
62 Keates, F., Allora Mills.—Wheat, flour, and meal. 657
63 Black, Messrs., Moyea.—Sugar. 659
64 Brown, A. H., Antigua, Mary District.—Sugar. 659
65 Coudrey, W. H., Ageston. a Sugar. 659 b Rum. 660
66 Davey & Gooding, Beenleigh.—Sugar. 656
67 Davidson, J. E., Mackay. a Sugar. 659 b Rum. 660
68 Fryar and Strachan, Loganholme. a Sugar. 659
69 Gibson & Sons, Clydesdale.—Sugar. 659
70 Superintendent of Penal Plantations.—Sugar. 659
71 Grimes, S. & G., Oxley.—Sugar. 659
72 Johnstone, James, Helensfield, Doughboy.—Sugar. 659
73 Mackenzie, Girloch.—Sugar. 659
74 Muir, Robert, Nerang.—Sugar. 659
75 Tooth & Cran, Zengarré.—Sugar. 656
76 Neame & Co., Herbert river.—Sugar. 659
79 Irwin Bros., Warrilla, Ipswich.—Wine. 660
80 Kirchner, Asmanhausen.—Wines. 660
81 Mauch, David, Warwick.—Wine. 660
82 Raff, George, Morayfield.—Rum. 660
83 Ramsey Bros., Lindah.—White spirits of wine. 660
84 Brockleman, Brisbane.—Arrowroot biscuit. 661
85 Daintree, Richard.—Vegetable oils. 662

Textile Substances of Vegetable or Animal Origin.

86 Mackay, Angus.—Queensland cotton. 665
87 Hill, Walter.—Collection of fibres. 666
88 McPherson, Alexander, Fortitude Valley.—Collection of Queensland fibres. 666
89 Clarke, George E., Talga.—Fleece wool. 667
90 Davenport, G. H.—Merino wool. 667
91 Fenwick & Scott.—Australian wool. 667
92 Fisher, C. B., Headington Hill.—Merino wool. 667
93 Gore & Co., Yandilla.—Ewe fleece wool. 667
94 Green, C. H., Goomburra.—Fleece wool. 667
95 Gunn, Donald, Pikedale.—Wool. 667
96 Marshall & Slade, Glengallen.—Fleece wool. 667
97 North British Australian Co.—Fleece wool. 667
98 Parr, B. le, Chieverton.—Australian merino fleece wool. 667
99 Parr, B. C.—Fleece wool. 667
100 Shanahan & Jennings, Westbrook.—Merino wool. 667
101 Government Penal Establishment.—Silk worm cocoons. 668
102 Hine, Mrs., Ipswich.—Silk cocoons. 668

Ornamental Trees, Shrubs, and Flowers.

103 Bailey, F. M.—Flora of Australia and Botany of Queensland. 709

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 87-45.
ARCHIPELAGO OF SEYCHELLES.

(North of North Avenue, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Manufactures, Agricultural, Animal, Vegetable Products.

<table>
<thead>
<tr>
<th>Furniture and Objects of General Use in Construction and in Dwellings.</th>
<th>Agricultural Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Bouquet, Miss.—Teacups and saucers.</td>
<td>8 Houareau, Sylvain.—Tobacco. 623</td>
</tr>
<tr>
<td>Clothing, Jewelry, and Ornaments; Traveling Equipments.</td>
<td>9 Madine, Mr.—Cigars. 623</td>
</tr>
<tr>
<td>2 Bouquet, Miss.</td>
<td>10 Lemarchand, Mr.—Cacao, cloves, coffee, and vanilla. 623</td>
</tr>
<tr>
<td>a Straw hats and slippers.</td>
<td>Water Animals, Fish Culture and Apparatus.</td>
</tr>
<tr>
<td>b Straw baskets, watch-pockets, and fans.</td>
<td>10 ½ Beyron, F.—Turtle shell. 645</td>
</tr>
<tr>
<td>3 C a y o l, Mrs. Tony.—Bouquets of shell flowers.</td>
<td>Animal and Vegetable Products.</td>
</tr>
<tr>
<td>4 Bury, J. Ames.—Walking-canes.</td>
<td>11 Bouquet, Miss.—Coca de mer straw. 650</td>
</tr>
<tr>
<td>Arboriculture and Forest Products.</td>
<td>13 Cauvin’s Distillery.—White rum. 660</td>
</tr>
<tr>
<td>6 Seychelles, Chief Commissioner of.</td>
<td>14 Nageon, Mr., La Digue Island.—Coconut oil. 662</td>
</tr>
<tr>
<td>—Samples of woods and planks.</td>
<td>Textile Substances of Vegetable or Animal Origin.</td>
</tr>
<tr>
<td>7 Briard, Mr., Praslin island.</td>
<td>15 Brooks &amp; Dupuy.—Cotton from Denis Island. 665</td>
</tr>
<tr>
<td>a Black bark dye and samples of dyed stuffs.</td>
<td>16 Briard, Mr.—Cotton. 665</td>
</tr>
</tbody>
</table>
| b Nuts. | For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
TASMANIA.

(South of North Avenue, Columns 13 to 15.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art, Agriculture.

Chemical Manufactures.
1 Ker mode, W. A., Mona Vale.— Salt. 200
2 Strachan, R., Cambridge.—Salt. 200
3 Colvin, Charles, Hobart Town.—Oil from mutton birds, from islands in Bass's Straits. 201
4 Coverdale, John, Port Arthur.—Red ochre, earth for paints. 202
5 Laughton, James, Hobart Town.—Earth for paints. 202

Clothing, Jewelry, and Ornaments; Traveling Equipments.
6 Bidencope, J., Hobart Town.—Silk and felt hats and caps, with material of manufacture. 231
7 Tasmanian Commissioners.—Opossum and cat skin rugs. 236
8 Hull, H. M., Hobart Town.—Portraits of aborigines. 237

Weapons, etc.
9 Moir, J., Queenborough, Hobart Town.—Shot. 265

Educational Systems, Methods, and Libraries.
10 Hull, H. M., Hobart Town.—"Hull's Hints to Emigrants," parliamentary journals. 256
11 Nowell, E. C.—Books. 306
12 Tasmanian Commissioners.—Newspapers and statistics. 316
13 Walsh & Sons, Hobart Town.—Almanac and guide. 366

Scientific and Philosophical Methods and Systems.
14 Royal Society of Tasmania.—Meteorological tables. 320

Engineering, Architecture, Maps, etc.
15 Randall, A., Hobart Town.—Chart of waterworks. 330
16 Dibbs, T. F., Launceston.—Chart of Launceston. 335
17 Cemetery Commissioners, Hobart Town.—Chart of cemetery. 335
18 Moore, Hon. Wm., Hobart Town.—Geological map of Tasmania. 335

19 Walsh & Sons, Hobart Town.—Charts of Hobart Town and Launceston. 335
19a Hull, H. M., Hobart Town.—Map of Tasmania. 335

Physical, Social, and Moral Condition of Man.
20 Walsh & Sons, Hobart Town.—Tasmanian postage stamps. 345

Sculpture.
21 CarlSEN, P. O., Port Arthur.—Carved ivory and wooden egg and crest stand; carved ivory and myrtle Danish pipe. 405

Photography.
22 Bailey, H. H., Hobart Town.—Photographs. 430
23 Hobart Town, Corporation of.—Photographs of public buildings. 430
24 Launceston, Corporation of.—Photographs of public buildings. 430
25 Tondeur & Lempriere, Melbourne.—Photographs of the British and Tasmanian Charcoal Iron Company's (limited) Works in Tasmania. 430

26 Coverdale, J., Port Arthur.—Spinning jenny of Tasmanian myrtle. 521

Arboriculture and Forest Products.
27 Creswell, C. F., Hobart Town.—Forest tree seeds (340 varieties). 600
28 Gulliver Brothers, Hobart Town.—Tree seeds. 600
29 Hull, Hugh M., Hobart Town.—Polished Tasmanian woods. 600
30 Edwards, G. W., Hobart Town.—Grass-tree gum and resin, for varnish. 603
31 Mitchell, Mrs., Swansea.—Gum, from Oyster Bay pine. 603
32 Lipscombe, F., Sandy Bay.—Blue gum seeds. 605

Agricultural Products.
33 Dalgety, Moore, & Co., Launceston.—Wheat and oats. 620
34 Dean, W., New Norfolk.—Wheat. 620

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-45.
Agricultural, Animal, Vegetable Products.

| 35 Gibson, W., Hobart Town.— Wheat. |
| 36 Harrap, A., Launceston.— Wheat. |
| 37 Hogarth, D., Launceston.— Wheat. |
| 38 Kemp, G., Upper Bagdad.— Wheat. |
| 40 Creswell, C. F., Hobart Town. a—Wheat, barley, oats, and rye. b—Peas and beans. c—Grass and other seeds. |
| 41 Graves, J. W., Hobart Town.— Native bread. |
| 42 Sharland, W. C., New Norfolk.— Hops. |
| 43 Shoobridge, E., New Norfolk.— Hops. |

Land Animals.


Water Animals, Fish Culture and Apparatus.

| 45 Salmon Commissioners of Tasmania.— Brown trout. |
| 46 Davies, R. H., Torquay.— Tasmanian shells. |

Animal and Vegetable Products.

| 47 Coverdale, John, Port Arthur.— Seaweed, and jelly made therefrom. |
| 48 Archer, W. H. D., Longford.— Native furs and skins. |
| 49 Arnot, S., Bothwell.— Leather of kangaroo skins. |
| 50 Gardner & McKenzie, Launceston.— Skins of kangaroo, tanned and dressed; native furs and skins. |
| 51 Tasmanian Commissioners. a—Native furs and skins. b—Blue gum tree oil. |
| 52 Holroyd, Kennedy, & Co., Hobart Town.— Jams and tart fruits. |
| 53 De Graves, John, Hobart Town.— Malt. |
| 54 Dossetor Brothers, Hobart Town.— Flour. |
| 55 Gracie, William, Hobart Town.— Malt. |

Textile Substances of Animal or Vegetable Origin.

| 56 Archer, W. H. D., Brickendon, Longford.— Merino wool. |
| 57 Brock, J.— Merino wool. |
| 58 Cameron, Hon. Donald, Burnside.— Merino wool. |
| 59 Gibson, James, Belle Vue, Cleveland.— Merino wool; portrait of stud sheep. |
| 60 Gibson, W. H., Fairfield, Snake Banks.— Merino wool. |
| 61 Gibson, W., & Son, Scone, Perth.— Merino wool; portraits of stud sheep. |
| 62 Headlam, Charles, Egleston, Macquarie river.— Merino wool. |
| 63 Keach, G.W., Chiswick, Ross.— Merino wool. |
| 64 LIndley, G. W., Runnymede, Richmond.— Leicester wool. |
| 65 McLanachan, Hon. James, Ballochmylo.— Merino wool. |
| 66 Page, Samuel, Belle Vue, New Town.— Merino wool. |
| 67 Parramore, Thomas, Beaufront, Ross.— Merino wool. |
| 68 Ralston, John, Logan, Evandale.— Merino wool. |
| 69 Searle, C.— Leicester wool. |
| 70 Sharland, W. S., Woodbridge, New Norfolk.— Merino wool. |
| 71 Shaw, Fred., Redbanks, Swansea.— Leicester wool. |
| 72 Simmons, W. C.— Leicester wool. |
| 73 Taylor, David, St. Johnstone’s, Macquarie river.— Merino wool. |
| 74 Taylor, G. Milford, Campbell Town.— Merino wool. |
| 75 Taylor, John, Winton, Campbell Town.— Merino wool. |
| 76 Wilson, George, Oatlands.— Merino wool. |

Agricultural Engineering and Administration.

| 77 Anglo-Australian Guano Company, Hobart Town.— Guano from Bird’s Island. |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
## TRINIDAD

(South of North Avenue, Columns 15 to 17)

### COLLECTIVE EXHIBIT.

Minerals, Manufactures, Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products</th>
<th>Pomology.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 André, L. A. F.—Surface coals from the eastern coast.</td>
<td>12 Cumming, A., &amp; Co., Port of Spain.—Cocoa.</td>
</tr>
<tr>
<td>2 Finlayson, Thomas A.—Asphalt, boiled and crude.</td>
<td>611</td>
</tr>
</tbody>
</table>

| Furniture and Objects of General Use in Construction and in Dwellings. | Agricultural Products. |
| 3 Devenish, Syl., Surveyor General.—Gourd calabash. | 13 Prestoe, Hy., Government Botanist.—Nutmegs, cloves, mace, etc. |
| 224 |

| Clothing, Jewelry, and Ornaments; Traveling Equipments. | Animal and Vegetable Products. |
| 4 Trinidad, Government of.—Mats, fans, strainers, etc. | 19 Prestoe, Hy., Government Botanist.—Preserved fruits. |
| 254 |

| Hardware, Edge Tools, Cutlery, and Metallic Products. | Textile Substances of Animal or Mineral Origin. |
| 5 McAdam, Miss Venus.—Baskets made of gourds. | 27 Somes & Co., Nariva Cocal.—Cocoa nut fibre. |
| 254 |

| Fabrics of Vegetable, Animal, or Mineral Materials. | 28 Devenish, Syl., Surveyor General.—Fibre from Agave vivipara. |
| 6 Devenish, Syl., Surveyor General.—Walking-sticks. | 666 |
| 254 |

| Arboriculture and Forest Products. | 29 Prestoe, Hy., Government Botanist.—Fibres. |
| 7 Devenish, Syl., Surveyor General.—Razor strips. | 666 |
| 281 |

| For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45. |  |
INDIA.

(North of Nave. Columns 22 to 25.)

COLLECTIVE EXHIBIT.

Chemicals, Ceramics, Woven Goods, Clothing.

Chemical Manufactures.

COLLECTIONS FROM THE INDIAN MUSEUM, BY J. FORBES WATSON, M.A., LL.D., DIRECTOR OF THE INDIAN MUSEUM, ETC.

a Rock salt from Salt range; salt from Poonthemuak, Nellore, Toombook, Balasore, Cuttack, and Jeypore; black salt from Calculta; saltpetre from Cutch, Sarun, Bengal, Ahmednugger, Lahore, Central India, Ellore, Nellore, Cawnpore, Salem, Madras, and Calcutta; alum from Madras, Lahore, and Bengal; carbonate of soda from Lind and Calculta; sulphate of iron from Salt range; borax from Thibet; sal ammoniac from Kurnal and Calculta; sulphate of copper from Calculta.

b Gamboge from Bombay; indigo from South Arcot, Moorshebad, Madras, and Shikarpore; cutch from Calculta, Madras, and Burnnah; gambier from Bombay and Malacca; lac dye from Jubbulpore and Malwa.

Ceramics—Pottery, Porcelain, Glass, etc.

c Ornamental tiles from Hyderabad. 206

d Water vessels from Patna, Chailawar, Madras, South Canara, and Allahabad; vase from Sindh; hookah bowl and bottom from Patna; cup, dish, and cover from Hyderabad; milk pan from Madras; goblet from Vizagapostam. 210

Furniture and Objects of General Use in Construction and in Dwellings.

e Copper and brass lamps, boxes, plates, d shes, basins, cups, etc., from Calculta, Benares, Bengal, Bombay, Patna, Indore, Madras, Mirczpore, Travancore, Nepal, Cachar, and Poona; betel plates inlaid with silver, from Hyderabad; copper amulet case from Thibet; brass spoon for oil from Madras. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

f Phulngat mat from Travancore. 229

g Muslin and cotton from Dacca and Madras.

h Striped and checked cotton from Madras. 231

Woven and Felted Goods of Wool, etc.

i Cashmere and woolen carpets from Madras, Scind, and Ferahan. 239

j Cashmere long and square shawls, net shawls, chuddahs, scarfs, burnhouse, cravats, gold embroidered cloaks and table covers. 240

Silk and Silk Fabrics.

k Raw silk from Surdah, Berhampore, Bogra, Seetapore, and Bengal; Tusseh silk thread from Bengal, Gyah, and Dhaigulpore; cocoons from Bengal and Cuttack; Eria silk thread from Rungpore and Assam. 242

l Floss silk from Umrisur, Punjab, Vellore, Tutta, and Ca-himere. 243

m Striped and plain piece silk from Ieer-choom, Hyderabad, Ahmedabad, Burmah, and Benares. 246

Clothing, Jewelry, and Ornaments; Traveling Equipments.

n Women's garments from Madras, Pegu, and Dharwar; men's garments from Goo- daspore, Moultan, and Sind; pima silk skirt from Madras. 250

o Embroidered shoes and turbans from Hy- dabad, Gwalior, Sindh, Kotah, and Ma- dura. 251

p Nets, muslin, cloth, and silk embroidered in gold and colors from Sindh, Madras, Benares, Hyderabad, Delhi, Bhurtpore, and Bombay; gold, silver, white, and colored laces from Bombay, Nagpore, and Madras; handkerchief from Poona con- vent; doyleys from Madras. 252

q Collection of jewelry from Bombay. 253

r Dolls from Benares; fans from Madras, Delhi, Tipperral, South India, Poona, and Monghyr; chouirie split ivory from Sylhet; chowrie, split sandal wood from Madras. 254

s Leather box, embroidered with quill work, from Simla. 255

Weapons, etc.

t Spears, bows and arrows from Lahore, Delhi, and South India; velvet quivers and arm covers from Lahore; battle axes from Delhi and Nagpore; coat of mail from Punjab; daggers, swords, breast-plates, etc., from Lahore, Burnmah, Dec- can, Coorg, and Bengal. 269

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Manufactures, Education, Art, Agriculture.

#### Medicine, Surgery, Protheth.
- Bark, liquorice, opium, nux vomica, aconit, patchouli, tamarinds, anise, car- dadom and croton seeds, cubeb, blister- ing beetles, juniper berries, aloes, and other medicinal products from Madras, Travancore, Bombay, Bengal, Mysore, North India, Malacca, and Calcutta. 272

#### Hardware, Edge Tools, Cutlery, and Metallo Products.
- Copper bell from Burmah. 285
- Lock and key from Indore. 284

#### Fabrics of Vegetable, Animal, or Mineral Materials.
- Baskets and cigar case from Madras; cane stands from Singapore; grass window shades from Travancore, papier-mâché articles from Cashmere, Kurnool, and Sindh; lacquered wood work from Bur- mah and Sindh; japanned cabinet from Bareilly. 289

#### Carriages, Vehicles, and Accessories.
- Model of state carriage from Poona. 292
- Models of passenger and luggage carts, and palaquin from Bombay. 293
- Sikh saddle; velvet and gold trappings from Punjab. 296

#### Educational Systems, Methods, and Libraries.
- Stringed and wind instruments from Mad- ras; kettle drum from Bengal; horn from Moorsheadab. 327

#### Engineering, Architecture, Maps, etc.
- Maps illustrative of Indian surveys; relief map of India. 335

#### Sculpture.
- Sculptured stone bull from Nandi. 400
- Sculptures from the Amarnatı Tope, viz., base of large slab; panel figure of temple with Buddha seated; portions of frieze; Uigure standing; slab, Buddha’s feet. 401
- Carved model of Burman chuttar, and sandalwood model of Hindo temple from Booj; carved vase, sandal wood fan, and glove box from Bombay; carved stone idol, “Vishnu riding on Garuda” from Madras; carved wooden idols from Nepal; carved ivory box from Burmah; carved elephant with howdah from Berhampore; carved horn tazza from Gokah; carved pith figures from Trichinopoly, and carved horn drinking cup from Rutnagherry. 405

#### Photography.
- Photographic views of India; photo- graphs of races and tribes of Hindooostan; photographs of Indian architecture. 430
- Photo-lithographs illustrative of the tex- tile fabrics of India. 432

#### Ceramic, Mosaics, etc.
- Inlaid marble boxes from Agra and My- sore. 450
- Inlaid wooden glove and work box from Bombay. 457
- Card basket and box of porcupine quill work from Vizagapatam; basket and basket of kedigari work; miniature paintings on ivory, in carved sandal wood frames from Delhi; writing pads of ornamental painted leather from Kurnool; paintings on mica from Trichinopoly; samples of ornamental writing in colors. 454

#### Aerial, Pneumatic, and Water Trans- portation.
- Models of passenger, ferry, coating, and freight boats from Calcutta. 594

#### Arboriculture and Forest Products.
- Ornamental and other woods. 640
- Dyewoods, berries, roots, and galls from Madras, Sindh, Cuttack, Nagpore, Bur- mah, and Singapore. 652
- Gums, resin, incense, guatta-percha, myrrh, etc., from Raepore, Lyah, Burmah, Mau- rau, Pegu, Salem, Travancore, Malacca, Indore, and Bombay. 603

#### Agricultural Products.
- Wheat from Sindh, Punjab, Faridpur, and Bengal; barley from Belgaum, and other places; oats from Patna and Monghyr; maize from Northwestern India; millet, ragge; buckwheat from the Himalayas; illustration of food plants of India. 620
- Peas, beans, lentils, and vetch. 621
- Tea from Assam, Tishnath, Cachai, Dehra-Doon, Punakabore, Kangra, Ku- moon, and other places; tea buds from Silcorrie; coffee from Aden, Bombay, Tinnevelly, Paradise estate, and Chitta- gong; coffee berries from South India; Mysore, and Coorg; spices, peppier, gin- ger, mustard, curry powder, and turnerie from Bombay, Travancore, Indore, Deh- ra-Doon, Bengal, Nepal, Madras, and other places. 693
- Coriander, dill, and fennel seed from Berar, Oudh, Faridpur, and Dharwar; water lily stems from Sindh; oil seeds from Faridpur, Nagpore, Ahmednugger, Ben- gal, and Indore; poppy seed from Central Provinces and other places; tea buds from Silcorrie. 624

#### Land Animals.
- Various kinds of silk worms of India from Cashmere, Bengal, and the Himalay- as. 638

#### Water Animals, Fish Culture and Apparatus.
- Pearl oysters from Kurrachee. 645
- Edible birds’ nests from Ceylon; fish maws and sharks’ fins from Bombay. 646

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Animal and Vegetable Products, Textiles, Machines.

Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ax</td>
<td>Glue from Cawnpore.</td>
</tr>
<tr>
<td>ay</td>
<td>Beeswax from Travancore, Pegu, Rangoon, Singapore, and Chota Nagpore.</td>
</tr>
<tr>
<td>az</td>
<td>Soojee flour from Madras; rice from Punjab, Sind, and Bengal.</td>
</tr>
<tr>
<td>ba</td>
<td>Arrowroot, tapioca, and sago.</td>
</tr>
</tbody>
</table>

Textile Substances of Vegetable or Animal Origin.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bb</td>
<td>Cotton from various parts of India, in its different stages of growth and manufacture.</td>
</tr>
<tr>
<td>bc</td>
<td>Flax from Punjab; rheea stems and fibre from Assam; brown hemp from Bombay; Jubbulpore hemp; pineapple fibre from Madras and Mangalore; aloe fibre from Madras; Manila hemp; mat grass from Bengal; illustrations of fibre-producing plants of India.</td>
</tr>
</tbody>
</table>

Machines, Implements, and Processes of Manufacture.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>be</td>
<td>Plow and yoke from Berar.</td>
</tr>
<tr>
<td>bf</td>
<td>Native cotton gin from Bengal.</td>
</tr>
</tbody>
</table>

Agricultural Engineering and Administration.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bg</td>
<td>Models of water and cotton cart from Bombay.</td>
</tr>
</tbody>
</table>

---

**C A N A D A.**

(North of Nave, Columns 16 to 23.)

Chemicals.

<table>
<thead>
<tr>
<th>Code</th>
<th>Company</th>
<th>Location</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td>Walker, J.</td>
<td>Hamilton, Ont.</td>
<td>Soaps</td>
</tr>
<tr>
<td>28</td>
<td>Hood, A.W., &amp; Son</td>
<td>Montreal, Q.</td>
<td>Soaps</td>
</tr>
<tr>
<td>29</td>
<td>Albert Toilet Soap Co.</td>
<td>Montreal, Q.</td>
<td>Soaps</td>
</tr>
<tr>
<td>30</td>
<td>Spinelli, R.</td>
<td>Montreal, Q.</td>
<td>Paraffine soaps</td>
</tr>
<tr>
<td>31</td>
<td>Lyman, S. J.</td>
<td>Montreal, Q.</td>
<td>Soaps</td>
</tr>
<tr>
<td>32</td>
<td>Waterman Bros.</td>
<td>London, Ont.</td>
<td>Soaps</td>
</tr>
<tr>
<td>33</td>
<td>Buchanan Mineral Co.</td>
<td>Walsingham, Ont.</td>
<td>Soaps</td>
</tr>
<tr>
<td>34</td>
<td>McKay, William</td>
<td>Ottawa, Ont.</td>
<td>Soaps</td>
</tr>
<tr>
<td>35</td>
<td>Ramsay, T.</td>
<td>Montreal, Q.</td>
<td>Paints</td>
</tr>
<tr>
<td>36</td>
<td>Ramsey, A. &amp; Son</td>
<td>Montreal, Q.</td>
<td>Paints</td>
</tr>
<tr>
<td>37</td>
<td>Montana Plumbago Mining Co.</td>
<td>Montreal, Q.</td>
<td>Sope</td>
</tr>
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DEPT. II.—MANUFACTURES.

Ceramics, Furniture, Woven Goods.

55 Thompson, G. F., & Sons, St. John, N. B.—White lead. 202
57 Edgett, W., Budsey's Point, N. S.—Iron ochre. 202
58 Miller, Hugh, & Co., Toronto, Ont.—Pomade. 203
62 Manuvilling, J. J., Hampton, N. B.—Matches. 204

Ceramics—Pottery, Porcelain, Glass, etc.

81 Pratt, Charles, London, Ont.—Pottery. 206
82 Ahrens, J. H., Paris, Ont.—Pottery. 206
83 Bell, David, Little River, Q.—Drain tiles. 206
84 Machan, Albert, St. John, Q.—Bricks. 206
86 Geological Survey, Montreal, Q.—Bricks. 206
87 Advisory Board, Quebec, Q.—Bricks. 206
91 Bell, W. & D., Quebec, Q.—Tobacco pipes. 206
92 Mee Brothers, St. John, N. B.—Brick, drain tiles. 206
94 Smith & Kaye, Halifax, N. S.—Bricks, drain tiles. 

Earthware. 210
98 St. John Stone Chinaware Co., St. John, Q.—Stone chinaware. 210
99 Cape Rouge Pottery Co., Quebec, Q.—Crockery ware. 210
103 Booth, W., Toronto, Ont.—Sign painting on glass. 216
104 McCausland, J., Toronto, Ont.—Stained glass, figured work. 216

Furniture and Objects of General Use in Construction and in Dwellings.

105 Hay, R., & Co., Toronto, Ont.—Sideboard. 217
106 Riley & May, Toronto, Ont.—Billiard tables, etc. 217
110 Kremer, C., Preston, Ont.—Furniture. 217
111 Murphy, A. A., Montreal, Q.—Store 

112 Roy & Co., Montreal, Q.—Invalid mechanical chair. 217
113 Reinhardt, C., Montreal, Q.—Combination spring-bottom bedstead. 217
114 Reid, R., Montreal, Q.—Marble mantelpiece. 217
115 Stephen, A. & Son, Halifax, N. S.—Secretary. 217
116 Drum Cabinet Manufacturing Co., Quebec, Q.—Parlor and bedroom sets, sideboard. 217
118 Whiteside, H., & Co., Montreal, Q.—Beds and mattresses. 217
121 Chapleau, Godfroi, Montreal, Q.—Fireproof safes, burglar-proof door. 217
122 Bennett, Jas., St. John, N. B.—Newspaper files. 217
123 Hutching & Co., St. John, N. B.—Mattresses. 217
127 Huber, Allen, Berlin, Ont.—Mirrors. 217

129 Ewing & Co., Toronto, Ont. a Mirrors. 219
b Mouldings. 220
130 Dixon, A. H., Toronto, Ont.—Show cases. 219
131 Shantz, J. Y., Berlin, Ont.—Mirror. 219
132 Spence, John C., Montreal, Q.—Stained glass window. 219
135 Wade, J. M., Montreal, Q.—Ornament on glass and wood. 219
136 Cockburn, D., Ottawa, Ont.—Carved frame. 220
140 Brown, J. T., St. John, N. B.—Frames, book-rack. 220
141 Camp Bros., Hamilton, Ont. a Stoves. 222
b Sad irons. 225
142 Moore, D., & Co., Hamilton, Ont.—Stoves, tubular lanterns. 222
143 Elliott, J. W., Toronto, Ont.—Stoves. 222
144 White, H. A., Hamilton, Ont.—Stovepipe damper. 222
145 Exelburg & Co., Toronto, Ont.—Sheet metal elbows. 222
150 Harris, J., & St. John, N. B. a Ship camboose and register grates. 222
b Iron mantels. 227
151 Trudeau, P., Ottawa, Ont.—Gas burner, globe, and gallery. 223
154 Williams, J. M., & Co., Hamilton, Ont.—Clay and stamped ware. Manufacturers of plain, stamped, re-tinned and japanned tinware, tubular lanterns, etc. etc. Price lists sent on application. 224
158 Penton, Thos., Sarnia, Ont.—Combined cooking and heating engine. 225
161 Elliott, T. C., Guelph, Ont.—Washing machine. 225
162 Lavigne & Co., Montreal, Q.—Washing machines. 225
164 Hall, G. B., Quebec, Q. a Washing machines. 225
b Blinds, etc. 227
166 Cable, Bayard, & Co., Montreal, Q.—Clothes rack. 225
168 Foster, S. R., & Son, St. John, N. B.—Fireproof shutters. 227
171 Wood, T. M., & Co., Toronto, Ont.—Yarn, etc. 227
174 Evans, Oscar C., Hamilton, Ont.—Blinds. 227
176 Fontaine, J., Montreal, Q.—Hot-house windows. 227
177 Wells & Co., Toronto, Ont.—Window fastener. 227
178 Fairbank, Hawes, & Co., St. John, N. B.—Doors, blinds, sash, turned work. 227
179 Wilson, Gilmour, & Co., St. John, N. B.—Marbleized mantels and grates. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

180 Dundas Cotton Mills Co., Hamilton, Ont.—Cotton fabrics. 230
181 Canada Cotton Manufacturing Co., Cornwall, Ont.—Domestics, tickings, bags, yarn, etc. 230

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

182 Smith & Wilby, Toronto, Ont.— Samples of cotton batts. 239
183 Woodworth, J. L., St. John, N. B.— Cotton yarns. 239
184 Parks, W., & Son, St. John, N. B.— White and colored cotton yarns. 239
185 Winger, H., Elmira, Ont. a Canadian and Oxford gray cloth. 239 & Linen sheeting. 233
1 86 Stevens, A. J., & Co., Paris, Ont.— Floor oil cloth. 234

Woven and Felted Goods of Wool, etc.

191 Toronto Tweed Co., Toronto, Ont. a Tweeds. 225 b Flannels. 236
192 Rosamond Woollen Co., Almonte, Ont.—Cassimeres. 235
193 Mills & Hutchison, Montreal, Q.— Tweeds. 235
194 Paton Manufacturing Co., Sherbrooke, Q.—Cloths and tweeds. 235
197 Woodworth, J. L., St. John, N. B.— Woven yarns. These 4-ply woolen yarns, chiefly for knitting purposes, are made of pure native wool, with special regard to durability. 233

199 Fisher, T. S., Toronto, Ont. a Tweeds, buckskins, doekskins. 235 b Yarns. 233
200 Advisory Board, Victoria, Br. Col. a Yarn made from wool of Rocky mountain goats. 235 b Indian blankets from wool of Rocky mountain goat. 237
201 Lomas, Adam, & Son, Sherbrooke, Q.— Flannels. 235
202 Willett, S. T., Chambly, Q.— Flannels. 235
203 St. John Woolen Mills, St. John, Q.— Flannels. 235
203 Smith & Wilby, Toronto, Ont.— Fancv flannels. 235
204 Cantic, Ewan, & Co., Montreal, Q.— Plain and fancy flannels. 235
205 Winger, H., Elmira, Ont. a Blankets. 217 b White stocking yarn. 233
207 Wardlaw, J., Galt, Ont.—Woolen yarns. 238
219 Brown & Clagget, Montreal, Q.— Dresses. 250
222 May, James S., St. John, N. B.— Ready-made clothing. 250
225 McKenzie, Charlottetown, P. E. I.— Clothing. 215
226 Sussex Boot & Shoe Co., Sussex, N. B.— Boots and shoes. 231
228 Sutherland, A., Kingston, Ont.— Boots and shoes. 221
231 King & Brown, Toronto, Ont.— Boots and shoes. 233
233 Moore, Th., Cooksville, Ont.— Wood models of boots and shoes. 235
235 Corestine, J., & Co., Montreal, Q.— Hats and caps. 251
237 Gentesse, C., Montreal, Q.— Improved head conformatute. 251
238 Slater & Perry, Montreal, Q.— Boots and shoes. 257
239 Cloutier, George, Pointe Levis, Q.— Manufacturing boots. 251
242 Ramsay, D., Cobourg, Ont.— Boots, and shoes. 251
244 Dominion Suspender Co., St. Stephens, N. B.— Gents' and youths' suspenders. 251
246 Saunders, S., Guelph, Ont.— Carved walking-canes. 254
247 Shawatz, J. Y., Berlin, Ont.— Vegetable ivory buttons. 254
248 Lavoie, M., Montreal, Q.— Hair work. 254
249 Leblanc, J. H., Montreal, Q.— Fancy feathers. 254
250 Clarke, U. E., & Co., Toronto, Ont.— Trunks, valises, and bags. 255
256 Taylor, Robert, Halifax, N. S.— Trunks. 255
257 Borbridge, S. H., Ottawa, Ont.— Trunks. 255
258 Chisholm, W., New Glasgow, N. S.— Ladies' trunks. 255
259 Renfrew, G. R., & Co., Quebec, Q.— Furs, Indian work. 256
270 Reynolds & Volkel, Montreal, Q.— Complete set of furs. 248
271 Hudson Bay Co., Montreal, Q.— Furs. 256
272 Keizer, C., & Son, Halifax, N. S.— Furs. 256
272 Thibault, Lanthier & Co., Montreal, Q.— Furs. 256

Clothing, Jewelry, and Ornaments; Traveling Equipments.

210 Taylor, R. F., & Son, Toronto, Ont. — Full dress suit, dress overcoat. 250
212 McCrae & Co., Guelph, Ont.— Knit goods and hosiery. 250
213 Ancaster Knitting Co., Hamilton, Ont.— Knitted and fancy goods. 250
214 Blacklock, W., & Co., Hastings, Ont.— Wool shirts and drawers. 250
215 Smith, H. H., Goderich, Ont. Suits of Canadian goods. 250
216 Shorey & Co., Montreal, Q.— Ready made clothing. 250
217 Fisher, T. S., Toronto, Ont. — Shirts, pants, clouds, and scarfs. 250
218 Skelton, Tooke, & Co., Montreal, Q.— Shirts, collars, and cuffs. 250

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Weapons, Medical Appliances, Hardware, Brushes.

293 Dawson Bros., Montreal, Q.—Blank books, binding. 261
295 MacKinlay, A. & W., Halifax, N. S.—Blank books. 261
297 Stanton, M., & Co., Toronto, Ont.—Room paper hangings. 264

Weapons, etc.

300 Meyer, F. W. Albert, Montreal, Q.—Small gun, light artillery. 260
301 Rawbone, J. L., Toronto, Ont.—Implements for breech and muzzle guns. 260
302 Stephens, R. E., Owen Sound, Ont.—Breechloading rifle. This rifle is remarkable for having only the minimum of motions, cock, load, and fire; the maximum of rapid fire is consequently attained. It has the side-hinge block breech. 269
303 Kilby, R. H., Montreal, Q.—Evans repeating rifle. 267
305 Egan, John, Halifax, N. S.—Case of guns and rifles. 269

Medicine, Surgery, Prothesis.

307 Miller, Hugh, & Co., Toronto, Ont.—Tick destroyer for sheep. 272
310 Stewart, George, Jr., St. John, N. B.—Ship's medicine chest. 272
311 Marter, F. B., Halifax, N. S.—Ship's medicine chest. 272
314 Canada Truss Factory, Montreal, Q.—Surgical apparatus, artificial limbs. 276
315 Pourtier, M., Quebec, Q.—Philodonte fountain. 277

Hardware, Edge Tools, Cutlery, and Metallic Products.

316 Moore, Th., Cooksville, Ont.—Axle and tool handles. 280
318 Smith, R. H., & Co., St. Catherine, Ont.—Saws. 280
220 Dates Patent Steel Co., Toronto, Ont.—Edge tools. 290
322 Ahern & Walsh, Ottawa, Ont.—Lumbermen's tools. 290
323 Robertson, Peter, Ottawa, Ont.—Lumbermen's and stonecutters' tools. 290
324 Warnock, Jos., & Co., Galt, Ont.—Edge tools for wood, iron, and stone. 290
325 Booth, G., Toronto, Ont.—Engine and pipe wrench. 290
327 Chapleau, Godfroi, Montreal, Q.—Limestone cutters' tools. 290
328 Gilmore, G., Cote St. Paul, Q.—Augers and bits. 290
329 Bolvin & Co., New Liverpool, Q.—Axes and edge tools. 290
332 Spiller Bros., St. John, N. B.—Edge tools and cutlery. 290
335 Broad, E., St. John, N. B.—Axes, edge tools, hammers. 290
339 Morley, Victoria, Br. Col.—Carpenters' maîllets, yew and arbutus. 290
340 Cable, Bayard, & Co., Montreal, Q.—Adjustable elastic razor stop. 291
341 Weigley, J. Albert, Greenwn, N. B.—Skates. 291
344 Copp Brothers, Hamilton, Ont.—Enamelled ware. 283
347 Laidlaw, A., & Co., Hamilton, Ont.—a Enamelled hollow ware. 283
349 Dixon, Smith, & Co., Toronto, Ont.—Sash faster. 284
359 Campbell, Geo., Toronto, Ont.—Large picture frames. 284
355 Gibbs, Geo., & Co., Port Hope, Ont.—Nuts and bolts. 284
354 Law, John, London, Ont.—Brass work. Our mica slit lubricator will bear high pressure, is transparent, will not break. Our water-gauge glass guard and new mode of packing is very durable. Law's patent tar and petroleum burner demonstrates gas tar and petroleum tar as a good and handy fuel. A quarter-inch stream of tar will give fifty horse-power sure. 284
356 Grieff, & Co., Toronto, Ont.—Locks and latches. 284
356 Brissley, W., Toronto, Ont.—Clip book. 284
358 Stringer, Jos., Kingston, Ont.—Locks. 284
359 Cavern & Button, Gananoque, Ont.—Hinges and nails. 284
366 Ritchie, John, & Son, Toronto, Ont.—Brass work. 284
366 Pillow, Hersey, & Co., Montreal, Q.—Tacks, nails, spikes, horseshoes. American export agents and foreign visitors interested in this class of goods will do well to examine them. We endeavor to please all in executing orders intrusted to us. They can be sold at prices that must induce buyers. 284
365 Ives, H. R., Montreal, Q.—General hardware. 284
370 Belanger, Vineet, & Dupart, Montreal, Q.—Axes. 284
375 Foster, S. R., & Son, St. John, N. B.—Tacks, nails. 284
374 McKenzie, M., Prince Edward's Island.—Burglar-proof locks. 284
376 Starr Manufacturing Co., Halifax, N. S.—Nails, spikes, bolts, cans, dies. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

379 Gurd, J. R., London, Ont.—Corn broom and whisks. 296
382 Whitehead & Turner, Quebec, Q.—a Brushes, brooms, dusters. 296
382 Fancy woodware. 296
383 Nelson, H. A., & Sons, Montreal, Q.—Brooms. 296

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Cordage, Leather, Wooden, Metal Ware.

385 Copland, McLaren & Co., Montreal, Q.—Wire brushes for cleaning castings. 286
387 Copeland, Geo., Hamilton, Ont.—Cordage and twine. 287
390 Conner, Thos., & Sons, St. John, N. B.—Cords, ties, lines. 287
391 The Dartmouth Ropework Co., Halifax, Nova Scotia.—Manila cordage and bolt rope, and tarred manila lanyards, four-strand tarred Russian hemp cordage and ratline. No. 1 navy, navy, and patent new stock oakum in 50-pound bundles, and the same qualities spun, ready for calkers to drive. The patent new stock oakum is made entirely from hemp and tow, tarred upon their own machinery, patented December 30, 1873. It can be carded or spun directly from tarring machine, the finished oakum being completed within the hour. 287
392 Bridge, Andrew, West Brook, Ont.—Pails and tubs. 289
393 Clerke & Co., St. John, N. B.—Lasts for boots and shoes. 289
394 Hall, G. B., Quebec, Q.—Tubs, pails. 289
396 Peacock, W., Montreal, Q.—Cricket bats. 289
399 Wendberg & Co., Toronto, Ont.—Galvanized ironwork. 291

Carriages, Vehicles, and Accessories.
419 Guerin, C., Ottawa, Ont.—Child's carriage. 293
426 Webb, John R., Quebec, Q.—Sliding sleigh. 295
431 Lugsden & Barnett, Toronto, Ont.—Ladies' hunting saddles. 296
432 Skellington, S., Bros., Windsor, Ont.—Whip lashes. 296
433 Borbridge, S. & H., Ottawa, Ont.—Harness. 296
434 Vahey, W., Forrest, Ont.—Collars and machine. 296
438 Percy, John, Bowmanville, Ont.—Horseshoes. 296
439 Weichel, M., Elmira, Ont.—Horseshoes. 296
440 Bell, C. R., Parkhill, Ontario.—Horseshoes. 296
441 Malcolm, R., Toronto, Ont.—Saddlery, harness, bags. 296
442 Cable, Bayard, & Co., Montreal, Q.—Halter clasps. 296
446 Culbert, W. H., Sussex, N. B.—Harness, collars. 296
449 Campbell & Fowler, St. John, N. B.—Springs and axles. 296
450 Clarke, R., & Co., St. John, N. B.—Lasts. 533
451 Bradshaw, T. H., St. Martin's, N. B.—Ship models. 594
452 Bradshaw, J. D., St. Martin's, N. B.—Ship models. 594
453 Date, John, Montreal, Q.—Diving apparatus. 594
454 Skinner, G. M., Gananoque, Ont.—Fishing tackle. 647
455 Scribner, D., St. John, N. B.—Salmon and trout rods. 647

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
FRANCE.

(North of Nave, Columns 39 to 53.)

Chemical Manufactures.

1 Grillon, E., Paris.—Indian dates. 200
2 Coignet, Father & Son, & Co., Paris.—Chemical and pasteure products. 200
3 Galzy, E., Lyons.—Insect products. 200
4 Fournier, Jean, Roanne, Loire.—Cream of tartar. 200
5 Hygienic Products Manufacturing Co., Paris.—Chemical preparations. 200
6 Limousin, Paris.—Pharmaceutical preparations; medicated capsules. 200
7 Limousin & Co., Paris.—Medicated capsules. 200
8 Michel, Pyrhhus, Vaison, Vaucluse.—Digestive elixir and vermifuge. 200
9 Rigoliot & Co., Paris.—Mustard poultice and instantaneous plaster. 200
10 Rouault, Ch., Paris.—Syrup of iron and tar. 200
11 Audibran, Paris.—Anti-scorbutic elixir. 200
12 Baudon, Paris.—Wine of antimony. 200
13 Boude & Son, Marseilles.—Refined sulphur. 200
14 Beslier, A., Paris.—Pharmaceutical preparations. 200
15 Brasseur, Romorantin, Loir & Cher.—Pectoral tonic syrup. 200
16 Bravais, Rouol, & Co., Paris.—Pharmaceutical preparations. 200
17 Chevrier, Paris.—Pharmaceutical preparations. 200
18 Clery, Hughes, Paris.—Pharmaceutical preparations. 200
   a Insect powder, and instruments for its use. 200
   b Liquid blacking. 200
20 Tancrède Bros., Paris.—Glue and gelatin, animal charcoal, bone tallow, 200
21 Daubin & Co., Paris.—Fly-paper and mosquito powder. 200
22 Drochelle, Reims, Marne.—Champagne wines. 200
23 Dubois, Charles, Marseilles.—Special chemical preparations for the navy. 200
24 Garnier, P., Noyon, Oise.—Pharmaceutical preparations. 200
25 Ducro & Co., Paris.—Meat extract. 200
26 Jacquant, Father & Son, Lyons.—Lichens, gelatins, bone phosphates, etc. 200
27 Joseph, Victor, Petit Quévilly, near Rouen.—Oil for burns. 200
28 Lefebvre, Fortuné, Illiers, Eure & Loire.—Green water. 200
29 Reynal, Léonce, Paris.—Pharmaceutical preparations. 200
30 Rigand & Dusard, Paris.—Chemical and pharmaceutic preparations. 200
31 Rubaton, Ges., & Co., Marseilles.—Carbonate of soda. 200
32 Solvay & Co., Varangeville, Dom- bosle, Mewithe and Moselle.—Chemical products. 200
33 Torchon, Ch., Paris.—Pharmaceuti- cal preparations. 200
34 Hotot, A., & Co., Paris.—Pepsin and other digestive preparations. 200
35 Thomas Brothers, Avignon, Vau- cluse.
   a Chemical products; artificial alizarine, sulphuric acid, etc. 200
   b Madders. 200
36 Coux Roseaux, Asnieres, near Paris.—Oils and greases; covering for steam pipes. 201
37 Poiret & Son, Paris.—Soap in the form of letters and various ornaments. 201
38 Bourgeois & Co., Paris.—Machine oils. 201
39 Jolivet, L., Paris.—Wax tapers. 201
40 Deutsch, A., Paris.—Machine oils; refined petroleum. 201
41 Chivot, Naudé, Amiens, Somme.—Machine oils. 201
42 Roux, Charles, jr., Marseilles.—Soaps and raw materials; olive oil for dyers. 201
   a Toilet soaps. 201
   b Perfumery. 203
44 Violet, Godefroy, & Co., Paris.—Soaps. 201
   b Fine perfumery and raw materials. 203
45 Richter, F., Lille, Nord.—Ultrama-rine blue. 202
46 Berthoud & Co., Paris.—Black- ing. 202
47 Antoine's, L., Son, Paris.—Writing inks. 202
48 Chiraux, L., Cambray.—Blacking. 202
49 Clauseau, Father & Son, Palun & Co., Avignon, Vaucluse.—Madder ex- tract. 202
50 Coez, E., & Co., St. Denis.—Paints and varnishes. 202

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 27-45.
52 Bourgeois, senior, Paris.—Fine colors for painting and drawing. 202
53 Caron, L., Paris.—Cement and plaster dry. 202
54 Guinon's Son & Co., Lyons.—Chemical products for dyeing and printing. 202
55 Gillet & Son, Lyons.—Chemical products for dyeing. 202
56 Guimet, Lyons.—Ultramarine blue. 202
57 Hardy, Milori, Ch. G., Paris.—Enamels. 202
58 Jacquot & Co., Paris.—Blacking. 202
59 Kaulek, Adolphe, Puteaux, Seine.—Coloring materials. 202
60 Larenaudière, F., Paris.—Inks. 202
61 Lacroix, A., Paris.—Vitrifiable colors for china, faience, church windows,opal, and enamel. 202
62 Lorilleux, Ch., Paris.—Black and colored typographic and lithographic inks. 202
63 Plateau, E., Paris.—Writing inks. 202
64 Poirier, A., Paris.—Chemical products, coloring materials. 202
65 Seurin, J., Paris.—Varnish, mastic, and oil colors. 202
66 Toiray, Maurin, Paris.—Writing inks. 202
67 Foubert, A., Paris.—Hair dyes. 202
68 Brochcki, C. D., & Co., Boulogne, Seine.—Javelle water. 203
69 Chiris, A., Grasse, Alpes Maritimes.—Perfumery and raw materials. 203
70 Colas, E., & Christoff, C., Paris.—Essence of roses. 203
71 Delettrez, Adolphe, Paris.—Perfumery. 203
71 Chouet & Co., Paris.—Dentifrice water. 203
72 Hermann, Louis, Paris.—Raw materials for perfumery. 203
73 Lautier Sons, Grasse, Alpes Maritimes.—Pomades, essential oils, essences,etc. 203
74 Mottett, J., & Co., Marseilles.—Raw materials for perfumery. 203
75 Roure, Bertrand, Son, Grasse, Alpes Maritimes.—Raw materials for perfumery; extracts and essences. 203
76 Seguin, Bordeaux.—Zenobia water and dyes. 203
77 Sensfelder, Arcueil, Seine.—Eye water and pomades. 203
78 Viard, F., Paris.—Perfumery. 203
79 Viguier, Manager French Hygienic Society, Paris.—Figaro water. 203
80 Seguin, Paris.—Athlocinum. 203

Ceramics—Pottery, Porcelain, Glass, etc.

84 Goyard, F., Paris.—Crucibles and furnaces for laboratories. 207
85 Simons & Co., Cateau (Nord).—Mosaic tiles of sandstone in vestibule of Department of Public Works Pavilion. 208
86 Muller, E. & Co., Ivory (Seine).—Enamelled tiles in the vestibule and on the front of Department of Public Works Pavilion. 208
87 Olive, A., Paris.—Faience pavements. 208
88 Trichaud,A.,Marseilles.—Tiles. 208
89 Boulenger, senior, Paris.—Incrusted mosaic pavement. 208
90 Gien Pottery Mnf. Co., Gien (Loire).—Artistic faience. 210
91 Caille, Miss Fanny, Paris.—Artistic faience. 210
92 Montagnon, A., Nevers.—Artistic faience. 210
93 Howry, J., Paris.—Artistic china and faience, fancy furniture. 210
94 Hasslauer & de Champeaux, Givet (Ardennes).—Clay pipes 210
95 Aubry, J., Bellevue (near Toul).—Artistic faience. 210
96 Fiolet, L., St. Omer (Pas de Calais).—Chay pipes. 210
97 Brianchon, J., senior, Paris.—Artistic faience. 210
98 Seguier, T., Paris.—Artistic faience. 211
99 Barbizet, Son, Paris.—Bernard Pailly faience. 211
100 Sohn, L., & Delabre, A., Paris.—Porcelain flowers, jewels, ornaments, crowns, and bouquets. 212
101 Woodcock, F., Paris.—Porcelain flowers and bouquets. 212
102 Elot, Paul, Paris.—China and glass. 213
103 Déttemerman, P., Paris.—Porcelain flowers. 213
104 Vacquerel, P., E., Paris.—Decalcomania on porcelain. 213
105 Thierry, Paris.—Decorated china. 213
106 Field-Haviland, Ch., Paris.—Porcelain. 213
107 Hache, Ad., & Lehalleur Bros., Paris.—White and decorated porcelain. 213
108 Haviland & Co., Limoges.—China. 213
109 Fioreffe Company, Jeumont (Nord).—Mirrors and glassware. 214
110 St. Gobain, Chauny, & Cirey, Paris.—Plain, plated, and silvered glass; rough glass for skylights. 214
111 Pelletier, M. A., & Sons, St. Just on the Loire.—Stained window glass. 216
112 Appert, Lengle, & Co., Paris.—Glass cylinders. 216
113 Brocard, P. J., Paris.—Chandeliers and mirrors. 216
114 Souchet & Co., Paris.—Flowers in enamel. 216
115 Hue & Co., Paris.—Crystals for interior decorations. 216

Furniture and Objects of General Use in Construction and in Dwellings.

116 Rafîl & Co., Paris.—Church statues and furniture. 217
117 Poussielgue, Rusand P., Paris.—Church decorations. 217
118 Perrot, Henry, Paris.—Bronzes for furniture. 217

For classes of exhibits, indicated by numbers at end of entries, see Classification, pt. 27: 45
Furniture, Glassware, Heating and Lighting Apparatus.

119 Parfonry & Lemaire, Paris.—Marble chimney pieces. 217
120 Touchard, Ernest, Paris.—Special ornaments for churches. 217
121 Duplan, Hamot, & Co., Paris.—Furniture. 217
122 Brunet, Paul, Paris.—Bronze and goldsmiths' wares for churches. 217
123 Morel, A., Paris.—Bronzes for furniture. 217
124 Michel, Louis, Toulouse.—Church decorations. 217
125 Mazaroz, Ribalier, Paris.—Artistic furniture. 217
126 Marchand, L., Paris.—Religious articles. 217
127 Mayaud Bros., Paris.—Religious articles. 217
128 Marchand, I., Paris.—Decorated furniture. 217
129 Marchand, Louis-Léon, Paris.—Artistic bronzes for furniture. 217
130 Lichtenfelder, Paris.—Elastic steel seats. 217
131 Haffner, B., senior, Paris.—Safes with combination locks. 217
132 Kaffel Bros., Paris.—Bronze furniture with china, faience, crystal, and marble decorations. 217
133 Jolivet, L., Paris.—Candies for churches. 217
134 Houry, T., Paris.—Fancy furniture. 217
135 Gallais, A., Paris.—Lacquered furniture. 217
136 Froc, Robert, & Son, Paris.—Altars and religious statues. 217
136a Allard, Paris.—Furniture. 217
137 Eliers, A. E., Paris.—Folding seats. 217
138 Cornu, E., & Co., Paris.—Bronzes. 217
139 Chovet, L., Paris.—Religious pictures. 217
140 Beyens & Beckers, Paris.—Religious articles. 217
141 Sussex Brothers, Paris.—Bronzes. 217
142 Sussfeld, Lorsch, & Co., Paris.—Marble clocks. 217
143 Sauvage & Ruck, Paris.—Bronze mantel ornaments. 217
144 Frenais, Armand, Paris.—Unplated and plated knives, forks, and spoons. 218
145 Bitterlin, Paul, jr., Paris.—Glassware. 218
146 Haviland & Co., Limoges.—Table china. 218
148 Field-Haviland, Ch., Paris.—Table china. 218
149 Hache, Ad., & Pepin, Lehalleur Bros., Paris.—Table china. 218
150 Bitterlin, Son, Paris.—Glassware. 218
151 Brot, Paul, Paris.—Table glass and chinaware. 218
152 Lorin, A., Chartres (Eure & Loir).—Stained glass church windows. 219
153 Brocard, P. T., Paris.—Emdeane glass. 219
154 Chabin, H., Paris.—Stained glass windows. 219
155 St. Gobain, Chauny, & Cirey, Paris.—Mirrors. 219
156 Mansuy-Dotin, Jules, Paris.—Artistic enamels for furniture. 219
157 Pelletier, M. A., & Sons, St. Just sur Loire.—Stained window glass. 219
158 Pottier, Paris.—Artistic enamels, Limousin and Henry II. style. 219
159a Brot, Leopold, Paris.—Mirrors in gilt frames; mirrors in furniture. 219
160 Thiry, jr., Paris. a Galvanized iron bird cage. 219 b Forged iron pavilion. 227
161 Luttringer, Ch., Paris.—Pasteboard frames. 220
162 Neuville, J. B., Paris.—Heating apparatus. 222
163 Laperche, Paris.—Marble chimney pieces. 222
163a Bouhon & Co., Paris.—Bronze fire guards. 222
164 Aubry, T., Bellevue, near Toul.—Faience stoves. 222
165 Entz, H., Waccon, near Sedan.—Portable cooking range used in the army. 222
166 Roux, L., Lyons.—Heaters and chimney pieces. 222
167 Robinot, Ch., Paris.—Gas fixtures. 223
168 Corbon, Paris.—Lamps. 223
169 Peltier, E., & Paillard, A., Paris.—Metallic labels and boxes for preserves; direct printing upon metals. 224
170 Barau & Colas, Nantes (à la Ville en Bois).—Metallic jars for preserving. 224
171 Mestre, A. de, Bordeaux.—Apparatus for cooking gaseous liquids. 224
172 Letang, Th. I. B., Paris.—Chocolat moulds. 224
174 Fisse, Thirion, & Co., Reims.—Iron clamps; system of corking wines. 224
175 Denet, E., Paris.—Copper moulds for alimentary pastes. 224
176 Dagand, Etienne, Paris. a Coffee pots used by the army, navy, steamships, and public establishments. 224 b Hot water baths. 226
177 Dienenhem-Brochocki, T. O. de, Paris.—Automatic disinfectors. 226
178 Chappée, A., Mans (Sarthe).—Iron water and gas pipes. 227
179 Richard, B., Longecourt, near Aisery (Cote d'or).—Massive floor with borders. 227
180 Régnier, Paris.—Economical wooden ridge of a house. 227

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
181 Bonhomme, Uncle & Nephew, Paris.—Wooden doors of the vestibule, and wainscoting and frames of the drawings of the Department of Public Works Pavilion. 227
182 Molsant, A., Paris.—Metallic frame of Department of Public Works Exhibition Pavilion. 227
183 Secretan, E., Paris.—Copper sheets for construction. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

184 Pallu, Eug., & Co., Mahé (Seychelle Island).—Cocoonut fibres. 229
185 Dumortier & Cuignet, Roubaix (Nord).—Tickings. 230
186 Cartier-Bresson, Paris.—Cotton threads. 230
187 Perreaux, L. G., Paris.—Model of a military tent. 230
188 Wakker, W., Paris.—Military and garden tents. 230
189 Chiffray, A., Maronne, near Rouen. —Prints and calicoes. 232
190 Roussel, Emile, Roubaix (Nord).—Dyed and printed cotton threads. 232
191 Vraux & Co., Paris.—Linen thread. 233
192 Meunier & Co., Paris.—Linen and linen table covers. 233
192a Vrau & Co., Paris.—Linen and thread. 233
193 Hausebroucq Brothers, Comines (Nord).—Linen threads. 233
194 Vrau & Co., Lille.—Hemp thread for sewing. 233

Woven and Felted Goods of Wool, etc.

195 Demar, L., Elbeuf (Seine Inférieure).—Gentlemen's dress goods. 235
196 Dumortier & Cuignet, Roubaix (Nord).—Cloth. 235
197 Prouvost, Amédée, & Co., Roubaix. —Carded wools. 235
198 Chamber of Commerce, Reims.—Woolen fabrics. 235
199 Delamotte-Mongrenier, Reims (Marne).—Dyed merinoes, cashmeres, reps, etc. 235
200 Seydoux, Sieber, & Co., Paris.—Carded threads and woolen fabrics. 235
201 Taimon, Son, & Co., Paris.—Woolen fabrics. 235
202 Besset, E., & Co., Elbeuf.—Woolen cloth. 235
203 Bin & Bloch, Elbeuf (Seine Inférieure).—Woolen cloth. 235
204 Decaux, Son, Elbeuf.—Woolen cloth. 235
205 Dabert & Co., Saint Denis (Seine).—Dyed woolen fabrics. 235
206 Fortin Bros., Paris.—Felts. 235
207 Fouchet, sr. & Jr., & Hulme, Elbeuf.—Cloth. 235
208 Frézon, senior, & Leclerc, senior, Amiens.—Cloth. 235
209 Philippe, C., Elbeuf (Seine Inférieure).—Cloth for pants and vests. 235

210 Mali, Henry W. T., & Co., Paris.—Woolen fabrics and cloth. 235
211 Pinon & Guérin, Paris. —a Cloth for men's wear. 235
   b Novelities for females' wear. 235
212 Reynaud, Paris.—Medicated Bandage. 236
213 Terrillon, L., Paris.—Shawls. 237
214 Robert, Guérin, Widow, & Son, Reims (Marne).—Merinoes and Scotch cashmeres. 238
215 Houpin, Ernest, Reims (Marne).—Dyed merinoes, cashmeres, reps, etc. 238
216 Maes, G., Cllichy-la-Garonne.—Dyed woolen fabrics. 238
217 Dufourmantel, Ph., & Co., Corbie (Somme).—Woolen and silk warp. 238
218 Chamalcl, A., & Co., Paris.—Dyed woolen fabrics. 238
219 Larocche, A., Saulxures (Vosges).—Cotton and wool, with process of manufacture. 238
220 Drogue & Monnard, Lyons.—Poplins. 238
221 Droz, Juliet, & Co., Lyons.—Poplins. 238
222 Gravier, Clément, Nimes (Gard).—Velvet carpets. 239
223 Duplan, Hamot, & Co., Paris.— Carpets. 239
224 Bertrand, Boulia, Nimes (Gard).—Imitations of old tapestries. 239
225 Braquenie Brothers, Paris.—Tapestries and carpets. 239
226 Grison, T., & Co., Lisieux (Calvados).—Dyed and printed cloth. 241
227 Guillaumet, A., Sons, Suresnes (Seine).—Dyed woolen fabrics. 241
228 Boquet, J., & Co., Amiens.—Velvet. 241
229 Chiffray, A., Maronne, near Rouen.—Printed woolen fabrics. 241
230 Roussel, Emile, Roubaix (Nord).—Dyed and printed woolen fabrics. 241
231 Picqué, F., & Bros., Paris.—Reps and velvets. 241
232 Carrier-Mortier & Muller, Paris.—Dyed fabrics. 241
233 Vanoutryve, F., & Co., Paris.—Furniture coverings. 241
234 Wattine, Ch., & Co., Roubaix (Nord).—Furniture coverings and draperies. 241
235 Montagnac, E., & Son, Sedan (Ardennes).—Velvet. 241
236 Dupont, L., Paris.—Furniture coverings. 241

Silk and Silk Fabrics.

237 Pellet, A. P., St. Jean du Gard.—Raw silk. 242
238 Arles, Dufour, Lyons.—Raw silk. 242
239 Badon, Louis, St. Jean du Gard.—Raw silk. 242
240 Chabert, J., & Co., Chomerac (Ardeche).—a Raw silk. 242
   b Woven silks. 245

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Silk, Clothing.

241 Thomas Brothers, Avignon (Vaucluse), - Raw silk. 242
- Silks. 242

242 Thomas, F., Pont-des-Charrettes (Gard). - Coroons and raw silk. 242
- Silks. 242

243 Bonnet & Co., Lyons. - Raw silk. 242
- Failles, taftetas, and satins. 242

244 Chardin, Ernest, Paris. - Sewing and embroidery silks. 243

244a Poydebat, St. Paul-on-Jarret, Loire. - Sewing silk. 243

245 Hamelin, A., Son, Paris. - Silks. 244

246 Faye & Thévenin, Lyons. - Colored silks. 245

246a Droz, Juillet & Co., Lyons. - Silks. 245

246b Gasco, L. R., Montauban (Tarn & Garonne). - Bolting silk. 245

247 Gillett & Son, Lyons. - Black silks. 245

249 Giraud, Alex., & Co., Lyons. - Colored silks and foulards. 245

249a Trapidoux, A. L., Bros., & Co., Lyons. - Lining silks 245

250 Poncet, senior & junior, Lyons. - Silks. 245

252 Sévène, Barral, & Co., Lyons. - Failles. 245

253 Tapiessier Sons & Débray, Lyons. - Black silks, failles, and taffetas. 245

254 Doux, E., & Co., Lyons. - Silks. 245

255 Mauvernay & Co., Lyons. - Silks. 245

256 Lachard Bros. & Co., Lyons. - Lining silks 245

257 Jaubert, Audras, & Co., Lyons. - Black silks. 245

258 Jaudin & Duval, Lyons. - Foulards. 245

259 Brosset-Heckel & Co., Lyons. - Satins. 245

260 Audibert, Monin, & Co., Lyons. - Silks and poplins. 245

261 Bardon & Ritton, Lyons. - Colored silks. 245

262 Bullot, C., Paris. - Millinery goods. 245

263 Hubert, E., & Co., Paris. - Silk plush for hatters. 245

264 Tabard, Benoit, & Co., Lyons. - Silks and failles. 245
- Moire antiques. 246

265 Bressent-Agnés & Co., Lyons. - Silks. 245
- Gauzes. 245

266 Guinet, Ant., & Co., Lyons. - Black silks. 245
- Velvets. 247

267 Jurie, A., & Co., Lyons. - Silks. 245
- Velvets. 247

268 Gondard, Ciriot, & Martel, Lyons. - Foulards. 245
- Velvets. 247

269 Martin, J. B., Tarare (Rhone). - Silks. 245
- Plush and velvets. 247

270 Million & Servier, Lyons. - Silks. 245
- Velvets. 247

271 Champeyron, J. B., Renaison (Loire). - Foulards. 245
- Ribbons. 248

272 Gourd, Croizat, Son, & Dubost, Lyons. - Silks. 245

273 Henry, J. A., Lyons. - Silk fabrics for church ornaments and furniture. 246

274 Luthrier, Lyons. - Figured silks. 246

275 Tassinari & Chatel, Lyons. - Silks for church ornaments and furniture. 246

276 Chiffray, A., Maromme, near Rouen. - Printing upon silk. 246

277 Servant, C. J. & Co., Lyons. - Black velvets. 247

278 Montessuy & Chomer, Lyons. - Cradles. 247

279 Terrillon, L., Paris. - Fancy goods and handkerchiefs. 247

280 Villard & Co., Lyons. - Black velvets. 247

281 Bouchinet, Paris. - Dress goods. 247

282 Gautier, Bellon, & Co., Lyons. - Velvets. 247

283 Dornon, L., Lyons. - Silk gauzes for bolting flour, and sifting chemical and ceramic products. 247

284 Pont, Chambeyron & Benoit, Lyons. - Black velvets. 247

285 David, J. B., Saint-Etienne (Loire). - Ribbons. 248

286a Brionde, St. Etienne. - Velvet ribbons. 248

286b Girou Brodies, St. Etienne (Loire). - Velvet ribbons. 248

287 Lamany, Paris. - Silk watch guards. 249

Clothing, Jewelry, and Ornaments: Traveling Equipments.

288 Lutton, A., Paris. - Chasubles. 250

289 Fromage, Lucien, & Co., Rouen. - Braces, belts, garters, and elastic tis sues. 250

290 Tabourot & Paucault, Paris. - Shirts. 250

291 Vessiere-Paulin, J. A., Paris. - Children's clothing. 250

292 Tauthier, Mrs., Paris. - Children's clothing. 250

293 Tailors' Society, Paris. - Gentlemen's clothing. 250

294 Bullot, C., Paris. - Silk stockings. 250

295 Levillon, Paris. - Ladies' costumes and trimmings. 250

296 Lenoir, P., Paris. - Corsets. 250

297 Pouet, Mrs., Paris. - Ladies' underwear. 250

298 Farcy & Oppenheim, Paris. - Corsets. 250

299 Society of United Cutters, Paris. - Gentlemen's furnishings goods. 250
<table>
<thead>
<tr>
<th>Clothing, Jewelry.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>300 Vasseur, Mrs. Virginie, Paris.</strong></td>
</tr>
<tr>
<td>a Traveling and court dresses; cloaks.</td>
</tr>
<tr>
<td>b Laces.</td>
</tr>
<tr>
<td><strong>301 Herth, Henry, Paris.—Boots and shoes.</strong></td>
</tr>
<tr>
<td><strong>302 Jouvín &amp; Co., Paris.—Kid gloves.</strong></td>
</tr>
<tr>
<td><strong>303 Tréfousse &amp; Co., Chaumont (Haute-Marne).—Kid gloves.</strong></td>
</tr>
<tr>
<td><strong>304 Poron Bros., Troyes (Aube).—Millinery.</strong></td>
</tr>
<tr>
<td><strong>305 Jouvín, Mrs. Xavier, Paris.—Kid gloves.</strong></td>
</tr>
<tr>
<td><strong>306 Jeandron-Ferry, Paris.—Ladies’ boots and shoes.</strong></td>
</tr>
<tr>
<td><strong>307 Jugia, D., Paris.—Kid gloves.</strong></td>
</tr>
<tr>
<td><strong>308 Méliès, Louis Stanislas, Paris.—Boots and shoes.</strong></td>
</tr>
<tr>
<td><strong>309 Némoz, Pierre, Paris.—Ladies’ and children’s felt hats.</strong></td>
</tr>
<tr>
<td><strong>309a Legendre, Paris.—Boots and shoes.</strong></td>
</tr>
<tr>
<td><strong>310 Ruffin, J. B., Paris.—Hats for ladies and children.</strong></td>
</tr>
<tr>
<td><strong>311 Berr, Eugène, Paris.—Kid gloves.</strong></td>
</tr>
<tr>
<td><strong>311a Guibert, jr., Paris.—Gloves.</strong></td>
</tr>
<tr>
<td><strong>312 Bullot, C., Paris.—Millinery.</strong></td>
</tr>
<tr>
<td><strong>313 Buscarlet, Widow, &amp; Malo, Paris.—Kid gloves and skins.</strong></td>
</tr>
<tr>
<td><strong>314 Shoemakers’ Society, Paris.—Boots and shoes.</strong></td>
</tr>
<tr>
<td><strong>315 Chapsal, Auguste, Aurillac (Cantal).—Waterproof shoes.</strong></td>
</tr>
<tr>
<td><strong>316 Dubois, Gustave, Mony (Oise).—Boots and shoes.</strong></td>
</tr>
<tr>
<td><strong>317 Corayd, Julia de, Paris.—Millinery.</strong></td>
</tr>
<tr>
<td><strong>318 Pinet, F., Paris.—Boots and shoes for ladies and children.</strong></td>
</tr>
<tr>
<td><strong>319 Haard, L., Paris.—Boots and shoe.</strong></td>
</tr>
<tr>
<td><strong>320 Hégle-Glandines &amp; Corbeau, Paris.—Gloves.</strong></td>
</tr>
<tr>
<td><strong>321 Basset &amp; Co., Saint-Pierre-les-Calais.—Machine-made laces.</strong></td>
</tr>
<tr>
<td><strong>322 Babey, Ch., Calais.—Tulle and embroideries.</strong></td>
</tr>
<tr>
<td><strong>323 Bailey, Alfred, Paris.—Tulle and gimp for furniture.</strong></td>
</tr>
<tr>
<td><strong>324 Boutenjeun, Saint-Pierre-les-Calais.—Machine-made laces.</strong></td>
</tr>
<tr>
<td><strong>325 Maxton, Robert, &amp; Co., Saint-Pierre-les-Calais.—Machine-made laces.</strong></td>
</tr>
<tr>
<td><strong>326 Meunier &amp; Co., Paris.—Embroidered curtains.</strong></td>
</tr>
<tr>
<td><strong>327 Millas, Toulouse.—Gimps for furniture.</strong></td>
</tr>
<tr>
<td><strong>328a Galoppe &amp; Tragin, Paris.—Laces.</strong></td>
</tr>
<tr>
<td><strong>329 Herbelot &amp; Devaux, Calais.—Blonde and laces.</strong></td>
</tr>
<tr>
<td><strong>330 Dieutegard, E. &amp; E., Paris.—Trimmings.</strong></td>
</tr>
<tr>
<td><strong>331 Dognin &amp; Co., Paris.—Lamé, and Chantilly laces.</strong></td>
</tr>
<tr>
<td><strong>332 Giraud &amp; Josserand, Tarare (Rhône).—Muslin and tarlatans.</strong></td>
</tr>
<tr>
<td><strong>333 Gaillard, J., senior &amp; junior, Saint-Pierre-les-Calais.—Machine-made laces.</strong></td>
</tr>
<tr>
<td><strong>334 Frances Brothers, Saint-Pierre-les-Calais.—Tulle and blonde laces.</strong></td>
</tr>
<tr>
<td><strong>335 Flauraud &amp; Son.—Laces.</strong></td>
</tr>
<tr>
<td><strong>336 Fauw, F. de, Paris.—Trimmings.</strong></td>
</tr>
<tr>
<td><strong>337 Perrin Brothers, Grenoble.—Kid gloves.</strong></td>
</tr>
<tr>
<td><strong>338 Raffin, Mrs. C. M., &amp; Son, Tarare.—Tarlatans and muslins.</strong></td>
</tr>
<tr>
<td><strong>339 Terrillon, L., Paris.—Ladies’ trimmings.</strong></td>
</tr>
<tr>
<td><strong>339a Grassier &amp; Co., Paris.—Laces.</strong></td>
</tr>
<tr>
<td><strong>340 Coissard, Paris.—Laces.</strong></td>
</tr>
<tr>
<td><strong>341 Cazin &amp; Noyon, Saint-Pierre-les-Calais.—Blonde and black laces.</strong></td>
</tr>
<tr>
<td><strong>342 Verdé-Delisle &amp; Co. (India Company), Paris.—Hand-made lace.</strong></td>
</tr>
<tr>
<td><strong>343 Davenieré, E., jr., Saint-Pierre-les-Calais.—Machine-made laces.</strong></td>
</tr>
<tr>
<td><strong>344 Erassier, Paris.—Laces.</strong></td>
</tr>
<tr>
<td><strong>344 Collective Exhibit of the Calvados lace manufacturers.—Dalechamp, J., Caen; Othar, Caen; Lecon-Lamotte, Caen; Leroy, Mrs., Caen; Mérouze, Mrs., Caen; Robert Bros., Courseulles-sur-Mer (Calvados); Mérouze, U., Caen; Verdé-Delisle &amp; Co., Caen. Laces.</strong></td>
</tr>
<tr>
<td><strong>345 Clément &amp; Co., Paris.—Pears and diamonds.</strong></td>
</tr>
<tr>
<td><strong>346 Audy, Mrs., Paris.—Imitation pearls.</strong></td>
</tr>
<tr>
<td><strong>347 Bolzani, Jean, Son, Paris.—Chains.</strong></td>
</tr>
<tr>
<td><strong>347a Boucheron, Paris.—Jewelry.</strong></td>
</tr>
<tr>
<td><strong>348 Bourcier, Ch., Paris.—Imitation jewelry.</strong></td>
</tr>
<tr>
<td><strong>349 Carbonneaux, François, Paris.—Gilt and steel jewelry.</strong></td>
</tr>
<tr>
<td><strong>349a Otterbourg, Paris.—Jewelry.</strong></td>
</tr>
<tr>
<td><strong>350 Capra, J., Paris.—Gilt jewelry.</strong></td>
</tr>
<tr>
<td><strong>350a Foruch, A., Bourg (Ain).—Jewelry.</strong></td>
</tr>
<tr>
<td><strong>352 Hémery, Ed., Paris.—Gilt and gold-plated jewelry.</strong></td>
</tr>
<tr>
<td><strong>352a Briens, Paris.—Jewelry.</strong></td>
</tr>
<tr>
<td><strong>353 Hirn, A., &amp; Co., Paris.—Gilt jewelry.</strong></td>
</tr>
<tr>
<td><strong>354 Levy, Isidore, Paris.—Imitation jewelry.</strong></td>
</tr>
<tr>
<td><strong>355 Mauriceaud Bros., Paris.—Gilt jewelry and pearls.</strong></td>
</tr>
<tr>
<td><strong>356 Murat &amp; Co., Paris.—Gold-plated jewelry.</strong></td>
</tr>
<tr>
<td><strong>356a Bosset, Paris.—Jewelry.</strong></td>
</tr>
<tr>
<td><strong>357 Philippe, Emile, Paris.—Jewelry.</strong></td>
</tr>
<tr>
<td><strong>358 Piel, A., Paris.—Imitation jewelry.</strong></td>
</tr>
<tr>
<td><strong>359 Regad, Anatole, Jr., Paris.—Imitation diamonds.</strong></td>
</tr>
<tr>
<td><strong>360 Savary &amp; Rondeleux, Paris.—Jewelry and imitation stones.</strong></td>
</tr>
<tr>
<td><strong>361 Scudoile, Joseph François, Paris.—Steel jewelry.</strong></td>
</tr>
<tr>
<td><strong>362 Soyer, Paul, Paris.—Jewelry.</strong></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Jewelry, Fancy Articles, Stationery.

363 Toppart Bros., Paris.—Imitation pearls and corals. 253
364 Touchard, Ernest, Paris.—Gilt church and theatrical ornaments. 253
365 Carmant, Adolphe, Paris.
   a. Jewelry. 253
   b. Fancy bronzes. 254
   a. Shell jewelry. 253
   b. Fancy articles. 254
367 Woodcock, F., Vaugirard.—Porcelain flowers. 254
368 Aubé, H., Paris.—Napkin ring and fastener. 254
369 Bapte rosse s, F., Paris.—Porcelain buttons and pearls. 254
370 Biqué & Dupressoir, Paris.—Feathers. 254
371 Blot, Eugène, Boulogne-sur-Mer.—Clay pipes. 254
372 Bondier, Ulbrich, & Co., Paris.—Meerschaum and briar-wood pipes. 254
373 Bontems, B., Paris.—Moving and singing birds. 254
374 Bourgeois, senior, Paris.—Colors without poison, for toys. 254
375 Brodin, jr., Paris.—Aerostatic articles. 254
376 Cohumer & Collet, Paris.—Children's and doll’s furniture. 254
377 Charageat, E., Paris.—Paragon and automatic umbrella. 254
378 Dehors, A., Paris.—Toys. 254
379 Delivré, L., Paris.—Artificial flowers. 254
380 Deschamps, Maurey, & Co., Paris.—Toilet brushes. 254
381 Détemmermann, P., Paris.—Porcelain flowers. 254
382 Didout, H., Son, Paris.—Clasps for pocket books, cigar cases, etc. 254
383 Dupont, A., Beauvais.—Ivory brushes. 254
384 Favier, Paris.—Toys. 254
385 Favier, A., Paris.—Flowers and leaves. 254
386 Fiiolet, L., Saint Omer (Pas de Calais).—Clay pipes. 254
387 Girondeau, François, Paris.—Fancy bronzes. 254
388 Gogly, Auguste, Paris.—Artificial flowers. 254
389 Gosse-Perier, Paris.—Artificial flowers. 254
390 Guyot & Migneaux, Paris.—Birds and insects made of flowers and feathers. 254
391 Hasslauer, Mrs., & Champeaux de Givet (Ardennes).—Clay pipes. 254
392 Hiéard, L., & Co., Paris.—Feathers and artificial flowers. 254
393 Jumeau, F., Paris.—Dolls. 254
394 Kees, Ernest, Paris.—Fans. 254
395 Lamarre, Paris.—Fancy articles. 254
396 Loiseau, A., Son, Paris.—Toys. 254
397 Loonen, F., Paris.—Ivory brushes. 254
398 Maltête, Paris.—Toys. 254

399 Mayaud Bros., Paris.—Medals and ornaments. 254
400 Muzet & Co., Paris.—Hair work. 254
401 Pinson, Paris.—Shell, ivory, and pearl fancy articles. 254
402 Radiguet, Paris.—Toys. 254
403 Ravenet, senior, Paris.—Combs. 254
404 Sohn & Delabre, Paris.—Porcelain flowers. 254
405 Souchet & Co., Paris.—Enamed flowers. 254
406 Truffy, Paris.—Mechanical toys. 254
407 Vaucquerel, F. E., Paris.—Decalcomanie. 254
408 Voisin, V. C., Paris.—Fancy articles. 254
409 Bapte rosse s, F., Paris.—Buttons and pearls of porcelain. 254
410 Alexandre, Paris.—Fans. 254
411 Walker, W., Paris.—Traveling articles. 254
412 Lenègre, A., Paris.—Photographic albums and fancy leather work. 255
413 Revillon Bros., Paris.—Furs. 256
414 Jacquemin, Paris.—Historical costumes. 257

Paper, Blank Books, Stationery.

415 Dubourguet, A., Paris.—Inkstands and office and artists’ articles. 258
416 Gaffre & Caen, Paris.—Steel pens. 258
417 Gonthier, Dreyfus, & Co., Paris.—Stationery, lithography, and engravings. 258
418 Panier, Ernest, Paris.—Mathematical instruments. 258
419 Plateau, E., Paris.—Office stationery. 258
420 Pourre, Gillot, O’Kelly, & Co., Boulogne-sur-Mer.—Steel pens and pen holders. 258
421 Roux, Ermond, Paris.—Inkstand. 258
422 Susse Brothers, Paris.—Fancy stationery. 258
423 Toiray, Maurin G., Paris.—Office stationery. 258
424 Bondier, Ulbrich, & Co., Paris.—Cigarette paper. 239
425 Bardou, J. P., Perpignan.—Cigarette paper. 239
426 Blanchet Bros., & Kléber, Paris.—Paper. 259
427 Bernard, J., & Co., Paris.—Papers. 259
428 Haymann Bros., Paris.—Tissue papers. 259
429 Hennecart & Co., Paris.—Papers. 259
430 Lacrocq Bros., Paris.—Writing papers and parchments. 259
431 Maguet, Paris.—Fancy stationery and engraving. 259
432 Marais & St. Marie Paper Mills, Paris.—Paper. 259
433 Lair, E., Paris.
   a. Bond paper. 259
   b. Printing paper. 260

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Stationery, Weapons, Medical Appliances, Hardware.

434 Bécoulet & Cie., Paris.—White and fancy papers. 259
   a Colored papers. 264
435 Canson & Montgolfier, Paris.—Paper. 260
435a Lortie, Paris.—Bookbinding. 261
437 Hauteville, D., Paris.—Bristol board and cards. 262
437a Laroche, A., Saulxures (Vosges).—Vegetable paste for pasteboard manufac-
   turers. 262
438 Desfeux, Ph., Paris.—Leather roofing. 262
439 Bourgeois, Martin, jr., Paris.—Decorative paintings for apartments and
   fireboards. 263
440 Roger & Montlouis, Paris.—Wall papers. 264

Weapons, etc.
441 Gévelot, Paris.—Guns and ammunition. 265
442 Jullien & Gauthey Bros., Paris.—Metallic cartridges. 265
443 Laffiteau & Rieger, Paris.—Fancy arms. 265

Medicine, Surgery, Prothesis.
444 Badiole, Henry, Tarbes (Hautes-
   Pyrénées).—Medicines. 272
446 Vie, Garnier, & Co., Paris.—Phar-
   maceutical preparations. 272
447 Valby, Dijon.—Medicinal capsules and
   pills. 272
448 Limousin, Paris.—Machine for the manufacture of
   capsules and apparatus
   for inhaling oxygen gas. 274
449 Reynal, Léonce, Paris.—Physi-
   cians' case. 274
450 Brière, Jules, Alençon (Orne).—
   Hygienic nipples. 274
451 Benas, Jean Pierre, Paris.—Rubber
   surgical instruments. 276
452 Vergne & Chose Bros., Paris.—
   Rubber surgical instruments. 276
453 Rond eau Bros., Paris.—Rubber
   surgical instruments, truss. 276
454 Eliaers, A. E., Paris.—Chairs for
   invalids. 278

Hardware, Edge Tools, Cutlery, and
   Metallio Products.
455 Lichtenfelder, Paris.—Lock-
   smiths' tools. 280
455a Sc e g a n t, Paris.—Shoemakers'
   tools. 280
456 Loretcher, B., Bussang (Vosges).—
   Iron covers and currycombs. 280
457 Dugoujon, J., senior, Paris.—
   Saws. 280
458 Limet, Lapareillé, & Co., Paris.—
   Files. 280
459 Rheims, Anatole, Paris.—Military
   equipments; screws. 280
460 Guillemin, Renault, Nogent (Haute-
   Marne).—Cutlery. 281
461 Girard, Charles, Nogent (Haute-
   Marne).—Cutlery. 281
462 Sommelet, Courcelles (Haute-
   Marne).—Cutlery. 281
463 Thévenot, Felix, Nogent (Haute-
   Marne).—Cutlery. 281
464 Thinet, Paris.—Cutlery. 281
465 Vitry Bros., Paris.—Cutlery. 281
466 Charbonne-Thullier, J., Nogent
   (Haute-Marne).—Cutlery. 281
467 Couvreux, W ichard, Nogent
   (Haute-Marne).—Pruning shears and
   cutlery. 281
468 Thomachot - Thullier, Nogent
   (Haute-Marne).—Scissors and pruning
   shears. 281
469 Dissoire, Nogent (Haute-Marne).
   Surgical instruments. 281
470 Denizet, Langres (Haute-Marne).
   Cutlery. 281
470a Scheidecker, Ch., Paris.—Shear-
   ing machines. 281
470b Pérand, V., Paris.—Sheep shearing
   machines. 281
471 Chateau, Louis Auguste, Paris.—
   Emery paper and cloth for polishing
   glass. 282
472 Deplanque, senior, Maison-Alfort
   (Seine).—Whetstones. 282
473 D u ma s, F r é m y, Mrs., Paris.—
   Emery paper and cloth. 282
474 D r i c k s m i t h, Lyons.—Whet-
   stones. 282
475 Edeline, Amédée, Jean, Paris.—Bun-
   nishing stones. 282
476 Fournier, Dondel & Co., Paris.—
   Metallic fire fenders and bronze arti-
   cles. 283
478 Marchand, Louis Léon, Paris.—
   Bronzes. 283
479 Martin, Louis, Paris.—Sheet iron
   ornaments. 283
480 M o r e l, A., Paris.—Bronze orna-
   ments. 283
481 Perrot, Henry, Paris.—Bronzes. 283
482 Christofle & Co., Paris.—Gold-
   smiths' ware. 283
483 Froment-Meurice, Paris.—Gold-
   smiths' ware. 283
484 Cornu, Eug., & Co., Paris.—
   Bronzes. 283
485 Poussielgue-Rusand, Paris.—
   Bronzes and plated ware for churches. 283
486 Sauvage & Ric k, Paris.—
   Bronzes. 283
487 Tahon, Felix, Lille.—Forged cooper
   plates. 283
488 Suisse Bros., Paris.—Bronzes. 283
489 Deny, Louis, Paris.—Construction
   materials. 283
489a Carmoy, Celestin, Paris.—Brass
   and steel nails. 284
490 A n t h o n i, G., Levallois-Perret
   (Seine).—Axes and springs for carri-
   ages. 284
491 Jeantaud & Co., Paris.—Carriage
   wheels. 284
492 David-Damoiseau & Co., Paris.—
   Chains. 284
493 Marquise Iron Co., Paris.—Cham-
   deliers and stove pipes. 284

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Metal, Wooden, Rubber Ware, Vehicles.

494 Mage, senior, Lyons.—Woven wire for mattresses. 284
495 Sirot, C. & L., Charleville (Ardennes).*—Nails. 284
496 Vachette Bros., Paris.—Locks for furniture. 284
497 Chappée, A., Le Mans (Sarthe).*—Iron pipes for water and gas. 284
498 Chaméry & Co., Paris.—Water pipes and cocks. 284
499 Cazaubon, D., Paris.—Iron pipes for water and gas. 284
500 Gallais, A., Paris.—Gilt nails. 284
501 Thiry, jr., Paris.—Artistic locksmiths' goods. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

503 Bénas, Jean-Pierre, Paris.—Rubber surgical instruments. 285
504 Vergne & Chose Bros., Paris.—Rubber surgical instruments. 285
505 Rondeau Bros., Paris.—Rubber surgical instruments. 285
506 Vital, A., Paris.—Lithographic press rollers. 285
507 Deschamps, Mauroy, & Co., Paris.—Toilet brushes. 286
508 Dupont, A., Beauvais (Oise).—Toilet brushes and prepared bristles. 286
509 Loonen, F., Paris.—Brushes. 286

510 Pitet, senior & junior, Paris.—Brushes. 286
511 Roullies & Co., Paris.—Carpet brushes. 286
512 Caruc, Paris.—Ropes. 287
513 Arnold, E., Paris.—Metallic, glass, porcelain, and wooden letters; coats of arms of all nations. 288
514 Bornet, Paul, Paris.—Signs and leather letters. 288
515 Boudvillain, J., Paris.—Trophy of flags. 288
516 Pichot, E., Paris.—Ornamental labels. 288
517 Moitrier, Leon, Bénamén (Meurthe).—Wicker baskets. 289
518 Policard, Rene, Paris.—Flower stands, etc. 289

Carriages, Vehicles, and Accessories.

519 Mühlbacher, Paris.—Carriages. 292
520 Gaudichet, Vierzon Cher.—Carriages. 292
521 Desouches, Paris.—Carriages. 292
522 Binder Bros., Paris.—Carriages. 292
523 Million, Guiet, & Co., Paris.—Harness. 292
524 Perreaux, Paris.—Steam velocipede. 293
525 Huret, N., Paris.—Carriage. 293
526 Portin Bros., Paris.—Harness felts. 296

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
GERMANY.

(South of Nave, Columns 28 to 38.)

Chemical Manufactures.

Chemical Manufactures.

COLLECTIVE EXHIBIT OF THE GERMAN UNION OF MANUFACTURING CHEMISTS.—MANUFACTURED CHEMICALS, ETC. 200-293

2. D’Andrian & Wegelin, Mühlhausen.
3. Vorster & Grüneberg, Kalk, near Cologne.
4. Schuchardt, Theodor, Görlitz.
7. Th. Wurtz’s successors, Leipsic.
15. Lindenbauer, Otto, Hanau.
17. Loeblund, Edward, Stuttgart.
18. Suhr, W., Altona.
21. Bloedner’s, Johann, Chr., Son, Gotha.
27. Clever, Joh., Werden.
29. Zeltner, Johann, Nuremberg.
30. Gysae, Robert, Oberlösnitz.
31. Ultramarine Works, Marienburg.
32. Kaiserslautern Ultramarine Works, Kaiserslautern.
33. Rosenstein, W., Stettin.
34. Vossen Bros., Aix-la-Chapelle.
35. Hirsch & Merzenich, Cologne.
37. Johann Anton Farina, zur stadt Maffland, Cologne.
38. Mack, Ernst, Reichenhall.
42. Sieperman, C. F., & Son, Elberfeld.
43. Bernhardi, J., Leipsic.
44. Gebens, Ernst, Baden-Baden.
47. Haensel, Heinrich, Pirna-on-Elbe.
48. Wolff, F., & Son, Carlsruhe.
49. Langwisch, Bernh., Hamburg.
50. Lohse, Gustav, Berlin.
51. Wilhelmi, F., Reudnitz.
52. Lüder & Leidloff, Dresden.
54. Haarmann, W., Holzminden.
55. Royal Prussian & Ducal Brunswick Smelting Works of the Lower Hartz—Gastor.—Sulphuric acid, intermediate products, etc. 200

STASSFURT COLLECTIVE EXHIBIT.

54a. Royal Salt Works, Stassfurt.—Rock salt, salts of potassium, magnesium, etc.
54b. Chemical Factory, Stassfurt.—Potassium salts, chloride of potassium, manure salts, etc. 200
54c. Chemical Factory, Leopoldshall.—Chloride of potassium, sulphate of potash, glaubersalts, etc. 201
54d. Chemical Factory of Nett, Faulwasser, & Co., Leopoldshall.—Chloride of potassium. 201
54e. Zimmer & Co., Stassfurt.—Artificial salts of chloride of potassium, manure salts, etc. 200
54f. Lindemann, G., & Co., Stassfurt.—Chloride of potassium. 200
54g. Douglas, B. W. B., Westeregeln.—Salt, medical and manure salts; plans, section of the mine. 200
54h. Lairitz, C. & L., Remda.—Pine oil. 201

COLLECTIVE EXHIBIT OF BAVARIAN METAL LEAF AND BRONZE COLORS. 202

55. Haenle, Leo, Munich.
56. Fuchs, O. L., & Sons, Fürth.
58. Metz, Friedrich, Fürth.
59. Steeber & Segitz, Fürth.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27 to 45.
CERAMICS—Pottery, Porcelain, Glazes, etc.

81 Mendheim, Georg, Berlin.—Clay goods. 206
81a Lonitz, Hugo, Neuhausenlaben.—Jars, terra-cotta figures, etc. 206
82 Gundlach Bros., Grossalmerode.—Crucibles and fire-bricks. 207
83 Gundlach, W., & Son, Grossalmerode.—Fire-clay crucibles. 207
84 Stettin Fire-brick Manufacturing Co.—Fire-brick retorts and fire-bricks. 207
85 Gundlach, Jeh., jr., Grossalmerode.—Crucibles and jars for inurnments. 207
86 Knodchen, J. A., Höhr.—Clay ware. 207
87 Villeroy & Boch, Mettlach.—Mosaic tiles. 208
87a Wagner & Starker, Stuttgart.—Parquet tiles. 208
88 Telegraph Supply Manufacturing Co., Berlin.—Porcelain for chemical uses. 210
89 Royal Porcelain Works, Berlin.—Porcelain, biscuit work, etc. 207
90 Hanke, Reinhold, Höhr, near Coblenz.—Antique German pottery. 213
91 Merkelbach & Wick, Grenzhausen.—Pottery partly in the antique German style. 213
92 Joint Stock Association of Looking-glass Manufacturers & Manufacturing Chemists of St. Gobain, Chaundy and Cirey, S tolberg, near Aix-la-Chapelle.—Looking-glass plates, mirrors, and rough glass. 214

COLLECTIVE EXHIBIT OF BAVARIAN LOOKING-GLASSES AND LOOKING-GLASS PLATES. 214
93 Schaller, Joh., Fürth. 214
94 Vogel, G., Fürth. 214
96 Berlin, J. W., Fürth. 214
97 Winkler, Ch., & Son, Fürth. 214
97a Wiederer, N., Fürth. 214
97c Brann & Reich, Fürth. 214
98 Underberg-Albrecht, H., Rheinberg.—Bottles. 215
99 Greiner, Elias, Cousin's Son, Leuschach, near Sonneberg.—Enameling colors. 216

Furniture and Objects of General Use in Construction and in Dwellings.

100 Friedrich, O. B., Dresden.—Fancy furniture. 217
101 Gutte, Louis, Görlitz.—Wood carving. 217
101a Vogts, F., & Co., Berlin.—Furniture. 217
102 Kimbel, Martin, Breslau.—Fancy furniture, etc. 217
103 Schöttle, Georg, Stuttgart.—Furniture. 217
106 Völker, Otto, Berlin.—Carved furniture. 216
107 Tenner, A. B., Eisfeld.—Wooden rolling blinds. 217
108 German Sewing Machine Factory, Frankfort-on-Main.—Ship furniture for the prevention of sea-sickness. 217
109 Neuhusen, J., Berlin.—Billiard table. 217
110 Bahse & Haendel, Chemnitz.—School desk and bench. 217
111 Mayer's Art Institution for the Manufacture of Church Furniture and Decorations, Munich.—Wooden statues and altars. 217
113 Friedrich, Hch. Ottm., Beierfeld, near Schwarzenberg.—Tin-plated iron spoons and forks. 213
114 Schreiner, Anton, Nürnberg.—Ornamental drinking utensils. 218
115 Woldemar, Wimmer, Annaberg, Saxony.—Gold and silver wire-ware. 218
116 Voeltzkow, W., Berlin.—Picture frames. 217
118 Voeltzkow, G. W., jr., Berlin.—Picture frames. 217
119 Massmann, F., Kiel.—Gold cornices. 210
119a Mendheim, Georg, Berlin.—Plans for stoves. 222
120 Joint Stock Co. for the Manufacture of Bronze Goods & Zinc Castings, Berlin.—Chandeliers of bronze, and zinc castings. 223
121 Körner & Co., Berlin.—Lamps. 223
122 Kleemann, C. A., Erfurt.—Lamps. 223
123 Schwarz, J. von, Nuremberg.—Gascubers made of soapstone. 222
125 Normann, Joh. Georg, Nuremberg.—Molds for confectioners' use. 224

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
## Woven and Felted Goods, Silk

**Yarns and Woven Goods of Vegetable or Mineral Materials.**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
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<tbody>
<tr>
<td>Herrmann, L., Jr., Dresden</td>
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<tr>
<td>Scholler, Ph., Jacob, &amp; Sons, Neustadt-on-Hardt</td>
<td>Neustadt-on-Hardt</td>
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<td>Siemens, Joh., Hamelin-on-Weser</td>
<td>Hamelin-on-Weser</td>
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<tr>
<td>Busch Bros., M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>Droste &amp; Siepermann, M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>Ercklentz, Max, &amp; Co., M. Gladbach</td>
<td>Gladbach</td>
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<td>Goertz &amp; Kirch, M. Gladbach</td>
<td>Gladbach</td>
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<td>Willemsen, P., Widow, M. Gladbach</td>
<td>Gladbach</td>
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<td>Rosenberg &amp; Cohen, M. Gladbach</td>
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<tr>
<td>Schlafhorst &amp; Brüel, M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>Everling, Carl, &amp; Co., M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>Ercklenz &amp; Reuter, M. Gladbach</td>
<td>Gladbach</td>
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<td>Börterling &amp; Schultze, M. Gladbach</td>
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<td>Essers, Martin, M. Gladbach</td>
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<td>Croon Bros., M. Gladbach</td>
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<td>Langen, Kruchen, &amp; Borrenkott, M. Gladbach</td>
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<td>Wolff, Fr., M. Gladbach</td>
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<td>Hellendall &amp; Steinberg, M. Gladbach</td>
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<tr>
<td>Grunwald &amp; Klei, Rheydt</td>
<td>Rheydt</td>
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<td>Kropp, J. P., Rheydt</td>
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<td>Nacken, G. H., Rheydt</td>
<td>Rheydt</td>
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<td>Sanders, W., Rheydt</td>
<td>Rheydt</td>
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<td>Ax, Heinrich, Rheydt</td>
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<tr>
<td>Oechelhäuser, Rheydt</td>
<td>Rheydt</td>
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<tr>
<td>Coenen &amp; Wolter, Odenkirchen</td>
<td>Odenkirchen</td>
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<tr>
<td>Erckens &amp; Co., Grevenbroich</td>
<td>Grevenbroich</td>
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<tr>
<td>Rolfs &amp; Co., Siegfeld</td>
<td>Siegfeld</td>
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</table>

**COLLECTIVE EXHIBIT OF COTTON AND MIXED GOODS FROM THE GLADBACH DISTRICT.**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
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<tbody>
<tr>
<td>131 Gladbach Joint Stock Spinning &amp; Weaving Mills, M. Gladbach</td>
<td>Gladbach</td>
</tr>
<tr>
<td>132 Busch Bros., M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>133 Droste &amp; Siepermann, M. Gladbach</td>
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<tr>
<td>134 Ercklentz, Max, &amp; Co., M. Gladbach</td>
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<tr>
<td>135 Goertz &amp; Kirch, M. Gladbach</td>
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<tr>
<td>136 Willemsen, P., Widow, M. Gladbach</td>
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<td>137 Rosenberg &amp; Cohen, M. Gladbach</td>
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<td>138 Schlafhorst &amp; Brüel, M. Gladbach</td>
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<tr>
<td>139 Everling, Carl, &amp; Co., M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>140 Ercklenz &amp; Reuter, M. Gladbach</td>
<td>Gladbach</td>
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<td>141 Börterling &amp; Schultze, M. Gladbach</td>
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<td>142 Essers, Martin, M. Gladbach</td>
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<tr>
<td>143 Croon Bros., M. Gladbach</td>
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<tr>
<td>144 Langen, Kruchen, &amp; Borrenkott, M. Gladbach</td>
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<tr>
<td>145 Wolff, Fr., M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>146 Hellendall &amp; Steinberg, M. Gladbach</td>
<td>Gladbach</td>
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<tr>
<td>147 Grunwald &amp; Klei, Rheydt</td>
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<tr>
<td>148 Kropp, J. P., Rheydt</td>
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<td>149 Nacken, G. H., Rheydt</td>
<td>Rheydt</td>
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<td>150 Sanders, W., Rheydt</td>
<td>Rheydt</td>
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<td>151 Ax, Heinrich, Rheydt</td>
<td>Rheydt</td>
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<tr>
<td>152 Oechelhäuser, Rheydt</td>
<td>Rheydt</td>
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<tr>
<td>153 Coenen &amp; Wolter, Odenkirchen</td>
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<tr>
<td>154 Erckens &amp; Co., Grevenbroich</td>
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<tr>
<td>155 Rolfs &amp; Co., Siegfeld</td>
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**COLLECTIVE EXHIBIT OF WURTTEMBERG MANUFACTURERS OF LINEN GOODS.**

<table>
<thead>
<tr>
<th>Company</th>
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<tbody>
<tr>
<td>Lang, Ed., of Blaubeuren</td>
<td>Blaubeuren</td>
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<tr>
<td>Eckstein &amp; Kahn, Stuttgart</td>
<td>Stuttgart</td>
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<tr>
<td>Pichler, Hermann, Urach</td>
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<tr>
<td>Beck, E., Ulm</td>
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<tr>
<td>Steam Ticking Mills, Göppingen</td>
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<tr>
<td>Kolb &amp; Schüle, Kirchlieuen</td>
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<tr>
<td>Mayer &amp; Co., Bielefeld</td>
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**Woven and Felted Goods of Wool, etc.**

<table>
<thead>
<tr>
<th>Company</th>
<th>Location</th>
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<tbody>
<tr>
<td>Bergmann &amp; Co., Berlin</td>
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<tr>
<td>Hüffer, Heinrich, Crimmitschau</td>
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<tr>
<td>Scholz, Paul, Friedberg-on-Oder</td>
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<tr>
<td>Tittel &amp; Krüger, Leipsic</td>
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**RHENISH COLLECTIVE EXHIBIT OF CLOTHS.**

<table>
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<th>Company</th>
<th>Location</th>
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<tbody>
<tr>
<td>Erckens, Joh., Sons, Burtscheid, near Aix-la-Chapelle</td>
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<tr>
<td>Ackens, Grand, Ry. &amp; Co., Eupen</td>
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<td>Dellius, C., Aix-la-Chapelle</td>
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<td>Jansen, Joh. Wilh., Montjoie</td>
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<tr>
<td>Knops, Aloys., Aix-la-Chapelle</td>
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<tr>
<td>Schöller, J. P., Duren, near Aix-la-Chapelle</td>
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<tr>
<td>Schöller, L., &amp; Sons, Duren, near Aix-la-Chapelle</td>
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<tr>
<td>Wiess Bros., Werden-on-Ruhr</td>
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<td>Weiss Bros., Leipsic</td>
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<td>Wurtemberg Felt Factory, Gienigen</td>
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<td>Marthaus, Ambrose, Oschatz</td>
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<td>Kaufmann, Carl, Reutlingen</td>
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**COLLECTIVE EXHIBIT OF ELBERFELD, MANUFACTURERS OF ITALIAN CLOTH AND TAILORS' TRIMMINGS.**

<table>
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<tr>
<th>Company</th>
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<tbody>
<tr>
<td>Boeddchinghaus, Fr., &amp; Son, Elberfeld</td>
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<td>Boeddchinghaus, Wilh., &amp; Co., Elberfeld</td>
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<td>Herminghaus &amp; Co., Elberfeld</td>
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<td>Jung &amp; Simons, Elberfeld</td>
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<td>Lucas Bros., Elberfeld</td>
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<td>Schaefler &amp; Co., Elberfeld</td>
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<td>Weerth, de, &amp; Co., Elberfeld</td>
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<td>Wolff, R. &amp; E., Elberfeld</td>
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**SILK AND SILK FABRICS.**

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<th>Company</th>
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<tbody>
<tr>
<td>Mez, Carl, &amp; Son, Freiburg, Baden</td>
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<tr>
<td>Gebhard &amp; Co., Elberfeld</td>
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</tbody>
</table>

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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Silk, Clothing, Jewelry.

202 Gressard & Co., Hildén.—Silks, taffetas, foulards, etc. 245
203 Massing, Bros., & Co., Püttingen, Lorraine.—Silk plusses. 247
204 Escales & Hatry, Saargemünde.—Silk plusses. 247
204a Hoemannighaus & de Greiff, Crefeld.—Silk velvets. 247

Clothing, Jewelry, etc.

205 Hake, Mrs. von, Berlin.—Ladies' underwear. 250
206 Gros & Co., Bruchsal, Baden.—Corsets. 250
207 Ottenheimer, J. M., & Sons, Stuttgart.—Corsets. 250
208 Gulden, Heinrich, Chemnitz.—Gloves. 251
209 Woller, Fr. Ehreg., Stollberg, near Chemnitz.—Cotton hosiery. 259
210 Kaufmann, A. & C., Berlin.—Paper collars and cuffs. 259
211 Erentzsch, Ed., successor, Chemnitz.—Cotton hosiery. 259
212 Scholz, Paul, Friedeborg-on-Oder.—Hosiery. 250
212a Bortfeld, Carl, Bremen.—Hats. 251
213 Miller, Thomas, Berlin.—Hats. 251
214 Natanson & Hurwitz, Berlin.—Felt shoes and boots. 251
215 Wolf, S., Mayence.—Shoes. (In Shoe and Leather Building.) 251
216 Kaczelewski, G., Posen.—Shoes. (In Shoe and Leather Building.) 251
217 Krebs, F. Eugen, Regensburg.—Kid gloves. 251
218 Lehmann, Heinrich, Berlin.—Kid gloves. 251
219 Zeitzteles, D., Esslingen.—Leather gloves. 251
220 Ellstadt & Urbino, Carlruhe.—Leather gloves. 251
221 Ranniger, J. L., & Sons, Altenburg.—Leather gloves. 251
221a Doerrfel, C. G., & Sons, Eibenstock.—Laces, embroidered covers. 252
222 Kuehn, Heinrich, Berlin.—Embroidery patterns. 252
222a Tittl & Krüger, Leipsic.—Embroidery. 252
223 Schneider, Bruno, Buchholz, Saxony.—Embroideries. 252
224 Aren & Blumenheim, Berlin.—Embroideries. 252
225 Hirschberg, M., & Co., Eibenstock.—Embroideries and laces. 252
226 Hesselhain, Sophie, Berlin.—Embroideries. 252

COLLECTIVE EXHIBIT OF IDAR-OBERRHEIN.—Polished stones, agate goods, etc. 253

228 Boehm, Philipp, Oberstein.
229 Hahn, Carl, Idar.
230 Leyser, Wilhelm, Idar.
231 Wild, J. C., IX, Idar.
232 Hahn, Philipp, Idar.
233 Heydt, Friedrich, Idar.

234 Caesar, Louis, Idar.
235 Herringer, Johann, Idar.
236 Fuchs, Friedrich August, Oberstein.

COLLECTIVE EXHIBIT OF GOLD, SILVER, AND PLATED JEWELRY. 253
238 Renner & Buchler, Schwäb. Gmünd.
239 Wöhler, Edward, Schwäb. Gmünd.
241 Zieher, Ottmar, Schwäb. Gmünd.
243 Hauber, Gustav, Schwäb. Gmünd
244 Seer gel & Stollmeyer, Schwäb. Gmünd.

246 Strohmeier & Co., Stuttgart.
247 Gabler Brothers, Schorndorf.
248 Ritter & Co., Esslingen.
249 Zimmermann, E. G., Hanau.
250 Geissel & Hartung, Hanau.
251 Kurr-Schützner, C., Hanau.
252 Steinhauer & Co., Hanau.
254 Weishaupt, C. M., Sons, Hanau.
255 Bissinger, C., Sons, Hanau.
256 Kraul & Bier, Hanau.
257 Hertel, C., & Son, Hanau.
258 Krug, J. M., Hanau.
259 Winkler, Carl, Hanau.
260 Drescher & Kiefer, Hanau.
261 Roth, J., Hanau.
262 Schehl, C. W., Hanau.
263 Zeuner, Hugo, Hanau.
264 Dingeldein Bros., Hanau.
265 Storck & Sinzheimer, Hanau.
266 Baker & Co., Hanau.
267 Volz-Bier, A., Hanau.
268 Schoenfeld, E., jr., Hanau.
269 Schantz & Katz, Pforzheim.
270 Spahn, C. C., Pforzheim.
271 Keller, Heinrich., Pforzheim.
272 Lay, Edward, Pforzheim.
273 Heidegger, W., & Co., Pforzheim.
274 Dehyle Bros., Pforzheim.
275 Kiehnle, Aug., Pforzheim.
276 Gerwig, Aug., Pforzheim.
277 Bizer Bros., Pforzheim.
278 Wild & Co., Pforzheim.
279 Becker, Fritz, Pforzheim.
280 Siebenpfeiffer, C., Pforzheim.
281 Lodholz, Friedrich, Pforzheim.
282 Koch & Bergfeld, Bremen.
283 Humbert & Heylandt, Berlin.
284 Binder, W., Schwäb. Gmünd.
285 Becker, Chr., Pforzheim.
286 Felge, Paul, Berlin.

287 Burchardt, C. A., Berlin.—Artificial flowers and plants. 254
288 Boeck, W., Berlin.—Artificial leaves. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
GERMANY.

Toys, Fancy Articles, Weapons, Medical Appliances.

289 Sachs, Joseph, & Co., Berlin.—Umbrellas, sunshades, etc. 254
290 Wingender Bros., Hähn, Nassau.— Clay and brûixe pipes. 254
291 Meyer, Heinrich, Hamburg.—Ivory goods. 254
292 Peine, Edward, Hamburg.—Cuff buttons. 254

BAVARIAN COLLECTIVE EXHIBIT
OF TOYS AND SMALL WARES. 254

294 Pabst, G. J., Nuremberg.
295 Hinrichsen, W., Nuremberg.
296 Eicher, G. L., & Son, Nuremberg.
297 Ismayer, J. A., Nuremberg.
299 Norrmann, J., Nuremberg.
300 Helmbricht, G., Nuremberg.
301 Schleuerflug, E., Nuremberg.
302 Stief, J., Nuremberg.
303 Miller, Th., Nuremberg.
304 Strobe!, J. P., Nuremberg.
305 Baudenbacher, C., Nuremberg.
306 Kithil, A., Nuremberg.
307 Ubelacker, L., Nuremberg.
308 Hess, Math., Nuremberg.
310 Fischer, J. G., Erlangen.
311 Schlenk & Lutzenberger, Nuremberg.
312 Probst, Gottfr., Nuremberg.
313 Hahn, Gottlieb, Fürth.
314 Ott, Gebhard, Nuremberg.
315 Ziegele & Hauck, Fürth.
316 Keller, Conrad, Fürth.
319 Pruckner, D., Munich.
320 Bettman & Kupfer, Bayreuth.
321 Stolze, J. F. E., Bayreuth.
322 Schlegel, J., Nuremberg.
324 Sichling, H., Nuremberg.
325 Plank, E., Nuremberg.

326 Barth & Wagner, Rodach near Coburg.—Mechanical toys. 254
327 Dressel, Cuno & Otto, Sonneberg, Thuringia.—Toys, dolls, and slates. 254
328 Schunemann, L., Magdeburg.—Dolls. 254
329 Hawsky, Adalbert, Leipsic.—Paper balloons. 254
330 Magnus, G., & Co., Berlin.—Billiard balls. 254
331 Oehme, J. D., & Sons, Grunhainichen.—Toys. 254
332 Knipp, T. F., Berlin.—Album. 255
333 Vité, François, Berlin.—Leather goods. 255

Paper, Blank Books, Stationery.
334 Faber, A. W., Stein, near Nuremberg.—Lead pencils, water-colors, etc. 258
335 Penson, H., & Co., Ludwigstadt, Bavaria.—Slates, etc. 258
336 Schwanhäuser, Nuremberg.—Lead pencils, rubber, chalk, etc. 258
337 Bütter, Ed., & Co., Berlin.—Fancy papers. 259

338 Heinitz & Seckelson, Berlin.—Fancy papers. 259
339 Mayer, M., Coblenz.—Envelopes. 259
340 Meissner, C. F., & Son, Raths-Dammitz, near Stolp.—Papers. 259
341 Munich-Dachau Joint Stock Paper Mill, Munich a Writing papers. 259
 b Paper for artificial flowers. 264
342 Schött, Hermann, Rheydt.—Fancy papers, etc. 259
343 König, J. C., & Ebbhardt, Hanover.—Account books. 261
344 Rufus, Fr. Wilh., Dortmund.—Account books. 261
345 Joint Stock Playing Card Manufactury, Strabund.—Playing cards. 262
346 Adler, Geo., Buchholz, Saxony.—Card-board work. 262
347 Schlesinger, Martin, Berlin.—Paper letters, cards, etc. 262
348 Wiskott, C. T., Breslau.—Labels. 262
349 Haenle, Leo., Munich.—Gold and silver papers. 264
350 Herting, C., Einbeck, Hanover.—Paper-hangings. 264
351 Dessauer, Alois, Aschaffenburg.—Fancy colored papers. 264
353 Werner & Schumann, Berlin.—Paper letters. 264

Weapons, etc.
353a Krupp, Fr., Essen.—Cannon and projectiles. 267
354 Schilling, V. Chr., Suhl.—Military weapons. 269

Medicine, Surgery, Prosthesis.
355 Scheller, Ferdinand, Hildburghausen.—Malt preparations. 273
356 Wolff, F. A., & Sons, Heilbron.—Pharmaceutical apparatus. 274
357 Lepowski, E., Heidelberg.—Rolling chairs, and general apparatus for the sick and wounded. 276
357a Müller, L., Lauscha.—Artificial human eyes. 276
357b Eschmarch, P., Kiel.—Bandages and dressings. 276
357c Horn, G., Kiel.—Bandages, safeguards for broken legs, etc. 276
357d Hartmann, P., Heidenheim.—Prepared medical dressing materials, etc. 276
357e Surgical Clinic of the University of Koenigsberg.—Plaster of Paris and hemp bandages for fracture. 276
357f Port, Dr., Munich.—Dressing for fractures. 276
357g Moratski, A., New Buckman.—Plaster of Paris dressings. 276
357h Paper & Chemical Manufactury.—Plaster and dressing materials. 276
357i Beck, Dr., Carlsruhe.—Dressings for wounds. 276
357j Articles for transporting the wounded in battle. 278
357k Gehrig Brothers, Berlin.—Teething necklaces. 277

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 77-45
DEPT. II.—MANUFACTURES.

Medical Appliances, Metal and Wooden Ware.

357* Saal, F. O., Coblenz.—Model of larynx. 277
357 Plambeck, N., Hamburg.—Model of a hospital car, and other sanitary apparatus. 278
357 Lower Silesian and Markish Railway.—Models of cars, etc., for transportation of the wounded. 278

Hardware, Edge Tools, Cutlery, and Metallic Products.

358 Vorster, R. & H., Hagen, Westphalia.—Edge tools, etc. 260
359 Eisenführ, W. H., Berlin.—Tools. 260
360 Böker, H., & Co., Solingen.—Cutlery, etc. 261
361 Hessenbruch, T., & Co., Ronsdorf.—Steel goods, cutlery, etc. 261
362 Höller, J. S., & Co., Solingen.—Steel goods, cutlery, etc. 261
363 Wellmann, Fr., Altona.—Cutlery. 261
364 Leykauf, George, Nuremberg.—Burning stones. 262
365 Felsing, Conrad, Berlin.—Ornamental castings. 263
366 Caßtner, A., Berlin.—Zinc castings. 263
367 Stolberg, Count, Wernigerodes Factory, Ilmenburg.—Ornamental castings, basins, etc. 263

368 Amsberg, Adolphe, Aix-la-Chapelle.—Door knobs. 284
369 Brousson, J., & Son, Neuwied-on-Rhine.—Nails, etc. 284
370 Roehle, Louis, Dresden.—Door and window knobs, etc. 284
371 Wire & Screw Factory,alkau.—Screws. 284
372 Koch & Bein, Berlin.—Metal letters and castings. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

375 Reissbarth, G. C., & Son, Nuremberg.—Brushes. 286
376 Kochs, Gustav, Broich, near Mulheim-on-Ruhr.—Hempen and wire rope. 287
377 Lorenz, Gustav, Bockau, Saxony.—Basket ware. 289
378 Cordes & Ellgass, Delmenhorst, near Bremen.—Corks. 289
379 Lindemann, Carl, Dresden.—Corks. 289
380 Lürssen, Carl, Delmenhorst, near Bremen.—Corks. 289
381 Præchter, Bros., & Co., Heidelberg.—Cork ware. 289
382 Gagel, Lorenz, Lichtenfels.—Basket goods. 289

Carriages, Vehicles, and Accessories.

383 Dick & Kirschten, Offenbach-on-Main.—Axles for fine carriages. 293

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Chemicals, Ceramics, Glass.

Chemical Manufactures.

1. Gobetsky, Josef, Essegg.—Prepared quinine. 200
2. Mook, John Peter, Vienna.—Extracts of soap and pine spurs, hail cream. 201
3. Weinbeck, Ignaz, Stockerau.
   a. Candles, soap, toilet soap. 201
   b. Perfumery. 203
4. Fritsch, Ferdinand, Vienna.
   a. Soap. 201
   b. Ink, colors. 202
   c. Perfumeries. 203
   a. Artificial wax candles, soap, glycerine, oleo margarine butter, etc. 201
   b. Toilet articles. 203
6. Dobel, Paul, Boryslaw, Galicia.—Crude and melted ozocerite. 201
7. Sell, Charles, Pirano, Istria.—Soap. 201
8. Demartini, I., Prague.
   a. Toilet soap. 201
   b. Perfumery. 203
   a. Toilet and glycerine soap. 201
   b. Perfumery. 203
    a. Toilet soap. 201
    b. Perfumeries, pomades, etc. 203
11. Ujhely & Co., Stockerau.—Candles, tapers, etc., of ceresine. 201
12. Wagenaann, G., Vienna.—Petroleum, mineral wax, candles, tapers, etc. 201
13. Prizbrem & Co., Vienna.—Alizarine, Adriapole red. 203
15. Herbert, Franz Paul, Klagenfurt.—White lead. 206
16. Riha, Ernst, Pilsen, Bohemia.—Water colors for artists. 202
17. Andés & Son, Vienna.—Lac, varnish, oil color, mastic. 202
18. Ecker, Alexander, Stockerau, near Vienna.—Colors for painters and carriage varnishers. 202
19. Wuste, F., Vienna.—Colors for stone and copper-plate painting. 202
20. Pollak, Jacques, Vienna.—Essences, essential oils. 203

Ceramics—Pottery, Porcelain, Glass, etc.
34. Klammerth, Alois, Znaim, Moravia.—Earthenware vessels. 210

35. Zasche, Joseph, Vienna.
   a. China. 210
   b. Porcelain. 213
36. Fischer, Samuel, Vienna.—China.
39. Thun, Count v. Klosterle, Bohemia.—China articles of luxury. 210
41. Eberhardt, Carl, Prague.—China.
42. Chemical Technical Manufactury, Elbogen, Bohemia.—Porcelain (lustrous colors). 213
43. Riedl von Riedenstein, David & Fredrich, Dallwitz, Bohemia.—China services. 213
46. Ziegler's Son, Joh. Ant., Kreuzhutte, Bohemia.—Blown plate-glass. 214
47. Ziegler's Son, Andreas, Soßenhutte, Bohemia.—Cast looking-glass, glass tiles. 214
48. Austrian Glass Foundry Association, Assig, Bohemia.—Glass bottles. 215
50. Batka, Franz, Prague.—Glassware for chemical purposes. 215
51. Franke, Carl, Prague.—Chemists' fixtures. 215
52. Umann, John, Tiefenbach, Bohemia.
   a. Flagon. 215
   b. Glass articles. 216
53. Rasch, Clemens, Meistersdorf, Bohemia.—Concave glass articles. 216
54. Lombeer, I. & L., Vienna.—Glass articles. 216
55. Grohmann & Kessler, Haida, Bohemia.—Glass articles. 216
58. Muller, Hermann, Ulrichsthal, Bohemia.—Concave glass articles. 216
59. Von Harrach, Count, Neuvelt, Bohemia.—Glass articles. 216
60. Tyrolese Glass Painting Manufactury, Innsbruck.—Glass painting and annealing. 216
61. Hartmann, Moritz, Pribram, Bohemia.—Glass pearls and cylinders. 216
62. Wagner, Franz, Meistersdorf, Bohemia.—Glass and bronze articles. 216
63. Zeckert, John, Meistersdorf, Bohemia.—Glassware and bronze. 216
64. Brunfants, Jules de, Vienna.—Glassware. 216
65. Schreiber, S. Neffen, Jos., Vienna.—Glassware. 216
66. Palme's Son, F. E., Zvecevo, Slavonia.—Glassware. 216
67. Stolzle's Sons, C., Vienna.—Glassware. 216

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Furniture, Woven Goods, Silk, Clothing.

68 Meyr's Nephew, Adolf, near Winterberg, Bohemia.—Glassware. 216

Furniture and Objects of General Use in Construction and in Dwellings.

69 Kohn, Jacob & Joseph, Vienna.—Furniture of bent wood. 217
70 Dillmann, I., & Fischer, L., Vienna.—Iron furniture. #17
71 Rigl, Rudolf, Vienna.—Iron double bed. 217
73 Stein, Carl, Vienna.—Cabinet furniture. 217
74 Thonet Brothers, Vienna.—Furniture of bent wood. 217
75 Hoyer, Joseph, Svetla, Hungary.—Plates of crystal. 218
76 Moser, Ludwig, Carlsbad, Bohemia.—Glass articles, painted services. 218
77 Lerl, Gustave, & Sons, Vienna.—Frames for photographs (in bronze). 220
78 Scheidl, Alois, Vienna.—Gold frames and cornices. 220
79 Kraulitz, M., Vienna.—Frames for photographs. 220
80 Bambula, John, Vienna.—Bronze picture frames. 220
81 Sommerschuh, W. I., Prague.—Earthenware stoves and slabs. 222
82 Osterzetter Brothers, Vienna.—Paper lamp screens. 223
83 Kerl's Heir, F. A., Platten, near Carlsbad, Bohemia.—Plated and tinned spoons, boxes, tin articles. 224
84 Kirchhof's Sons, C. F., Vienna.—Refrigerators. 224
85 Buchsbaum, Max, Vienna.—Ceiling ornaments. 227
86 Csánk & Co., Vienna.—Wood work, blinds, table mats, wall screens. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

87 Buntel, Franz, Vienna.—Wicker work 229
88 Richter, Ignaz, & Sons, Niedergrund, Bohemia.—Cotton velvets. 231
89 Parma, Joseph, Tichau, Moravia.—Bleached piques. 233
90 Regenhart, Raymann, & Kufferle, Vienna.—Table linen, linen. 233
92 Siegl, Carl, Vienna.—Bleached linen. 233
93 Weiss & Grohmann, Vienna.—Linens and cotton thread 233

Woven and Felted Goods of Wool, etc.

95 Huckle Sons, I., Neutitschelm, Moravia.—Hatters' articles, felts. 235
96 Cloth Manufacturers' Association, Reichenberg, Bohemia.—Cloths, with and without finish. 235
98 Schmidt, I. Ph., & Sons, Reichenberg, Bohemia.—Woolens. 235
99 Jakob, Adolf, Reichenberg, Bohemia.—Woolens, military cloth. 235

100 Von Bauer, Otto, Brunn.—Woolens. 235
103 Siegmund, Wilhelm, Reichenberg.—Woolens. 235
104 Koch, Max, Vienna.—Woven long and square shawls. 237
106 Hlawatsh & Isbary, Vienna.—Woven shawls. 237
107 Voslau Yarn Manufactory, Voslau, near Vienna.—Dyed woollen yarns. 238
111 Schweinburg, Gustav, Vienna.—Carpets. 239

Silk and Silk Fabrics.

113 Hornbotzel, C. G., & Co., Vienna.—Silk and half silk goods. 245
114 Reichert's Sons, F., Vienna.—Silks. 245
115 Freibitsch, S., & Son, Vienna.—Silk articles. 245
117 Hetzer, Carl, & Sons, Vienna.—Silk ribbon and velvet. 248
118 Kemperling, John, & Sons, Vienna.—Silk ribbons. 248
119 Stefsky, Joseph, Stockerau.—Haberdasheries, woolen and silk cords and laces for military purposes. 249
120 Schmid Sons, W., Vienna.—Passementerie. 249

Clothing, Jewelry, and Ornaments; Traveling Equipments.

121 Bauer, Albert, Humpolec, Bohemia.—Cloth, velvets, clothing for military purposes. 250
122 Keller & Alt, Vienna.—Clothing. 250
124 Mottl Sons, M., Prague.—Men's clothing. 250
126 Straschitz, Beermann, Prague.—Men's clothing. 250
127 Schwarzmann, D., & Co., Vienna.—Men's clothing; European costumes, from coarse to fine. 250
128 Thieben, Emanuel, Vienna.—Woven shawls and dressing garments. 250
130 Werner, John, Prague.—Men's clothing. 250
131 Budan, Joseph, Prague.—Leather gloves. 251
132 Eckstein Brothers, Prague.—Kid gloves. 251
133 Engelmuller, Ferdinand, Prague.—Leather gloves. 251
134 Habig, Peter, & Co., Vienna.—Shoes. 252
135 Bencker, M., & Son, Prague.—Kid gloves. 252
136 Lorincz, Stephan, Budapest.—Boots. 251
137 Micka, Karl, Prague.—Leather gloves. 251
138 Pfalt, Anton, Prague.—Leather gloves. 251
139 Pokorny, Karl, Prague.—Leather gloves. 251
140 Reichart, Adolf, Vienna.—Shoes. 252
141 Repper, Joseph, Vienna.—Leather gloves. 251

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 57-45.
Clothing, Fancy Goods, Jewelry.

142 Stiasny, Franz & Max, Vienna.—Leather gloves. 251
143 Dewidels, Simon, Prague.—Kid gloves. 251
144 Stoger, Ludwig, Vienna.—Leather gloves. 251
145 Hauer, Carl, Brunn.—Leather gloves. 251
146 Straub, August, Prague.—Leather gloves. 251
147 Frese, Anton, Prague.—Kid gloves. 251
148 Steinhilber, Anton, Prague.—Leather gloves. 251
149 Bencker, I. U., Prague.—Leather gloves. 251
150 Turnwald, Ch., Prague.—Leather gloves. 251
151 Brauneck, Edward, Vienna.—Leather gloves. 251
152 Beutel, Franz, Vienna.—Bath shoes made of plaited rushes. 251
153 Aue, Fred. v. d., and Kollmann, Prague.—Kid gloves. 251
155 Berg, S., Krakau.—Albumen for the manufacture of gloves, condensed yolks of eggs. 251
156 Roth, Franz, Prague.—Leather gloves. 251
158 Suchy, Anton, Prague.—Leather gloves. 251
159 Schwarz & Son, Joh., Vienna.—Hatbands. 251
160 Velicka, August, Prague.—Kid gloves. 251
161 Haberkorn, George, Prague.—Leather gloves. 251
162 Hamerli, John, Funkkirchen, Hungary.—Leather gloves. 251
163 Hoffmann, Joseph, Prague.—Leather gloves. 251
164 Irmenbach's successor, Gottlieb, Prague.—Kid gloves. 251
167 Kubik, Joh. Nep., Stuhlweissenburg, Hungary.—Leather gloves. 251
168 Lowenstein, Adolf R., Vienna.—Fancy shoes. 251
170 Skriván, John, & Son, Vienna.—Hats, felts. 251
171 Port, Alois, Vienna.—Leather gloves. 251
172 Bloch, E., & Sons, Brunn.
a Boots and shoes. 251
b Cartridge pouches. 251
174 Martius, W., Vienna.—Leather gloves. 251
175 Korb, Vincenz, Grazlitz, Bohemia.—Silk laces, lace articles. 251
176 Czermiska, Inocenta, Wisniowczyk, Galicia.—Embroidery. 251
178 Richter, Edward A., Vienna.—Variegated embroidery, working materials requisite for the same. 251
179 Schnabl, Joseph, Gossengrun, Bohemia.—Laces, fichus, handkerchiefs, and fan decorations of lace. 251
181 Ullmann, J. F., Neudeck.—Laces. 252
182 Dorner, Emilie, Bosing, Hungary.—Laces and embroideries. 252
183 Erlbeck, Anton, Gossengrun.—Laces, fan decorations, handkerchiefs, and lace fichus. 252
184 Horner, Anton, Gossengrun, Bohemia.—Laces, lace fichus, and fan decorations. 252
185 Schmid & Sons, W., Vienna.—Hairdairy, trimmings, silk and wooden braids. 252
186 Fritsch, Joseph, Gossengrun.—Laces, handkerchiefs, fichus, and fan decorations of lace. 252
187 Lapaine, Caroline, Idria.—Bobbinets. 252
189 Metzner, Bernhard, Grasltiz, Bohemia.—Laces, handkerchiefs, and fan decorations. 252
190 Stramitzer, L., Vienna.—Point gaze tape laces. 252
191 Menzel, W. E., Teplitz, Bohemia.—Garnets, genuine and imitation stones (pierrres de strasse). 253
192 Reif, Joseph, Prague.—Jewelry of precious stones. 253
193 Goldschmidt's Sons, Michael, Prague.—Gold and silver ornaments. 253
194 Steiner & Kolliner, Prague.—Garnet, gold and silver jewelry. 253
195 Goldschmidt, Louis A., Dubnik, Hungary.—Polished opals. 253
196 Markowitsch & Scheid, Vienna.—Silver trinkets. 253
197 Neustadtli, M. H., Prague.—Garnet jewelry. 253
199 Bolzani & Fussli, Vienna.—Gold chains. 253
200 Bergmann, Franz, Gablonz.—Imitation gems. 253
202 Rodek Brothers, Vienna.—Bronze and leather jewelry. 253
205 Kernich, Moritz, Prague.—Garnet articles. 253
207 Ulbrich, Franz, Ober-Kukan, near Gablonz.—Imitation of precious stones. 253
209 Hofrichter's Son, Joseph, Reichenaun, near Gablonz, Bohemia. a Imitation precious stones. 253
b Papier-maché boxes. 254
213 Schadelbauer, Vincenz, Vienna.—Mother-of-pearl buttons. 254
216 Baudissin, Countess Pauline, Vienna.—Artificial flowers. 254
217 Turners' Sample Office, Vienna.—Cork articles, tobacco pipe tube, and amber cigar holders. 254
223 Iaruschka, Joseph, Vienna.—Mother-of-pearl buttons. 254
226 Hieke, Augustine, Tyssa, near Bodenbach, Bohemia.—Horn and metal buttons. 254
227 Lux, C., Vienna.—Bronze articles. 254
228 Bergman, Franz, Vienna.—Bronze articles. 254
231 Hellmich, F. A., Eidam, Wolfersdorf, Bohemia.—Glass, pearls, bone, ivory, horn, and tortoise-shell buttons, real and imitation. 254
232 Heller's Sons, Balduin, Teplitz, Bohemia.—Metal buttons and trinkets. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 27-45.
Fancy Goods, Stationery, Medical Appliances, Hardware.

234 Hiess, Franz, Vienna.—Turners' articles, meerschaum and amber. 254
237 Kemperling, Hermann, Vienna.—Turners' articles, pipes, cigar holders, canes. 254
241 Krehan, Ignaz, Vienna.—Mother-of-pearl buttons. 254
243 Kuzel, John, & Jankowsky, C., Vienna.—Turners' articles, inkstands, cigar holders, ash bowls, watch holder, candle screens. 254
248 Umann, John, Tiefenbach, Bohemia.—Paper weights. 254
251 Wagner, Franz, Meistersdorf.—Bronze buttons. 254
252 Lederer, K., Gablonz, Bohemia.—Glass trinkets. 254
254 Hartmann, L., & Eidam, Vienna.—Turners' articles, smoking requisites made of meerschaum and amber. 254
256 Lukasch, L., Vienna.—Mother-of-pearl fancies. 254
266 Schneider, Wenzel, Prague.—Necessary for the toilet, threading machines. 254
267 Sittig, Joseph, Vienna.—Horn buttons. 254
271 Coffani, Maria, Vienna.—Parasols, fans, hawk, and trinkets, made of straw. 254
272 Bauer & Pokorny, Vienna.—Meerschaum pipes. 254
274 Osterriitter, Joseph, Vienna.—Fans of tortoise-shell, ivory, feathers, silk, wood, and leather. 254
278 Puschner, Franz Anton, Tyssa, near Bodenbach, Bohemia.—Metal buttons, brooches, sets of earrings, emblems, medals, decorative buckles. 254
279 Schwan, Wilhelm, Willendorf.—Mother-of-pearl buttons. 254
283 Wittek, Adalbert, Vienna.—Mother-of-pearl buttons. 254
285 Steindl, Carl, Vienna.—Mother-of-pearl buttons. 254
286 Blazinicz & Sons, John, Vienna.—Hat brushes. 254
290 Treibitsch, Arnold, Vienna.—Articles of meerschaum and amber. 254
291 Unger, Franz, Vienna. 254
a Smoking requisites. 254
b Leather articles. 255
293 Danberger, George, Vienna.—Bronze ware, frames for photographs, toilet looking glass, cigar holders, inkstands, match boxes. 254
297 Bechmann, A. F., Vienna.—Bronze ware. 254
298 Beihl, Franz, Vienna.—Bronze ware. 254
299 Franck, Joseph, Vienna.—Bronze ware. 254
300 Dzieziinski & Hanusch, Vienna.—Bronze articles. 254
301 Bohm, Anton, Vienna.—Bronze ware. 254
302 Bohm, Ludwig, Vienna.—Bronze ware. 254
306 Wertheimer, Joseph, Vienna.—Fans. 254
307 Wielander, Peter, Vienna.—Mother-of-pearl buttons. 254

308 Bamhula, John, Vienna.—Bronze goods, albums, writing portfolios, belts. 254
310 Unger, Franz, Vienna.—Porcelain, frames for manufacture of leather fancy goods. 255
315 Seewald, Michael, Vienna.—Leather ware and trinkets. 255
316 Rodek Bros., Vienna.—Leather articles. 255
317 Osterriitter, Joseph, Vienna.—Leather articles. 255

Paper, Blank Books, Stationery.

321 Fialkowski Bros. & Twedry, Hieilitz, Austria-Silesia. 299
a Writing paper. 299
b Printing paper. 299
322 Eichmann & Co., Arnau, near Prague.—Samples of paper. 299
323 Opitz & Son, Carl, Teplitz, Bohemia. 299
a Paper. 299
b Pasteboard. 299
325 Knepper, W., Vienna. 299
a Cigarette paper. 299
b Fancy paper. 299
326 Schloglmuhi Paper Factory, Vienna.—Paper rolls for printing machines. 299
327 Schoeffel, Anton, Reichenau, Bohemia.—Papier-maché boxes. 299
328 Wesely, Veit., Vienna.—Boxes. 299
331 Osterriitter Bros., Vienna.—Paper laces. 299

Weapons, etc.

333 Percussion Caps, Cartridge, & Breech Ring Factory, Prague.—Percussion caps, cartridges, and breech rings. 255

Medicine, Surgery, Prosthesis.

334 Wilhelm, Franz, & Co., Vienna.—Drugs, medicinal herbs, volatile oils, etc. 272
335 Wartpiarkoff Bros., Vienna.—Insect powder. 272
336 Pollak, Jacques, Vienna.—Edible insect. 272
337 Zacherl, John, Vienna.—Insect powder and tinctures. 272
338 Hameri, John, Funkkirchen, Hungary.—Leather trusses. 276
338a Politzer, Adam, Vienna.—Anatomical and pathologico-anatomical preparations. 276
339 Berghammer, Fr., Vienna.—Set of artificial teeth. 277
340 Perl, Joseph, Klausenburg, Hungary.—Teeth, sets of teeth. 277
341 Zsigmondy, Adolf, Vienna.—Teeth. 277

Hardware, Edge Tools, Cutlery, and Metallo Products.

343 Wertheim, Baron Franz, Vienna.—Complete representation of the Austrian tool manufacture. 280
344 Schneider, Wenzel, Prague.—Fine penknives. 281
346 Winkler, Alois, Vienna.—Cast zinc articles, plates, emblems, letters, and coat of arms. 283
347 Winkler, Michael, Vienna.—Cast metal signs and letters. 283

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
AUSTRIA.

Manufactures, Art, Machinery, Animal Products.

848 Moravia Ironware Industry & Trade Co., Vienna.—Nails, screws. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

350 Schneck & Kohnberger, Vienna.—India-rubber goods. 285

351 Hausmann, Wilhelm, Reichenberg.—Rope articles, twine, cords, girths. 287

352 Kohl, August, Vienna.  
   a Hemp hose, mill straps for mills. 287
   b Fire buckets for mills. 289

Carriages, Vehicles, and Accessories.

353 Lohner & Co., Jacob, Vienna.—Phaeton carriages. 292

355 Armbruster, Sebastian, Vienna.—Landau coach. 293

357 Bloch & Sons, E., Brunn.—Sole-leather saddle cloths. 296

Painting.

357a Hofrichter’s Sons, Reichenau, near Gablonz.—Oil paintings. 410

357b Isella, Pietro, Vienna.—Painting. 410

Engraving and Lithography.

357c Paterno, Fr., Vienna.  
   a Drawings. 420
   b Chromo-lithographs. 424

357d Kaeser, P., Vienna.—Engravings. 421

357e Bader, F. W., Vienna.—View of Vienna. 422

358 Winkler, Alois, Vienna.—Oleographs. 424

358a Lehmann, Nikolaus, Prague.—Chromos. 424

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 17-45.

358b Lott, Ludwig, Vienna.—Chromotypographs. 424

358c Reifenstein & Rösch, Vienna.—Chromos. 424

358d Sieger, Edward, Vienna.—Lithographs. 424

358e Czeiger, S., Vienna.—Chromos. 424

Ceramic Decorations, Mosaics, etc.

359 Steinmetz, Franz, Petronberg, Illyria.—Inlaid work and veneer. 452

360 Egger, I. B., Villach, Karnten.—Inlaid work and veneer. 452

Machines for Printing, Making Books, Paper Working, etc.

361 Wuste, F., Vienna.—Cylinder coverings. 543

Arboriculture and Forest Products.

362 Frankl, J. G. & L., Vienna.—Wood specimens for the manufacture of furniture. 607

Water Animals, Fish Culture and Apparatus.

364 Nachtmann, Jacob, Tannwald, Bohemia.—Chamber leech aquariums. 649

Animal and Vegetable Products.

365 Zacherl, John, Vienna.—Cleaned sponges. 650

370 Ujhely & Co., H., Stockerau.—Wax. 654
### SWITZERLAND.

**Chemicals, Ceramics, Woven Goods, Silk.**

#### Chemical Manufactures.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Place</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Guyot-Lupold, A., Locle, Ct. Neuchâtel</td>
<td>Switzerland</td>
<td>Chemical products, artificial black diamond, diamantine, powder of rubies, enamels for jewelry.</td>
</tr>
<tr>
<td>2</td>
<td>Ambiet &amp; Poncet, Geneva</td>
<td>Switzerland</td>
<td>Oil for watches and instruments of precision.</td>
</tr>
<tr>
<td>3</td>
<td>Brunnschweiler, Traugott, St. Gallen</td>
<td>Switzerland</td>
<td>Casseum for calico printing, cassein glue for cold glueing.</td>
</tr>
<tr>
<td>4</td>
<td>Vaucher, L., Peseux, near Neuchâtel</td>
<td>Switzerland</td>
<td>Animal oil for chronometers and fine watches.</td>
</tr>
<tr>
<td>5</td>
<td>Bindschdler &amp; Busch, Basle</td>
<td>Switzerland</td>
<td>Raw materials for the manufacture of dyes, aniline dyes, artificial aizarine.</td>
</tr>
<tr>
<td>6</td>
<td>Brunnschweiler &amp; Son, St. Gallen</td>
<td>Switzerland</td>
<td>Printing inks, inks for Morse &amp; Hughes' apparatus, extracts of ink in powder.</td>
</tr>
<tr>
<td>7</td>
<td>Durand &amp; Huguenin, L., Basle</td>
<td>Switzerland</td>
<td>Naphthaline, resorcin, fluorescein, ecene, phthaline and solutions, sefranine, galilene, cerulene, steam blue, etc.</td>
</tr>
<tr>
<td>8</td>
<td>Bühler, Emile, Neuchâtel</td>
<td>Switzerland</td>
<td>Hair regenerator, pomade, balsam, tooth-water, quinine-water.</td>
</tr>
</tbody>
</table>

#### Yarns and Woven Goods of Vegetable or Mineral Materials.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Place</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Billeter, C. G., Zurich</td>
<td>Switzerland</td>
<td>Singed cotton threads, unbleached cotton sewing thread, cotton lease threads.</td>
</tr>
<tr>
<td>14</td>
<td>Brunner, A., Mannenfrodt, Ct. Zurich</td>
<td>Switzerland</td>
<td>White and colored bed-covers.</td>
</tr>
<tr>
<td>15</td>
<td>Gujer-Brunnerl, Uster, Ct. Zurich</td>
<td>Switzerland</td>
<td>White and colored tricot bed-covers and table-cloths.</td>
</tr>
<tr>
<td>17</td>
<td>Schlaepfer, J. U., Waldstatt, Ct. Appenzell, Inner Rhodes</td>
<td>Switzerland</td>
<td>Muslim.</td>
</tr>
<tr>
<td>18</td>
<td>Fierz, Henri, Zurich</td>
<td>Switzerland</td>
<td>Cotton goods.</td>
</tr>
</tbody>
</table>

#### Silk and Silk Fabrics.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Place</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Schneider, C. F., Dättlikon, Ct. Zurich</td>
<td>Switzerland</td>
<td>Lint for hospitals, colored wadding for jewelry.</td>
</tr>
<tr>
<td>25</td>
<td>Siegenthaler, S., Enggistein, near Worx, Ct. Bern</td>
<td>Switzerland</td>
<td>Boots and shoes of felt, with and without wooden soles, felt soles, felt tablets for watch-makers, filtering bags, felt trimmings.</td>
</tr>
<tr>
<td>26</td>
<td>Ernst, Ferdinand, Winterthur, Ct. Zurich</td>
<td>Switzerland</td>
<td>Goods of wool and mixtures of wool.</td>
</tr>
</tbody>
</table>

#### For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
42 Scherer, Emil, & Co., Zurich.—Silks. 245
43 Schroeder, Wilhelm, & Co., Zurich.—Silks. 245
44 Schwarzenbach, Landis J., Thalwil, near Zurich.—Silks. 245
45 Stapfer, Joh., Sons, Horgen, Ct. Zurich.—Silks. 245
46 Stunzi & Sons, Horgen, Ct. Zurich.—Silks and satins. 245

Clothing, Jewelry, etc.
47 Blumer & Wild, St. Gallen.—Hosiery, ladies' fancy articles. 250
48 Bourquin, C. F., Cormondrèche, near Neuchâtel.—Wool hosiery, jackets, and waistcoats. 250
49 End-Ulmi, Ali., Lucerne.—Knitted undergarments. 250
50 Hess, Gebr., Amriswil, Ct. Thurgau.—Colored shirts and over-shirts. 250
51 Huggenberger, U., Frauenfeld, Ct. Thurgau.—Hosiery. 250
52 Meyer-Wespi & Co., Altstetten, near Zurich.—Knitted undergarments. 250
53 Wiki, B., Lucerne.—Gentlemen's clothing. 250
54 Bell, August, Kriens, near Lucerne.—Crinoline braids. 250
55 Chiesa Bros., Locarno, Ct. de Tessin.—Braids and straw hats, Canton Tessin speciality. 251
56 Eich & Co., Lenzburg, Ct. Aargau.—Silk, lace and straw-plait, cotton-tress-work, borderings, hair-cloth. 251
57 Indermühle, E. Th., Berne.—Straw hats. 251
58 Isler, Aloyse, & Co., Wildegg, Ct. Aargau.—Hair and cotton plait, fancy goods of hair, straw, cotton, and silk for hats and bonnets. 251
59 Isler, Jacob, & Co., Wohlen, Ct. Aargau.—Straw goods. 251
60 Walser, Conrad, Wohlen, Ct. Aargau.—Straw hats, plait, and fancy articles of straw, crinoline, cotton, and manila hemp, tissues of straw, silk, and other materials for fancy boxes, spartoli, embroidery, and ornaments for bonnets. 251
61 Alder Bros., Herisau, Ct. Appenzell, Inner Rhodes.—Hand and mechanical embroideries. 252
62 Alder & Meyer, Herisau, Ct. Appenzell, Inner Rhodes.—Embroidered trimmings. 252
63 Baerlocher-Custer, Rheineck, Ct. St. Gallen.—Embroidery, lace curtains, tidies, bed-covers, pillow-case covers. 252
64 Basquin, Hector, & Schweizer, St. Gallen.—Machine embroidery. 252
65 Bion & Tschumper, St. Gallen.—Mechanical embroideries. 252
66 Fisch Bros., Buhler, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries. 252
67 Göldy, A., & Co., St. Gallen.—Mechanical embroideries, Hamburg edgings and insertions. 252
68 Hirschfeld Bros. & Co., St. Gallen.—Swiss lace curtains. 252

69 Ilkié Bros., St. Gallen.—Mechanical embroideries. 252
70 Locher Bros., Speicher, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries on silk. 252
71 Wülfinger Machine Embroidery Establishment, near Winterthur, Ct. Zurich.—Colored embroidery by machinery, Hamburg edgings. 252
72 Scheitlin & Widmer, St. Gallen.—Mechanical embroideries. 252
73 Stäheli-Wild, C., St. Gallen.—Hand and mechanical embroideries. 252
74 Steiger & Co., Herisau, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries, lace curtains. 252
75 Strauss, D., & Co., St. Gallen.—Lace curtains, drop laces, embroideries. 252
76 Sturzenegger & Rutz, Trogen, Ct. Appenzell, Inner Rhodes.—Cravats, edgings. 252
77 Sutter-Dörrig, R., Appenzell.—Hand and machine embroidery. 252
78 Tobler, Utr., & A., Rheineck & Thal, Ct. St. Gallen.—Machine embroideries. 252
79 Zähner & Schiess, Herisau, Ct. Appenzell, Inner Rhodes.—Hamburg edgings and insertions. 252
80 Zellweger, J. C., Trogen, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries. 252
81 Drawing School of the Board of Trade, St. Gallen.—Embroideries executed from designs of the drawing school. 252
82 Urech, E., Herisau, Ct. Appenzell, Inner Rhodes.—Mechanical embroidery. 252
82a Zürcher-Bansiger, J., Teufen, Ct. Appenzell, Inner Rhodes.—Mechanical embroidery. 252
83 Petit-Pierre & Bryson, Geneva.—Jewelry. 253
84 Gay, Jean, Geneva.—Watch chains. 253
84a Meylan & Mertens, Ed., Geneva.—Gold chains and chatelaines. 253
85 Jacard, Eugène, St. Croix, Ct. de Vaud.—Plate engraved with flowers, ornaments, and devices relating to the Centennial. 254
86 Rohr, Walter von, A., Mümliswil, Ct. Solothurn.—Combs. 254

Paper, Blank Books, Stationery.
88 Müller, J., Schaffhausen.—German, French, English, and Spanish playing cards, railway tickets. 262

Weapons, etc.
89 Swiss Manufacturing Co., Neuhausen, near Schaffhausen.—Vetterli-system, infantry and target rifles, blank cartridges. 265
89a Schmidt, Major, Berne.—Rifle and revolver. 266

Medicine, Surgery, Prothesis.
90 Durieu, Oettli, & Co., Vevay, Ct. Vaud.—Milk-powder. 271

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Medical Appliances, Hardware, Animal and Vegetable Products.

92 Lapp, C., Freiburg.—Food for chil- dren, condensed milk. 273
93 Naumann-Burkhardt, H., Basle.— Ex- tract honey, syrup, and flour of meat. 273
94 Nestlé, Henry, Yevay, Ct. Vaud.— Milk food or lacticus krina. 273
94a Wander, G., Berne.—Extracts of malt and malt drops. 273
95 International Bandage-shiff Fac- tory, Schaffhausen.—Dressings, lint, ap- pliances for the dressing of wounds, pharmaceutical apparatus. 276

Hardware, Edge Tools, Cutlery, and Metallic Products.
96 Spillmann, Heinrich, Unterstrass, near Zurich.—Engineering tools. 286
97 Schneider, C. F., Geneva.—Compli- cated pocket-knives. 280
98 Bürgin, Bros., Schaffhausen.—Up- holsterers’ nails. 280
98a Le Coultre, Jacques, Sentier, Ct. Vaud.—Razors. 281
98b Bossi, Gaetano, Locarno, Ct. Tes- sin.—New system of safety locks. 284

Fabric of Vegetable, Animal, or Mineral Materials.
99 Bally & Schmitter, Aargau, Ct. Aar- gau.—Elastic webs for boots. 285

AGRICULTURE.

Agricultural Products.
1 Anastasio, Giuseppe, Lugano, Ct. Tessin.—Cigars. 623
2 Kottmann, J., Solothurn.—Ci-gars. 623
3 Sauter, A., Diessenhofen, Ct. Thurgau.—Cigars. 623

Animal and Vegetable Products.
4 Schleife Tanneries, Winterthur, Ct. Zurich.—Blackened calf leather. 632

5 Hürlimann, J. J., Rapperswyl, Ct. St. Gallen.—Swiss honey. 654
6 Society for Bee Culture, Luk- manier, Sobrio, Ct. Tessin.—Honey and wax. 654
7 Coffee Surrogate Factory, Zurich.—Fig-meal (surrogate of coffee), con- served coffee. 656
8 Robbi & Co., Geneva.—Choco- late. 656
9 Schweiger, Auguste, Geneva.— Theodoro’s sauce. 66
10 Suchard, Ph., Neuchatel.—Choco- late, cacao. 656
11 Almen, von, & Kopp, Fleurier, Ct. Neuchâtel.—Absinthe. 660
12 Berger, C. F., Couvet, Ct. Neucha- tel.—Absinthe. 660
13 Bernhard, S., Samaden, Engadin, Ct. Graubünden.—Jva bitter, Jva perfume, and tincture. 660
15 Grandpierre, J., Geneva.—Ver- mouth. 660
16 Henny & Mouillet, Fleurier, Ct. Neuchâtel.—Absinthe. 660
17 Kirschwasser Company Zug, Zug.—Kirschwasser. 660
18 Nievergelt, Joh., Maschwanden, Ct. Zurich.—Kirschwasser. 660
19 Pernod, Ed., Couvet, Ct. Neucha- tel.—Green and white absinthe, gentian- liquor, kirschwasser. 660
20 Scherer, Bros., Meggen, Lucerne.—Kirschwasser. 660
21 Schmidt, Joseph, Zug.—Sweet-liq- uors, rightbitter, stomach-bitters, kirsch- wasser. 660
22 Stauffenegger, Chr., Travers, Ct. Neuchâtel.—Absinthe. 660
23 Gessler-Zeller, J., Basle.—Leckerly of Basle. 660
24 Mattmann, Brothers, C. & J., Horw, near Lucerne.—Italian pastry. 661

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
BELGIUM.

(North of Nave, Columns 54 to 59.)

Chemicals, Ceramics, Glass.

Chemical Manufactures.

1 Hemptinne, A. de, Son, Molenbeek, St. Jean, near Brussels.—Plan of apparatus for manufacturing sulphuric acid. 200
3 Meeus, M. & J., Antwerp.—Refined sulphur. 200
4 Solvay & Co., Couillet, near Charleroi.—Chemicals, soda-salt. 200
6 Des Cressonnières (widow) & Son, Molenbeek, St. Jean, near Brussels.—Toilet soap. 201
8 Staes, Sproelants, Termonde, East Flanders.—Linseed, rape-seed, hemp-seed, cotton, and other oils. 201
10 Gilkinet, C. J., Ensalin, near Verviers.—Cache-potuit, or special ink, to point out the defects on cloth and dye-stuffs. 202
11 Lummerzheim, M. H., & Co., Wondelgem, near Ghent, East Flanders.—Bituminous and re-asphaltic roof and sheet shahing paper, lampblack. 202
12 Offergeld Bros., Forest, near Brussels.—Red, brown, and chestnut iron paint. 202
13 Planche, Edouard, Son, Laeken, near Brussels.—Writing ink. 202
14 Planche, Melchior, Ixelles, near Brussels.—Writing ink. 202
15 Singer, Max, Tournai (Hainaut).—Aniline products for dyes extracted from coal-tar, etc. 202
16 White Lead & Iron Paint Joint Stock Co., Anderghem, near Brussels.—White lead, iron paint, mastics. 202
17 Van der Velden, Leopold, Liège.—Writing, glossing, and indelible ink, liquid glue, etc. 202
18 Van Laer, Guillaume, Verviers.—Dyers’ practical guide, mordant processes. 203
19 Marbaix, Auguste de, Antwerp.—Animal liquor, animal water, essential oil, caraway essence, cedar essence, Florentine iris, and oil of cloves. 203
20 Cooppal & Co., Wetteren, East Flanders.—Charcoal, sulphur, powder and cartridges. 204

Ceramics.—Pottery, Porcelain, Glass, etc.

23 Seilles lez Andenne & Boufioux Joint Stock Co. of Refractory Products and Plastic Clay, Seilles, near Andenne, Province of Liège.—Burnt refractory earthenware, brick for gas furnaces, etc., gas retorts, refractory plastic clay. 207
25 Wingeand Bros., Chokier, near Liège.—White and colored clay pipes. 200
26 Floresse Co., Floresse, near Namur.—Plate glass for windows. 214
26a Schmidt Brothers & Sisters, Lodewinskant, near Charleroi.—White window and heavy muslin glass. 214
27 a National Glass Works Joint Stock Co., Jumet.—Window glass. 214
28 Baudoux & Co., Charleroi.—White and colored window and unpolished and corrugated muslin glass, with variegated roseets engraved and cut. 214
29 Baudoux, E., & Jonet, Lodewinskant.—Colored and fancy window glass. 214
30 Bennett & Bivort, Jumet, near Charleroi.—Window glass. 214
31 Bougard, A., Le Brun, H., & Co., Ronx, near Charleroi.—Window glass. 214
32 Dorlodot, L. de, & Co., Lodewinskant.—Unpolished and corrugated window glass, greenhouse, cathedral, and stained glass, old glass imitation. 214
33 Looper, de, Haidin, & Co., Courcelles.—Window glass. 214
34 Dessent, J., & Bros., Jumet.—Window glass. 214
35 Fourcault-Fraison, A., & Co., Dampremy, near Charleroi.—Window glass. 214
36 Hans, Octave, & Co., Jumet, near Charleroi.—Window glass. 214
37 Lambet, Casimir, Son, Charleroi.—Window glass. 214
38 Lambet, L., & Co., Hamendes Glass Works, Jumet.—Window glass. 214
39 Leurant, Emile, Jumet (Helgne), near Charleroi.—Glass cylinder. 214
40 Mondron, Leon, Lodewinskant, near Charleroi.—Window glass. 214
41 Monnoyer, J., & Son, Dampremy, near Charleroi.—Window glass. 214
42 Morel, Alphonse, Lodewinskant, near Charleroi.—Window glass. 214
43 Schmidt, A., & Co., L’Alliance Glass Works, Jumet (Brulotte), near Charleroi.—Window and fluted glass. 214
44 Schmidt, Devillers, & Co., Dampremy, near Charleroi.—Window glass. 214
45 Glass Works Joint Stock Co., Charleroi.—Window glass. 214

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Glass, Furniture, Woven Goods.

46 Plate Glass Manufacturing Joint Stock Co., Courcelles, near Charleroi.—Clean polished and plated glass. 214
47 Hainaut Glass Manufacturing Joint Stock Co., Roux, near Charleroi.—Plate glass for windows, silvered glass, samples of plate glass at different stages of manufacture. 214
48 Glassware & Plate Glass Manufacturing Joint Stock Co., Brussels.—Framed plated and unplated mirrors. 214
49 Bougard, A., Manage (Hainaut).—Crystals. 216
50 Boussu, Familleurex & Blanc Miseron Glass Works Joint Stock Co., Boussu, near Mons (Hainaut).—Crystals and half crystals, dinner service, and articles for lighting. 216

Furniture and Objects of General Use in Construction and in Dwellings.

51 Demeuter, Leopold, Son, Brussels.—Furniture and hangings. 217
52 Goyers, J. A. & H., Bros., Louvain.—Pulpit of the ogive style. 217
53 Snyers, Rang, & Co., Brussels.—Carved walnut furniture, renaissance style, ebony inlaid with ivory. 217
54 Teugels, Emile, Malines, Province of Anvers.—Carved furniture, a chair of the sixteenth century, a Flemish chair of the sixteenth century. 217
55 Zech, H., Malines.—Ebony bureau, arm-chair, and book-case. 217
56 Boucneau, Leon, Schaerbeek, near Brussels.—Marble mantelpiece, Belgian mosaic marble panels for dining-room decoration, brick pavement and Belgian mosaic marble table. 217
57 Guyaux Bros., Bouffioulx, near Charleroi.—Black marble, St. Anne mantelpiece. 217
59 Lintelo, A., Brussels.—Clocks and marble slabs. 217
60 Parmentier, Gosset, & Co., Sivry (Hainaut).—Marble mantelpieces with vases and clocks. 217
61 Tainsy, F., Brussels.—Marble mantelpieces. 217
62 Brodure, Mathieu, Spa.—Painted, varnished, and gilt wooden work. 219
63 Bronfort Bros., Spa.—Painted and ornamented wooden boxes, etc. 219
64 Debrus-Leclaire (widow), Spa.—Painted and ornamented wooden boxes, etc. 219
65 Debrus, Willem Alexandre, Spa.—Wooden boxes, etc. 219
66 Krins, E., Spa.—Wooden carvings. 219
67 Van Ginderdeuren, Brussels.—Wood carvings, furniture. 219
68 Costermans, Jean, Brussels.—Hearth of the Flemish Renaissance. 222
69 Michel, Dieudonné, Sombreffe, near Gembloux, Province of Namur.—A brick layer ventilator for chimneys and coal-matirials. 222
70 Serta, G. N., Director of the State Railroad.—A plan for utilizing the heat wasted by kitchen stoves, and a heating and ventilating system for passenger railway cars. 222

71 L’Eclair Joint Stock Co., Kessel-Lo, near Louvain (Brabant).—Match tapers. 223
72 Passy, Gerard, Brussels.—Silver, copper, and bronze household utensils. 224
73 Tremouroux, N. & J., Bros., Saint Gilles, near Brussels.—Polished, varnished, bronzed, enamelled, plated, and wrought iron household utensils. 224
75 Valania, Jean,Ixelles, near Brussels.—Machines for confectioners. 224
76 Van der Horst, Guillaume, Brussels.—Machine for the manufacture of sweetmeats. 224
76 Dogny, Jean Baptiste, Brussels.—Balusters, ornaments for door panels. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

b. Linen textile fabrics. 233
78 Smet, E., de, & Co., Ghent.—Thread in packages; warped, unbleached and dyed skeins. 236
79 Desmet Bros., Ghent.—Dyed, bleached, and unbleached textile fabrics. 230
80 Parmentier, Van Hoegarden & Co., Ghent.—Spun cotton, bleached and unbleached printed cotton textile fabrics. 230
81 Devos, Camille, & Brother, Court- rai.—Stuff for trowsers. 231
82 Idiers, Emile, Audergem, near Brussels.—Spun cotton, dyed Adrianople, red, etc. 231
83 Brandt, Jacques de, Aloost.—Dipped and damasked table linen. 233
84 Delclercq, Clement, Iseghem, East Flanders.—Twisted linen thread for machine and hand sewing. 233
85 Goesters Bros., Aloost, East Flanders.—Canvas, sackcloth and bags for grain, guano, salt, etc. 233
86 Leirens-Eliaert of Eliaert-Cools, Aloost, East Flanders.—Thread and tow for weaving, sewing thread. 233
90 Rey, sen., Brussels.—Linen fabrics. 233
91 Sak-Volders, Joseph, Turnhout, Province of Antwerp.—Ticking for beds and awnings. 233
92 La Lys Co., Ghent.—Jute and linen thread. 233
93 Van Damme Bros., Roulers, East Flanders.—Cloth. 233
94 Vande Wyckcle Bros. & Alsberge, Ghent.—Tow and linen thread bleached, at every stage. 233
95 Wilford, William, Tamise, East Flanders.—Imperial extra flax, merchant and navy canvas; combed flax and thread for its manufacture. 233

Woven and Felted Goods of Wool, etc.

96 Hauzer-Gerard, Son, Verviers.—Carried woolen thread. 235
99 Baras-Navaux, Verviers.—Cloth and woolen stuff. 235
100 Bettonville, Clement, Hodimont, near Verviers.—Cloth and woolen stuff. 235

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Woven Goods, Silk, Clothing, Stationery.

101 Biolley, François, & Son, Verviers.—Cloth and woolen stuff. 235
103 Biolley Bros. & Co., Jusilenville, near Verviers.—Cloth and woolen stuff. 235
103 Chaten, M., & Co., Dison, near Verviers.—Cloth and woolen stuff. 235
104 Delhez Bros., Dison.—Cloth and woolen stuff. 235
105 Devosse-Blaise, Dison.—Cloth and woolen stuff. 235
106 Doin, Lekeux, & Co., Dison.—Cloth and woolen stuff. 235
107 Domken Bros., Verviers.—Cloth and woolen stuff. 235
108 Dreze, H. & J., Dison.—Cloth and woolen stuff. 235
109 Franck Bros., Dison.—Cloth and woolen stuff. 235
110 Henriq. J. J., Dison.—Cloth and woolen stuff. 235
111 Herve, Fanchamps, Verviers.—Cloth and woolen stuff. 235
112 Lecloux, G. J., Dison.—Cloth and woolen stuff. 235
113 Lejeune-Vincent, H. J., Dison.—Cloth and woolen stuff. 235
114 Olivier, J. J., & Son, Verviers.—Cloth and woolen stuff. 235
115 Peltzer & Son, Verviers.—Cloth and woolen stuff, carded wool thread. 235
116 Simonis, Iwan, Verviers.—Cloth and woolen stuff. 235
117 Trasté, J., Verviers.—Cloth and woolen stuff, carded wool thread. 235
118 Wihl, M., & Co., Verviers.—Cloth and woolen stuff. 235
119 Jamme, Armand, Saint Hadelin, (Nessonvaux), near Verviers.—Carded woolen thread. 235
120 Begasse, Charles, Liège.—Felt for paper manufacture, fag-end fabrics, and woolen bed blankets. 235
121 Jacobs, Poelaert, & Co., Brussels.—Wooden bed blankets. 237
122 Rolin, H., Son, & Co., Saint Nicholas, East Flanders.—Tartan shawls, thin, light cloth, tweeds, waterproofs, lady cloth, fancy cloths, etc. 237
123 Braquenié Bros., Malines.—Majolica paintings. 237
124 Fonteyn Bros., Lede, East Flanders.—Black silk goods. 245
125 Van Bellingen, Jos., Son, Antwerp.—Black silk cassimere, Antwerp silk and trimmings. 245
126 Van Bellingen, J. H., & Suremont, Max, Antwerp.—Antwerp black silk tissues. 245

Clothing, Jewelry, etc.

127 Dujardin Bros., Leuze (Hainaut).—Cotton and woolen hosiery. 250

128 Leynen-Hougaerts, J. A. H., Peei, Province of Limburg.—Church vestments, chasuble, and various embroideries. 250
129 Couvreur Sisters, Brussels.—Women’s dresses. 250
130 Bouhon, François, Verviers.—Wooden and other shoes. 251
131 Frenay Bros., Roclenge-sur-Geer (Limbourg).—Brails and straw hats. 251
132 Level, Leon, Brussels.—Kid gloves. 251
133 Vandenbos-Poelman, G., Ghent.—Shoes. 251
134 Watrigant, Alphonse, Brussels.—Gentlemen’s, ladies’, and children’s shoes. 251
135 Begerem, René, Ypres.—Valenciennes lace. 252
136 Crommelinck, Courtrai.—Lace. 252
137 Dassonville, Courtrai.—Lace. 252
138 Declercq-Clement, Iseghem, East Flanders.—Common lace of twisted thread. 252
139 Des Mares, P. T., Laeken, near Brussels.—Lace. 252
140 Vergnies, O. De, & Sisters, Brussels.—Lace. 252
141 Duden Bros., Brussels.—Lace. 252
142 Everaert, Julie, & Sisters, Brussels.—White and black lace. 252
143 Bruynel, senior, Grammont.—Black lace. 252
144 Groote, Vierendeel de, Grammont.—Black lace. 252
145 Everaert-Leclercq, Jules, Grammont.—Black lace. 252
146 Everaert Sisters, Grammont.—Black lace. 252
147 Ghys-Bruneel, Grammont.—Black lace. 252
148 Leclercq (widow), Grammont.—Black lace. 252
149 Saligo-Vandenberghe, Grammont.—Black lace. 252
150 Gillon-Steyaert, Courtrai.—Valenciennes lace. 252
151 Recem, Jean, Brussels.—Gold embroidered picture. 252
152 Sacré, L., Brussels.—Lace. 252
153 Vandzeande-Goemare, Courtrai.—Valenciennes lace. 252
154 Verde, Delisle Bros., & Co. (India Co.), Brussels.—Lace. 252
155 Cory, Jules, Ghent, East Flanders.—Chignons and wigs. 254
156 Gossieux, Felicien, Wavre (Brabant).—Hair picture. 254
157 Graf, Emile, Son, Liège.—Trunk. 255

Silk and Silk Fabrics.

124 Fonteyn Bros., Lede, East Flanders.—Black silk goods. 245
125 Van Bellingen, Jos., Son, Antwerp.—Black silk cassimere, Antwerp silk and trimmings. 245

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Paper, Blank Books, Stationery.

158 Vandame, Pierre Jean, Brussels.—Proofs of steel engraving for stamping with colors, illuminated with gold and silver, chromograms, and coats of arms. 255
159 Braff, Pfeffer, & Co., Ghent.—Raw material for the manufacture of paper, worked and cleaned rags, and old paper. 259
WEAPONS, MEDICAL APPLIANCES, ANIMAL AND VEGETABLE PRODUCTS.

160 De Mesmaeker, Pr., Brussels.— Samples of bindery work. 261
161 De Tournay-Catala, Brussels.— Printing, writing, and wrapping paper, and pasteboard. 259
162 Poissonnier, Jean Baptiste, Brussels.— Cases for jewelers, confectioners, druggists, etc.; card of samples. 252
163 Daye, F., & Co., Scharbeek, near Brussels.— Pressed leather, pasteboard made from Cordoue and Malines old hides. 264

Weapons, etc.
164 Fusnot, Charles, & Co., Cureghem, near Brussels.— Cartridges for weapons of every description. 205
165 Heuse, Ernest, Nessonvaux, near Liège.— Gun-barrels. 265
166 Mailiot & Heuse, Fraipont (Liège).— Gun-barrels for warfare and export. 265
167 Bayot Bros., Liège.— Fine weapons. 269
168 Neumann Bros., Liège.— Double-barreled hunting guns. 269
169 Tambeur, Michel, Liège.— Hunting weapons. 269

MEDICINE, SURGERY, PROPHYSIS.
170 Depuy, Barthélémy, Brussels.— Pharmaceutical preparations, pamphlets on toxicology, pharmacy, and hygiene. 272
173 Guillery, Hippolyte, Brussels.— Sanitary report of the battle-field at Sedan in 1870; apparatus for the rapid dressing of wounds on the battle-field, etc., and for the treatment of limb fractures. 276
174 Hermant, Emile, Bruges.— Treatment on flying ambulances, model of ambulance bags adopted by the Belgian government, memoir of the military physician. 276
174a Buys, L., Brussels.— Car for the transport of the sick and wounded. 278

Hardware, Edge Tools, Cutlery, and Metallino Products.
175 Lambert, A. de, Liège.— Files for watchmakers and jewelers. 280
175a Jean, Emile de, Brussels.— Collection of iron and tools for horse-shoeing. 280
176 Constant, Emile, Monceau-sur-Sambre, near Charleroi.— Cheese-vat boxes, clamps for rails, rivets, tinkers' ware. 284
177 Demanet, Albert, Gosselies (Hainaut).— Forged nails. 284
178 Fondu, Jean Baptiste, Brussels.— Locksmiths' work, locks for vehicles, carriages, and railway cars; nickel ware used in construction. 284
179 Hoebickx, Guillaume, Brussels.— Two large chests—one representing an old-fashioned Flemish trunk, the other the present style. 284
180 Nicaise, Charles, Louvrière (Hainaut).— Locomotive and other bolts, screws for locomotives, screw nuts, rivets, clamps for rails, etc. 284

180a Fix, A. J., Brussela.— Nails, rives, etc. 284
181 Nicaise, Pierre & Nicolas, Marcinelle, near Charleroi.— Bolts, screw-nuts and rivets, spokes, and round-nose chisels, carriage tenders, clamps, etc. 284
182 Velings & Co., Chatellet, near Charleroi (Hainaut).— Iron wire, tacks, nails. 284

Fabrics of Vegetable, Animal, or Mineral Materials.
183 Ryckere, Edouard de, senior, Ise- ghem, East Flanders.— Brushes and pencils. 286

Carriages, Vehicles, and Accessories.
184 Ruyttar, Charles de, Ghent.— Carriages. 292
185 Van Aken, Louis, Anvers.— Carriages. 292

AGRICULTURE.

Agricultural Products.
1 Le Bailly-D'Inghem, Viscount Arthur John, Villeneuve, Switzerland.— Cereals cultivated in a sandy soil. 650
2 Ameye Herte, Rodolph, Ghent.— Chichory, raw, in the pod, and manufactured. 623
5 Vandendaele-Rigot, Charles, Quiévrain (Hainault).— Ground mustard. 623
6 Delannoy, Nicholas, Tournai.— Chocolate. 623
6a Mottie, L., Brussels.— Tobacco and cigars. 623
7 Joveneau, Arthur, Tournai (Hainault).— Powdered cocoa and chocolate; detail of chocolate manufacture. 623

Animal and Vegetable Products.
9 Bodart, Ed., Louvain (Brabant).— Sheepskins, white leather, morocco, salted roans. 652
10 Baugniet, T., & Co., Brussela.— Crystallized blood. 652
11 Lebemuth, J., & Co., Brussela.— Waxcd leather and goat skins. 652
12 Ocreman, L., & Wittoecue, E., Mechlin, province of Antwerp.— Varnished skins. 652
13 Schmitz, F. A., & Co., Koekeberg, near Brussels.— Skins for hats; manufactured morocco leather. 652
15 Verése-Spelmans, Brichot, Ant., & Co., Brussels.— Carried leather. 652
17 Remy & Co., Louvain (Brabant).— Starch and similar products. 658
20 Vandendaele-Rigot, Ch., Quiévrain (Hainault).— Pear, apple, and beet-root syrups. 659
25 Vinegar. 659

21 Charlier, John Baptist, Ghent.— Beer. 660
22 De Beukelaer, F. X., Antwerp.— Antwerp elixir, hygienic cordial. 660
23 Melkior, F. J., Brussels.— Liquors. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Agricultural Products and Machines

<table>
<thead>
<tr>
<th>Class</th>
<th>Name</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>Schaltin, Pierry &amp; Co., Spa.</td>
<td>Cordial, mineral waters, etc.</td>
</tr>
<tr>
<td>25</td>
<td>Schmidt, Emile, Schaerbeck, near Brussels</td>
<td>Belgian bitters, cordial</td>
</tr>
<tr>
<td>27</td>
<td>Bergh, van den, &amp; Co., Antwerp</td>
<td>Gin made from fine grains</td>
</tr>
<tr>
<td>29</td>
<td>Wauters-de-Busscher, Mechlin, Province of Antwerp</td>
<td>Cordials</td>
</tr>
<tr>
<td>30</td>
<td>Damman, Edm., Borgerhout, near Antwerp</td>
<td>Ship biscuit</td>
</tr>
<tr>
<td>31</td>
<td>Couvreur Sisters, Brussels</td>
<td>Confections</td>
</tr>
<tr>
<td>32</td>
<td>Lecuq, Henry, Courtrai</td>
<td>Flax</td>
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<tr>
<td>33</td>
<td>Taule-Bottelier, Charles, Bruges</td>
<td>East Flanders</td>
</tr>
<tr>
<td>35</td>
<td>Mullender, S., Verviers</td>
<td>Flocks of wool and shearings</td>
</tr>
<tr>
<td>36</td>
<td>Delmotte, Hippolitus, Ghent</td>
<td>White bristles</td>
</tr>
</tbody>
</table>

#### Machines, Implements, and Processes of Manufacture

<table>
<thead>
<tr>
<th>Class</th>
<th>Name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Dassonville de Saint-Hubert, L., Namur</td>
<td>Stones for grinding grain, cements, etc.</td>
<td>674</td>
</tr>
<tr>
<td>38</td>
<td>Vandendaele, Rigot, Charles, Quievrain (Hainault)</td>
<td>Steam machine for manufacturing chicory</td>
<td>674</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Netherlands.

(North of Main Aisle, Columns 60 to 65.)

Chemicals, Ceramics, Furniture, Woven Goods, Silk.

**Chemical Manufactures.**

1 Matthes, W. E., Amsterdam.—Sulphate of ammonia. 200
2 Gorter, D. & S., Sneek.—Soap. 201
3 Willems, P. J., Schiedam.—Oils. 201
4 Sauders & Co., Leyden.—Soaps. 201
5 Henny, C. O., Deventer.—Glue. 202
6 Van Calker, P. W., Utrecht.—Glue. 202
7 Verrocq & Van Heusde, Tiel.—Dyes, turpentine, inks, wax, colors, savles. 202
8 Grootes, M., Westzaan.—Blueing. 202
9 Leur, W., Schooten, near Haarlem.—Red lead made from iron ore. 202
10 Mills, M. A.—Inks. 202
11 Vriesendorp, H. M., Dordrecht.—Oils and varnish. 202
12 Lousbergh, V., Gravenhage.—Colors. 202
13 Van den Bergh, N. L. J., Arnhem.—Cologne. 203

**Ceramics—Pottery, Porcelain, Glass, etc.**

14 Van Bergen, A. H., Heiligerlee, Province of Groningen.—Stone and drain tiles. 206
15 Van Henkelom, H. C., Utrecht.—Building stone. 206
16 Koolemans-Beijnen, C. G. L., Willeskop.—Architectural pottery. 206
17 Goedwaagen, P., Gouda.—Chemical stoneware and stoves. 207
18 Fontein, R., Franeker.—Roofing tiles. 208
19 Ravesteijn, H. F., Westraven.—Painted wall stone. 208
20 Bouvy, J. J. B. J., Dordrecht.—Glassware. 214

**Furniture and Objects of General Use in Construction and in Dwellings.**

22 Nooijen, L. J., Rotterdam.—Furniture and fancy articles. 217
23 Van Vliet, W. F., Gravenhage.—Chairs. 217
24 Lowman, J., Zwolle.—Folding screen. 217
25 Van der Lugt, Gravenhage.—Furniture and fancy articles. 217
26 Lommen, C. H., Roermond.—Painted and cut glass. 219
27 Grolman, C. W., Utrecht.—Picture frames. 220
28 Batenburg & Co., Rotterdam.—Lamps. 223
29 Cool, G. Thz., Amsterdam.—Mantels. 227

**Yarns and Woven Goods of Vegetable or Mineral Materials.**

31 Director of Prison, Utrecht.—Matting and rugs. 209
32 Ter Horst, J. H., Ryussen.
   a Jute matting. 229
   b Linen. 233
33 Aratzienius, Jannink, & Co., Goor.—Fish nets and yarn. 230
34 Hilversumsche Spinning & Weaving Manufactory, Amsterdam.—Spun and woven cotton goods. 230
35 Planteijdt, L., Krommenie.—Thread cloth and canvas. 230
36 Maas en Zonen, A. E., Scheveningen.—Fish nets. 230
37 Bottenheim, D. & S., Amsterdam.—Yarns. 230
38 Stork, C. F., Hengelo.—Colored woven goods. 231
39 Swinkelis, W., Helmond.—Yarns. 231
40 Veltman, J. A., jr., Amsterdam.—Covers and scarfs. 232
41 Veetman, J. A., Amsterdam.—Scarfs. 232
42 Elias, J., Strijp.—Table cloths, napkins, and dregs goods. 233
43 Nieuwenhuizen & Van Stratum, Geldrop.—Towels, napkins, and table cloths. 233

**Woven and Felted Goods of Wool, etc.**

44 Tiburg Woollen Manufacturing Co.—Flannels, opera cloaks, and fancy goods. 236
45 Zaalberg, J., Leyden.—Woolen covers. 237
46 De Lange, A. G., Delft.—Imitation Smyrna rugs. 239
47 Garjeanne, A. G., Delft.—Imitation Smyrna carpets. 239
48 Royal Carpet Manufactory, Deventer.—Deventer hangings. 239
49 Prins, M., Deventer.—Artificial wool and cowhair carpets. 239
50 Van Leer, B., Amersfoort.—Hangings. 239
51 Veelo, P. J., Gravenhage.—Sofa cloths. 241

**Silk and Silk Fabrics.**

52 Travaglino, P. J. & W. J. P., Haarlem.—Silks. 244

**Clothing, Jewelry, and Ornaments; Traveling Equipments.**

54 Wienbelt, W., Deventer.—Boots. 251
55 Costermans, C. J., Gravenhage.—Trunks, satchels, and bags. 255

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Minerais, Ores, Building Stones, and Mining Products.

<table>
<thead>
<tr>
<th>Minerai</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>quicksilver, lead, and hematite iron ores; sulphur, feldspar, quartz, porphyry, trachyte, obsidian, garnet rocks, talc, flinty schist.</td>
</tr>
<tr>
<td>Coal</td>
<td></td>
</tr>
<tr>
<td>Marble, granite, sandstone, syenite, diorite.</td>
<td></td>
</tr>
<tr>
<td>Limestone</td>
<td></td>
</tr>
<tr>
<td>Clayes, chalk bamboo.</td>
<td></td>
</tr>
</tbody>
</table>

### Metallurgical Products.

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold</td>
<td>from Soepayang.</td>
</tr>
<tr>
<td>Block tin</td>
<td></td>
</tr>
</tbody>
</table>

### Chemical Manufactures.

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutmeg soaps.</td>
<td></td>
</tr>
<tr>
<td>Indigo.</td>
<td></td>
</tr>
</tbody>
</table>

### Ceramics—Pottery, Porcelain, etc.

- Water jug. 

### Furniture and Objects of General Use in Construction and in Dwellings.

- Table, benches, rocking chairs, footstools.

### Yarns and Woven Goods of Vegetable or Mineral Materials.

- Mats, fabric of beaten bark.
- Native cotton thread.
- Native calico.

### Clothing, Jewelry, and Ornaments; Traveling Equipments.

- Native garments of silk, cotton, etc.
- Native caps, headkerchiefs, plaited hats, Chinese slippers.

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### NETHERLANDS EAST INDIAN COLONIES.

**COLLECTIVE EXHIBIT.**

Minerals, Manufactures.

---

Paper, Blank Books, and Stationery.

- Loeber, G., Amsterdam.—Stationery. 253
- Abrahams Bros., Middleburg.—Blank books. 261
- Simons, Ph., Gravenhage.—Bindings for maps, etc. 261
- Crâmer, H. G. D., Ootmarsum.—Pasteboard. 262
- Van der Burgh, M., Schiedam.—Imitations of marble and wood. 264
- Van der Burgh, A. R. & P., Rotterdam.—Imitations of marble and wood. 264
- Ripperman, C. J. F., Velzen.—Wood painting. 264
- Dobbe, J. P., Gravenhage.—Wood and marble painting. 264
- Kerkhoven, R., Utrecht.—Wood and marble painting. 264

**Weapons, etc.**

- Government Arm Manufactory, Delft.—Army rifle. 265
- Betou, J. P. de, Delft.—Breechloading rifle. 265

**Medicine, Surgery, Prosthesis.**

- Van de Loo, J. P. H., Venlo.—Plaster and bandages. 276
- Schokking, J. A. J., Amsterdam.—Conical tube for injections. 276
- Krol, W., Kampen.—Plasters and bandages. 276
- Mathijesen, A., Budel.—Plaster and bandages. 276
- Gori, M.W. C., Amsterdam.—Water and land conveyances for sick and wounded. 278
- Committee on Sick & Wounded Soldiers.—Work of the "Red Cross." 278

**Hardware, Edge Tools, Cutlery, and Metallurgical Products.**

- Erdman-Schmidt, J. D., Helmond.—Cast engraving plates. 280
- Enthoven, H. S., Zalt-Bommel.—Tinned iron kitchen utensils. 284
- Van Heukelom, H. C., Utrecht.—Machine screws. 284

**Fabrics of Vegetable, Animal, or Mineral Materials.**

- Reus, N., Pzn, Dordrecht.—House and ship brushes. 285

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**NETHERLANDS EAST INDIAN COLONIES.**

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Manufactures, Agricultural Products.

o Lace, silk embroideries, embroidered handkerchiefs, etc. 252
p Silver filigree necklace, brooches, earrings, and bracelets. 253
q Artificial flowers, lacquered boxes, cases, fruits, etc.: nutmeg-tree made of feathers; flower baskets, cigar cases, vases, box, native boat and sedan chair made of cloves, block mark, tortoise-shell covers, models of Malay dwelling, chapel, rice barns, baskets, ten-set of silver filigree work, etc. 254

Weapons, etc.

r Native weapons, small models of inland arms. 265
s East Indian weapons, creeses, swords, knives, sabres, head-choppers, blow pipes for arrows, arrows, and shields. (Loaned by His Majesty the King of the Netherlands.) 265

Medicine, Surgery, Prosthesis.

t Alkaloids from cinchona bark, quinuim, quinine, quinidine, cinchonine, cinchonidine, and cinchona powder; gum damar, catechu. 272

Hardware, Edge Tools, Cutlery, Metallic Products.

u Small models of inland tools. 280
v Rice knife. 281

Fabrics of Vegetable, Animal, or Mineral Materials.

w Ropes made of fibres of native trees and plants. 287
x Baskets, lacquered wooden box and trays. 289

Arboriculture and Forest Products.

y Cotton reeds; East Indian loom; trunks, roots, barks, etc., of various species of the cinchona tree; collection of native woods; leaves, fruit, and pulp of the vegetable tallow tree; samples of bamboo. 600
z Ebony, sapan, and fusicota woods. 601
a Gutta-percha, gutta-giang, gutta-soesoe, India-rubber, agar-agar, gum benjamin, camphor, dragon’s blood, vegetable tale, etc. 603
b Wild nuts, binaanoe, langa bidjan, lea- doeri flue seeds, sapo ranto, fruit, preserved wild nutmegs, etc. 605

Agricultural Products.

cc Rices, hallied, unhulled, and in the stalk; millet, dragong wheat. 620
dd Buitenboer and tarok roots. 622
ee Coffees, teas, cocoa, nutmegs, white and black peppiers, mace, cloves, tobacco. 623

Land Animals.

ff Birds of Paradise.

Marine Animals, Fish Culture and Apparatus.

gg Tripang fish. 641
hh Turtles. 643
ii Mother-of-pearl shells. 645

Animal and Vegetable Products.

jj Edible birds’ nests. 650
kk Tiger skins. 652
ll Wax. 654
mm Preserved victuals. 656
nn Arrow-root, sante, ketella, red obi, tales, arec, cassava, and potato flours. 657
oo Sago. 658
pp Sugars. 659
qq Arrack. 660
rr Kajoe-poeti, Macassar, and Tekawan oils. 662

Textile Substances of Vegetable or Animal Origin.

ss Kapok (cotton). cotton. 665
tt Ramie flax, leaves, etc.; oakum; fibrous materials from trees and plants; rattan, samanboe pipit, and samanboe besar reeds. 666
uu Imitation clove-tree. 709

2 Berneolot, Moens, J. C.—Herbarium exhibiting the cinchona cultivation in Java. 721

3 Noordendorp, J., Amsterdam.—Photographs of the government chincho na establishments, and the Bouda Temple at Boro Bodor. 430

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DENMARK.

(South of Nave, Columns 11 to 13.)

Manufactures, Education and Science.

Chemical Manufactures.
1 Aalborg Chemical Works, Aalborg. —Bicarbonate and carbonate of soda. 200
2 Holmblad, L. P., Copenhagen.—Stearine candles. 201
3 Guldberg, C. Høegh, Copenhagen.—Varnish, and wood polished with it. 202
4 Hansen, C., Copenhagen.—Cheese rennet extract and coloring fluid; butter coloring. 202
5 Meyer & Henckel, Copenhagen.—Butter and cheese coloring, cheese rennet extract, varnishes. 202
6 Riise, A. H., St. Thomas, West Indies.—Double-distilled bay spirit and oil of bay leaves. 203
7 Odense Match Factory, Odense.—Matches. 204

Ceramics—Pottery, Porcelain, Glass, etc.
8 Hesse, Georg W., Copenhagen.—Terra-cotta vases, jugs, etc. 206
9 Ipsen's, P., widow, Copenhagen.—Terra-cotta vases, tazzas, figures, etc. 206
10 Wendrich & Son, Copenhagen.—Terra-cotta bas-reliefs, bowls, vases, etc. 206
11 Royal Porcelain Manufactory, Copenhagen.—Biscuit bas-reliefs after Thorwaldsen, exhibited by the Commissioner. 212
12 Argentine Manufactory, Copenhagen.—Porcelain covered with copper, silver, and gold. 213

Furniture and Objects of General Use in Construction and in Dwellings.
13 Hansen, C. B., Copenhagen.—Furniture. 217
14 Meidel, F., Copenhagen.—Fire-proof safes. 217
15 Christesen, V., Copenhagen.—Silverware; large table ornament of silver, representing Art, Science, and Industry; tea and coffee sets, etc. 218
16 Stenstrup, Copenhagen.—Sign painting. 217

Yarns and Woven Goods of Vegetable or Mineral Materials.
17 Ramsing, Th., Aarhus.—Dyed linen fabrics. 233

Woven and Felted Goods of Wool and Mixtures of Wool.
18 Müller, H., Faroe Islands.—Woolen goods. 235

Clothing, Jewelry, and Ornaments; Traveling Equipments.
19 Müller, C., Copenhagen.—Waterproof oil clothing. 250
19a Sorensen, C. P., Copenhagen.—Hand-sewed black coat, waistcoat, and pantaloons. 250
20 Larsen, N. F., Copenhagen.—Gloves. 251
21 Christesen, V., Copenhagen.—Jewelry and ornaments. 253
22 Assam, H. M., Odense.—Tobacco pipes, etc. 254
23 Ovre, Mrs., Copenhagen.—Artificial flowers. 254

Paper, Blank Books, Stationery.
24 Holmblad, L. P., Copenhagen.—Playing cards. 262
25 Hansen, Carl, & Co., Ebeltoft.—Impregnated pasteboard. 262

Hardware, Edge Tools, Cutlery, and Metallic Products.
25a Engelbrecht, C., Copenhagen.—Pair of water-skates. 261

Educational Systems, Methods, and Librarians.
1 Hveisel, G., Randers.—School maps. 300
2 Simonsen, C., Copenhagen.—"Punch," an illustrated paper. 306
3 Steenberg, A., Copenhagen.—"Industridræmmer," an industrial paper. 306

Institutions and Organizations.
4 Browning, Georg, Copenhagen.—Ethnographical collection, products, minerals, etc., from Iceland and Faroe Islands. 312
5 Müller, H., Faroe Islands.—Collection of birds, feathers, eggs, etc. 312
6 Harboe, C., Copenhagen.—Ethnographical collection; products, minerals, etc., from Greenland. 312

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Scientific and Philosophical Instruments and Methods.
7 Bie, C., Aalborg.—Arithmetic.
8 Ferslew, C., & Co., Copenhagen.—Register for cars, etc.

Engineering, Architecture, Maps, etc.
9 The Royal Staff, Copenhagen.—Topographical maps.
10 Steen, C., & Son, Copenhagen.—Geographical, historical, meteorological, and other maps.

Sculpture.
10\(^{a}\) Fjeldskov, V., Copenhagen.—Carving in wood, statuettes, medals, etc.

Painting.
10\(^{b}\) Ferslew, C., & Co., Copenhagen.—Lithographs.

Industrial and Architectural Designs, etc.
10\(^{c}\) Hetsch, Chr., Copenhagen.—Architectural designs.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.
1 Ambrosiussen, O. P., Copenhagen.—Model of a scaffold.

Machines and Implements of Spinning, Weaving, Felting, and Papermaking.
2 Tullesen, P., Lyngby.—Hair-braiding machine.

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.
3 Henriksen, H., Copenhagen.—Sewing machine.

Machines for Printing, Making Books, Paper-working, etc.
4 Hansen, R. Malling, Copenhagen.—The tachygraph, operated by electricity, and the type-writing ball, operated by hand.

Motors, Power Generators, etc.
5 Godfredsen, R., Copenhagen.—Belt ing, etc., for transmission of power.

 Arboriculture and Forest Products.
1 Halkier, P. A., Copenhagen.—Timber, planks, boards, rough and finished, for buildings, etc.

Agricultural Products.
2 Wendt, Frantz, Roeskilde.—Rye, winter and spring wheat, barley, and oats.

Animal and Vegetable Products.
3 Danish Preserved Butter Co., Aarhus.—Canned butter for export.
4 Heymann, P. W., Copenhagen.—Preserved butter for export, also butter which was at the Vienna Exposition in 1873.
5 Copenhagen Leather Manufactory, Copenhagen.—Consolidated leather soles, heels, sheets, etc.
6 Pork Packing Co., Copenhagen.—Lard packed in bladder.
7 Eriksen, C., Lyngby.—Honey and wax.
8 Müller, P. A. E., Copenhagen.—Honey and wax.
9 Herreborg, Otto, Copenhagen.—Preserved fruit, vegetables, jellies, etc.
10 Bröndum, A., Copenhagen.—Corn brandy and table liquor.
11 Aalborg Syrup & Spirit Factory, Aalborg.—Table liquor and spirit.
12 Anthony, F., Copenhagen.—Brandy and liquors.
13 Been, C. A., Copenhagen.—Liquors, etc.
14 Gottschalk, I. C., Holbek.—Essences.
16 Heering, Peter F., Copenhagen.—Cherry cordial.
17 Lorenzen, L., Aarhus.—Bitters.
18 Odin Distillery, Randers.—Corn brandy flavored with caraway seeds, table liquor, and rectified spirit.
19 Sabro, I. C., Randers.—Bitters, etc.
19\(^{a}\) Farch, J., & Sons, Nibe.—Alcohol, raw spirits, and brandy.
20 Schucani & Wegmann, Copenhagen.—Liquors, bitters, etc.
21 Svanholm Brewery, Copenhagen.—Beer for export.
22 Ramsing, T., Aarhus.—Chocolate.

Textile Substances of Vegetable or Animal Origin.
23 Müller, H., Faroe Islands.—Wool.

Machines, Implements, and Processes of Manufacture.
24 Schütz, Thurebyholm.—Model of milk cooler.

Agricultural Engineering and Administration.
25 Aalborg Chemical Works, Aalborg.—Artificial bone manure.
# SWEDEN.

**(North of Nave, Columns 6 to 11.)**

## Chemicals, Ceramics, Furniture.

### Chemical Manufactures.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aseptin Amykos Stock Co.</td>
<td>Upsala</td>
<td>for preservation of provisions and animal materials.</td>
</tr>
<tr>
<td>3</td>
<td>Friestedt, A. W., Stockholm.</td>
<td>—</td>
<td>Chemicals.</td>
</tr>
<tr>
<td>4</td>
<td>Gulberg Stock Co. (limited), Göteborg.</td>
<td>—</td>
<td>Sulphuric acid.</td>
</tr>
<tr>
<td>6</td>
<td>Sjoberg, A. P., Malmö.</td>
<td>—</td>
<td>Soaps.</td>
</tr>
<tr>
<td>7</td>
<td>Werner, C. O., Stockholm.</td>
<td>—</td>
<td>Bone oil.</td>
</tr>
<tr>
<td>8</td>
<td>Strandberg, Fr. Aug., Jönköping.</td>
<td>—</td>
<td>Varnishes, ink.</td>
</tr>
<tr>
<td>10</td>
<td>Pauli F., Stockholm.</td>
<td>—</td>
<td>Essences, perfumery, cosmetics.</td>
</tr>
<tr>
<td>11</td>
<td>New Match Manufacturing Co. (limited), Stockholm.</td>
<td>—</td>
<td>Safety matches.</td>
</tr>
<tr>
<td>14</td>
<td>Gusta Match Manufactory, Stockholm.</td>
<td>—</td>
<td>Paraffined safety matches.</td>
</tr>
<tr>
<td>15</td>
<td>Holmberg, Eric, Södertelje.</td>
<td>—</td>
<td>Safety matches.</td>
</tr>
<tr>
<td>16</td>
<td>Jönköping Match Manufacturing Co. (limited), Jönköping.</td>
<td>—</td>
<td>Safety matches.</td>
</tr>
<tr>
<td>18</td>
<td>Ellbo Göteborg Match Factory, Göteborg.</td>
<td>—</td>
<td>Matches.</td>
</tr>
<tr>
<td>20</td>
<td>Lover Manufacturing Co. (limited), Kalmar.</td>
<td>—</td>
<td>Matches.</td>
</tr>
<tr>
<td>21</td>
<td>Norrköping Match Manufacturing Co. (limited), Norrköping.</td>
<td>—</td>
<td>Safety matches and appartenances.</td>
</tr>
<tr>
<td>22</td>
<td>Stregnas Match Manufacturing Co. (limited), Stregnäs.</td>
<td>—</td>
<td>Safety matches.</td>
</tr>
<tr>
<td>23</td>
<td>Pheonix Match Manufacturing Co. (limited), Malmö.</td>
<td>—</td>
<td>Matches.</td>
</tr>
<tr>
<td>24</td>
<td>Vulcan Match Manufacturing Co. (limited), Göteborg.</td>
<td>—</td>
<td>Matches.</td>
</tr>
</tbody>
</table>

### Ceramics—Pottery, Porcelain, Glass, etc.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>Westervik Match Factory, Westervik.</td>
<td>—</td>
<td>Matches.</td>
</tr>
<tr>
<td>36</td>
<td>Wisby Match Manufacturing Co. (limited), Wisby.</td>
<td>—</td>
<td>Matches.</td>
</tr>
<tr>
<td>37</td>
<td>Ystad Match Manufacturing Co. (limited), Ystad.</td>
<td>—</td>
<td>Safety matches.</td>
</tr>
</tbody>
</table>

### Glasses.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Helsingborgs Iron and Stone Ware Manufacturing Co. (limited), Helsingborg.</td>
<td>—</td>
<td>Salt glazed clay goods.</td>
</tr>
<tr>
<td>39</td>
<td>Höganas Coal Mining Co., Höganas.</td>
<td>—</td>
<td>Fire clay goods.</td>
</tr>
<tr>
<td>40</td>
<td>Röstras Ströck Co. (limited), Stockholm.</td>
<td>—</td>
<td>Tiles for pavements.</td>
</tr>
<tr>
<td>42</td>
<td>Röstrands Stock Co. (limited), Stockholm.</td>
<td>—</td>
<td>Majolica and palissy ware.</td>
</tr>
<tr>
<td>44</td>
<td>Brusewitz, Fr., Limmared.</td>
<td>—</td>
<td>Glassware.</td>
</tr>
<tr>
<td>45</td>
<td>Reymyre Glass Factory (limited), Reymyre.</td>
<td>—</td>
<td>Glassware.</td>
</tr>
</tbody>
</table>

### Furniture and Objects of General Use in Construction and in Dwellings.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Göbris Manufactoring Co. (limited), Huddinge.</td>
<td>—</td>
<td>Cottage furniture.</td>
</tr>
<tr>
<td>51</td>
<td>Lastbom, Iven, Stockholm.</td>
<td>—</td>
<td>Cupboard of birchwood.</td>
</tr>
<tr>
<td>52</td>
<td>Peterson, C. E., Stockholm.</td>
<td>—</td>
<td>Table.</td>
</tr>
<tr>
<td>54</td>
<td>Rusch, P. O., Göteborg.</td>
<td>—</td>
<td>Japanned furniture.</td>
</tr>
<tr>
<td>56</td>
<td>Sandberg, A. Cook, Stockholm.</td>
<td>—</td>
<td>Writing chair.</td>
</tr>
<tr>
<td>57</td>
<td>Wahlström, S. Fr., Stockholm.</td>
<td>—</td>
<td>Willow furniture.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### DEPT. II.—MANUFACTURES.

| 57 Osterberg, C. G., Jäder, Eskilstuna.— | 94 Malmö Woolen Manufacturing Co. (limited), Malmö.—Card-wool fabrics. 233 |
| 58 Bruzewitz, Fr., Limmared.—Table glass. | 95 Stockholm Woolen Manufacturing Co. (limited), Stockholm.—Woven and felted goods of wool. 233 |
| 59 Goldsmiths' Stock Co. (limited), Stockholm.—Silver tankard. 218 |
| 60 Gustafsberg Manufacturing Co., —Table china. 218 |
| 61 Reymyra Glass Factory (limited), Stockholm.—Table glass. 218 |
| 62 Rörstrand Stock Co. (limited), Stockholm.—Table china. 218 |
| 63 Stoves. 222 |
| 64 Bolinders, J. & C. G., Machine Co. (limited), Stockholm.—Heating apparatus. 222 |
| 65 Stove for smoothing-irons. 225 |
| 66 Hedengren, A. F., & Son, Eskilstuna.—Stove sets. 222 |
| 67 Eriksson, G., Eskilstuna.—Brass doors for stoves. 222 |
| 68 Moberg Machine Co., Stockholm.—Range. 222 |
| 73 Elyfing, C. E., Stockholm.—Apparatus for cutting lamp wicks. 223 |
| 74 Kuntze & Co., Stockholm.—Water filters, refrigerators. 224 |
| 74a Kallinge Iron Works, Ronneby.—Kitchen utensils of iron and steel sheets. 224 |
| 75 Lafleet, J. A., Eskilstuna.—Smoothing-irons. 225 |
| 76 Björk, J. O., Eskilstuna.—Hardware of milled iron. 227 |
| 77 Dickson, James, & Co., Sandarne.—Woodwork for buildings. 227 |
| 78 Essen, Baron H. H. von, Tidaholm.—Woodwork for buildings. 227 |
| 79 Hedlund, J., Eskilstuna.—Metal work for buildings. 227 |
| 82 Wengström, J. O., Stockholm.—Manufactured parts of buildings. 227 |

#### Yarns and Woven Goods of Vegetable or Mineral Materials.

| 83 Anderson, J., Kjärdingagärde, Gnosjö.—Wire and sieve cloth. 228 |
| 84 Berg, J. Th., Näsil, Floda. | 94a Clarborg, T. A., Stockholm.—Jewel case. 224 |
| a Cotton yarns. 230 |
| b Dyed cotton yarn. 231 |
| 86 Malmö Manufacturing Co. (limited), Malmö.—Cotton yarns. 230 |
| c Dyed cotton fabrics. 231 |
| 87 Rosenlunds Spinning Co. (limited), Göteborg.—Cotton yarns and fabrics. 230 |
| 89 Johansson & Carlander, Göteborg.—Calicoes. 232 |
| 90 Stenberg's, G., Widow, Jönköping.—Linen fabrics. 233 |

#### Woven and Felted Goods of Wool, etc.

| 91 Bergsbro Stock Co., Norrköping.—Card-wool fabrics. 235 |
| 92 Drag Stock Co. (limited), Norrköping.—Card-wool fabrics. 235 |
| 93 Landskrona Manufacturing Co., Landskrona.—Card-wool fabrics. 235 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

### Silk and Silk Fabrics.

| 96 Almgren, K. A., Stockholm.—Plain woven silks. 274 |

#### Clothing, Jewelry, and Ornaments; Traveling Equipments.

| 98 Ek, J. A., Stockholm.—Military equipments. 230 |
| 99 Fernlund, E. F., Stockholm.—Military and civil clothing. 230 |
| 100 Heurlin, G. U., & Co., Stockholm.—Military clothing. 230 |
| 101 Royal War Office, Department of Investment, Stockholm.—Complete equipment of foot and mounted soldiers; specimens of cloth, linen, etc. 230 |
| 103 Swedmark, G., Malmö. | 103a Clarborg, T. A., Stockholm.—Jewel case. 224 |
| a Leather jackets. 250 |
| b Gloves. 251 |
| 104 Wallgren, A. R., Stockholm.—Military clothing. 230 |
| 105 Forsell, David, & Co., Stockholm.—Hats and caps. 251 |
| b Furs. 256 |
| 106 Jacobson & Anderson, Malmö.—Gloves. 251 |
| 107 Svanberg, C. E., Jönköping.—Shoes. 235 |
| 109 Tornberg, Olof, Göteborg.—Boots and shoes. 235 |
| 110 Odberg, C. R., Stockholm.—Hunting boots. 235 |
| 111 Peterson, C. E., Stockholm.—Embroidered portrait of Washington. 232 |
| 112 Klintberg, J. W., & Co., Wisby.—Jewelry made of petrifications. 253 |
| 113 Anderson, J., Kjärdingagärde, Gnosjö.—Pins. 234 |
| 114 Berg, F. J., Göteborg.—Wigs, braids, and chinstraps. 254 |
| 114a Clarborg, T. A., Stockholm.—Jewel case. 224 |
| 115 Bagström, P. N., Stockholm.—Furs. 256 |
| 118 Royal Swedish Commission, Stockholm.—Life-size figures, dressed in national costume. 237 |

#### Paper, Blank Books, Stationery.

| 119 Berggren, A. N., Stockholm.—Pens and holders of cork. 238 |
| 120 Brunell, J. E., Stockholm.—Pens and holders of common reed. 238 |
| 121 Klintberg, J. W., & Co., Wisby.—Letter-presses of petrifications. 238 |
| 122 Kullgren's, C. A., Widow, Uddevalla.—Letter-presses of polished granite. 238 |
| 123 Nordström, M. S., Stockholm.—Stamps for marking on linen or paper. 238 |
| 125 Munkell, J. H., Grycksbo, Falun. | 125a Clarborg, T. A., Stockholm.—Jewel case. 224 |
| a Filtering paper. 250 |
| b Wood pulp. 256 |
127 Nynäs Pasteboard Factory, Nynäs, Mavida.—Pasteboard. 260
129 Lewenhaupt, Count, Sten, Wermbohl, Katrineholm.—Wood pulp, chemically prepared. 260
130 Malmö Wood Pulp Manufacturing Co. (limited), Delaryd, Elnhult.—Wood pulp, chemically prepared. 260
131 Munkedal Manufacturing Co. (limited), Uddevalla. a Wrapping, bagging, and sketching paper. 260
b Building papers. 263
c Wall paper. 264
132 Munksjö Paper Factory, Jönköping.—Wrapping paper. 260
133 Rosendahl Manufacturing Co., Göteborg.—Paper pulp of wood and straw, paper. 260
134 Wargöns Stock Co., Rannum.—Printing paper for newspapers. 260
135 Litografiska Stock Co., Norrköping. a Blank books, sets of account books, billheads, etc. 261
b Playing cards. 262
136 Tidström, C. W., Stockholm.—Account books, portfolios. 261
137 Djupafors’ Manufacturing Co. (limited), Romneby, Djupafors.—Pasteboard; building paper. 262
138 Köhler & Co., Malmö.—Playing cards. 262
140 Munksjö Paper Mill, Jönköping.—Building paper. 263
141 Edgren, Julius, Jönköping.—Wall paper. 264
142 Kaberg, C. A., Stockholm.—Wall paper. 264
143 Mineur, C. G., Stockholm.—Wall paper, imitation of leather, and ornaments of wood pulp. 264
145 Rosell, P. A., & Co., Jönköping.—Wall paper. 264

Weapons, etc.

146 Husqvarna Arms Manufacturing Co. (limited), Jönköping. a Military small arms, muskets, and revolvers. 265
b Fire arms for sporting and hunting. 269
147 Royal War Office, Artillery Department, Stockholm. a Military small arms from the royal factory at Carl Gustafs Stad. 265
b Field gun with carriage, ammunition carriage, field forge. 266
c Fortification ordnance with carriage and shots. 267
148 Motala Mechanical Works Co. (limited), Motala.—Hoops for guns. 266
149 Palmantz, Helge, Stockholm.—Mitrailleuse. 266
150 Ekman, Carl, Finspong & De Maré, A., Ankarsrum.—Steel guns and shot. 267
151 Eskilstuna Iron Manufacturing Co. (limited), Eskilstuna.—Blades of swords, sabres, foils, and hunters’ hangers. 263
153 Norrström, C. A. & C. H., Eskilstuna.—Hunting knives. 268

Medicine, Surgery, Prothesis.

154 Pittz, G., Stockholm.—Medicated gelatine. 272
155 Lamm, Axel, M., Stockholm.—Galvano-caustic apparatus, gynecological apparatus. 273
156 Royal War Office, Sanitary Department, Stockholm.—Surgical instruments for military use. 276
157 Stille, Alb., Stockholm.—Surgical instruments. 276
158 Zander, G., Stockholm.—Apparatus for mechanical gymnastics. 276

Hardware, Edge Tools, Cutlery, and Metallio Products.

159 Eskilstuna Iron Manufacturing Co. (limited).—Screw plates and hinges. 280
160 Liberg, B. & O., Rosenfors. a Edge tools. 280
b Cutlery. 281
161 New File Manufactory, Eskilstuna.—Files. 280
162 Oberg, C. O., & Co., Eskilstuna.—Files. 280
163 Fagersta Iron & Steel Works, Westanfors. a Saws. 280
b Nails. 284
164 Uddeholm Stock Co. (limited), Räda. a Hand tools. 280
b Springs and hardware. 284
165 Engström, Joh., Eskilstuna.— Razors. 281
166 Gustafson, G., Eskilstuna.—Knives. 281
167 Halling, A., Eskilstuna.—Knives. 281
168 Heljestrand, Christoffer, Eskilstuna.—Razors, knives, and corkscrews. 281
169 Stählberg, L. F., Stählfors.—Cutlery. 281
170 Svalling, E. M., Eskilstuna.—Knives. 281
171 Söderén, F. W., Eskilstuna.—Knives. 281
172 Hedlund, Joh., Eskilstuna.—Locks. 284
173 Jernberg, S., Eskilstuna.—Latches. 284
174 Låfqvist, J. A., Eskilstuna.—Hinges. 284
175 Lagerbäck, H., Eskilstuna.—Locks. 284
178 Stenman, F. A., Eskilstuna.—Locks. 284
179 Strandberg, J., Eskilstuna.—Brass. 284
181 Wallén, Joh., Eskilstuna.—Locks. 284
182 Johnson, A. & Co., Stockholm.—Cart springs. 284

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
DEPT. II.—MANUFACTURES.

Metal, Leather, Wooden Ware.

183 Kallinge Iron Works, Ronneby.—Nails. 284
183 a New Gellivara Co. (limited), Luleå.—Nails. 284
184 Robson, Albert, Aspa, Askersund.—Oak spikes. 284
185 Sundström, J. O., Charlottenberg.—Nails. 284
187 Wiklund, W., Stockholm.—Brass hardware. 284

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
NORWAY.

(North of Nave, Columns 4 to 7.)

Textiles, Ceramics, Woven Goods, Clothing.

Chemical Manufactures.
1 Bergen Gas Works, Bergen.—Sulphate of ammonia, raw and refined. 200
1a Bergen's Commercial Association, Bergen.—Cod-liver oil. 201
2 Borthen, J., Trondhjem.—Medical cod-liver oil. 201
3 Hanssen, F., Aalesund.—Medical cod-liver oil. 201
4 Devold, L. C., Aalesund.—Medical cod-liver oil. 201
4a Henriksen, J. H., Tromsø.—Medical cod-liver oil. 201
5 Jordan, C., Trondhjem.—Medical cod-liver oil. 201
6 Moller, Peter, Christiania.—Cod-liver oil. 201
6a Bordewick & Co., Lynævors.—Medical cod-liver oil. 201
7 Steen, Daniel, Christiania.
   a Soaps. 201
   b Essences, perfumery, pomades, cosmetics. 203
8 Holmen's, G. R., Technical Works, Fuglesang, Christiania.—Writing ink, aseptine, diamond oil blacking, grease for leather. 202
10 Rode, C. N., Porsgrund.—Scandinavian ink, writing and copying, dark violet-copying ink. 202
11 Pettersen, Andr., Bergen.—Hair dressing and perfumery. 202
12 Don°, Henrik, Christiania.—Matches from Bryn manufactory. 204
16 Jolsen, H., Match Manufactory, Christiania.—Matches. 204
17 Nitedals Match Manufactory, Christiania.—Safety and common matches. 204
(For fish oil, see Agricultural Catalogue, page 61.)

Ceramics—Pottery, Porcelain, Glass, &tc.
17a Havven's Works, Christiania.—Tiles and bricks. 206
18 Schwarzenhorn, Fr. von, Christiania.—Painted and decorated porcelain. 213
19 Hurdal, Biri, Hadeland & Hövik's Glass Works.
   a Window glass. 214
   b Bottles. 215
   c Glassware. 216
20 Bergen's Glass Works.—Floaters. 215

Furniture and Objects of General Use in Construction and in Dwellings.
21 Gram, Wm., Christiania.
   a Antique bedstead and cupboards. 217
   b Antique brass and copper dishes. 218
   c Candlesticks. 223
22 Holst, Chr., Head Steward to His Majesty the King, Christiania.—Buffet chairs, antique arm chairs, peasant chairs. 217
23 Klemetsen, Chr., Christiania.—The fittings of the Norwegian section. 217
24 Moestue, Thv., & Co., Christiania.—Iron safe. 217
25 Opstahl, P. J., Christiania.—Iron sales. 217
28 Drammen Foundry and Mechanical Works, Drammen.—Stoves. 222
29 Nord & Son, M. E., Christiania.—Refrigerator. 224
30 O. Jacobsen's Mechanical Works, Christiania.—Mechanical mangle. 225
(For stoves, see page 83.)
(For door-handles, see page 83.)

Yarns and Woven Goods of Vegetable or Mineral Materials.
31 Christiania Sail Cloth Manufactory, Christiania.—Sail cloth, fishing yarns, etc. 330
32 Nydalens Company, Christiania.—Cottons, sail cloth, tissues, and yarns, fishing nets, etc. 230
34 Eche, J. D., & Son, Bergen.—Floor oil cloths and painted window blinds. 234

Woven and Felted Goods of Wool and Mixtures of Wool.
36 Pettersen, Gunerius, Christiania.—Textile domestic industry; valises. 238

Clothing, Jewelry, and Ornaments; Traveling Equipments.
40 Falkenberg, Johs., Christiania.—Ready-made linen. 256
41 Næss, H. S., Christiania.—Boots and shoes. 251
42 Nordahl, Petter N., Christiansand.—Boots. 251
43 Falck-Yster, Christiania.—Snow shoes. 251
44 Gramm, Wm., Christiania.
   a Collection of antique and modern silver ornaments worn upon the person. 257
   b National costumes from Hardanger. 257

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Fancy Goods, Paper, Hardware, Carriages, Machinery.

45 Lie, P. A., Christiania.—Silver filigree work in Norwegian style. 233
45a Olsen, Tn., Bergen.—Filigree silver ornaments. 253
46 Tostrup, J., Christiania.—Silver work; silver filigree work in specific Norwegian style. 253
49 Kittelsen, Jens, Christiania.—Valises. 255
50 Brandt, C., Bergen.—Furs, skins, etc. 256
51 Rustad, A. S., Drammen.—Collection of Norwegian furs. 256

Paper, Blank Books, and Stationery.
53 Haneborg, A. O., Christiania.
   a Paper. 260
   b Wood pulp for paper manufacturing. 263
54 Moestue, Thw., & Co., Christiania.
   a Account books. 261
   b Pasteboard boxes. 262
55 Christophersen, Chr., Christiania.—Wood pulp for paper manufacturing. 263
56 Frolich, F. H., & Son, Christiania.—Paper hangings and borders. 264

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.
57 Gram, William, Christiania.—Antique weapons. 268

Medicine, Surgery, Prosthesis.
58 Ditten, H. S., Christiania.—Aperient tonic pills, tourist pharmacies. 272

Hardware, Edge Tools, Cutlery and Metallic Products.
58a Bennett, T.—Cutlery and carved goods. 261
59 Michelsen, John B., Bergen.
   a Cutlery. 261
   b Brass goods. 283
   c Carvings in wood and walrus teeth. 405
59a Smith, William.—Knives with carved handles. 281
60 Blunck, C., Christiania.
   a Metal hollow ware, cast iron ware. 283
   b Pumps. 500
   c Fire engines. 564
61 Krogstad Society, Drammen.—Nails and spikes, machine-made by hot and cold process. 284
61a Opsahl, P. J., Christiania.—Locks. 284

(For anchors, chains, and stoves, see page 80.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Fabrics of Vegetable, Animal, or Mineral Materials.
65 Fredriksvorn Rope Manufacturing, Fredriksvorn.—Cordage. 287
66 Kuhne, W., Christiania.—Basket ware. 289

Carriages, Vehicles, and Accessories.
67 Heffermehl, L., Drammen.
   a Carriages (kariols). 292
   b Racing sledge. 295
68 Sorensen & Klovstad, Christiania.—Carriages (kariols). 292
69 Christensen, Chr., Christiania.
   a Kariol. 292
   b Antique sleigh. 295
70 Falck-Vester, Christiania.—Fisher- man's ice sleigh. 293

Motors, Power Generators, etc.
71 Gjerdrum, Otto, Christiania.—Model of self-acting smoke-consuming apparatus for boilers. 590
72 Klem Hansen & Co., Trondheim.—Bettiing. 553
73 Roed Works, near Sandefjord.—Rotating steam-engine with boiler and feed-water heater. 554

Hydraulic and Pneumatic Apparatus.
74 Blunck, C., Christiania.
   a Pumps. 560
   b Fire-engines. 564

Aerial, Pneumatic, and Water Transportation.
75 Arents, Hjalmar, Christiania.—Models and drawings of iron ships. 594
76 Board of Commerce, Aslesund.—Models of fishing boats. 594
77 Brandt, J., Christiania.—Drawings and models of sailing vessels. 594
78 Brunchorst & Dekke, Bergen.—Models of sailing vessels. 594
79 Gran, Jens, Bergen.—Models of sailing vessels. 591
80 Hansen, Carl A., Porsgrund.—Models and drawings of sailing vessels. 594
81 Museum of Bergen, Bergen.—Models of fishing boats. 594
82 Naval Establishment of Carl Johans- vorn, Horten.—Models of boats. 594
## Chemical Manufactures.

2. Salinella, Baron Michele, Niclosia, Catania. — Rock salt. 
5. Giacomazzi, Rocco, Trapani. — Liquorice. 
10. Romano, Gaetano, Palermo. — Salt. 
11. Ferrino, Cesare, Turin. 

### a. Nitrate. 

### b. Colors in powder and paste. 


### 26. Scuderi, Giuseppe, Catania. — Cream of tartar, zamba. 
27. Rampazzini, Frederico, Milan. — Sulphur and chemicals. 
32. Mingori, Vincenzo, Lucca. — Olive oil. 
33. Tellini, Vincenzo, Calci, Pisa. — Olive oil. 
34. Tellini, Dario, & Co., Cascina, Pisa. — Olive oil soap. 
35. Bonei, Casuccini Ottavio, Sienna. — Olive oil. 
37. Lanza Bros., Turin. — Stearine, candles, soap. 
38. Rinaldo, Raffaello, Salerno. — Olive oil. 
40. Virgili, Angelo, Vacone, Perugia. — Olive oil. 
41. Rosselli Del Turco, Pier Francesco, Florence. — Olive oil. 
42. Capponi, Conti Bros., Florence. — Olive oil. 
43. Alli Maccarani Claudio, Florence. — Olive oil and paste of Zanza. 
44. Corsini, Prince Tommaso, Florence. — Olive oil. 
45. Merlini, Alfonso, & Enrico Bros., Terricciola, Pisa. — Olive oil. 
46. Farinola, M. Paolo, Florence. — Olive oil. 
47. Albergetti, Geo., & Agostino Bros., Arezzo. — Olive oil. 
49. Chamber of Commerce & Arts, Sienna. — Olive oil. 
50. Saracini, Alessandro, Sienna. — Olive oil. 
52. Ricasoli, Baron Bettino, Florence. — Olive oil.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Chemicals, Ceramics.

53 Botti, Alessandro, Chiavari, Genoa. —Olive oil. 201
54 Calamari, Pietro, Milan. —Soaps. 201
55 Gianoli Bros., Milan.—Soaps. 201
56 Giuffrida, Leotta Giovanni, Catania. —Oil of sweet almonds. 201
57 Merlo, Baron Vincenzo, Palermo. —Olive oil. 201
58 Sciaccia della Scala, Baron, Palermo. —Olive oil. 201
59 Martines, Filippo, Palermo. —Olive oil. 201
60 Ingaggiato, Baron Croce, Palermo. —Olive oil. 201
61 Pacchiani, Eliseo, Passignano, Umbria. —Olive oil. 201
62 Rossi, Leopardi Cav. Cesare, Comiso, Syracuse.—Soaps. 201
63 Fazio, Domenico, Palermo.—Olive oil. 201
64 Galli, Cesare, Florence.—Olive oil. 201
65 Fiacciente, Francesco, Bari.—Olive oil. 201
66 Agrarian Committee for Thirty Exhibitors, Florence. —Olive oil. 201
67 Jatta, Antonio, Ruvo di Puglia. —Olive oil. 201
68 Chamber of Commerce & Arts, of Bari. —Olive oil. 201
69 Mazzulio, Cav. Luigi, Messina. —Olive oil. 201
70 Di Salvo, Salvatore, Messina. a) Olive oil. 201
b) Essences. 230
71 Agrarian Committee of Chiavari.—Olive oil, soap. 201
72 Marzi Bros., Poggibonsi, Sienna. —Olive oil. 201
73 Russo, Calogero, Termini, Palermo. —Olive oil. 201
74 Favaro, Marchese della, Palermo. —Olive oil. 201
75 Martillaro, Mar. Carlo, Palermo. —Olive oil. 201
76 Tucci-Savo Benedetto, Rome. —Olive oil. 201
77 Agosti Brothers, Bagnoria, Rome. —Olive oil. 201
78 Marini, Marq. Pietro, Rome.—Olive oil. 201
79 Rotali, Francesco, Rome.—Olive oil. 201
80 Isnardi, Pierre, Leghorn.—Olive oil. 201
81 Conti, E., & Sons, Leghorn.—Soaps. 201
82 Tarussi, Luigi, & Bros., Leghorn.—Olive oil. 201
83 Generosi, Felice, & Sons, Naples.—Soaps. 201
84 Anselmi & Marassi, Naples.—Oils. 201
85 Rocco, Francesco, Catania.—Olive oil. 201
86 Rolando, Giacomo, Modena.—Ink. 202
87 Mora, Domenico, Turin.—Chesnut extract for dyeing. 202
88 Morandi, Pietro, Milan.—Ink. 202
89 Bassolino, Vincenzo, Milan.—Various colors. 202
90 Bonacina, Cesare, Milan. a) Varnishes, ink. 202
b) Aromatic tooth paste. 203
91 Maranesi, Gaetano, & Masetti Bartolomeo, Bologna.—Ink. 202
92 Gnocchi, Giovanni, Milan.—Inks. 202
93 Sarselli, Benedetto, Rome.—Gru- ma, incrustation from cake. 202
94 Micolbelli Bros., S. Giovanni in Persiceto, Bologna.—Varnish. 202
95 Santi, Amantini, Adamo, Florence.—Perfumery. 203
96 Lardera, A., Milan.—Perfumery. 203
97 Cosentini & Caruso, S. Manno Marchesato, Calabria Citra.—Extract of liquorice. 203
98 Scocchiolini, Adone, Rome.—Pot- matum. 203
99 Pateguazza Bros., N. & A., Rome.—Perfumery. 203
100 Bortolotti, Pietro, Bologna.—Felsina water (for the toilet). 203
101 Antonelli, Cav. Alessandro, Bo- logna.—Essence of lemon. 203
102 Alessi & Bonaventura, Messina.—Essences. 203
103 Alessi, Gaetano, Messina.—Es- sences. 203
104 Ottaviani Bros., Messina.—Es- sences. 203
105 Rizzuto Carmelo, Reggio-Calabria.—Essences. 203
106 De Sieto Bros., Reggio-Calabria.—Essences. 203
107 Siles, Ignazio, Reggio-Calabria.—Essences. 203
108 Lacoria, Felice, Reggio-Calabria.—Essences. 203
109 Enological & Agrarian Society of Acireale, Sicily.—Essence of lemon. 203
110 De Nava, Giuseppe di P., Reggio- Calabria.—Essences. 203
111 Mostardini, Adolfo, Florence.—Perfumery. 203
112 Melissari, Giuseppe, Florence.—Essences. 203
113 Pennise, Baron di Floristallo, Ca- tania.—Boiled essence of lemon (agro). 203
114 Lavaggi, Francesco, Trofarello, Turin.—Matches. 204
115 Dellachi, Ambrogio, Moncalieri, Turin.—Wax and wood matches. 204

Ceramics—Pottery, Porcelain, Glass, etc.

116 Trojani, G. Batta, Florence.—Bas-relief in baked clay. 206
117 Pagliaccetti, Raffaello, Florence.—Statues in baked clay. 206
118 Stock Company for Manufacturing Bricks, Reggio, Emilia.—Bricks. 206

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 37-45.
Ceramics, Furniture, Woven Goods, Silk.

119 Tomei, Albani Franco, Pietrasanta, Lucca.—Sample of pavements. 238
120 Pellias, Giuseppe, Florence.—Galvan-o-plastic ornaments. 239
121 Bertini, Emilio, Pisa.—Crockery. 210
122 Miliani, Cesare, Fabriano, Ancona.—Crockery. 210
123 Torelli, Jafet, Florence.—Crockery. 210
124 Castellani, Torquato, Rome.—Crockery. 210
125 Ferniani, Count Annibale, Faenza.—Crockery. 210
126 Crockery Society of Farina, Faenza.—Artistic crockery. 210
127 Benucci & Latti, Pesaro.—Majori-vaes and dishes. 211

Furniture and Objects of General Use in Construction and in Dwellings.
128 Ammirati, Domenico, Palermo.—Chairs. 217
129 Lopez, Salvatore, Palermo.—Stone tables. 217
130 Coco, Salvatore, Palermo.—Ebony furniture. 217
131 Cavallaro, L. & G., Palermo.—Metallic beds. 217
132 Catalan, Antonio, Palermo.—Furniture. 217
133 Martiniotti, Luigi, Turin.—Cane and furniture. 217
134 Buzzi, G伯erto Francesco, Varesè, Lombardo.—Marble furniture. 217
135 Lancetti, Federico, Perugia.—Furniture. 217
136 Elli, Luigi, Milan.—Seats for theatre. 217
137 Fava, Avo, Niccolo, Florence.—Carved walnut furniture. 217
138 Castelvedere, Luigi, Brescia.—Metal candelaibra and chased dish. 218
139 Rolandi, G. Bato, Milan.—Crystals and glasses. 219
140 Grattarola, Cesare, Bologna.—Picture frames of other exhibitors’ pictures. (In Art Gallery.) 220
141 Pontifl, Olographic Society, Bologna.—Frames. 220
142 Sarettiere, Giuseppe, Palermo. Lamps. 223
143 Menici, Angiolo, Leghorn.—Show- er bath. 226
144 Della, Casa Nicola, Baveno, Nova- ra.—Granite cornice. 227
145 Bianchi & Molinari, Milan.—Wooden floor. 227
146 Vajani, Pietro, Milan.—Window blinds, curtains, etc. 227
147 Rizzi, Augusto, Milan.—Persian window blinds. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.
148 Vecchietti, Cesare, Florence.—Green-weed (ginestro) products. 229
149 Polidori, Count Augusto, Anghiari, Arezzo.—Prepared green-weed (ginestro). 229

150 Scurati, Manzoni de G., Biella, Novara.—Skein of cotton. 230
151 Assetto di Graziani Bros., Chieri, Turin.—Cotton goods. 230
152 Madini, Augusto, & Co., Bologna.—Seamless bags. 230
153 Gentiluomi, I. V., & Co., Pisa.—Col- ored cotton goods. 234
154 Meda, Bernardo, Monza, Milan.—Colored calico. 238
155 Alessio Bros., Milan.—Red calico. 231
156 Special Committee of Salerno.—Linen goods. 233
157 Remaggi Bros., Navacchio, Pisa.—Linen goods. 233

Woven and Felted Goods of Wool, etc.
158 Caulda, Salvatore, Palermo.—Cloths. 235
159 Mangeri, Antonino, Messina.—Cloths. 235
160 Barbaro Bros., Naples.—Cloths. 235
161 Radier Bros., Gandino, Bergamo.—Felted flannel and cloth. 235
162 Barbaro, Antonio, Peluzzano, Salerno.—Cloths. 235
163 Correction Department of Saliceto, Modena.—Cloths. 235
164 Assetto di Graziani Bros., Chieri, Turin.—Blankets. 237
165 Chapelle & Co., Turin.—Woolen blankets. 237
166 Bass, Abrate, & Co., Turin.—Blankets. 237
167 Woolen Manufactury of Borgo Se- tia, Turin.—Worsted wool. 238
168 Bozzaia, Gio, & Son, Biella, Novara.—Woolen goods. 238
169 Bozzaia, Antonio, & Brother, Cog- giola, Novara.—Woolen goods. 238

Silk and Silk Fabrics.
170 Keller, Alberto, Milan.
   a Raw silk. 242
   b Woven silk. 245
171 Chiericoni, Ugolino, Messina.—Cocosins. 242
172 Giannotti, Giuseppe, Barga (Luc- ca).—
   a Raw silk. 242
   b Spin silk. 244
173 Dina, M. G., Modena.—Raw silk. 242
174 Sinigaglia, Salomon, Heir of, Lattes, Turin. —
   a Raw silk. 242
   b Woven silk. 245
175 Franzi Bros., Alzano Maggiore, Bergamo. —
   a Raw silk. 242
   b Woven silk. 245
176 Dalla Pozza, Filippo, Vicenza. —
   a Raw silk. 242
   b Woven silk. 245
177 Frizzone, Antonio F., Bergamo. —
   a Raw silk. 242
   b Woven silk. 245

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Silk, Clothing, Jewelry, Stationery.

  a Raw silk.  
  b Spun silk.  

179 Sciaccia della Scala, Baron, Paleramo.—Silk.  

180 De Silvestri, Salvatore, Rome.—Silk goods.  

181 Cagliani, Leopoldo, Milan.—Silk velvets.  

Clothing, Jewelry and Ornaments;
   Traveling Equipments.

182 Morandi, G. Montepulciano, Siena.—Dress for lady.  

183 Incerti Anselmo, Modena.—Knit goods.  

184 Comelli & Buratti, Bologna.—Corsets.  

185 Marchesini, Pietro, Bologna.—Straw hats.  

186 Ricci, Luigi, & Sons, Florence.—Straw hats.  

187 Duranti, Agostino, Florence.—Straw hats.  

188 Angelucci, Gerolamo, Ancona.—Shoes.  

189 Lodi, G. Batta, Palermo.—Gloves.  

190 Di Rosalia, Antonino, Palermo.—Shoes.  

191 Vinci, Melchiorre, Palermo.—Shoes.  

192 Petrolì, Pietro, Pallanza.—Shoes.  

193 Shoemakers’ Co-operative Society, Bologna.—Shoes.  

194 Baccilieri, Lorenzo, Bologna.—Gloves.  

195 Bossi, Edoardo, Naples.—Gloves.  

196 De Notaris, Sigismondo, Naples.—Shoes.  

197 Calise, Tommaso, Ischia Island, Naples.—Ladies’ straw hats.  

198 Rumieri, Gabriele, Naples.—Silk and felt hats.  

199 Casella, Giuseppe, Salerno.—Shoes.  

200 Moiraghi, Antonio, Turin.—Shoes.  

201 Brussesi, Giacinto, Milan.—Shoes.  

202 Scarselli, Benedetto, Rome.—Straw hats and braided straw.  

203 Taddei, Gaetano, Florence.—Straw hats and braided straw.  

204 Straw Hat Stock Co., Pianoro, Bologna.—Straw hats and braided straw.  

205 Santini Bros., Florence.—Straw hats and braided straw.  

206 Working Men’s Benevolent Association of Paleramo.—Straw hats and braided straw.  

207 Angeli Candido, Reggio, Emilia.—Hats and braided straw.  

208 Kubli, Gio Giacomo, Florence.—Straw hats and braided straw.  

209 Romani, Eugenio, & Wife, Milan.—Embroidered pictures.  

210 Gerosa, Adele Educanda, Milan.—Embroidered pictures and handkerchiefs.  

211 Stock Co. for Manufacturing Laces, Venice.—Laces, old and new styles.  

212 Bon Regina, Como.—Laces.  

213 Gioiuzza, Giuseppe, Naples.—Jewelry and coral.  

214 Melillo, Giacinto, Naples.—Jewelry and coral.  

215 Francati & Santamaria, Rome.—Jewelry.  

216 Geraldini, Ettore, Rome.—Gold and silver jewelry.  

217 Bellezza, Niccolo Aless, Rome.—Jewelry.  

218 Accarisi, Giuseppe, Florence.—Roman jewelry.  

219 Jacobini, Raffe, & Giobbie, Pio, Rome.—Old precious stones.  

220 Ponti, Rovera, & Co., Piacenza.—Buttons.  

221 Olivieri, Luigi, Venice.—Fancy articles.  

222 Forte, Emilio, Genoa.—Silver filigree work.  

223 Salvo, C., & Sons, Genoa.—Objects in filigree and gold.  

224 Righini Bros., Turin.—Umbrella and parasols.  

225 Labriola, Luigi, Naples.—Tortoise-shell work.  

226 Castellani, Alessandro, Rome.—Gold and silver articles.  

227 Brusa, G. Batta, Venice.—Album.  

228 Rossetti, Cav. Giacomo, Brescia.—Album, with photographs.  

229 Cavalieri, Avo. Michele, Milan.—Album and miniatures.  

230 Leoni, Angelo, Catanía.—Sicilian costumes.  

Paper, Blank Books, Stationery.


232 Cartiera Italiana, Turin.—Paper and envelopes.  

233 Agosti, Agnes, Rome.—Paper embroidery.  

234 Cattaneo, Alessandro & Bro., Bergamo.—Common paper.  

235 Vallini, Natale, Bologna.—Paper.  

236 Miliani, Pietro, Faleiano, Marche.—Various kinds of paper.  

237 Fornari, Antonio G. B., Fabriano, Ancona.  
  a Papers.  
  b Pasteboard.  

238 Migliaccio, Raffaello, Salerno.—  

239 Giordano, Scipione, Turin.—Blank form of contract for nurses.  

240 Cassinara, Eugenio, Pavia.—Billheads.  

241 Fagioli, Gaetano, Piacenza.—Paper boxes.  

242 Mottura, Ing. Oreste, Piacenza.—Bricks of pasteboard.  

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27–45.
WEAPONS, MEDICAL APPLIANCES, HARDWARE, VEHICLES, SCULPTURE.

243 Cominassi Bros., Brescia.—Needle-gun barrels. 265
244 Botti, Pietro, Brescia.—Gun. 265
245 Corica, Agostino, Messina.—Shot. 265

Medicine, Surgery, Prothesis.

246 Decol, Maria, Bologna.—Decotto (a medicine). 272
247 Garau, Salvatore, Milan.—Tamarind powder; extract to prevent sea sickness. 227
248 Morreale, Ettore, Palermo.—Medicinal liquors. 272
249 Margani-Valenti, Gaetano, Nisce-mi, Sicily.—Medicines. 272
250 Pagliaro, Domenico, St. Stefano Canostra, Palermo.—Medicines. 272
251 Pagliaro, Andrea, Mistretta, Messina.—Medicinal gelatines. 272
252 Valentini, Gottardo, Milan.—Medicines. 272
253 Arrosto, Gioacchino, Messina.—Citrates and medicines. 272
254 Spadaro, Grassi P., Catania.—Medicinal citrate. 272
255 Ponzoni, Luigi, Milan.—Hygienic liquors and medicine. 272
256 Menici, Angiolo, Leghorn.—Appliance for raising the sick. 276
257 Bernabei, Alessandro, Rome.—Tubes and metallic syringes. 276
258 Papini, Leopoldo, Florence.—Hernal truss. 276
259 Gramignani, Leopoldo, Ancona.—Dental prothesis. 277
260 Noel-Wunderling Bros., Milan.—Dental anatomy. 277
261 Testi, Uilisse, Bologna.—Dental machines. 277
262 Sirietti, Francesco, Rome.—Sets of teeth. 277

Hardware, Edge Tools, Cutlery, and Metallic Products.

263 Guelpa-Piazza Bros., Biella, Novara.—Gimlets. 280
264 Giulivo, B., & Co., Turin.—Iron and tin knives, forks, and spoons. 281
265 Ferrino, Cesare, Turin.—Sand linen and sand paper. 282
266 Bonini, Emilio, Pignone, Florence.—Articles in zinc. 283
267 De Poli Bros., Vittorio, Trevisto.—Bronze church bell. 283

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

268 Zalaffi, Benedetto, Sienna.—Iron work. 284
269 Parise, Achille, Sons, Naples.—Mechanical lock. 284
270 Cane, Geremia, Bologna.—Tools for umbrellas. 284
271 Nanci, Giovanni, Florence.—Turned metallic articles. 284
272 Olivieri, Luigi, Venice.—Hardware. 284
273 Escoffer, Giuseppe Gio., Florence.—Mechanical articles. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

274 Giacomini, Luigi, & Co., Treviso.—Brusies. 286
275 Bargioni, Ferdinando, Florence.—Ropes of rush. 287
276 Chamber of Commerce of Syracuse.—Ropes. 287
277 Rosso, Leonardo Cav. Cesare, Comiso, Syracuse.—Ropes. 282
278 Vincenzi, Paolo, Carpi, Modena.—Corks. 289
279 Marchini, Cesare, Fiesole, Florence.—Straw works. 289

Carriages, Vehicles, and Accessories.

280 Saretteire, Giuseppe, Palermo.—Lamps for carriages. 292
281 Locati, Cav. Alessandro, Turin.—Carriages. (In Annex.) 292
282 Mainetti, Francesco, Milan.—Carriage (landau). (In Annex.) 292

Sculpture.

283 Bazzanti, Figlio, Florence.—Cupid and Psyche (group). 400
284 Porcina, Antonio, Florence.
   a Surprised (bust). 400
   b Venus of Canova (statue). 400
285 Torelli, Lot, Florence.—David, by Michael Angelo (copy). 400
286 Garofoli, Oreste, Rome.
   a Trasteverina (Roman costume). 400
   b After the Theatre. 400
   c Ciociara (Roman costume). 400
   d Genzanelse. 400
287 Ricci, Paolo, Florence.—Dante (statuette). 400
EGYPT.
(South of South Avenue, Columns 12 to 15.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures.

Minerals, Ores, Building Stones, Mining Products.

1 National Museum.
   a Rough gold-dust, petrified wood. 100
   b Rough, hewn, and polished marbles, alabaster, and limestones. 102
   c Crude lime rock, cement, burned lime, and plaster. 103
   d Clays and materials for manufacturing porcelain and faience. 104
   e Sand. 106
   f Soil and water. 107

Metallurgical Products.

2 National Museum.
   a Solid rough gold pieces. 110
   b Iron. 111

Chemical Manufactures.

3 Laboratory of the Government.
   a Chemicals of all kinds and pharmaceutical preparations. 200
   b Prepared oils, solid and liquid. 201
   c Flavoring extracts, solid and liquid. 203

Ceramics—Pottery, Porcelain, etc.

4 National Museum.
   a Bricks from Lower Egypt. 206
   b Porcelain: tiles. 208
   c Egyptian earthenware, from Upper Egypt. 210

5 Brugsch Bey, Cairo.
   a Majolica ware ir different designs. 211
   b Porcelain of all kinds. 213

Furniture, and Objects of General Use in Construction and in Dwellings.

6 Parvis, Mr., Cairo.—Oriental drawing-room furniture. 217

7 National Museum.
   a Table furniture of porcelain, solid gold and silver ware, coffee sets, and vessels of brass. 218
   b Utensils for kitchen, and tinware. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

8 National Museum.
   a Coarse fabrics of rattan, bark, palm-leaf, grass, and rushes. 225
   b Cotton fabrics, unbleached, bleached, and dyed. 231

9 Woven and Felted Goods of Wool and Mixtures of Wool.

10 National Museum.—Collection of Brussels carpet, Melton, and tapestry, from wool and camel's hair. 239

Silk and Silk Fabrics, and Mixtures in which Silk is the predominating material.

11 Tramontino, Mr., Cairo.—Coconuts and raw silk. 243

12 National Museum.
   a Twisted silk in spools and skeins. 243
   b Woven silk, lute-strings, satins, and foulards. 245
   c Woven figured silk goods. 246
   d Fancy silk and velvet ribbons. 248

Clothing, Jewelry and Ornaments; Traveling Equipments.

13 National Museum.
   a Dress goods for men’s and women’s wear, with gold and silver trimmings. 250
   b Hats, and boots; women’s shoes embroidered in velvet, silk, gold, and silver. 251
   c Silk dress trimmings and embroideries, woven with gold and silver. 252
   d Turquoises, jewelry, and ornaments worn upon the person. 253
   e Fancy articles, dress adornments, fans, walking-canes, sunshades, and pipes of all descriptions, with gold, silver, and silk woven ornaments, ostrich and marabout feathers. 254
   f Fancy leather work. 255
   g Historical collection of the national costumes from Abyssinia and the Soudan. 257

Paper, Blank Books, and Stationery.

14 National Museum.
   a Stationers’ articles of the Orient. 258
   b Writing paper. 259

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.

15 National Museum.—Swords, spears, and dirks. 260

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 87-45.
Manufactures, Education and Science, Art, Agriculture.

16 Cassegrain, F. P., of Cairo.—Hunting firearms of a special pattern. 269

Medicine, Surgery, and Prothesis.

17 National Museum.—Medicinal plants. 272

18 National Museum of Egypt, Mr. Zucchiatti, of Cairo.—Veterinary instruments. 276

Hardware, Edge Tools, Cutlery, and Metallic Products.

19 Mechanic Institute of Boolak.—Iron hardware for different mechanical purposes. 284

Carriages, Vehicles, and Accessories.

20 National Museum of Egypt, Mr. Zucchiatti, of Cairo.—Furniture for horses and mules, harness and saddlery, ornamental mule blankets, and silk woven saddle blankets. 296

Educational Systems, Methods, and Libraries.

21 Ministry of Public Instruction.—Maps, charts, penmanship, drawings of pupils' work and course of study in water colors, from the public schools and academies. 300

22 National Museum.
   a Map of Egypt and the new annexed provinces made by Mr. Fiedrichsen. 300
   b Mechanical instruments executed by scholars at the Polytechnic school. 302
c Text-books and apparatus. 306

23 Onsy, Mr., of Cairo.—Types and books for the education of the blind. 302

24 Ministry of Public Instruction.
   a College and school statistics and educational reports of Egypt. 304
   b Statistical reports. 305

25 Mours & Co., Cairo, Ministry of Public Instruction.—Printed works, school and text books, and dictionary, from the public schools of Egypt; literature in the Arabic language, newspapers, and periodical literature. 306

Institutions and Organizations.

26 National Museum.—Ethnographical collection and publications. 312

Scientific and Philosophical Instruments and Methods.

27 National Museum.
   a Egyptian weights and measures. 322
   b Musical instruments from Egypt and the provinces of Soudan. 327

Engineering, Architecture, Charts, Maps, and Graphic Representations.

28 National Museum.—Maps of railways, roads, telegraph, and postal service; topographical maps and charts. 335

Physical, Social, and Moral Condition of Man.

29 National Museum.—Collection of Egyptian gold, silver, and copper coins. 344

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Sculpture.

30 National Museum.—Plaster casts from Egyptian monuments. 406

31 National Museum.
   a Stones with ancient Arabic inscriptions. 401
   b Hammered relief works in copper, and collection of plates, trays, and vases of the modern time of Egypt. 403

32 Vegis, Mr., Cairo.—Repaussed and rehausse work in copper and iron of the ancient Arabic time. 403

33 National Museum.—Specimens of "Mou-sharabie" window patterns in wood and ivory, engraved wood. 403

Painting.

34 National Museum.
   a View of Cairo and other water-color paintings, executed by Mr. Weidenbach, Berlin. 411
   b Painted water-bottles. 413

Engraving and Lithography.

35 Ravon, H., Staff-officer National Museum.—Drawing in ink of the citadel of Cairo, list of the names of the caliphs and sultans who have reigned in Egypt, from Omar to Ismail Facha, Khedive of Egypt, list of the names of Pharaohs, 420

36 P. A., Alexandria.—Samples of lithographic printing. 423

Photography.

36 National Museum.—Collection of photographs, views of public works, costumes, scenery, panorama, and a collection of albums. 430

Industrial and Architectural Designs, Models, and Decorations.

37 National Museum.—Collection of Arabic ornaments (plaster and zinc casts, painted and gilt), from time of the caliphs, made by Schmo-ranz. 443

Decorations with Ceramic and Vitreous Materials, Mosaic and Inlaid Work.

38 National Museum.
   a Ancient glass lamps from the mosques. 451
   b Woodwork inlaid with ivory; ancient door from the sanctuary of a mosque, carved and inlaid in ivory and ebony. 452

Arboriculture and Forest Products.

39 National Museum.
   a Collection of woods from Egypt and the annexed provinces, cotton tree. 600
   b Materials for dyeing and other industrial purposes. 602

40 National Museum & Mr. Heller.—Samples of gums. 603

Agricultural Products.

41 National Museum.
   a Cereals. 620
   b Legumes—beans, lentils, etc. 621
c Tuberculose alimentaries. 622
d Tobacco. 623
e Cotton seeds. 624
Animal and Vegetable Products, Textile Substances.

<table>
<thead>
<tr>
<th>Water Animals, Fish Culture and Apparatus.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>National Museum.</td>
<td></td>
</tr>
<tr>
<td>a Crocodiles.</td>
<td>640</td>
</tr>
<tr>
<td>b Pearls.</td>
<td>645</td>
</tr>
</tbody>
</table>

Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>National Museum.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a Samples of butter.</td>
<td>651</td>
</tr>
<tr>
<td>b Samples of grease, colored hides, skins, collection of hippopotamus and rhinoceros horns, tusks of elephants and hippopotami.</td>
<td>652</td>
</tr>
<tr>
<td>c Ostrich eggs and feathers.</td>
<td>653</td>
</tr>
<tr>
<td>d Edible pulps, seeds, fruits, pastes, and confections, dried fruits and vegetables.</td>
<td>656</td>
</tr>
</tbody>
</table>

Textile Substances of Vegetable or Animal Origin.

| Estate of the Khedive.—Collection of over 2000 cotton samples, representing the crops of eight years, with classification and price of sale in Egypt and England. | 665 |
| National Museum.—Textile fibres, raw and manufactured, cords and ropes, flax. | 666 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
TUNIS.

(South of South Avenue, Columns 10 to 14.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art.

| Minerals, Ores, Stones, Mining Products. | 9 Valensi, M., Tunis and Paris. |
| 1 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Minerals and ores of Tunis. | a Woven silks. 245 |
| | b Hangings. 246 |
| Chemical Manufactures. | Clothing, Jewelry, and Ornaments; Traveling Equipments. |
| 2 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Essences and flavoring extracts. 203 | |
| Ceramics—Pottery, Porcelain, Glass, etc. | 10 His Highness Sidi Mohammed Essadok, Bey of Tunis. |
| 3 Valensi, M., Tunis and Paris.—Pottery. 206 | a Harmons. 259 |
| 3a His Highness Sidi Mohammed Essadok, Bey of Tunis. a Pottery. 206 | b Embroideries. 252 |
| b Earthware. 210 | c Jewelry. 253 |
| Furniture and Objects of General Use in Construction and in Dwellings. | d National costumes. 257 |
| 4 Valensi, M., Tunis and Paris. a Inlaid furniture. 217 | 11 Valensi, M., Tunis and Paris. a Jewelry. 253 |
| b Brackets. 220 | b Oriental manufactures generally. 254 |
| 5 His Highness Sidi Mohammed Essadok, Bey of Tunis. a Inlaid and household furniture. 217 | c Tunisian costumes. 257 |
| b Gift brackets. 220 | |
| 6 His Highness Sidi Mohammed Essadok, Bey of Tunis. a Woven blankets, shawls. 237 | 12 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Ancient and modern arms. 265 |
| b Carpets, rugs. 239 | 13 Valensi, M., Tunis and Paris.—Arms. 265 |
| 7 Valensi, M., Tunis and Paris. a Shawls. 237 | Carriages, Vehicles, and Accessories. |
| b Carpets and rugs. 239 | 14 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Saddlery; furniture and accoutrements for horses, mules, and camels; ornamental horse and mule saddles and bridles. 256 |
| Silk and Silk Fabrics, and Mixtures in which Silk is the predominating material. | Scientific and Philosophical Instruments and Methods. |
| 8 His Highness Sidi Mohammed Essadok, Bey of Tunis. a Woven silks. 245 | 15 Valensi, M., Tunis and Paris.—Musical instruments. 327 |
| b Hangings. 246 | Ceramic Decorations, Mosaics, etc. |
| For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45. | 16 Ancient mosaics from Carthage. 459 |
| Physical, Social, and Moral Condition of Man. | |
| 17 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Two Arab tents, exhibiting the domestic life and customs of Arab sheiks and Bedouins; farming implements of Arabs. (In Park.) 342 |
ORANGE FREE STATE.

(South of South Avenue, Columns 2 to 5.)

COLLECTIVE GOVERNMENT EXHIBIT.

Minerals, Clothing, Animal and Vegetable Products.

| a Diamonds in the rough, from the diamond fields of the Orange Free State. | 100 |
| b Diamondiferous soil, with a diamond in it. | 100 |
| c Copper and iron ore, chlorastralite, and magnesita. | 100 |
| d Coal. | 101 |
| e Pebbles accompanying the diamond. | 102 |
| f Kaolin. | 104 |
| g Springbuck mats. | 104 |
| h Angora, blesbuck, and jackal ka-rosses. | 104 |
| i Boots of native manufacture. | 251 |
| j Pipes of native manufacture. | 254 |
| k Baskets of native manufacture. | 289 |
| l Harnesses and whips. | 296 |
| m Figures in wood, cut with a pen-knife. | 405 |
| n Blue gum, olive, and thorn woods. | 600 |
| o Petrified wood. | 600 |
| p Sumach. | 602 |
| q Cream of tartar fruit. | 611 |
| r Wheat, mealies, and Kaffir corn. | 620 |
| s Stuffed birds. | 635 |
| t Butterflies and other insects. | 638 |
| u Tusks of ivory. | 652 |
| v Gemsbuck, roorband, roetbuck, and hartebeeste horns. | 652 |
| w Koodoo cow hides. | 652 |
| x Blesbuck skins. | 652 |
| y Hartebeeste and blesbuck skins, tanned. | 652 |
| z Shambucks, long and short. | 652 |
| aa Rhinoceros hide flexible rods, reins, thongs, and girdles. | 652 |
| bb Whips of giraffe hide. | 652 |
| cc Ostrich feathers and eggs. | 653 |
| dd Bird plumage, natural. | 653 |
| ee Dried fruit. | 656 |
| ff Mealie meal. | 657 |
| gg Wool, washed and unwashed. | 667 |
| hh Mohair of Angora goat. | 669 |
| ii Model of transport wagon. | 682 |

GRAND DUCHY OF LUXEMBURG.

COLLECTIVE EXHIBIT.

Ceramics, Clothing, Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Ceramics—Pottery, Porcelain, Glass, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Utschneider &amp; Jaunez, Wasserbillig.—Cement products of Wasserbillig.</td>
</tr>
</tbody>
</table>

Clothing, Jewelry, and Ornaments; Traveling Equipments.

<table>
<thead>
<tr>
<th>Clothing—Jewelry, and Ornaments; Traveling Equipments.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Charles, Auguste, &amp; Co., Bonnevoie, near Luxemburg.—Kid gloves.</td>
</tr>
<tr>
<td>3 Mayer, Gabriel, Luxemburg.—Kid gloves.</td>
</tr>
</tbody>
</table>

| 4 Boot Manufactory of Luxemburg.—Boots and shoes. | 251 |

Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Animal and Vegetable Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4a Charles, Auguste, &amp; Co., Bonnevoie, near Luxemburg.—Tanned and dyed kid skins.</td>
</tr>
<tr>
<td>5 Michaelis, Frederic, Luxemburg.—Concentrated vinegar.</td>
</tr>
<tr>
<td>6 Pauly, Bouthon, &amp; Co., Distillery Vinegar Manufactury.—Concentrated vinegar.</td>
</tr>
<tr>
<td>7 Eichhorn, Gustav, Wormeldang.—Moselle wines.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Minerals, Ores, Stone, Mining Products.

1 Harman, G., Swatow.—Petrifaction.

2 Imperial Maritime Customs.
   a Coal.
   b Granite stones.
   c Borax.
   d Gypsum.

Metallurgical Products.

3 Imperial Maritime Customs.
   a Silver leaf and imitation of gold leaf.
   b Tin foil.

Chemical Manufactures.

4 Imperial Maritime Customs.
   a Various seed, vegetable, and wood oils.
   b Varnish, indigo, and sundry other dyes and colors.
   c Sauce.

Ceramics—Pottery, Porcelain, Glass, etc.

5 Imperial Maritime Customs.
   a Bricks.
   b Roof tiles.
   c Collection of earthenware.

6 Tack Loong, Canton.
   a Earthenware ornaments, figures, etc.
   b Porcelain vases, flower-pots, tea set, cigar holders, etc.

7 Bean & Jardine, Kiukiang.—Porcelain vases, flower-pots, cups, etc.

8 Fow Loong, Canton.—Porcelain vases, dinner service, etc.

9 Ho Kan Cheu, Shanghai.—Collection of old china.

10 Hu Kwang, Yung Hang Chow.—Collection of old china porcelain.

11 Imperial Maritime Customs, Canton.
   —Porcelain vases, dinner, dessert, tea, and toilet sets, flower-pots, candle-holders, bowls, cuspadors, etc.

12 Imperial Maritime Customs, Kiukiang.—Porcelain vases, cups, and bowls; plates, teapots, etc.

13 Imperial Maritime Customs, Shanghai.—Collection of old china.

14 Kopsch, H., Kiukiang.—Porcelain vases, cups, bottles, cups and plates, dessert dishes, goblets, etc.

15 Lovatt, W. N., Kiukiang.—Porcelain vases, flower-pots, garden seats, teacups, dessert dishes, goblets, etc.

16 Moore, C. F., Kiukiang.—Porcelain teapots, bottles, flower-pots, ornaments, etc.

17 Rose, S. C., Kiukiang.—Porcelain vases, flower-pots, jars, plates, dishes, cups, dinner sets, etc.

18 Tong Chock-hing, Kiukiang.—Porcelain vases, ornaments, dessert service, etc.

19 Toin Peh Mei, Kiukiang.—Porcelain vases, teacups, fruit stands, dinner sets, and screen.

20 Wadman, E., Ningpo.—Collection of old china vases.

Furniture and Objects of General Use in Construction and in Dwellings.

21 Fow Loong, Canton.—Blackwood furniture—tables, sofas, chairs, screens, cabinets, etc.

22 Imperial Maritime Customs, Canton.
   a Blackwood, bamboo, rattan, and lacquered furniture.
   b Rattan cradle, and children’s chairs.
   c Different kinds of lanterns.

23 Kopsch, H., Kiukiang.—Screens.

24 Lien Shing, Canton.—Lacquered furniture, chairs, and blackwood screens.

25 Sung Sing Kung, Ningpo.
   a Carved furniture—beds, chairs, tables, bookcases, cabinets, etc.
   b Carved picture and photograph frames.

26 Imperial Maritime Customs, Ningpo.
   a Teacup sets and dishes.
   b Washbasins.

Yarns and Woven Goods of Vegetable or Mineral Materials.

27 Fergusson & Co., Chefoo.—Samples of straw braid.

28 Imperial Maritime Customs.
   a Samples of grass cloth, rattan and coir matting, etc.
   b Plain cotton fabrics.
   c Printed cotton fabrics.
   d Hemp cloth.

Woven and Felted Goods of Wool, etc.

29 Imperial Maritime Customs.—Felt rugs.

Silk and Silk Fabrics.

30 Fergusson & Co., Chefoo.
   a Raw silk.
   b Plain woven silks.
Manufactures, Education and Science, Art, Agriculture.

31 Imperial Maritime Customs, Shanghai.—Collection of reeled and re-reeled silks. 242
32 Hö Kan-cheu, Shanghai.—Plain woven silks. 245
33 Hu Kwang-Yung, Hangchow.—Plain woven silks. 245
34 Imperial Maritime Customs. 245
a Plain woven silks.
b Figured silk piece goods.
c Embroidered silk scarfs.
35 Ferguson & Co., Chefoo.—Figured silk piece goods. 246
36 Hö Kan-cheu, Shanghai.—Figured silk piece goods. 246
37 Hu Kwang-Yung, Hangchow.—Figured silk piece goods. 246
38 Wu, Shanghai.—Soochow gauzes. 247

Clothing, Jewelry, and Ornaments; Travelling Equipments.

39 Imperial Maritime Customs. 250
a Stockings.
b Shoes, hats, caps, etc.
c Fans, small articles of dress, pipes, smoking apparatus, etc.
40 Imperial Maritime Customs, Canton.—Collection of silk embroidered goods, shawls, slippers, and caps, bed and cushion covers, cloth, etc. 252
41 Sisters of Charity, Ningpo.—Embroideries. 252
42 Sung Sing Kung, Ningpo.—Satin embroideries. 252
43 Lien Shing, Canton. 253
a Jewelry.
b Fans and hand screens. 254
44 Moore, C. F., Kiukiang.—Jewelry and ornaments. 253
45 Ho A Ching, Canton.—Carved fans. 254
46 Imperial Maritime Customs, Niuchwang.—Collection of furs and skins. 255
47 Imperial Maritime Customs, Shanghai.—Fancy upper work, trunks, and toilet boxes. 255

Paper, Blank Books, and Stationery.

48 Imperial Maritime Customs. 258
a Paper, knives, ink, pens, etc.
b Writing paper.
c Oiled and pith paper.
d Various colored paper. 259
49 Tong Chou Hing, Kiukiang.—Ink. 259

Medicine, Surgery, Prothésis.

50 Imperial Maritime Customs.—Collection of medicines, official and unofficial. 272

Hardware, Edge Tools, Cutlery, Metallic Products.

51 Ho Kan Cheu, Shanghai.—Collection of old bronzes, vases, urns, etc. 283
52 Hu Kwang-Yung, Hangchow.—Collection of old bronzes, vases, urns, etc. 283
53 Imperial Maritime Customs.— Pewter ware, tea canisters, cups, pots, mugs, boxes, candlesticks, etc. 283
54 Imperial Maritime Customs, Shanghai.—Collection of old bronzes, vases, urns, etc. 283
55 Wadman, E., Ningpo.—Collection of old bronzes, vases, urns, etc. 283

Fabrics of Vegetable, Animal, or Mineral Materials.

56 Imperial Maritime Customs. 287
a Cord, rope, twine, etc.
b Lacquer, rattan, and bamboo ware.
57 Ho A Ching, Canton.—Lacquer ware. 289
58 Lien Shing, Canton.—Lacquer and sandalwood ware. 289

Scientific and Philosophical Instruments and Methods.

59 Imperial Maritime Customs.—Collection of musical instruments. 327

Physical, Social, and Moral Condition of Man.

60 The Protestant Missionaries in China.—Publications. 348

Sculpture.

61 Grimm, B., Shanghai.—Collection of coins and medals. 401
62 Ho A Ching, Canton.—Carved ivory ware. 405
63 Imperial Maritime Customs, Canton.—Carved ivory and tortoise shell ware. 405
64 Lien Shing, Canton.—Carved ivory ware, etc. 405
65 Moore, C. F., Kiukiang.—Carved figure. 405

Paintings.

66 Hippisley, A. E., Shanghai.—Water-color paintings on silk, for screens, painted by Wang Kiu-ting. 411
67 Imperial Maritime Customs.—Collection of ancient water-color paintings on silk and paper; pictures on pith paper. 411

Ceramic Decorations, Mosaics, etc.

68 Vo Chon, Canton. 458
a Two cloisonné brass incense burners.
b Bronze vases, incense burners, plates, etc.
69 Moore, C. F., Kiukiang.—Enamel vase and bowl, idols, jade plate. 454

Agricultural Products.

71 Imperial Maritime Customs. 600
a Specimens of timber.
b Gallnuts and dyestuff.
c Camphor. 603
d Moss and fungus. 604
e Collection of nuts and seeds. 635
72 Ferguson & Co., Chefoo.—Red dyestuff. 602

Arboriculture and Forest Products.

73 Ferguson & Co., Chefoo. 620
a Peas and beans.
b Tobacco. 635

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Agricultural, Animal, Vegetable Products.

74 Imperial Maritime Customs.
   a Cereals. 620
   b Leguminous plants. 621
   c Ginger. 622
   d Tobacco and opium. 623
   e Seeds. 624

75 Imperial Maritime Customs, Shanghai.—Collection of teas. 623

Water Animals, Fish Culture and Apparatus.

76 Imperial Maritime Customs.
   a Dried fish. 642
   b Clams, dried. 644
   c Fish glue and sea blubber. 646
   d Instruments and apparatus of fishing. 647

77 Imperial Maritime Customs, Tamsui.—Collection of sea shells. 648

Animal and Vegetable Products.

78 Imperial Maritime Customs.
   a Seaweed. 650

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
Minerals, Chemicals, Ceramics.

Minerals, Ores, Stone, Mining Products.

1 Kaitakushi, Department for the colonization of the Island of Hokkaido.—Minerals and geological collection from Hokkaido. 100
2 Kozanriyo, Mining Department, Tokio. 103
a Ores. 100
b Coals and anthracite. 101
3 Seki-yu Kuwaisha Petroleum Co., Tokio.—Mineral oils, crude and refined. 101
4 Hashimoto, S., Tokio.—Building stones. 102
5 Oyama, K., Chichibu, Province of Musashi.—Limestone and quick lime. 103
6 Hattori, C., Tokio.—Mortars. 103
7 Kuwango-riyo, Imperial Board of Agriculture, Industry, & Commerce, Tokio.—Clay, chinastone, kaolin, etc. 104
8 Chemical Laboratory of the City of Kyiyo.—Natural carbonated water. 107
9 Yeisei-Kiyoku, Board of Public Health, Tokio.—Mineral water statistics. 107

Chemical Manufactures.

10 Chemical Laboratory of the City of Kyiyo.—Pharmaceutical preparations. 200
11 Kuwango-riyo, Imperial Board of Agriculture, Industry, & Commerce, Tokio.—Vegetable oils, wax candles, etc. 201
12 Matsuzaki, S., Yorita, Y., & Kon-do, M., Tokio.—Soap. 201
13 Koshima, J., Tokio.—Shark liver oil. 201
15 Wada, Y., Tokio.—Indigo and specimens of dyed silk. 202

Ceramics—Pottery, Porcelain, etc.

16 Kubo-sho, Department of Public Works Tokio.—Bricks. 205
17 Nakashima, R., Kagoshima, Province of Satsuma.—Vases, jars, tea sets, and ornamental pieces. 210
18 Kashiu, Sampei, Igano-Mura, Province of Awaji.—Vases, coffee and tea sets, candlesticks, etc. 210
19 Minoda, Ch., Tokio.—Ancient pottery and ornaments. 210
20 Miyagawa, T., Ota, near Yokohama.—Vases, censers, etc. 210
21 Susuki, Y., Yokohama.—Earthenware. 210
22 Shiromi Sohei, Yokka-ichi, Province of Ise.—Banko ware, vases, tea pots, etc. 213
23 Mori, Y., Yokka-ichi, Province of Ise.—Banko ware, vases, tea pots, bowls, etc. 213
24 Nakayama, M., Kuwana, Province of Ise.—Vases, cake boxes, and dishes. 213
25 Kato Gosuke, Tajimimura, Province of Mino.—Cups, covered bowls, flower pots, etc. 213
26 Fukihiara, S., Tokio.—Cloisonné enamel on porcelain. 213
27 Koran-Sha Porcelain Manufactory, Arita, Province of Hizen.—Cups and flower vases, pedestals, tea and coffee services, etc. 213
28 Chaki-Shosha, Tea Set Manufactory, Kyiyo.—Tea pots, cups, jars, etc. 213
29 Tanzan Seikai, Kyiyo.—Vases, flower pots, dinner sets, jewel cases, photographs on porcelain, etc. 213
30 Kinkozan-Sohei, Kyiyo.—Vases, flower pots, plates, jewel cases, etc. 213
31 Takahashi, Dohachi, Kyiyo.—Vases, dishes, flower pots, etc. 213
32 Shimizu Rokubei, Kyiyo.—Tazras, vases, jars, sets, etc. 213
33 Kazan Denshichi, Kyiyo.—Tea and coffee sets, incense cases, pitchers, and tablets. 213
34 Wage Kitei, Kyiyo.—Cigar stands, vases, boxes, etc. 213
35 Mashidzu Zoroku, Kyiyo.—Vases, flower pots, and dishes. 213
36 Shimidzu Shichibei, Kyiyo.—Tea and coffee cups and saucers, milk jugs, and sugar bowls. 213
37 Shimidzu Kameshichi, Kyiyo.—Tea and coffee sets. 213
38 Yeiraku, Z., Kyiyo.—Bowls, flower vases and pots, egg cups, jewel cases, etc. 213

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
JAPAN.

Ceramics, Furniture, Woven Goods.

39 Tsui, Ch., Kiyoto.—Toilet services. 213
40 Taizan Yohei, Kiyoto.—Tea sets, tazzas, etc. 213
41 Seifu Yohei, Kiyoto.—Vases, flower pots, bowls, etc. 213
42 Wateya, G., Kanazawa, Province of Kaga.—Coffee and tea sets, tea jars, cake boxes, and tazzas. 213
43 Yoshiha, Y., Kanazawa, Province of Kaga.—Large bowls 213
44 Awo, P., Kanazawa, Province of Kaga.—Vases, tea and coffee cups, bowls, and dinner sets. 213
45 Hekizan, T., Kanazama, Province of Kaga.—Vases, cups, bowls, etc. 213
46 Seikan, S., Kanazawa, Province of Kaga.—Tea jars and coffee sets. 213
47 Kachoken, A., Kanazawa, Province of Kaga.—Flower vases and cake boxes. 213
48 Shozu, T., Kanazawa, Province of Kaga.—Coffee cups, flower pots, etc. 213
49 Setzuusan, A., Kanazawa, Province of Kaga.—Coffee and tea cups, teapots, and vases. 213
50 Haruna, S., Kanazawa, Province of Kaga.—Cake boxes, lamp vases, coffee cups, and dinner sets. 213
51 Muneaki, Kanazawa, Province of Kaga.—Coffee sets. 213
52 Utsumi, K., Kanazawa, Province of Kaga.—Cups, vases, cake boxes, etc. 213
53 Yamakishi, Kanazawa, Province of Kaga.—Bowls, coffee cups, etc. 213
54 Chijiru, Kanazawa, Province of Kaga.—Coffee and tea pots. 213
55 Sekitei, I., Kanazawa, Province of Kaga.—Teapots, lamp vases, etc. 213
56 Kaga Association for the Encouragement of Manufactures.—Bowls, coffee cups, vases, etc. 213
57 Shindoa, K., Province of Kaga.—Flower vases, cigar stands, etc. 213
58 Hiyochiyen-sha, Manufacturer of Printed Porcelain, Tokio.—Flower vases and vases, coffee and tea sets, dishes, tables, and ornaments. 213
59 Shippo-Kuwaisha, Cloisonné Enamel Manufactury, Nagoya, Province of Owari. —Enamelled on porcelain. 213
60 Makuzu Kozan, Ota.—Flower and lamp vases, coffee sets, etc. 213
61 Minoda, Ch., Tokio.—Old and new porcelain. 213
62 Kawamoto Masukichi, Nagoya, Province of Owari.—Tables, vases, and flower pots. 213
63 Kiriu-Kosha-Kuwaisha, First Japanese Manufacturing & Trading Co., Tokio.—Ancient pottery and porcelain. 213
63a Iida, T., Nagoya, Province of Owari.—Porcelain flower vases and pots, plates, fruit dishes, pitchers, ladles, bowls, tea service, tables, braziers, etc. 213

Furniture and Objects of General Use in Construction and in Dwellings.

64 Kuwangoi-Ryo-Shi-ken-jo, Experimental Section of the Board of Agriculture, Industry, & Commerce, Tokio.—Cabinets and toilet tables. 217

65 Arai, H., Tokio.—Lacquered furniture. 217
66 Kiriu-Kosha-Kuwaisha, First Japanese Manufacturing & Trading Co., Tokio. 217
  a Bureaus, tables, etc. 217
  b Silver tea sets, etc. 218
  c Blinds and screens. 221
67 Minoda, Ch., Tokio. 217
  a Bureau, toilet tables, cigares, etc. 217
  b Silver tea kettle. 218
  c Bath tub and accessories. 226
68 Yamamoto, Y., Shizuoka, Province of Suruga.—Lacquered furniture, screens etc. 217
69 Shikki - Shosha, Lacquered Ware Manufacturing, Kiyoto.—Lacquered furniture, etc. 217
70 Kikuchi-Kuhei, Tokio.—Hat racks, chairs, etc. 217
71 Ota, M., Tokio.—Furniture and cabinet work. 217
72 Chaki-Shosha, Kiyoto.—Tea services, etc. 218
73 Iwashashi, K., Kuroimura, Province of Kii.—Lacquered ware for household use. 218
74 Awoumi, G., Hiromai, Province of Mutzu.—Lacquered utensils. 218
75 Fujisawa, H., Osaka.—Lacquered lunch boxes and trays. 218
76 Ishioka, S., Noshiro, Province of Ugo.—Trays, boxes, dishes, tables, etc. 218
77 Kimura, H., Kiyoto.—Table ware. 218
78 Hirai Jikan, Kiyoto.—Coffee sets. 218
79 Asano, T., Kiyoto.—Lacquered vases. 218
80 Nakamura, H., Kiyoto.—Bowls, trays, etc. 218
81 Uyemura, S., Suruga, Province of Yechizen.—Lacquered ware. 218
82 Kiuki-han, the island of Loochoo.—Lacquered plates, bowls, etc. 218
83 Kuwangoi-Ryo, Imperial Board of Agriculture, Industry, & Commerce, Tokio.
  a Lanterns. 223
  b Iron utensils, kettles, etc. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

86 Kuwangoi-Ryo, Imperial Board of Agriculture, Industry, & Commerce, Tokio.—Mats. 230
87 Sakaiken, Local Government of.—Cotton cloths, yarns, etc. 230
88 Ono, G., Naniwamura, Province of Settsu.—Cotton cloths. 230
89 Ria-kiu-han, Loochoo Islands.
  a White cotton cloths. 230
  b Striped cotton cloths. 231
  c Ramie and fibre cloths. 233
90 Kawamura, Y., Province of Owari.—Cotton cloths dyed and spotted. 231
91 Osaka fu, Municipality of, Osaka.—Cotton rugs. 231
92 Miyake-ken, Local Government of.—Cotton gauze. 231

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Woven Goods, Silk, Clothing, Fancy Articles.

93 Association for Women's Work, Kiyoto.—Cotton rugs. 247
94 Fuji-Kawa, G., Kiyoto.—Printed cotton cloth. 247
95 Watanabe, S., Shiro-Ishi, Province of Iwaki.—Shifu cloth, paper yarn. 233
96 Ni-i-gata-ken, Local Government of.—Ramie cloth. 233
97 Nara-ken, Local Government of.—Hemp cloth. 233

Silks and Silk Fabrics.

98 Yoyan-jo, Silk-Worm Breeding Establishment, Kiyoto.—Raw silks. 242
99 Sci-shi-jo, Silk Reeling Establishment, Kiyoto.—Raw silks. 242
100 Association for Women's Work, Kiyoto.
a Raw silks. 242
b Dress silks. 245
c Cravats. 245
101 Kojima, T., Kiyoto.—Silk thread. 242
102 Suzuki, Yo, Yamura, Province of Kai.
a Dress silks. 245
b Handkerchiefs. 247
103 Tsurugaken, Local Government of.—White dress silk. 245
104 Yehara, T., Kiriu, Province of Kotsuke.—Dress silk. 245
105 Yamamoto Kinu, Ousakamura, Province of Shihano.—Bombyx sho-chin silk. 245
106 Nakagawa, Y., Kiyoto.—White silk. 245
107 Morita, B., Kiyoto.—Colored silks. 245
108 Nishimura, S., Kiyoto.
a Fancy dress silks. 245
b Plaid dress silks. 246
c Crapes dyed and figured. 247
109 Kuwangiyo-jo, Association for the Encouragement of Arts & Manufactures, Kiyoto.—White dress silk. 245
110 Shibata, Y., Hakata, Province of Chikuzen.—Striped and figured silks. 246
111 Shiomizu, Ch., Hakata, Province of Chikuzen.—Striped dress silk. 246
112 Nawa, S., Akita, Province of Ugo.—Fancy silks. 246
113 Ito, T., Sendai, Province of Kikusho.—Chequered dress silk. 246
114 The Nishijim Weavers, Kiyoto.
a Silk goods; brocade and striped silk. 246
b Velvet and gauze. 247
115 The Shokkojo Weavers, Kiyoto.—Striped and figured dress silk. 246
116 Sumiyama, I., Kiyoto.—Chequered dress silk. 246
117 Kiriu-Kosho-Kuwaisha, Tokio.
a Silk carpentings and brocades. 246
b Cravats. 247
118 Tsubaki Yoshi, Sendai, Province of Rikusho.—Striped shot dress silk. 246
119 Tomita, S., Kiyoto.—Gauze. 247
120 The Kanokoshosha, Kiyoto.—Dyed and spotted crapes. 247
121 Ichida, R., Kiyoto.—Dyed and spotted crapes. 247

122 Shi-no, S., Yokohama.—Handkerchiefs, cravats, etc., of crape. 247
123 Yoshida, S., Mineyami, Province of Tango.—Crapes. 247
124 Nabeshima, S., Mineyami, Province of Tango.—Crapes. 247
125 Ikebe, N., Mineyamo, Province of Tango.—Crapes. 247
126 Nishigori, K., Nagahama, Province of Omi.—White crapes. 247
127 Nakamura, M., Nagahama, Province of Omi.—White crapes. 247
128 Tsuboi, C., Nagahama, Province of Yatsushiro.—White crapes. 247
129 Kimura, G., Kiyoto.—Crapes. 247
130 Inagaki, T., Kiyoto.—White crape. 247
131 Koseki, I., Kiyoto.—Braids. 247
131a Nakatsu-ji, Kiyoto.—Braids. 247
132 Izukura, K., Kiyoto.—Watch guards. 247

Clothing, Jewelry, and Ornaments; Traveling Equipments.

133 Wakamatsu, R., Minakuchi, Province of Omi.—Hats. 250
134 Hosoda, Z., Kiyoto.—Silk embroid. 252
135 Sakaguchi, S., Kiyoto.—Embroideries. 252
136 Nishimura, S., Kiyoto.—Embroidered tablecloths, table cloths, screens, etc. 252
137 Chaki-shosha, Kiyoto.—Embroidered picture of Buddha; embroidered carpeting and cushions. 252
138 Teramura, S., Kiyoto.—Embroidered table cloths and shawls. 252
139 Sumiyama, T., Kiyoto.—Embroidered silks. 252
140 Kiriu-Kosho-Kuwaisha, Tokio.
a Embroidered table cloths and silks. 252
b Crystal necklaces and earrings. 253
c Cigar cases, buttons, toys, umbrellas, etc. 253
d Leather boxes. 255
141 Nishi, R., S., Yokohama.—Embroidered silks, coverlets, etc. 252
142 Association for Women's Work, Kiyoto.
a Embroidered table cloths and screens. 252
b Pin cushions; silk pictures in relief. 254
c Wallets and tobacco pouches. 255
143 Naishi-sha Embroiderer's Society, Kiyoto.—Embroidered cloths, curtains, and screens. 252
144 Tanaka, R., Kiyoto.—Embroidered curtains, screens, etc. 252
145 Asakura, M., Tokio.—Toys and fancy articles, small objects of adornment. 254
146 Arai, H., Tokio.—Lacquered jeweil cases, needle boxes, card boxes, cigar stands, canes, etc. 254
147 Kuwangiyo-Ryo, Tokio.—Ornamental piece of rock crystal. 254
147 The Shikki-shosha, Kiyoto.—Toys. 254
148 Iwai, Z., Nara, Province of Yamato.—Fans. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-44.
| 149 | Myagawa, C., Tokio.—Portfolios, cigar cases, fans, pipes, etc. | 254 |
| 150 | Fukuda, K., Kyoto.—Silk pictures. | 254 |
| 151 | Katayama, G., Kyoto.—Ornaments. | 254 |
| 152 | Wobanawa, M., Tokio.—Fans. | 254 |
| 153 | Shippo Kuwaaisha, Nagoya, Province of Owari.—Fans. | 254 |
| 154 | Kimura, T., Kyoto.—Fans. | 254 |
| 155 | Sumii, Z., Kyoto.—Fans. | 254 |
| 156 | Kuwangyo-jo (Association for the encouragement of art and manufactures), Kyoto.—Fans, pouches, cages, etc. | 254 |
| 157 | Jiami Joyen, Kyoto.—Fans. | 254 |
| 158 | Tel-Ami Teglyo, Kyoto.—Fans. | 254 |
| 159 | Jo-Ami Heishiro, Kyoto.—Fans. | 254 |
| 160 | Rin-am Hanzo, Kyoto.—Fans. | 254 |
| 161 | Murakami, T., Kyoto.—Walking-canes. | 254 |
| 162 | Tera, G., Kyoto.—Pipes. | 254 |
| 163 | Namikawa, S., Kyoto.—Birds and toys. | 254 |
| 164 | Funaki, S., Kyoto.—Birds and toys. | 254 |
| 165 | Yamamoto, Y., Shidzu-oka, Province of Suruga.—Cases. | 254 |
| 166 | Suzuki, M., Kyoto.—Buttons, etc. | 254 |
| 167 | Mitsui, Kyoto.—Pictures on small pieces of silk. | 254 |
| 167a | Awoumi, G., Hiromai, Province of Mutsu.—Lacquered glove cases, jewel cases, letter holders, etc. | 254 |
| 168 | Kimura, H., Kyoto.—Note tablets. | 254 |

Paper, Blank Books, and Stationery.

| 169 | Kiriu-Kosho-Kuwaisha (First Japanese Manufacturing & Trading Company), Tokio.—Writing-brushes. | 258 |
| 170 | Kochi-ken, Local Government of.—Paper. | 259 |
| 171 | Hamadaken, Local Government of.—Paper. | 259 |
| 172 | Kiyoto-Fu, Municipality of Kiyoto.—Paper. | 259 |
| 173 | Riu-Kiu-han, Loo Choo Island.—Paper, of plantain fibre and straw. | 259 |
| 174 | Gifu-ken, Local Government of.—Writing-paper. | 259 |
| 175 | Tsuura-ken, Local Government of.—Paper. | 259 |
| 176 | Kiyatu-Riyo, Imperial Board of Agriculture, Industry, & Commerce, Tokio.—Paper. | 259 |
| a Paper. | 259 |
| b Blank books. | 261 |
| c Wall papers. | 259 |
| 178 | Yoshida, K., Kyoto.—Colored and ornamented paper for writing poetry. | 260 |
| 180 | Minoda, Ch., Tokio.—Albums. | 261 |
| 181 | Iibie, S., & Okuyama, K., Inakimura & Komatamura, Province of Ise.—Wall paper, etc. | 264 |

Fancy Goods, Stationery, Weapons, Medical Appliances, Education.

| 182 | Haibara, N., Tokio.—Wall papers. | 264 |
| 183 | Matsumoto, T., Tokio.—Wall paper. | 264 |

Weapons, etc.

| a Coat of mail. | 265 |
| b Swords, spears, etc. | 268 |
| c Bows and arrows. | 269 |
| 185 | Minoda, Ch., Tokio.—Swords. | 268 |
| 186 | Kumagai, K., Kyoto.—Halberds. | 268 |
| 187 | Yamamoto, Y., Shidzu-oka, Province of Suruga.—Swords. | 268 |

Medicine, Surgery, Prosthesis.

| 188 | Kuwangyo-Riyo Imperial Board of Agriculture, Industry & Commerce, Tokio.—Drugs and medicines. | 272 |
| 189 | Nara, Y., Kyoto. |
| a Surgical instruments. | 276 |
| b Dental instruments. | 277 |
| 191 | Kiyoto.—Fans. | 278 |

Fabrics of Vegetable, Animal, or Mineral Materials.

| 191 | Hiogo-ken, Local Government of.—Bamboo work. | 289 |
| 192 | Toyoo-oka-ken, Local Government of.—Straw work. | 289 |
| 193 | Shiga-ken, Local Government of.—Basket ware, mats, cake boxes, etc. | 289 |
| 194 | Nagata, Y., Tokio.—Rattan work, trays. | 289 |
| 195 | Yamamoto, Y., Shidzu-oka, Province of Suruga.—Bamboo work. | 289 |
| 196 | Kiriu-Kosho-Kuwaisha, First Japanese Manufacturing & Trading Company, Tokio.—Wooden ware, boxes, cases, etc. | 289 |
| 197 | Shimizuzu, J., Kyoto.—Bamboo ware. | 289 |
| 198 | Murakami, T., Kyoto.—Bamboo ware. | 289 |
| 199 | Tera, G., Kyoto.—Bamboo ware. | 289 |
| 200 | Ivada, H., Kyoto.—Bamboo ware. | 289 |
| 201 | Hotta, Z., Kyoto.—Bamboo ware. | 289 |
| 202 | Chikumaken, Local Government of.—Bamboo ware. | 289 |

Educational Systems, Methods, and Libraries.

| 203 | Mombusho, Department of Public Education, Tokio. |
| a Educational systems and methods. | 274 |
| b Constitution of the Japanese Educational Department, and maps showing the divisions. | 274 |
| c Elementary school books and apparatus. | 274 |
| d Chairs and tables, etc., for schoolrooms. | 274 |
| e Infant training and toys. | 274 |
| f Reading and writing implements, such as were used by children in former times. | 274 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Education and Science, Arts.

Maps, charts, globes, etc.

Educational equipments, tables, pens, ink boxes, blank books, paper, and other stationery.

Abacus, arithmetical board, slates, pencils, etc.

Examination paper for students.

Designs and photographs for schools.

Sectional specimens of woods.

Leaves of various plants.

Books of botany.

Tabular statements of botanical classification.

Moku-zai-sho-ron (album showing samples of the various woods used for industrial purposes).

Artificial flowers.

Ancient and modern medical and surgical books, and modern surgical instruments made by K. Iwashiya.

Medicines and drugs.

In plants, miscellaneous reports of the hospital pertaining to the medical academy.

Anatomical designs.

Paintings and painting materials.

Lacquer work, showing process of manufacture and implements used.

Wood engravings and engraving-tools, blocks and types; printing materials.

Photographs.

Outline of the history of education in Japan; history of the literature and short historical sketch of the educational department. (All accompanied by the English translation.)

Educational regulations, notifications, reports, miscellaneous information, and Kii-ko-tei (educational reports by F. Tanaka).

Statistical table, showing the number of public and private schools, with their scholars, tabular statement of the revenue and expenditure of the public schools and the public school property, and other statistical tables relating to education.

Photographs, history, regulation, and catalogue of Tokio Library.

Almanacs, history, dictionaries, and illustrated works on natural history, etc.

Newspapers, journals, and magazines, etc.

Kuwangiyo-riyo, Imperial Board of Agriculture, Industry, & Commerce.

—Tabular statement showing number of national newspapers.

Hirano, T., Tokio.—Collection of type and paper matrices used in printing.

Tamai, C., Province of Mino.—Illustrated work on the flora of Japan.

Hababutsuwan Museum, Tokio.

—Zoological collection.

Scientific and Philosophical Instruments and Methods.

Momhusho, Department of Public Education.—Geometrical instruments; apparatus for experiments in natural philosophy.

Kozan-riyo, Mining Department, Tokio.—Meteorological report.

Kuwangiyo-riyo, Imperial Board of Agriculture, Industry, & Commerce.—Counting machine.

Okurasho, Finance Department.—Graduated scales of bamboo and brass; measures of capacity, scales, and graduated beams for weighing.


Engineering, Architecture, Maps, etc.

Kuwangiyo-riyo, Imperial Board of Agriculture, Industry, & Commerce.—Diagrams, showing the means of arresting and controlling the flow of water; plan of water supply at the city of Tokio.

Shiu-shi-kiyoku, National Archive Office, Tokio.—Map of the Empire of Japan.

Todai-riyo, Lighthouse Department, Tokio.—Photographs of lighthouses, and maps showing their location.

Yeki-tei-riyo, General Post-office, Tokio.—Map showing the mail routes.

Suirio-riyo, Hydrographic Department, Tokio.—Marine and coast line charts.

Denshin-riyo, Telegraph Department, Tokio.—Map, showing telegraphic lines and stations.

Physical, Social, and Moral Condition of Man.

Kuwangiyo-riyo, Tokio.—Games and mainly sports.

Komura, S., Kanazawa, Province of Kaga.—Japanese model house on the exhibition grounds, built by I. Matsuo.

Matsuo, I., Tokio.—Bazar on the exhibition grounds.

Zohei-riyo, Imperial Mint, Tokio.—Collection of gold and silver coins.


Yeki-tei-riyo, General Post-office, Tokio.—Postal cards and stamps; annual reports.

Sozeiriyo, National Revenue Department.—Revenue stamps, blank paper, and licenses, etc.

Sculpture.

Honma Taksai, Sado Island.—Bronze statuette, vessels, etc.


Bronze fountains, vases, braziers, plates, censers, teacup stands, etc.

Miniature palace of sandal wood.

Copper, Ch., Tokio.—Bronze censers, vases, candlesticks, etc.

Minodo, Ch., Tokio.—Metal pipe, paper weight, and statue.

Arai, H., Tokio.—Silver vase and decorative objects.

The Chaki-sho-sha Co., Kiyoto.—Bronze vessel.

Yoshida, Y., Kiyoto.—Bronze vases and censers.
Kiyoto.—

Engraving and Lithography.

For classes of exhibit, indicated by numbers at end of entries, see Classification, pp. 27-45.
HAWAI I.
(South of South Avenue, Columns 10 to 14.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures, Education.

Minerals, Ores, Stone, Mining Products.
1 Gilman, J. H.—Lava specimens from Kilauea. 100
2 Hawaiian Museum.—Geological specimens, by W. L. Green. 100
3 Hitchcock, H. R.—Geological specimens from crater of Kilauea. 100
4 Boys' Boarding School.—Coal from the forests of Haleakula. 101

Chemical Manufactures.
5 Pinkham, G. S.—Blacking. 202

Furniture and Objects of General Use in Construction and in Dwellings.
6 Auld, William.—Cue. 217
7 Brown, G. W.—Table from a variety of woods. 217
8 Kamiapelekan, E. P.—Facade-simile of bed, etc., used by Kamchamna I. 217
9 Fischer & Co.
a Small and large tables, revolving bookrack. 217
b Picture frame. 220
10 Williams, C. E.—Revolving shell case. 217
11 Hopper, J. A.—Kou calabashes. 224
11a Emma, Queen.—Water gourds and figured calabashes. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.
12 Gilman, J. H.—Bamboo of silky fibre for decorations. 229
12a Emma, Queen.—Figured kapas and nihiu mats. 229

Clothing, Jewelry, and Ornaments; Traveling Equipments.
12b Peterson, James A.—Yellow and black feathers cape. 230
12c Kawaiahao Female Seminary.
a Crotchet work by pupils. 232
b Mimosa seed necklaces by pupils. 254
13 Emma, Queen.
a Cane flower and fern stem hats. 251

b Yellow and green feather wreaths, feather fly brushes, ever-lasting and moss wreaths, strings of Nihiu shells, and arrowroot plant fans. 254
14 Dickson, J. Bates.—Micronesian curiosities and corals. 254
15 Beckley, F. W.—Set of kapa. 254
16 Boyd, Miss E.—Spatter work of mot-toes and island ferns. 254
16a Pratt, Mrs.—Feather fly brushes. 254
17 Kealoha.—Set of kapa. 254
18 Oahu College.—Land shells. 254
19 Rose, Katie.—Set of kapos. 254
20 Williams, C. E.—Canes. 254
21 Wilder, Helen.—Manahiki woman's hair. 254
22 Young, Mrs.—Wreath of mosses and shells. 254

Fabrics of Vegetable, Animal, or Mineral Materials.
23 Department of War.—Hawaiian flag, royal standard. 288

Carriages, Vehicles, and Accessories.
24 Lyman, F. S.—Saddle and bridle. 296

Educational Systems, Methods, and Libraries.
25 Department of Education.
a Photographs of school-houses and groups of Hawaiian teachers and pupils. 300
b Hawaiian school-books and legislative reports. 306
25a Brigham, W. T.—"Hawaiian Volcanoes" and various works on the Hawaiian Islands. 306
27 Damon, S. C.—"The Friend" and Bowditch's Navigator, in the Japanese language. 306
28 Whitney, H. M.—"Gazette" and "Kiookoa" for 1873. 306
29 Sheldon, H. L.—"Pacific Commercial Advertiser." 306
30a Thrum, T. G.—Volume of the "Islander." 306

Institutions and Organizations.
30 Clarke, F. L.—Hawaiian curiosities: coconut shell water calabash, lei palava tobacco pipe, stone lamp, stone adze, sling stone. 312
Education and Science, Art, Machinery, Agriculture.

30 Emma, Queen.—Ancient implements of various kinds. 312
Engineering, Architecture, Charts, Maps, and Graphic Representations.
31 Honolulu Iron Works.—Drafts of machinery. 330
32 Alexander, W. D.—Map of the crater of Haleakala. 335
32A Department of Government Survey.—Map of the Hawaiian Islands. 335
32A Thrum, T. G.—Sets of Hawaiian postage stamps. 345

Physical, Social, and Moral Condition of Man.
33 Native of Hawaii—Wooden idols. 348

Painting.
34 Spencer, O. B.—Oil painting "Hilo Bay," by J. H. Nawahi. 410
35 Bailey, E.—Oil paintings.
   a Bird’s eye view of the crater of Haleakala.
   b View of Hilo Village and Coconut Island.
   c Views in Hilo.
   d Scenery in Iao Valley.

Photography.
36 Honolulu Iron Works.—Photographs of works. 430
36a Brigham, W. T.—Photographs of ancient idols. 430
37 Thrum, T. G.—Photograph of Honolulu. 435
38 Dickson, M.—Photographs of Island scenes. 439

Ceramic Decorations, Mosaics, etc.
39 Department of Interior.—Hawaiian coat of arms painted on glass. 453

39a Kapa beaters and dyes for printing. 524

Arboriculture and Forest Products.
40 Boys’ Boarding School.
   a Woods from the forests of Haleakala. 600
   b Silver swords, l ring ferns. 604
41 Andrews, C. B.—Mounted ferns. 604
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

42 Hitchcock, D. H. & E. G.—Specimens of the pulu ferns, silver swords. 604
43 Hitchcock, H. R.—Ferns and mosses. 604
44 Jones, G. W. C.—Large tree fern. 604

Agricultural Products.
44a Wong Go.—Rice. 620
44b Chulan & Co.—Rice and paddy. 620
44c Waimanalo Plantation.—Rice. 620
45 Hackfield, H., & Co.—Coffee from H. N. Greenwell. 623

Land Animals.
46 Mills, J. D.—Hawaiian birds. 635

Animal and Vegetable Products.
47 Krull, E.—Tallow. 652
48 Lyman, F. S.—Leather. 652
49 Eldarts, T. E.—Arrowroot and tapioca. 658
49a Dreier & Heine—Manioc root. 658
50 Spencer, T., Hilo.—Cane sugars. 659
51 Hitchcock Bros., Hilo.—Cane sugars. 659
52 Austin, S. L., Hilo.—Cane sugars. 659
53 Afong & Achuck, Hilo.—Cane sugars. 659
54 Campbell & Turton, Lahaina.—Cane sugars. 659
55 Bailey, W. H., Wailuku.—Cane sugars. 659
56 Makee, Capt. James, Ulupalakua.—Cane sugars. 659
57 Alexander, S. T., Haku.—Cane sugars. 659
58 Waihee Plantation, Mani.—Cane sugars. 659
59 Lihue Plantation, Kauai.—Cane sugars. 659
60 Kapena, J. M.—Samples of sugar cane. 659
61 McLean, G. C.—Castor, cocoanut, and kukui oils. 662

Textile Substances of Vegetable or Animal Origin.
62 Holstein, H.—Sea island cotton. 665
63 Wilder, S. G.—Oolina fibre. 666
64 Hyman Bros.—Ramie fibre. 666
65 Gilman, J. N.—Painiu fibre. 666
## B R A Z I L.

*(North of Nave, Columns 58 to 61.)*

### Chemicals, Ceramics, Furniture.

<table>
<thead>
<tr>
<th>Chemicals.</th>
<th>Ceramics—Pottery, Porcelain, Glass, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lopez, F. J. de Almeida.—Salt-petre.</td>
<td>32 Lepage, F. J.—Essences and pomades.</td>
</tr>
<tr>
<td>2 Muricy, J. C. da Silva.—Sulphur from quartz.</td>
<td>33 Commission-General for the National Exhibitions.—Flavoring extracts, essences, and perfumery.</td>
</tr>
<tr>
<td>3 Leao, D. Agostinho, S. E.—Sulphuret of lead.</td>
<td>34 Lang, J.—Toilet soaps.</td>
</tr>
<tr>
<td>4 Lendenberg, L. B.—Salt.</td>
<td>35 Province of Pernambuco.—Safety matches.</td>
</tr>
<tr>
<td>5 Penna, A. G. d'Araujo.—Homoeopathic vegetable tinctures and opoponax.</td>
<td>36 Esberard, F. A. M.—Terra-cotta vases and pottery.</td>
</tr>
</tbody>
</table>

#### Chemicals Laboratory.—Chemical and pharmaceutical preparations.
- 6 Maia, Ferreira, & Co.—Pharmaceutical preparations. 200
- 7 Perdigao, D. F. Z.—Pharmaceutical products. 200
- 8 Province of Maranhao.—Pharmaceutical preparations. 200
- 9 Province of San Paulo.—Medical preparations. 200
- 10 Yiotti, E.—Pharmaceutical preparations. 200
- 11 Province of Para.—Medical oils. 200
- 12 Province of Para.—Soap. 201
- 13 Cardoso & Gonsalves.—Soap. 201
- 14 Alves, Pereira, & Co.—Soap and candles. 201
- 15 Guimaraes, A. J. A.—Soap and candles. 201
- 16 Oliveira & Bro.—Soaps. 201
- 17 Carvalho, Ferreira de, & Bro.—Soap and candles. 201
- 18 Stearic Light Co.—Soaps and candles. 201
- 19 Dias, Duarte.—Oils. 201
- 20 Province of Para.—Soap and candles. 201
- 21 Safaran, J.—Wax candles. 201
- 22 Stechel.—Oils. 201
- 23 Silva, S. S. G. de.—Copying and writing ink. 202
- 24 Monteiro & Co.—Writing inks. 202
- 25 Guimaraes, J. A. da Sa.—Pigments and varnishes. 202
- 26 Province of Para.—Writing inks. 202
- 27 Yillela.—Writing inks. 202
- 28 Henninger, Dan., & Co.—Toilet soaps. 203
- 29 Lang & Co.—Toilet soaps. 203
- 30 Leao & Alves.—Perfumery. 203
- 31 Freire, Otto.—Essences. 203

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Furniture, Woven Goods, Clothing.

55 Aguair, J. C. da Costa.—Book-stand. 217
56 Supplicy, J. F.—Hanging shelves and cane-seated chairs. 217
57 Loesch, Zacharias.—Work-box. 217
58 Moreira, F. J., & Co.—Chairs. 217
59 Alípio, D. J.—Writing-desk of sole leather. 217
60 Rodriguez, A. A.—Writing-desk. 217
61 Province of San Paulo.—Suit of furniture made of straw. 217
62 Keppler & Bro. a Wooden chairs. 217 b Mouldings. 217
63 Bordal, Jonas.—Tables and shelves. 217
64 Province of Sancta Catharina.—Furniture. 217
65 Rocha, Polybio da.—Multiform piece of furniture. 217
66 Martinelli & Bro.—Marble fixtures for wash-stands. 219
67 Pittantti, Adriano, & Co.—Marble wash-stand. 219
68 Pommerais, Leon.—Imitation marbles. 219
69 Baumgarten, J.—Box with looking-glass for examining eggs. 224
70 Malcher, A. J., Gama.—Straw catchers and sieves. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

72 Person, A.—Wire cloths. 228
73 Bardet, F.—Wire cloths and manufactures. 228
74 Commission-General for the National Exhibitions. a Hammocks made of different coarse materials, and in different provinces. 229 b Cotton fabrics, quilts, and towels. 230 c Dyed cotton fabrics. 231
75 Arouca & Co.—Cotton fabrics. 230
76 Rebelo & Co.—Cotton fabrics. 230
77 Brazil Industrial Cotton Mill Co.—Cotton fabrics. 230
78 Colony of Blumenau.—Cotton fabrics and quilts. 230
79 Mascarenhas & Bros.—Cotton goods. 230
80 Barros, Diogo A. de.—Cotton goods. 230
81 Anhaia & Angelo.—Cotton goods. 230
82 Union Mercantile Co.—Cotton goods. 230
83 College of the Immaculate Conception.—Cotton hammocks. 230
84 Vicara, C. P. S.—Cotton hammocks. 230
85 Province of Paraná.—Twisted yarns. 230
86 Petr[on]al Co.—Cotton goods. 230
87 Chanã, Barthelemy.—Dyed cotton goods. 230
88 Reyner, F.—Dyed cotton goods. 234
89 Lemes, R. Z. Paes.—Cotton articles. 231
90 Keller, Felippe.—Linen goods. 233
91 Colony of St. Maria da Soledade.—Linen goods. 233
92 Colony of Nova Petropolis.—Linen goods. 233
93 Kalden, Baron of.—Linen goods. 233

Woven and Felted Goods of Wool and Mixtures of Wool.

94 Lopez, F. J., Almeida.—Cotton, quilts, and cassimeres. 235
95 Moura, J. C. de.—Cassimeres. 235
96 Rheingantz & Vater.—Woolen goods. 235
97 Maschado, M. A.—Articles made of horsehair. 240

Silk and Silk Fabrics.

98 Reyhner, Fernando.—Silk goods. 245

Clothing, Jewelry, and Ornaments.

99 Dol, Ad., & Co.—Linen underwear. 250
100 Lopez, F. J. A.—Pantaloons and other cotton wear. 250
101 Roballo, J. J.—Coat of fine cloth. 250
102 Grava, Frei L. da.—Knitted shirt. 250
103 Amaral & Co.—Complete suit for gents. 250
104 Fayett & Battcher.—Pantaloons. 250
105 Commission-General for the National Exhibitions. a Wooden and leather shoes and cipé hats. 251 b Walking-canes and articles of tortoise-shell and straw. 254 c Leather suit worn by herdsmen. 257
106 Chastel & Co.—Hats. 250
107 Armada, J. Alvaro de.—Hats, caps, and bonnets. 251
108 Bierrenbach & Bros.—Hats and caps. 251
109 Braga, Fernandes, & Co.—Hats, caps, and bonnets. 251
110 Bithencourt, J.—Lasts for shoes. 251
111 Viguié.—Boots and shoes. 251
112 Silva, J. B. Carvalho da.—Hats. 251
113 Camará, J. E. P.—Hats. 251
114 City Council of Cameta.—Hats. 251
115 Santos, P. C. dos.—Hats. 251
116 Bossel, H.—Felt hats. 251
117 House of Correction, Rio de Janeiro.—Boots and shoes. 251
118 Fischer, F.—Hats and caps. 251
119 Figueredo & Co.—Boots and shoes worn by the army and navy. 251
120 Cathiard, C. F.—Boots and shoes. 251
121 Berthon.—Ladies’ shoes. 251
122 District of Paulo Alfonso.—Leather hats. 251
123 Silve, H. J. da.—Canvas shoes. 251
124 Requiao, P.—Hats. 251
125 Gomes, M. M. Rodriguez.—Boots and shoes. 251

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Fancy Goods, Medical Appliances, Harness, Leather.

128 Sertorio & Pinho.—Kid gloves. 251
127 Viguiier, H.—Shoes. 251
128 Moraes, J. C. de.—Silk hats. 251
129 Pluminense Institute of Agriculture.
   a Hats made of the Bombonacea fibre. 251
   b Cigar cases made of the same. 254
130 Valentin, M. J.—Jewelry. 252
131 Ress, jr., Victor, & Bros.—Decorations. 252
132 Natté, Miss.—Fancy objects made of leathers, as fans, coiffures, etc. 254
133 Province of Amazonas.—Wreath of leathers. 254
134 Lima, C. A. de, & Calarana, J. M. de.—Artificial flowers. 254
135 Braga, A. J. F.— Feather articles. 254
136 Cavalcanti, J. S. H.—Umbrella, with secret spring. 254
137 Henke Bros.—Walking-canes. 254
138 Leme, D. R. Paes.—Leather walking-canes. 254
139 Rocha, J. P. da.—Buttons, earrings, and watch chain made of cocoa. 254
140 Ferreira, L. (tomes.—Walking-canes. 254
141 Barros, A. A.—Walking-canes. 254
142 Bastos, José Xavier.—Carved walking-cane. 254
143 Costa, J. F. da.—Pictures made from mosses and insects. 254
144 Reis, H. F. dos.—Walking-cane. 254
145 Province of Rio Grande do Norte.—Jewelry boxes of wood and tortoise-shell. 254
146 Province of Maranhao.—Drinking-cups of wood. 254
147 Silva, F. J.X.da.—Chalices and cups of sassafras. 254
148 Sabat, George.—Objects made from pine-tree knots. 254

Paper, Blank Books, Stationery.
149 Leusinger Sons.—Blank books and specimens of binding. 261
150 Seckler, J.—Specimens of ruling and binding. 261

Medicine, Surgery, and Prosthesis.
151 Garrid, J. F. da Silva.—Druggist's scales. 274
152 Merino & Co.—Surgical instruments. 276
153 Costa, jr, M. F. da.—Artificial teeth. 277
154 Faria, J. Bento da.—Artificial teeth. 277

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
ARGENTINE REPUBLIC.

(South of Nave, Columns 2 to 5.)

Chemical Manufactures.

<table>
<thead>
<tr>
<th>Chemical Manufactures</th>
<th>14 Commission of Andalgala, Province of Catamarca. — Rock salt from Laguna Blanca.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Serravalle, Carlos, Province of Corrientes. — Chemical and pharmaceutical preparations.</td>
<td>200</td>
</tr>
<tr>
<td>1 a Cabrera, Mauro, Province of Buenos Ayres.—Horse medicine.</td>
<td>200</td>
</tr>
<tr>
<td>1 b Cabrera, Mauro, Province of Buenos Ayres.</td>
<td>200</td>
</tr>
<tr>
<td>1 a Cabrala, Don Guaico, Province of Buenos Ayres. — Iodoform and pepson.</td>
<td>200</td>
</tr>
<tr>
<td>1 b Glycine.</td>
<td>201</td>
</tr>
<tr>
<td>2 Queirel, Joaquin, Province of Corrientes. — Deputative solution.</td>
<td>200</td>
</tr>
<tr>
<td>3 Tava, Carlos, Province of Corrientes. — Bitters, digestive pepson wine, pectoral syrup.</td>
<td>200</td>
</tr>
<tr>
<td>4 Sub-Commission of Bella Vista, Province of Corrientes. — Salt extracted from clay; sample of clay.</td>
<td>200</td>
</tr>
<tr>
<td>5 Perez, A. G., Province of La Rioja. —Tonic.</td>
<td>200</td>
</tr>
<tr>
<td>6 Celos, Martin, Province of La Rioja. — Mineral salt.</td>
<td>200</td>
</tr>
<tr>
<td>7 Provincial Commission, Province of La Rioja. —Salt and alum.</td>
<td>200</td>
</tr>
<tr>
<td>7 a Lagos, Joseph M., Province of Buenos Ayres.—Sheep wash.</td>
<td>200</td>
</tr>
<tr>
<td>7 b Lagos, Joseph M., Province of Buenos Ayres. — Fumigating lozenges.</td>
<td>200</td>
</tr>
<tr>
<td>8 Provincial Commission, Province of Santiago del Estero. — Ashes for soap manufacturing.</td>
<td>200</td>
</tr>
<tr>
<td>9 Provincial Commission, Province of Salta. — Salt.</td>
<td>200</td>
</tr>
<tr>
<td>9 a Soap.</td>
<td>201</td>
</tr>
<tr>
<td>10 Justice of the Peace of Bahia Blanca, Province of Buenos Ayres.—Salt.</td>
<td>200</td>
</tr>
<tr>
<td>11 Justice of the Peace of Patagones, Province of Buenos Ayres.—Salt.</td>
<td>200</td>
</tr>
<tr>
<td>1 a Rosquellas, Julian, Province of Santa Fe.—Medicines for animals.</td>
<td>205</td>
</tr>
<tr>
<td>1 b Rosquellas, Julian, Province of Santa Fe.—Medicines for animals.</td>
<td>205</td>
</tr>
<tr>
<td>12 Murga, N., Patagones, Province of Buenos Ayres.—Coarse salt.</td>
<td>200</td>
</tr>
<tr>
<td>12 a Mujica, Eleuterio, S., Province of Buenos Ayres. — Artificial guano from dried and boiled blood.</td>
<td>200</td>
</tr>
<tr>
<td>12 b Fablet, Beltran.—Preserved and soluble blood.</td>
<td>200</td>
</tr>
<tr>
<td>13 Provincial Commission, Province of Tucuman. — Sea salt.</td>
<td>200</td>
</tr>
<tr>
<td>14 Commission of Andalgala, Province of Catamarca. — Rock salt from Laguna Blanca.</td>
<td>200</td>
</tr>
<tr>
<td>15 Provincial Commission, Province of Catamarca. — Rock salt from Fiamblá, and saltpetre.</td>
<td>200</td>
</tr>
<tr>
<td>16 Lafone-Queveda, Samuel A., Province of Catamarca. — Ashes of Cachi Yuyo for the production of carbonate of soda; carbonate of soda.</td>
<td>200</td>
</tr>
<tr>
<td>17 Provincial Commission, Province of Jujui.—Salt.</td>
<td>200</td>
</tr>
<tr>
<td>18 Escobar, Juan D., Province of San Luis.—Salt.</td>
<td>200</td>
</tr>
<tr>
<td>19 Terramola, Delfin, Province of San Juan.—Salt from the mines of Leoncito.</td>
<td>200</td>
</tr>
<tr>
<td>20 Jones, Fabian, Province of San Juan.—Ashes for manufacturing soap.</td>
<td>200</td>
</tr>
<tr>
<td>21 Vidal, M. A., Province of San Juan.—Ashes for manufacturing soap.</td>
<td>200</td>
</tr>
<tr>
<td>22 Bruna, Estevan, Province of San Juan.—Ashes for manufacturing soap.</td>
<td>200</td>
</tr>
<tr>
<td>23 Puertas, Lorenzo, Province of San Luis.—Cholera medicine.</td>
<td>200</td>
</tr>
<tr>
<td>24 Escrich, Pedro, Province of Buenos Ayres.—Peanut oil.</td>
<td>201</td>
</tr>
<tr>
<td>25 Pinedo, Aurelio, Province of Buenos Ayres.—Soap.</td>
<td>201</td>
</tr>
<tr>
<td>26 Lanier, Miguel, Province of Entre-Rios.—Soap.</td>
<td>201</td>
</tr>
<tr>
<td>27 Iglesias, José, Province of Entre-Rios.—Soap.</td>
<td>201</td>
</tr>
<tr>
<td>28 Provincial Commission, Province of Córdoba.—Balsamic oil.</td>
<td>201</td>
</tr>
<tr>
<td>29 Carmen, T. Dávila, Province of La Rioja.—Olive oil.</td>
<td>201</td>
</tr>
<tr>
<td>30 Arlic, Antonio, Province of San Luis.—Soap.</td>
<td>201</td>
</tr>
<tr>
<td>31 Bergara, Dr, Province of Santa Fe.—Peanut oil.</td>
<td>201</td>
</tr>
<tr>
<td>32 Billar, Salvador, Province of Jujui.—Petroleum.</td>
<td>201</td>
</tr>
<tr>
<td>33 Julien &amp; Son, Province of Buenos Ayres.—Dyed stuff fabrics.</td>
<td>202</td>
</tr>
<tr>
<td>34 Prat, Adrian, Province of Buenos Ayres.—Dyed wool.</td>
<td>202</td>
</tr>
<tr>
<td>35 Doucet, Emilio, Province of Buenos Ayres.—Writing fluids.</td>
<td>202</td>
</tr>
<tr>
<td>36 Muro, Antonio, Province of Buenos Ayres.—Inks.</td>
<td>202</td>
</tr>
<tr>
<td>37 Herrera, Melchora, Province of Catamarca.—Cochineal.</td>
<td>202</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Ceramics, Furniture, Woven Goods.

42 Nolte, Ernesto, Province of Buenos Ayres.—Tooth powder. 203
42a Corneja, Melchora T. de, Province of Salta.—Zarza water. 203

Ceramics.—Pottery, Porcelain, Glass, etc.

43 Pedruncini, Juan, Province of Buenos Ayres.—Burnt bricks. 206
44 Valdes, Emiliano, & Cipriano, Province of Buenos Ayres.—Burnt brick from Balcare; brick made of black clay. 206
45 Fauvety & De Ville Massot, Province of Buenos Ayres.—Bricks. 206
46 Sub-Commission of the Department of Victoria, Province of Entre-Ríos.—Architectural pottery. 206
47 Tudicar, H., & Co., Province of Entre-Ríos.—Bricks made in Gualeguaychu. 206
48 Commission of the Department of Architecture, Province of Entre-Ríos.—Tiles and bricks made in Victoria. 206

49 Provincial Commission, Province of Córdoba.
   a Tiles of burnt clay, of San Vincente Factory. 206
   b Flower pots, jars, stew pans, and dishes. 207
   c Cup, jug, etc. 213
50 Grunes & Co., Chaco-Argentine Territory.—Bricks. 206
51 Cervera & Co., Province of Santa Fé.—Tiles and bricks. 206
51a Provincial Commission, Province of Tucumán.—Bricks and tiles. 206
52 Echevarria, Cecilio, Province of Santa Fé.—Pitchers made by Indians. 210
53 Provincial Commission, Province of Salta.—Pans and plates. 213
54 Provincial Commission, Province of San Luis.—Crockery. 213
55 Provincial Commission, Province of Corrientes.—Italian earthenware. 213
56 Alegre, Juan, Province of Corrientes.—Italian earthenware. 213
57 Provincial Commission, Province of Corrientes.—Crockery. 213
58 Pini & Co., Province of Buenos Ayres.—Glass crucet stand. 216

Furniture, and Objects of General Use in Construction and in Dwellings.

50 Provincial Commission, Province of Córdoba.
   a Tables of cocar and carob-tree wood. 217
   b Wooden cups, silver pitchers. 218
52 Gimenes, Luis, Province of Buenos Ayres.—Combined writing-desk, wash-stand, etc. 217
53 Galeano, Salvador, Province of Buenos Ayres.—Venetian blinds. 217
54 Molinari, Joaquin, Province of Buenos Ayres.—Carved arm chair. 217
55 Provincial Commission, Province of Catamarca.—Cups made of Ketamo wood, silver drinking-tubes. 218
57 Ladies' Commission, Province of San Luis.—Plain and carved cups. 218
68 Provincial Commission, Province of Tucumán.—Cebil wood cups. 218
69 Güemes, Domingo, Province of Salta.—Cup of Palo Santo wood. 218

70 Provincial Commission, Province of Salta.—Goblets and cup of Palo Santo wood. 218
71 Azimonte, Luis, Province of Buenos Ayres.—Silver drinking-cup and tube. 218
71a Martinez, Antonio Souza, Province of Salta.—Stone cup. 218
72 Escobar, Juan D., Province of San Luis.
   a Wooden dish and soup ladle. 224
   b Wooden washing-tub. 225

Yarns and Woven Goods of Vegetable or Mineral Materials.

74 Provincial Commission, Province of Mendoza.—Mat made by prisoners in the penitentiary. 229
75 Benevolent Society, Province of Buenos Ayres.—Hemp mat. 229
76 Provincial Commission, Province of Corrientes.—Cotton counterpanes; spun cotton. 230
77 Serrayor, Pretrona, Province of Corrientes.—Cotton counterpane. 230
78 Mantilla, Concepcion, Province of Corrientes.—Cotton counterpane; spun cotton fabrics. 230
79 Sub-Commission of Bella Vista, Province of Corrientes.—Cotton thread. 230
80 Llanos, Jorge R. de, Province of Salta.—Poncho, a national garment. 230
81 Provincial Commission, Province of Salta.—Embroidered towel. 230
82 Zorilla, Benjamin, Province of Salta.—Hammock; poncho, a national garment. 230
83 Provincial Commission, Province of La Rioja.—Cotton shawl, table cloth, and carpet. 230
84 Provincial Commission, Province of Catamarca.—Cotton napkins and table cloth. 230
85 Ponce, Delfina, Province of Catamarca.—Table cloth. 230
86 Government of the Province of Catamarca.—Cotton table cloth, napkins, handkerchief, and counterpane. 230
86a Burgos, Josefa, Province of Catamarca.—Table cloth. 230
87 Echevarria, Cecilio, Province of Santa Fé.—White cotton from the Province of Corrientes. 230
88 Silva, Fiorentino, Province of Corrientes.—Cotton from Gayasta. 230
89 Commission of the Province of Santiago del Estero.—Cotton counterpane. 230
90 Provincial Commission, Province of Tucumán.—Poncho, a national garment. 230
91 Commission of the Province of Córdoba.—White counterpanes. 230
92 Roibon, Federico, Province of Corrientes.—Fabric made by Indians from a native plant. 233
93 Benevolent Society of the Paraná, Province of Entre-Ríos.—Spun cotton and napkins. 233
94 Carreras, Rosaura C. de, Province of Mendoza.—Table mat. 233

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Woven and Felted Goods, Clothing.

95 Provincial Commission, Province of Salta.—Cuirass made of chaguare grass. 233

96 Provincial Commission, Province of Salta.

a Woolen fabrics, saddle bags, cloth, etc. 235

b Vicuña cloak. 240

c Vicuña coat. 235

97 Provincial Commission, Province of Jujuy.

a Woolen fabrics, ropes and slings, saddle bags. 235

b Blanket. 237

98 Palacios, Prudencio, Province of Salta.—Woolen fabrics. 235

99 Díaz, Julia, Province of Catamarca.—Dyed woolen counterpane. 235

100 Lafone Quevedo, Samuel A., Province of Catamarca.

a Dyed poncho. 235

b Vicuña cloak, without seam, handkerchief, girdle, and garment. 235

101 Carranza, Adolfo E., Province of Catamarca.—Woolen counterpane. 235

102 Government of the Province of Catamarca.

a Woolen articles. 235

b Vicuña blankets. 237

c Vicuña scarf, cloak, handkerchief, and quilt. 240

103 Provincial Commission, Province of Tucumán.

a Manufactures of wool. 235

b Vicuña cloak. 240

104 Provincial Commission, Province of Corrientes.—Yarns and woolen goods. 235

105 Devotee, A., Province of Buenos Ayres.—Ponchos, saddle cloth, and garters. 235

106 Campos, Julio, Province of Buenos Ayres.—Pampa girdle. 235

107 Sub-Commission of Bella Vista, Province of Corrientes.—Dyed woolen yarns. 235

108 Commission of the Province of Córdoba.

a Woolen yarns and fabrics. 235

b Tulumba blankets. 237

c Carpets. 239

d Vicuña counterpane. 240

109 Industrial Society of Rio de la Plata, Province of Buenos Ayres.—Cloth. 235

110 Provincial Commission, Province of Buenos Ayres.—Fabrics made by the Pampas Indians. 235

111 Provincial Commission, Province of Santiago del Estero.—Woolen counterpanes. 235

112 Provincial Commission, Province of San Luis.—Woolen mattress, saddle bags, quilt, blanket. 237

113 Provincial Commission, Province of La Rioja.

a Quilt, box, etc. 237

b Vicuña cloak and shawl. 240

114 Bustamente, Abdon, Province of Córdoba.—Blanket. 237

115 Carreras, Rosaura C. de, Province of Mendoza.—Ladies’ head-dress, collars, bracelets, and gloves made of bristles. 240

116 Franco, Luis A., Province of Catamarca.—Vicuña cloak. 240

117 Schikendanz, Maria, Province of Catamarca.—Vicuña quilt. 240

118 Ocampo, Vicente, Province of Catamarca.—Vicuña shawl and coverlet. 240

Clothing, Jewelry, and Ornaments; Traveling Equipments.

119 Muntaner & Bermúdez, Province of Buenos Ayres.—Shirts. 250

120 Donato, Fortunato, Province of Buenos Ayres.—Child’s suit. 250

121 Videla, Juan, Province of Buenos Ayres.—Leggins worn by the Argentine army. 256

122 Madueño, Jova, Province of Catamarca.—Vicuña handkerchief, neckties, gloves, etc. 257

123 Buasso, Lorenzo, Province of Buenos Ayres.—Boots and shoes made of domestic material. 251

124a Carneiro, Serafín A., Province of Buenos Ayres.—Vicuña hats. 251

125 Rodriguez & Sangronis, Province of Buenos Ayres.—Boots. 251

126 Buffet & Maya, Province of Buenos Ayres.—Hats. 251

127 Heully, Marie, Province of Buenos Ayres.—Bonnets. 251

128 Valdes, Emiliano & Cipriano, Province of Buenos Ayres.—Boots. 251

129a Tramon, T., Province of Santa Fé.—Boots. 251

129 Provincial Commission, Province of Tucumán.

a Boots and shoes; hats. 251

b Towels, tuckers for chemises. 258

130 Provincial Commission, Province of Corrientes.

a Palm-leaf hats. 251

b Embroideries, laces, trimmings, etc. 252

131 Nicolas, Francisco, Province of Corrientes.—Boots made of snake skin. 251

132 Provincial Commission, Province of Córdoba.

a Shoes and kid boots. 251

b Embroidered saddle bags, tuckers, towels, pillow case, and insertions. 252

c Ostrich feather dusters, silver tider. 257

133 Machado, Ruben, Province of Catamarca.—Albè straw hat. 251

134 Provincial Commission, Province of San Juan.—Wool hats. 251

135 Boulet, Lewis, & Isodoro Ibarre, Province of Santa Fé.—Pur hats. 251

136 Barelli, Francisco, & Son, Province of Santa Fé.—Boots. 251

137 Trolard, Guillermo A., Province of La Rioja.—Shoes worn by Argentine miners. 251

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Clothing and Fancy Articles.

156 Provincial Commission, Province of Salta.  
   a Boots, gaiters, cloth for hats, and Vicuña wool hats.  
   b Embroidered North American flags.  
   c Ostrich feather dusters.  
   d Leather bags.  

157 Provincial Commission, Province of Jujuy.  
   a Wool hats.  
   b Leather traveling bag.  

158 Provincial Commission, Province of San Luis.  
   a Straw hats.  
   b Laces, embroidered underwear, church carpet, and other needle work.  

160 Cabral, Juana T., Province of Corrientes.  
   Embroidered tidies, doilies.  

161 Silva, Mercedes, Province of Corrientes. - Embroidered cloth, napkins, handkerchiefs, and chemises.  

162 Pampin, Carmen, Province of Corrientes. - Embroidered cloths.  

163 Codolero, M. Cabral de, Province of Corrientes. - Crochet tray cloth, table cloth.  

164 Lagrarna, Sinfonora, Province of Corrientes. - Embroidered shawls.  

165 Torrent, Eloiza G. de, Province of Corrientes. - Embroidered chemise and handkerchief.  

166 Anzotegui, Escolastica S. de, Province of Corrientes. - Embroidered towel.  

167 Pujol, Leonor, Province of Corrientes. - Embroidered chemises and towels.  

168 Perras, Angela E. de, Province of Corrientes. - Embroidered cloth.  

169 Mantilla, Pilar, Province of Corrientes. - Embroidered shirts.  

170 Mantilla, Francisca, Province of Corrientes. - Embroidered shirts.  

171 Enriques, Anastasia Gonzalez de, Province of Corrientes. - Embroidered Quilts.  


173 Mantilla, Concepcion, Province of Corrientes. - Shawls, thread lace table covers.  

174 General Ferré's Widow, Province of Corrientes. - Embroidered cotton shirts.  

175 Arguello, Ezequiel, Province of Córdoba. - Feather mats.  

181 Provincial Commission, Province of Catamarca.  
   a Crochet quilt and towels.  
   b Raw hide trunks.  

182 Avellaneda, Nicomeden, Province of Catamarca. - Embroidered towel.  

183 Caball, Cristobal, Province of San Juan. - Chasuble embroidered in colors.  

184 Klappenbach, Sofia de, Province of San Juan. - Embroidered handkerchief.  

185 Tello, Juana, Province of San Juan. - Embroidered handkerchief.  

186 Provincial Commission, Province of Santa Fé. - Embroidered towel.  

188 Provincial Commission, Province of La Rioja.  
   a Crochet and lace work, ornamental watch cases, embroidered tuckers, pillow cases, and napkins.  
   b Hair and chasing chain, screen.  

189a Lillo, Tomasa, Province of Tucuman. - Towels and tuckers, for chemises.  

189b Santillan, J. C., Province of Tucuman. - Cuffs.  

190 Commission of the Chaco Argentino Territory. - Embroidered cloth.  

191 Provincial Commission, Province of Santiago del Estero. - Embroidered counterpanes, netted towels, linen towels, and tuckers.  

191a Irygroyen, Carmen O. de, Province of Salta. - Worked mat.  

193 Bustos, Mariano, Province of San Luis. - Religious pictures embroidered in silk.  

194 Videia, Rosa, Province of San Luis. - Embroidered paper case.  

195 Public School of "Las Conchas," Province of Buenos Ayres. - Embroidered pillow and child's shirt, made by the scholars.  

196 Gimenez, José, Province of Buenos Ayres. - Silk sash, with the Argentine and American colors.  

197 Balugera, Angela, Province of Entre-Rios. - Gold and silk embroidered work.  

197a Simon Bros., Province of Buenos Ayres. - Embroidered picture.  

198 Balugera, Elena, Province of Entre-Rios. - Embroidered velvet pillow.  

199 Benevolent Society of Paraná, Province of Entre-Rios. - Crochet counterpane; tucker; embroidered handkerchief.  

200 Etchevehere, G., Province of Entre-Rios. - Embroidered handkerchief, dedicated to the President of the United States.  

202 Clarke, Roberto, Province of San Luis. - Silver rings made by the Indians.  

204 G. and de Rosario, Province of Buenos Ayres. - Gold necklace and medallion, representing the fourteen Argentine Provinces.  

205 Lopez, Feliciano. - Cocoanut rings made of Mabecaya palm, by the Indians.  

205 Pujol, Leonor, Province of Corrientes. - Flower made of hair.  

205a Alegree, John, Province of Corrientes. - Work box.  

206 Gonzalez, Damiana, Province of Corrientes. - Artificial flower wreath.  

206a Webster, Stephen, Province of Córdoba. - Tippet made of feathers.  

207 Etchevehére, Irene, Province of Entre-Rios. - Artificial flowers.  

207a Colodro and Pedra, Maria del Transito, Province of Corrientes. - Jatay palm, made of hair.  

207b Goyena, Juana Z. de, Province of Buenos Ayres. - Hair flowers.  

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 7-45.
207: Mullan, Ciriaca de la Elguea, Province of Buenos Ayres.—Hair flowers. 254
208 Bourgeois, N., Province of Buenos Ayres.—Hair picture. 254
210a Robion, Julian, Province of Buenos Ayres.—Hair flowers. 254
211 Ferrer, Eleodaca, Province of Cordoba.—Flowers made of seeds. 254
215 Sub-Commission of Andalgala, Province of Catamarca.—Artificial flowers. 254
213 Guntsche, J., & Schroeder, Province of Buenos Ayres.—Trunks. 255
214 Mattaldi, Eugenio, Province of Buenos Ayres.—Trunk which can be transformed into a sofa, with writing-desk, etc. 255
215 Grez, M., & Co., Province of Santa Fe.—Trunk. 255

Paper, Blank Books, and Stationery.

216 Benelische, Federico, Province of Buenos Ayres.—Blank books, diaries, and bindings. 261
217 Piqueras, Cuspinera, & Co., Province of Buenos Ayres.—Books bound by hand. 261

Medicine, Surgery, Prothesis.

232 Provincial Commission, Province of Catamarca.—Medicinal herbs. 272
233 Provincial Commission & D. Abraham Lemos, Province of Mendoza.—Herbarium of the official flora of the province. 272
234 Roman, Medardo, Province of Mendoza.—Wild fennel. 272
235 Provincial Commission, Province of San Luis.—Medicinal herbs. 272
236 Molina, Angela, Province of Catamarca.—Sudorific and digestive substances; cedron de puna, for affections of the lungs. 272
237 Iturbe, Fidel, Province of Catamarca.—Pharmaceutical preparations. 272
238 Castelo, Guadalupe, Province of Catamarca.—Medicinal herbs and plants. 272
239 Hurley, Tomas, Province of Catamarca.—Medicinal herbs. 272
240 Lafone Quevedo, Samuel A., Province of Catamarca.—Medicinal herbs. 272
241 Würfbain, Gustavo, & the Provincial Commission, Province of La Rioja.—Herbarium composed of herbs and medicinal plants. 272
241a Schickendtans, Frederick, Province of Catamarca.—Medicinal herbs. 272
242 Gonzalez, Joaquin, Province of La Rioja.—Medicinal plants and herbs. 272
243 Gelos, Martin, Province of La Rioja.—Sparge, from which castor oil is extracted. 272
244 Justice of the Peace of Ensenada, Province of Buenos Ayres.—Sarsaparilla, etc. 272
245 Valdez, E. & C., Province of Buenos Ayres.—Chamomile, borage, sponge, sarsaparilla, sage, etc. 272
248 Gonzales, Juan, Province of Buenos Ayres.—Medicinal herbs. 272
249 Itiñez, Dalmira, Province of Buenos Ayres.—Medicinal herbs. 272
250 Provincial Commission, Province of Buenos Ayres.—Medicinal herbs. 272
250a Oliden, Tomas, Province of Buenos Ayres.—Medicinal herbs. 272
250b Gache, Manuel, Province of Buenos Ayres.—Te pampa. 272
251 Ferrer, Vicente, Province of Corrientes.—Medicinal herbs. 272
252 Robion, Enrique, Province of Corrientes.—Herbarium. 272
253 Sub-Commission of Bella Vista, Province of Corrientes.—Tartago seed, chamico, etc. 272
255 Provincial Commission, & Sola, Juan, Province of Salta.—Medicinal herbs. 272
256 Provincial Commission, Province of Cordoba.—Medicinal herbs and plants. 272
257 Fontes, Vicente Martinez, Province of Entre-Rios.—Medicinal herbs. 272
259 Berdie, M., Province of Entre-Rios.—Medicinal water. 272
260 Commission of Pananá, Province of Entre-Rios.—Berros waters and medicinal herbs. 272
261 Rodriguez, Victor, Province of San Juan.—Saffron, flax seed. 272
263 Rodriguez, Severo, Province of San Juan.—Mustard. 272
266 Poblete, Tiburcio, Province of San Juan.—Medicinal seeds, herbs, and plants. 272
267 Provincial Commission, Province of Santiago del Estero.—Medicinal herbs. 272
268 Lacour, Guillermo, Province of Buenos Ayres.—Orthopedic apparatus. 276
269 Newbery, Rodolfo, Province of Buenos Ayres.—Artificial teeth. 272

Fabrics of Vegetable, Animal, or Mineral Materials.

271 Provincial Commission, Province of Salta.—Brooms from Totoro. 286

Carriages, Vehicles, and Accessories.

272 Balvintero, Victorino, Province of Buenos Ayres.—Horse-hair whip. 296
273 Peñalva, Benito, Province of Buenos Ayres.—Horse belt. 296
274 Vedela, Juan, Province of Buenos Ayres.—Harness. 296
275 Provincial Commission, Province of Buenos Ayres.—Silver spurs. 296
276 Guntsche, J., & Schröder, Province of Buenos Ayres.—Saddles. 296
276a Valdez, Honorio, Province of Buenos Ayres.—Plaited lasso. 296
277 Mattaldi, Eugenio, Province of Buenos Ayres.—Saddles and harness. 296
278 Provincial Commission, Province of San Juan.—Saddlery and harness. 296

For classes of exhibits, indicated by numbers at end of entries see Classification, pp. 27-45
## Harness, Ornaments.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Province</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>279</td>
<td>Tirapegui, Ramon</td>
<td>Province of San Juan</td>
<td>Mexican saddle, stirrups, bridles, etc.</td>
</tr>
<tr>
<td>280</td>
<td>Rodriguez, Victor</td>
<td>Province of San Juan</td>
<td>Harness and stirrups.</td>
</tr>
<tr>
<td>281</td>
<td>Rodriguez, Severo</td>
<td>Province of San Juan</td>
<td>Spurs and horse cloth.</td>
</tr>
<tr>
<td>282</td>
<td>Crest, M., &amp; Co.</td>
<td>Province of Santa Fé</td>
<td>Pack saddle used by the army, leather girth, etc.</td>
</tr>
<tr>
<td>283</td>
<td>Provincial Commission</td>
<td>Province of Santa Fé</td>
<td>Horse cloths, tapir leather reins and surcingle.</td>
</tr>
<tr>
<td>284</td>
<td>Provincial Commission</td>
<td>Province of Tucuman</td>
<td>Leather caparisons, saddlery, lassos, etc.</td>
</tr>
<tr>
<td>285</td>
<td>Provincial Commission</td>
<td>Province of Cordoba</td>
<td>Harness, saddlery, horse cloth, etc.</td>
</tr>
<tr>
<td>286</td>
<td>Provincial Commission</td>
<td>Province of San Luis</td>
<td>Bristle horse cloth, ostrich feather and other caparisons.</td>
</tr>
<tr>
<td>287</td>
<td>Escobar, Juan de D.</td>
<td>Province of San Luis</td>
<td>Stirrups, braided shackles, girth, and reins.</td>
</tr>
<tr>
<td>288</td>
<td>Sosa, Rafael</td>
<td>Province of San Luis</td>
<td>Ostrich feather caparison.</td>
</tr>
<tr>
<td>289</td>
<td>Provincial Commission</td>
<td>Province of Salta</td>
<td>Pack-saddle, girth, straps, head stall, tapir leather reins, caparisons, lassos, etc.</td>
</tr>
<tr>
<td>290</td>
<td>Provincial Commission</td>
<td>Province of Catamarca</td>
<td>Vizcacha leather caparison, and braided lasso.</td>
</tr>
<tr>
<td>291</td>
<td>Andalgalá Commission</td>
<td>Province of Catamarca</td>
<td>Horse cloth, harness, girths, reins, bridles, etc.</td>
</tr>
<tr>
<td>292</td>
<td>Gigena, Justiniano</td>
<td>Province of Catamarca</td>
<td>Horse cloth.</td>
</tr>
<tr>
<td>293</td>
<td>Gonzalez, Daniel</td>
<td>Province of Mendoza</td>
<td>Horse cloths.</td>
</tr>
<tr>
<td>295</td>
<td>Provincial Commission</td>
<td>Province of Jujui</td>
<td>Tapir leather reins, bridle, etc.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
CHILI.
(South of Nave, Columns 3 to 5.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art.

<table>
<thead>
<tr>
<th>Chemical Manufactures.</th>
<th>Fabrics of Vegetable, Animal, or Mineral Materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Salcedo, L., Bogota, Columbia.— Oil of wood, for medicinal purposes.</td>
<td>15 Waddington, Wm., Department of Limache, Province of Valparaiso.—Straw, brooms, and brushes.</td>
</tr>
<tr>
<td>2 Campora Brothers, Department of Santiago, Province of Santiago.—Olive oil.</td>
<td>16 Osthaus, Luis, Department of Limache, Province of Valparaiso.—Rope and cordage.</td>
</tr>
<tr>
<td>3 Celeodonia, Diaz de la Vega, Valparaiso.—Portumes, etc.</td>
<td>17 Reich, Federico, Santiago.—Rope and wire cordage.</td>
</tr>
<tr>
<td>Ceramics—Pottery, Porcelain, Glass, etc.</td>
<td></td>
</tr>
<tr>
<td>4 Escudero, R., Santiago.—Samples of enameled tiles for flooring.</td>
<td></td>
</tr>
<tr>
<td>Furniture and Objects of General Use in Construction and in Dwellings.</td>
<td></td>
</tr>
<tr>
<td>5 Dell, Aquila A., Santiago.—Alabaster table tops.</td>
<td></td>
</tr>
<tr>
<td>Woven and Felted Goods of Wool, etc.</td>
<td></td>
</tr>
<tr>
<td>6 School for Poor Girls, Molina, Department of Lontue.—Assorted worsteds.</td>
<td></td>
</tr>
<tr>
<td>Clothing, Jewelry, Ornaments, and Traveling Equipments.</td>
<td></td>
</tr>
<tr>
<td>7 School for Poor Girls, Molina, Department of Lontue.</td>
<td></td>
</tr>
<tr>
<td>8 Astudillo, J. M., Santiago.—Leather and silk boots and shoes.</td>
<td></td>
</tr>
<tr>
<td>9 Monastery, of the Good Shepherd, Santiago.—Embroidered handkerchiefs.</td>
<td></td>
</tr>
<tr>
<td>10 Cadiz, Jose, Gabriel, Santiago.—Gypsum ornaments.</td>
<td></td>
</tr>
<tr>
<td>11 Schreabler, Federico, Santiago.—Card baskets.</td>
<td></td>
</tr>
<tr>
<td>Paper, Blank Books, Stationery.</td>
<td></td>
</tr>
<tr>
<td>12 Schreblar, Federico, Santiago.—Blank books; samples of printing, lithography, and binding.</td>
<td></td>
</tr>
<tr>
<td>13 &quot;Mercurio&quot; Printing &amp; Binding Office.—Specimens of printing and binding.</td>
<td></td>
</tr>
<tr>
<td>Medicine, Surgery, Prosthesis.</td>
<td></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
262 DEPT. II.—MANUFACTURES.

Art, Machinery, Agricultural, Animal, Vegetable Products.

32 Bravo, Simon, Santiago.—One crucifix, carved in wood. 45

Engraving and Lithography.

33 Baldé, Juan C., Santiago.—Pen drawing. 420

Ceramic Decorations, Mosaics, etc.

14 Dell, Aquila A., Santiago.—Black marble table tops, inlaid with mosaic. 459

35 Dic, José, Antonio, Valparaiso.—Wood mosaic. 459

Machines, Tools, etc., of Mining, Chemistry, etc.

26 Chili, Government of.—Working model of gold and silver amalgamating machine. 506

Machines and Implements of Spinning, Weaving, and Paper-making.

37 School for Poor Girls of Molina, Department of Lontue.—Weaving frame for cotton. 591

Arboriculture and Forest Products.

38 National Society of Agriculture, Santiago.
   a Building woods of Chili. 606
   b Ornamental woods of Chili. 603

39 Billeterich, Juan, Ancud.—Varnished woods. 601

40 Lontue, Department of.—Samples of wood. 608

Agricultural Products.

41 National Society of Agriculture, Santiago.
   a Medicinal herbs of Chili. 621
   b Seeds. 624

42 Enrique, Clasen, & Co.—Cigars, cigarettes, smoking and leaf tobacco. 623

43 Cox, W. O.—Cut tobacco. 623

44 Waterhouse, Thomas, Santiago,—Hops. 623

55 Pretta, Pedro, Santiago.—Seeds separated by machinery. 744

Land Animals

46 Soto, O. & M., Quillota.
   a Stuffed beinamel. 633
   b Stuffed condor. 635
   c Stuffed puma. 637

Water Animals, Fish Culture and Apparatus.

47 Sciacagula & Co., Calbuco.
   a Preserved fish. 641
   b Preserved shell fish. 643

Animal and Vegetable Products.

48 Valenzuela, P. N., Rengo.—Leather, tanned and varnished. 652

49 Wolfe, A., & C., Tome.—Glue. 652

50 Day, J. M., Colchagua.—Wax. 654

51 National Society of Agriculture, Santiago.—Wax. 654

52 Escheverria, J. R., Quillota.—Wax. 654

53 Gallo, A. M., Caupolican.—Wax. 654

54 Dupuch, B., Limache.
   a Preserved fruits, marmalades, etc. 660
   b Claret. 660

55 Pretta, Pedro, Santiago.—Extract of coffee and bran. 656

56 Velasco, J. J., Mill Santiago.—Flour. 657

57 Zapata, L., Department of Quillota, Province of Valparaiso.—Starch. 658

58 Donis, Felipe, Department & Province of Santiago.—Fruit syrup and lemons. 659

59 Urmeneta, José Tomas de, Department of Limache, Province of Valparaiso.—Claret and sauterne wines. 660

60 Montane, R., Department of Limache, Province of Valparaiso.—Claret. 660

62 Campora Bros., Department of Santiago, Province of Aconcagua.—Whisky, cider, and wine. 660

63 Ochagavia, Silvestre, Department of Santiago, Province of Santiago.—Claret and sauterne. 660

64 Infante, Manuel, Department of San Felipe, Province of Aconcagua.—Whisky, cider, and wine. 660

65 Rusques, Juan, Department of Quillota, Province of Valparaiso.—Claret. 660

66 Salva, de Pelle, Margarita, Department of Quillota, Province of Valparaiso.—Claret. 660

67 Zapata, L., Department of Quillota, Province of Valparaiso.—Whisky and claret. 660

68 Meneses, N., Department of Quillota, Province of Valparaiso.—Claret. 660

69 Rogers, Salamanca F., & Co., Department of Victoria, Province of Santiago.—Claret and sauterne. 660

70 Ovalle, D. & E., Department of Victoria, Province of Santiago.—Claret and sauterne. 660

71 Vargas, Bias, Department of Victoria, Province of Santiago.—Claret and sauterne. 660

72 Paulsen, J., Department of Chillan, Province of Chillan.—Claret, white, and port wine. 660

73 Gallo, Department of Copiapé, Province of Aconcagua.—Madeira wine. 660

74 Riquieri & Co., Department of Valparaiso, Provinceof Valparaiso.—Brandy, curagao, and fancy liquors. 660

75 Serrano, H., Department of Concepcion, Province of Concepcion.—Claret and red wine. 660

76 Perez, Juan José, Department of Casablanca, Province of Valparaiso.—Whisky and claret. 660

77 Plageman & Co., Valparaiso.—Beer, ale, and lager beer. 660

78 Codelia, Juan, Santiago.—Vermicelli. 661

Textile Substances of vegetable or Animal Origin.

79 Barros, Laura, Santiago.—Wool. 664

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
## PERU.

(South of South Avenue, Columns 2 to 5.)

### COLLECTIVE EXHIBIT.

Minerals, Manufactures, Education, Art, Agriculture.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Special Commissioner to the Exposition from Lima. Minerals of Peru.</td>
</tr>
<tr>
<td>4</td>
<td>Garces, Vicente, Puira. Soap.</td>
</tr>
<tr>
<td>6</td>
<td>Prugue, E., Lima. Oil, soap, candles.</td>
</tr>
<tr>
<td>7</td>
<td>Penitentiary of Lima. Woodwork. Furniture and Objects of General Use in Construction and in Dwellings.</td>
</tr>
<tr>
<td>8</td>
<td>Puira, Department of. Ponchas, towels, etc.</td>
</tr>
<tr>
<td>10</td>
<td>Amazon, Department of the. Vegetable silk.</td>
</tr>
<tr>
<td>11</td>
<td>Brambilla, Fortunato, Lima. Shirts, cuffs, and collars. Clothing, Jewelry, and Ornaments; Traveling Equipments.</td>
</tr>
<tr>
<td>12</td>
<td>Ayacucho, Department of. Clothing. Silver filigree work, etc.</td>
</tr>
<tr>
<td>13</td>
<td>Torre, Manuel Espirito la, Lima. Gloves.</td>
</tr>
<tr>
<td>14</td>
<td>Navarro, Pedro, Catasos. Straw hats.</td>
</tr>
<tr>
<td>18</td>
<td>House of Santa Rosa, Lima. Embroideries.</td>
</tr>
<tr>
<td>27</td>
<td>Muniz, Ramon, Lima. La Chilena, The Peruvian Rabona (oil paintings).</td>
</tr>
<tr>
<td>28</td>
<td>Municipal School of Lima. Photographs. Arboriculture and Forest Products.</td>
</tr>
<tr>
<td>29</td>
<td>Ayacucho, Department of. Woods from Huanta and La Mar. Pomology.</td>
</tr>
<tr>
<td>30</td>
<td>Special Commission to the Exhibition. Woods.</td>
</tr>
<tr>
<td>31</td>
<td>Ayacucho, Department of. Nuts.</td>
</tr>
<tr>
<td>32</td>
<td>Valcarcel, Venancio, Maguega. Olives.</td>
</tr>
<tr>
<td>33</td>
<td>Pisco, Province of. Raisins.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Agricultural, Animal, Vegetable Products.

34 Vico, Vicente, Moguea.—Oives. 611
35 Loreto, Department of.—Nuts. 611

Agricultural Products.
36 Society for the Increase of Peruvian Industry, Lima.—Grains. 620
37 La Libertad, Department of.—Grains from the Province of Ozuco. 620
38 Loreto, Department of.
   a Beans. 621
   b Coffee. 623
40 Ayacucho, Department of.—Coffee and cocoa. 623
41 Amazon, Department of The.—Coffee and tobacco. 623
42 Goycura, J. B., San Pedro.—Coffee. 623
43 Pouehan, Antonio, & Co., Lima.—Cigars. 623
44 Special Commissioner to the Exhibition from Lima.—Huanco coffee. 623
45 Puira, Department of.—Cigars. 623
46 Botanical Garden of Lima.—Seeds. 624

Animal and Vegetable Products.
47 Segovia, Carolina, Challuca.—Hides. 632
48 Ayacucho, Department of.—Skins. 632
49 Goycura, J. B., San Pedro.—Rice. 637
50 Solf, Alfred, & Co., Chiclayo.
   a Rice. 637
   b Sugar. 639
   c Alcohol. 660
51 Puira, Department of.—Starch. 658
52 Laos, Mariano.—Sugars. 659
53 Laos, Domingo, Lima.—Sugar. 659
54 Swain, Enrique, Lima.
   a Sugar. 659
   b Rum and brandies. 660
55 Ward, M. Adrian, Tacna.—Wines and brandies. 660
56 Boza, Jose, Pisco.—Liquors, wines, and brandies. 660
57 Davila e higos, Lima.—Brandies. 660
58 Torre, Mariano, Lima.—Wines. 660
59 Palacios, Fernande, Lima.—Wines and brandies. 660
60 Pandoy, José Maria, Algosta.—Wines. 660
61 Society for the Improvement of Peruvian Industries, Lima.—Amazon bitters, liquors. 660
62 Barrios, José P., Moquegua.—Brandy and liquors. 660
63 Cabello, Gregorio, Lima.—Liquors, wines, and brandies. 660
64 Barrios, Domingo, Moquegua.—Wines. 660
65 Barrios, Samuel, Moquegua.—Wines. 660
66 Dios de la Quintana, Juan de, Ica.—Liquors, wines, and brandies. 660
67 Barrios, José Maria.—Liquors, wines, and brandies. 660
68 Torre, Manuel Espiritu la.—Liquor from Conocancha. 660
69 Salas & Terry, Lima.—Rum. 660
70 Soldan, Luis Paz, Lima.—Olive oil. 666
71 Ylo, Province of.—Olive oil. 662
72 Lerra, Manuel J., Puira.—Castor oil. 662

Textile Substances of Vegetable or Mineral Origin.
73 Dios de la Quintana, Juan de, Ica.—Cotton. 665
74 Navarez, José Maria' Cardenas, Ayacucho.—Huantra cotton. 665
75 Elias, D. & C., Lima.—Cotton. 665
76 Torre, Manuel Espiritu la.—Wool. 667
77 Ayacucho, Department of.
   a Wool. 667
   b Silk. 668
78 Special Commissioner to the Exhibition.—Cocoons and silk. 668

Agricultural Engineering and Administration.
79 Peru, Government of.—Guano deposits from Lobos, Pabellon de Pica, and Guamilas. 681

Ornamental Trees, Shrubs, and Flowers.
80 Botanical Garden of Lima.—Plants. 701
81 Special Commissioner to the Exhibition.—Plants for silk worms. 704

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
MEXICO.

(South of Nave, Columns 64 to 67.)

COLLECTIVE EXHIBIT.

Chemicals, Ceramics, Furniture, Woven Goods, Clothing.

Chemicals.

1 Mier, Antonio, State of Jalisco.—Natural salts of sodium. 200
2 Hay, Guillermo, City of Mexico.—Salts of sodium, extracted from the lakes of the Valley of Mexico. 200
3 Rio de la Loza, Manuel, City of Mexico.—Salts of sodium. 200
4 State Government of Yucatan, Merida.—Salts of sodium. 200
5 State Government of Campeche, Salts of sodium. 200
6 State Government of Mexico.—Salts of sodium. 200
7 Rio de la Loza, Maximino.—Chemical products. 200
8 Legero, M., City of Puebla.—Stearine. 200
8a Hurtado, H.—White and red lead. 200

Ceramics.—Pottery, Porcelain, Glass etc.

9 Casarir, Alexander, & Co., City of Mexico.
   a Indian vases. 206
   b Porcelain. 213
10 Guerrero, Ygnacia, Puebla City.—Bricks. 206
11 State Government of Morelos.—Indian vases. 206

Furniture and Objects of General Use in Construction and in Dwellings.

12 Garcia, Francisco, State of Oaxaca.—Chairs of Mexican reeds. 217
12a State Government of Hidalgo.—Mexican agave fibre manufactures. 229
12b State Government of Yucatan.—Hammocks, shawls, bags, and other objects, made of istle, or fibres, of the Mexican henequen (agave of Yucatan). 229
13 Gomez, Poloma J., Guadalajara City.—Cotton yarn. 230
14 Rosario Hacienda, State of Coahuila.—Cotton goods. 230
15 Trapaga, Torricelo, & Co., State of Oaxaca.—Yarns; cotton cloth. 230
16 Colima Workingmen's Club.—Cotton goods for vestings, etc. 230
17 Bermejillo, Pio, City of Mexico.—Cotton goods. 230
18 Davila, Hoyas, Saltillo City.—Cotton goods. 230
19 El, Labrador Factory, Saltillo City.—Cotton goods. 230
20 Aurora Factory, Saltillo City.—Cotton goods. 230
21 Comte, Manuel, City of Puebla.—Cotton goods. 230
22 Patriotismo Factory.—Cotton cloths. 230
23 Quijano, Alejandro.—Cotton goods. 230
24 La Beneficencia Factory.—Cotton goods. 230
25 Benites, D., City of Puebla.—Cotton goods. 230

Woven and Felted Goods of Wool, etc.

25a Zempoala Factory, State of Guanajuato.—Woolen goods. 235
26 Rosa, Manuel, City of Mexico.
   a Cassimares. 235
   b Blankets. 237

Silk and Silk Fabrics.

27 City of Puebla.—Silks and silk fabrics. 244

Clothing, Jewelry, and Ornaments; Traveling Equipments.

28 State Government of Coahuila.—Zarapes. 250
29 Tailors' Society, City of Mexico.—Charro dress. 250
30 State Government of Yucatan.—Indian baby dress. 250
31 Polo, Miss Luz, City of Mexico.—Fancy shirt. 250
32 Hernandez, Mrs. Amalia, City of Mexico.—Fancy shirts. 250
33 Cusset, N., City of Mexico.—Gloves. 250
34 Fernandez, Gertrude.—Embroidery. 259
35 Robles, Miss Rita.—Embroidery. 259
36 Perry, Miss Concepcion.—Embroidery. 252
37 Castorena, Miss Merced.—Embroidery. 252
38 Fuentes, Miss Loreto.—Embroidery. 257

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-4.
DEPT. II.—MANUFACTURES.

Fancy Goods, Stationery, Medicine, Education and Science.

39 Montes de Oca, Miss Bernardo.—Embroideries. 250
40 Velasquez, Mrs. Luz, City of Mexico.—Embroidered handkerchief. 252
41 Loreto, Mrs., City of Mexico.—Embroidery. 251
42 Mata, Mrs. Josefina, City of Mexico.—Fancy towel. 252
43 Campo de Mata, Mrs. Josefina, City of Mexico.
   a Cushion in filigree. 252
   b Fancy box. 254
45 Pensado, Mrs., & Sisters.—Artificial flowers. 254
46 Carvajal, Antonio, City of Mexico.—Gold and silver galleon. 254

Paper, Blank Books, Stationery.
47 Benfield, City of Mexico.—Paper. 260
49 Dias, Leon Francisco de, City of Mexico.—Specimens of printing. 260

Medicine, Surgery, Prosthesis.
50 Griissi, J.—Medicinal plaster. 272
51 Morrill, A.—Extract of zarzaparrilla and other preparations. 272
52 Society of Natural History.—Medical plants. 272
53 Pink, Hugo, State of Vera Cruz.—Cinchona, from Cordova. 272
54 Rogul, Antonio, City of Mexico.—Artificial teeth. 273
55 Chacun, Mariano.—Artificial teeth. 273

Fabrics of Vegetable, Animal, or Mineral Materials.
56 Carvajal, Antonio, City of Mexico.—Indian manufactures from the State of Michoacan. 276
56a Escobedo, Mariano, City of Mexico.—Indian manufactures from the State of Yucatan. 289

Educational Systems, Methods, and Libraries.
57 Cerna, David, City of Mexico.—Musical compositions. 302
57a Peralta, Mrs. Angela.—Musical compositions. 302
58 Garfias, Miss Maria.—Musical works. 302
58a Rocha, Miss Amelia, City of Mexico.—Musical compositions. 302
59 Alcaraz, Vicente.—Elementary arithmetic. 306
60 Almaraz, Pascal.—Treatise on railroads. 306
61 Argandar, Alejandro.—Commercial arithmetic. 306
62 Bablot, Aranayo.—Children's recreational books. 306
63 Castilla, Antonio y.—Lessons on religion and morality. 306
64 Manuel, Contreras.—Elements of mathematics; lessons on morality. 306

Our classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.

65 Chimalpopoca, Faustino, City of Mexico.—Nahuatl language. 306
66 Covarrubias, Francisco.—Astronomical and geographical works. 306
67 Domisguer, J.—Geography and statistics. 306
68 Garcia y Cubas, Antonio.—Geography and statistics. 306
69 Gama, Muco.—Geometry. 306
70 Gutierrez, Serapio.—School books. 306
71 Garcia, Vargas.—Elementary Spanish grammar. 306
72 Gabran, Rivera.—Arithmetic. 306
73 Hermosa, J.—Geography. 306
74 Moral, Fomas.—Geography. 306
75 Marrogui, J. M.—Democratic catechism and orthography. 306
76 Murugia.—School books. 306
77 Magalori, Horatio.—Italian grammar. 306
78 Orellana, Estevan.—Latin language. 306
79 Oviedo, Paulino.—School books. 306
80 Orozco, Antonio.—Book keeping. 306
81 Payno, Manuel.—Compendium of geography. 306
82 Paniagua, Cenobio.—Lessons on harmony. 306
83 Rosas, Jose.—School books and other works. 306
84 Rivera, T. Rio.—Reading book. 306
85 Rius, Davila.—Metrical system. 306
86 Remigio, Rodriguez.—Spanish grammar. 306
87 Tamborrel.—Equations. 306
88 Ferrazas, Jose Joaquim.—Elementary arithmetic. 306
89 Zambrano, Francisco.—Lessons on orthography, and other works. 306
90 Mexican Mining Society.—"El Prosector" (scientific paper). 306
91 Tapia, Mrs. Estevan.—Works on literature and poetry. 306
92 Arriago, Joaquim.—Recreative science. 306
93 Aguilar, Bruno.—Treatise on artillery. 306
94 Arteaga, Juan.—Zootechnical studies. 306
95 Aiyie, Patricio.—Calculus. 306
96 Arroniz, Marcus.—Biography. 306
97 Barcena, Mariano.—Works on natural history. 306
98 Barcena, M. Jose Roa.—Treatise on history and geography. 306
99 Brito, Jose.—Works on jurisprudence. 306
100 Bernardy, Mrs. Louisa.—Geography of Mexico. 306
101 Castillo, Velasco.—Constitutional rights. 306
102 Chaverro, Alfredo.—Archaeological essays. 306
103 Dias, Barrier.—Mexican penal code. 306
104 Diaz, Jose Covarrubias.—Public instruction in Mexico. 306
Education and Science, Art, Vessels, Woods.

105 Escandon, Pedro.—Instruction in fine arts. 306
106 Espeinon, Isidoro.—Works on topography and thermometry. 306
107 Garcia, Antonio Cubas.—History. 306
108 Iglesias, Jose Maria.—Historical documents. 306
109 Iglesias, Angel.—Laryngoscopy. 306
110 Jimenez, Julio.—On public administration. 306
111 Lobato, J. Guadalupe.—Cerebral softening. 306
112 Lozano, J. M.—Civil code. 306
113 Lescano, Antonor.—Agriculture. 306
114 Mender.—Narrow gauge in operation. 306
115 Maravedo, Salazar.—Military maneuvering. 306
116 Montez, R. Oca.—Ornithological essays. 306
117 Martinez, Victor.—History of the Mexican Revolution. 306
118 Monteil, Duarte.—Personal and civil rights. 306
119 Martinez, Joaquim.—Modern and ancient history and mythology. 306
120 Martinez, Del Rio.—Cultivation of cotton. 306
121 Nunez, Angel.—Geography of Vera Cruz. 306
122 Orozco, Manuel Berra J.—Hydrographical chart of the valley of Mexico, and geography of language. 306
123 Perez, E. Juan.—Statistical almanacs. 306
124 Perez, Hernandez.—Geographical dictionary. 306
125 Prieto, Guillermo.—Political economy, and other works. 306
126 Pimental, Francisco.—Comparative and descriptive sketch of American physiology. 306
127 Peon, Jose Contreras.—Historical romances. 306
128 Rivas, Jose.—Code of urbanity. 306
129 Sierra, Justo.—Maritime law. 306
130 Povran, Partaleon.—Parliamentary history. 306
131 Zayas, Pablo.—Dictionary of Mexican legislation, civil code. 306
132 Federal Government.—Works upon the gubernatorial system, relating to the department of the interior, war, navy, public instruction, topography, and other scientific subjects. 306
133 Pharmaceutical Society of Mexico.—Pharmacopoeia of the city of Mexico. 306
134 Larry Scientific Association.—Historical accounts and reports of the proceedings of the association. 306
135 Mexican Scientific Society.—Works on education and geography. 306
136 Society of Natural History.—"La Naturaleza."—Scientific newspaper. 306
137 Humboldt Society.—"Humboldt's Annual." 306

138 Department of Public Works.—Drainage of the valley of Mexico, topography of the federal districts of the city of Mexico, of the mountains of Pachuco, and of the palace of the archbishop of Mexico. 306

Institutions and Organizations.

139 Romier, Cuatafraro T.—Pyrocosmological study of minerals from Guanajuato. 311
140 Camacho, J., City of Mexico.—Musical compositions. 313
141 Ytuarte, J., City of Mexico.—Musical compositions. 313

Scientific and Philosophic Instruments and Methods.

142 Loera, City of Mexico.—Frenometry. 320
143 Oropera, Guillermo.—Sensible scales. 320
144 Zenca, J. Estrada, City of Mexico.—Map. 335
145 Ramirez & Cuataparo, City of Mexico.—Maps. 335
146 Barcena, Mariano, City of Mexico.—Maps. 335

Oil Paintings.

148 Majira, Mrs. G.—Oil paintings. 410
149 Labisky, Mrs.—Water color painting; "coffee plant." 411

Engraving and Lithography.

150 Loreto, Pupils of Mrs. a Engraving on wood. 422
b Lithographic work. 423

Photography.

151 Salazar, Miss.—Photographs. 430

Ceramic Decorations, Mosaics, etc.

152 Ramirez, Miss Soledad.—Cottage with clay figures. 454

153 Alcocer, Miss Antonia.—Fruits and flowers in wax. 454

Aerial, Pneumatic, and Water Transportation.

154 State Government of Campeche, Campeche City.—Model of a vessel. 504
154a Cesar, Jose Maria, City of Mexico.—Model of steam vessel. 505

Arboriculture and Forest Products.

155 State Government of Vera Cruz.—Woods. 600
156 State Government of Puebla.—Woods. 600
157 State Government of Yucatan.—Woods. 600
158 State Government of Campeche.—Woods. 600
159 State Government of Mexico.—Woods. 600
160 State Government of Hidalgo.—Woods. 600
161 State Government of Colima.—Woods. 600

For classes of exhibits, indicated by numbers at end of entries, see Classification pp. 47-45.
Agricultural, Animal, Vegetable Products.

| 165 Jimenez, J., Cuernavaca City.—Wood. | 194 State Government of Yucatan.—Skins. 
| 168 State Government of Colima.—Indigo. | 196 Preparatory School, Mexico City.—Beeswax. 
| 169 Society of Natural History.—Gums and resins. | 196 State Government of Hidalgo.—Vegetable wax. 
| 169a State Government of Oaxaca, Cereals. | 196 Society of Natural History, City of Mexico.—Vegetable wax. 
| 196a State Government of Campeche, Campeche City.—Caoutchouc. | 197 State Government of Yucatan.—Oil of the insect miin, used for burning metallic instruments. 

Agricultural Products.

| 170 Legarreta, A., Queretaro.—Cereals. | 198 Torres, N., Puebla City.—Flour. 
| 171 Cuevas Bros.—Wheat. | 199 Society of Natural History.—Farina. 
| 172 State Government of Puebla.—Cereals. | 200 Yzacbalcata & Garcia.—Sugar. 
| a Cereals. | 202 State of Puebla.—Sugar. 
| d Coffee. | 203 Zerango Hacienda.—Sugar. 
| 174 State Government of Morelos, Cereals. | 203a State Government of Yucatan, Morida City.—Sugar. 
| 174a Coahuista Hacienda, State of Mexico.—Wheat. | 204 Oaxacal Hacienda, State of Morelos.—Sugar. 
| 175 Society of Natural History. | 205 Goribar, Faustino.—Sugars. 
| | 206 Clara Santa Hacienda.—Sugar. 
| 176 Cirilo, Mingo.—Cordova coffee. | 207 Atlihuayan Hacienda.—Sugar. 
| 177 Cuantecomatan Co., Colima City.—Coffee. | 207a Ferrer, ignacio, City of Mexico.—Chocolate. 
| 178 Canedo, Señor.—Cigars and cigarnettes. | 208 Campos, Fernandez.—Feguita liquor. 
| 179 Martinez de la Force, City of Mexico.—Cigars and tobacco-leaf. | 208a State Government of Yucatan.—Sugars. 
| 180 Carceda, Thomas.—Tobacco and cigars. | 209 Paraiso Factory, Campeche Distillery.—Whisky. 
| 181 State Government of Vera Cruz.—Coffee. | 210 Yalzalituva, Rivera.—Pulque (agave liquor). 
| 182 State Government of Mexico.—Coffee. | 211 Cortez, Agapito.—Wines. 
| 182b Ortiz, Anastacio, City of Mexico.—Tobacco. | 213 Barreda, C.—Alcohol. 
| 183 Balza Bros.—Cigars. | 214 Martinez, J. M.—Jehuacan Puebla wines. 
| 184 Lascarain & Co.—Cigars, cigarette, etc. | 215 Boza, Simon.—Wines. 
| 185 Cainz, Antonio.—Tobacco, etc. | 216 Society of Natural History.—Vegetable oils. 
| 186 Madrazos & Co.—Tobacco, etc. | 217 Canas, Eduardo.—Olive oil. 
| 187 Asylum for the Poor, State of Puebla.—Cigars, tobacco, etc. | 218 Morrill, A.—Vegetable oils. 
| 188 Escobedo Gral, State of Michoacan.—Coffee. | 219 Jaspeado, J.—Olive oil. 
| 189 Santiago Villa, Vera Cruz.—Cordoba coffee. | 220 State Government of Yucatan.—Ricinio oil. 

Animal and Vegetable Products.

| 190 Severino, L. Perez.—Pipitza-h uma (a new vegetable base). | 221 Sayo, Vega de la, City of Mexico.—Vegetable oil. 
| 190a Garcia, Hilario, City of Mexico.—Skins. | 221a Cordera, Manuel, City of Mexico.—Vegetable oil. 
| 192 State of Colima.—Skins. | 222 State Government of Morelos, Cuernavaca City.—Cotton. |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Textile Fibres, Agricultural Engineering, Botanical Collections.

State of Coahuila, Saltillo City.—Cotton. 665
Pereda, Bias, San Luis Potosi City.—Cotton. 665
State Government of Campeche, Campeche City.—Cotton. 665
State Government of Hidalgo.—Cotton. 665
Herrera, Alfonso, Mexico City.—Products of chayote plant. 666
State Government of Oaxaca, Oaxaca City.—Vegetable fibres. 666
Juarez, T., Texcoco City.—Hemp. 666
State of Yucatan.—Fibres. 666
Cabo, J. de Villa.—Strings and cords. 666
State of Hidalgo.—Fibres of the Mexican maguey. 666
Lopez, Miguel.—Cords from the fibres of the agave. 666

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Chemical Manufactures

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Community of Heirs of Añana, Salinas de Añana, Province of Alava.—Salt obtained by filtering and by evaporation.</td>
</tr>
<tr>
<td>2</td>
<td>Salines of Terrevieja, Province of Alicante.—Salt.</td>
</tr>
<tr>
<td>3</td>
<td>Rosa Martinez, Joaquin de la, Berja, Province of Almeria.—Syrup of protiodide of iron and of ferruginous Peruvian bark.</td>
</tr>
<tr>
<td>4</td>
<td>Zabala Iniguez, Justo, Dalias, Province of Almeria.—Syrup of ferruginous Peruvian bark and concentrated essence of sarsaparilla.</td>
</tr>
<tr>
<td>5</td>
<td>Padilla, Francisco, Almeria.—Carbonate of lead.</td>
</tr>
<tr>
<td>6</td>
<td>Sureda &amp; Villalonga, Juan, San José, Ibiza, Baleares.—Chloride of soda.</td>
</tr>
<tr>
<td>7</td>
<td>Estruch &amp; Co., Andrs, Barcelona.—Manure.</td>
</tr>
<tr>
<td>8</td>
<td>Tobella &amp; Argila, Francisco J., Hospital de Llobregat, Province of Barcelona.—Manure.</td>
</tr>
<tr>
<td>9</td>
<td>Medinacli, Duchess, Cardona, Province of Barcelona.—Salt gemma.</td>
</tr>
<tr>
<td>10</td>
<td>Sanchez, Miguel, Barcelona.—Mineral and sea salt.</td>
</tr>
<tr>
<td>11</td>
<td>Pons, Bartolome, Sans, Province of Barcelona.—Cream of tartar and tartar crystal.</td>
</tr>
<tr>
<td>12</td>
<td>Fortuny Bros., Barcelona. a Magnesia, mustard paper, etc. b Almond oil.</td>
</tr>
<tr>
<td>13</td>
<td>Vte Mondova, Juan, San Juan, Porto Rico.—Cocoa butter, orange-flower water, citrate of lime, ricinus oil, almond oil, cocoanut oil, essential oil of orange-flower and lemon.</td>
</tr>
<tr>
<td>14</td>
<td>Dominguez Celestino, Guyana, Porto Rico.—Cocoa butter, castor oil, and tobacco pepper essence.</td>
</tr>
<tr>
<td>15</td>
<td>Taurino, Juan, Toledo.—Remedy for deafness.</td>
</tr>
<tr>
<td>16</td>
<td>Formiguera, G., Barcelona.—Pastilles, extracts, oil, syrups, liniments, etc.</td>
</tr>
<tr>
<td>17</td>
<td>Ferrer &amp; Batlle, Barcelona.—Chemical and pharmaceutical preparations.</td>
</tr>
<tr>
<td>18</td>
<td>Arola, A., &amp; Domenech, Francisco, Barcelona.—Chemical and pharmaceutical preparations.</td>
</tr>
<tr>
<td>19</td>
<td>Boada, G., &amp; Travassa, Gracia, Province of Barcelona.—Saltpate of copper, chloride of tin, sulphuric acid, nitric acid, etc.</td>
</tr>
<tr>
<td>20</td>
<td>Provincial Commission, Burgos.—Caleined and black animal bone.</td>
</tr>
<tr>
<td>21</td>
<td>Regis Cisneros, Francisco, Burgos.—Cream of tartar.</td>
</tr>
<tr>
<td>22</td>
<td>Bensusan, Antonio J., Puerto-Real, Province of Cadiz.—Sea salt.</td>
</tr>
<tr>
<td>23</td>
<td>Calle, Bernardo M. de la, Cadiz.—Sea salt.</td>
</tr>
<tr>
<td>24</td>
<td>Hidalgo y Berjano, Eduardo, San-lucar de Barrameda, Province of Cadiz.—Sea salt.</td>
</tr>
<tr>
<td>25</td>
<td>Forner Sales, Domingo, Burriana, Province of Castellon.—Orange flower and orange-flower water.</td>
</tr>
<tr>
<td>26</td>
<td>Corporation of Minglanilla, Province of Cuenca.—Salt gemma.</td>
</tr>
<tr>
<td>27</td>
<td>Gamboto y Calvo, Jose, Villalcayado, Province of Guadalajara.—Salt.</td>
</tr>
<tr>
<td>28</td>
<td>Munoz, Marcelino, Imon, Province of Guadalajara.—Salt.</td>
</tr>
<tr>
<td>29</td>
<td>Marín, Manuel, Córdoba.—Essence of sarsaparilla, extract and syrup of eucaultus, cod-liver oil, balsam opodeldoc, etc.</td>
</tr>
<tr>
<td>30</td>
<td>Leon Teruel, José, Huelva.—Salt obtained by evaporation.</td>
</tr>
<tr>
<td>31</td>
<td>Lopez de Codes, Tomás, Isle of Cristina, Province of Huelva.—Chemical guano.</td>
</tr>
<tr>
<td>32</td>
<td>Tapia y Pereira, Pedro, Isle Cristina, Province of Huelva.—Artificial guano.</td>
</tr>
<tr>
<td>33</td>
<td>Soriano, Aniceto, Jaen.—Salt obtained by evaporation.</td>
</tr>
<tr>
<td>34</td>
<td>Tiburcio Escabias, José, Jaen.—Salt.</td>
</tr>
<tr>
<td>35</td>
<td>Miguel Garcia, Manuel de, Jaen.—Salt.</td>
</tr>
<tr>
<td>36</td>
<td>Mas, Ramon, Lérida.—Barilla (impure soda).</td>
</tr>
<tr>
<td>37</td>
<td>Arteche, Angel Maria, Azofra, Province of Logroño.—Inalterable carbonate of iron.</td>
</tr>
<tr>
<td>38</td>
<td>Baanante, Juan, Chantada, Province of Lugo.—Mustard and cantharides powder.</td>
</tr>
<tr>
<td>39</td>
<td>Armesto Vinuesa, Francisco, Monfero, Province of Lugo.—Peat.</td>
</tr>
<tr>
<td>40</td>
<td>Delf Factory of Sargadelos, Cerro, Province of Lugo.—Peat.</td>
</tr>
<tr>
<td>41</td>
<td>Jorge de la Peña, José, Lugo.—Peat.</td>
</tr>
<tr>
<td>42</td>
<td>Puerta, Gabriel de la, Madrid.—Emetic tartar.</td>
</tr>
<tr>
<td>43</td>
<td>Canales, Juan Bautista, Málaga.—Essence of lemon, citric acid.</td>
</tr>
<tr>
<td>44</td>
<td>Fuentes &amp; Sons, Palencia.—Blister.</td>
</tr>
<tr>
<td>45</td>
<td>Escarpizo, Lorenzana, Augusto, Cangas, Province of Pontevedra.—Antiscorbutic and odontalgic elixir.</td>
</tr>
<tr>
<td>46</td>
<td>Gonzalez, Domingo Cecilio, Salamanca.—Nitrated of ammonia.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Chemical Manufactures.

46 Santiago Fuentes, Ignacio, Salamanca.—Chronic acid, arseniate of iron, etc. 200

47 Villar, José, Salamanca.—Pharmaceutical preparations. 200

48 Delgado, Joaquin, Seville.—Inalterable syrups. 200

49 Vinet, Trovisio, & Co., Seville.—Citric acid, hypophosphite of soda, etc. 200

50 Monge & Sanz, Bonifacio, Sarria.—Digital extract of digital, digitaline, essence of sarsaparilla, etc. 200

51 Cuchi y Dieixens, Tomás, Tarragona.—Arsenic, extract of tar, and meat in powder. 200

52 Eyries, Agustin, Valladolid.—Phosphate of lime and nitrate of soda. 200

53 Flor Carenou, & Tur, Zaragoza.—Extract of liquorice. 200

54 Diaz & Acebedo, Cletó, Havana, Cuba.—Preservative to prevent oxidizing of metals. 200

55 Quesada & Garcia, Aimeria.—Soap. 202

56 Fuster, Francisco, Palma de Mallorca, Balearic.—Oil of sweet almonds. 201

57 Corps of Mountain Engineers, Lerma, Province of Burgos.—Juniper oil. 201

58 Vega Grande, Count of, Las Palmas, Canary.—Walnut oil. 201

59 Carné & Moreno, Tarancón, Province of Cuenca.—Soaps. 201

60 Yaniz, Ambrosio, Villar del Humo, Province of Cuenca.—Juniper oil. 201

61 Coco & Bro., Celestino, Ubeda, Province of Jaén.—Soaps. 201

62 Gil de Muro, Isidoro, Andújar, Province of Jaén.—Common soaps. 201

63 Mon, Celestino, Rivadeo, Province of Lugo.—Soaps. 201

64 Perez Villamil, José, Rivadeo, Province of Lugo.—Soaps. 201

65 Juliá y Garcia Nuñez, Eusebio, Madrid.—Soaps. 201

66 Yarritu, Sons of, Carabanchel Baixo, Madrid.—Soaps. 201

67 Saenz Martinez, José Benito, Málaga.—Stannic and candles. 201

68 San Roman, Pedro, Oviedo.—Prepared wax for the manufacture of matches. 201

69 Moneo & Mirat, Salamanca.—Soap. 201

70 Renau, Angel, Béjar, Province of Salamanca.—Soap. 201

71 Falcon, Ruiz & Llorente, Coca, Province of Segovia.—Resin oil. 201

72 Falcon, Ruiz & Llorente, Córdoa.—Resin and colophonium. 201

73 Astolfi, Carlos, Seville.—Soap. 201

74 Conradi Bros., Seville.—Soap. 201

75 Conradi, Sons of J. B., Seville.—Soap. 201

76 Gasau, José Antonio, Seville.—Soap. 201

77 Carol & Co., Antonio, Reus, Province of Tarragona.—Soap. 201

78 Marca, Salvador, Reus, Province of Tarragona.—Soap. 201

79 Oliva, Salvador, Reus, Province of Tarragona.—Olive oil soap. 201

80 Zamora, Francisco, Reus, Province of Tarragona.—Soap. 201

81 Ruedas y Pedraza, Lorenzo, Toledo.—Soap. 201

82 Agudo, Gonzalez, Leandro, Valladolid.—Soap. 201

83 Girat, Nicolás, Regla, Island of Cuba.—Purification of burning gas. 201

84 Planella Roure, Alejandro, Barcelona.—Colors, varnishes, cardboards, and canvas for painting. 201

85 Perez Romero, Diego, Huelva.—Colloidion and photographers' varnish. 201

86 Acero, Antonio, Jaen.—Peroxide of aluminium iron. 201

87 Alcaraz Angulo, José, Madrid.—Ink. 201

88 Grau y Puig, José, Seville.—Bitumen. 201

91 Corporation of Bellica Medina, Province of Sarria.—Ochre. 201

92 Soaps, Juan, Reus, Province of Tarragona.—Ink. 201

93 Magallon, Francisco, Zaragoza.—Ink. 201

94 Miró & Corominola, José, Barcelona.—Spanish hair-dye. 203

95 Avilés y Merino, Francisco, Córdoba.—Alcohol, orange-peel syrup, etc. 201

96 Garcia Martinez, Francisco, Santiago de Compostela.—Ether. 201

98 Villalon, Eduardo, Madrid.—Toilet waters and cream. 203

99 Huelin & Son, Guillermo, Malaga.—Extract of liquorice. 203

100 MacAndrews & Co., Coria, Province of Sevilla.—Liquorice. 203

101 Llofriu, Manuel, Seville.—Rice flour. 203

102 Delgado, Joaquin, Seville.—Depurative and regenerative essence. 203

103 Padilla, José, Seville.—Tincture of Bismarck. 203

104 Burguillo, Castro, Joaquin, Seville.—Vegetable balsam. 203

105 Estivill, Antonio, Reus, Province of Tarragona.—Orange-flower water. 203

106 Gisbert & Soier, Juan, Torredembarra, Province of Tarragona.—Dentifrice powder and elixirs. 203

107 Orive, Salustiano, Bilbao, Province of Vizcaya.—Chemical and pharmaceutical products. 203

108 Saliax, Juan Vicente, Havana, Island of Cuba.—Cosmetic. 203

109 Lasas y Elizondo, Dionisio, Tarazona, Province of Zaragoza.—Phosphoric wax papers. 204

110 Artiz, Antonio, Marta, Havana, Island of Cuba.—Phosphorus. 204

111 Arteaga & Jaurégui, Havana, Cuba.—Phosphorus. 204

112 Military Pyrotechny, Seville.—Fusees, quick-matches, and cartridges 204

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Ceramics, Glass, Furniture.

113 Muñoz Iñiguez, José, Seville.—Rockets.

114 Vives & Aspiroz, Rafael, Villa de Oliva, Province of Valencia.—Flags. 208

115 Romeu & Barella, Hospital, Province of Barcelona.—Brick and tiles.

116 Provincial Commission, Burgos.
   a Tiles, bricks, and pipes. 206
   b Pottery. 210

117 Escudero, Pascual, Burgos.—Bricks. 206

118 Bueso Fabregad, Vicente, Castellon.—Glazed tiles. 206

119 Fabregad & Co., Francisco, Castellon.—Glazed tiles. 206

120 Provincial Commission, Lugo.—Pottery. 2-6

121 Fernandez Castañeda, Telesforo, Las Rozas y Arroyo.—Tiles. 206

122 Ochoa, José Maria de, Segovia.—Bricks, tiles, and flagstones. 206

123 Carral, Widow of Ignacio, Segovia.—Tiles, flagstones, and bricks. 206

124 Corporation of Moren, Province of Seville.—Bricks and pipes. 206

125 Casado, Melchor, Débanos, Province of Soria.—Tiles, flagstones, and bricks. 206

126 Cucuny, Pablo, Barcelona.—Refractory earthenware. 207

127 Molàs & Co., Barcelona.—Refractory clay. 207

128 Gomez, Sebastian, Trujillo, Province of Cáceres.—Earthenware. 207

129 Fernandez, Tomas, Trujillo, Province of Cáceres.—Earthenware. 207

130 Bueno, Remigio, Trujillo, Province of Cáceres.—Earthenware. 207

131 Fernandez, José, Trujillo, Province of Cáceres.—Earthenware. 207

132 Oliago, Manuel, Trujillo, Cáceres.—Earthenware. 207

133 Oliago, Juan, Trujillo, Province of Cáceres.—Earthenware. 207

134 Pajares, Juan, Arroyo del Puerco, Province of Cáceres.—Earthenware. 207

135 Bisier, Benito, Cuenca.—Manufactures of clay. 207

136 Corporation of Chilaca, Province of Cádiz.—Pitchers and pottery. 207

137 National Factory of Trubia, Oviedo.—Refractory bricks. 207

138 Sagarmonaga, Gerardo, Muelas del Pan, Province of Zamora.—Refractory clay and crucibles. 207

139 Santiagos & Co., Macías, Barcelona.  
   a Tiles. 208
   b Crockery. 210

140 Barella, Joaquin, Hospital de Llobrégat, Province of Barcelona.—Ceramics, ornaments and paving tiles. 208

141 Llevat & Son, Antonio, Reus, Province of Tarragona.—Mosaic. 208

142 Soto y Tello, Manuel, Seville.—Mosaic tiles. 208

143 Gonzalez, R., Valencia.—Enameled tiles. 208

144 Diez Cataluña, Salvador, Manises, Province of Valencia.—Enameled tiles. 208

145 Nolla & Son, Miguel, Meliana, Province of Valencia.—Mosaic flagstones. 208

146 Girona y Mató, Ramon, Alcora, Province of Castellon.—Delft. 210

147 Aljama Moreno, Miguel, La Rambla, Province of Córdoba.—Pitchers. 210

148 Jimenez de García, Antonio, La Rambla, Province of Córdoba.—Pitchers. 210

149 Leon y Raigon, Antonio, La Rambla, Province of Córdoba.—Pitchers. 210

150 Provincial Deputation of Múrcia.—Delft. 210

151 Fuentes y Ponte, Javier, Múrcia.—Antique vases. 210

152 Association of Potters of Andújar, Province of Jaen.—Pots. 211

153 His Majesty the King of Spain, Madrid.—China. 213

154 Garcia Montalvan, Francisco, Seville.—Delft of earthenware. 213

155 Pickman & Co., Seville.—Delft and china. 213

156 Vallès & Sons, José, Barcelona.—Crystal. 214

157 Fernandez Castañeda, Telesforo, Las Rozas, Province of Santander.
   a Plate glass. 214
   b Crystal lantern. 216

158 Casademunt, Modesto, Barcelona.—Fine glass bottles for chemicals. 214

159 Fernandez Castañeda, Telesforo, Reinosa, Province of Santander.—Glass bottles. 214

160 Farris, A., & Co., Badalona, Province of Barcelona.—Crystal ware. 216

Furniture and Objects of General Use in Construction and in Dwellings.

161 Isaura, Francisco de Paula, Barcelona.—Objects of bronze and white metal. 217

162 Roberst, Epifanio, Barcelona.
   a Dressing-table, couch. 217
   b Picture frame. 220

163 Forzano Bros., Madrid.—Sideboard for dining-room. 217

164 Pascual y Granés, Pedro, Barcelona.—Window. 219

165 Molins, José, Havana, Cuba.—Impermeable wood curtains. 220

166 Gallardo Bastant, Luis, Barcelona.—Gas apparatus. 222

167 Isaura, Francisco de Paula, Barcelona.—Gas apparatus. 222

168 Metallurgical Society of San Juan de Alarcón, Province of Albacete.—Manufactures of brass. 224

169 Riera, L. A., & Co., Arenys de Mar, Province of Barcelona.—Corks. 224

170 Moragrega & Soldevila, Tomás, Castellon.—Cork vessel. 224

171 Brochi, Juan, Havan, Cuba.—Tin cans for preserving fruits. 224

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Yarns and Woven Goods of Vegetable or Mineral Materials.

176 Oyarzabal, Jorgé, Philadelphia, Pa. —Apparatus for serving ice cream. 224

Woven Goods.

177 Beltran y Lopez, José, Elche, Province of Alicante.—Twine and string. 229

178 Fuentes Aguillo & Bros., Francisco, Elche, Province of Alicante.—Palm leaf and articles manufactured from the same. 229

179 Más & Son, Manuel, Crevillente, Province of Alicante.—Esparto, rush, and bass fabrics. 229

180 Rampal, Juan, Elda, Province of Alicante.—Esparto mats and carpets. 229

181 Sevilla & Perez Bros., Monforte, Province of Alicante.—Baskets and ropes of green esparto. 229

182 Lopez, José, Badajoz.—Esparto matting. 229

183 Mora, Manuel, Badajoz.—Esparto and rush matting. 229

184 Amat, Gervasio, Gracia, Province of Barcelona.—Fine matting. 229

185 Martinez la Llana, Tiburcio, Cuenca.—Work basket. 229

186 Garcia Brito, Manuel, Córdoba.—Cyprus cable. 229

187 Arsalaya, Ramon de, Jaén.—Osier basket. 229

188 Gonzales Maceda, Pedro, Villalba, Province of Lugo.—Horse-hair webs. 229

189 Huelin & Son, Guillermo, Almogía, Province of Málaga.—Palm baskets. 229

190 Corps of Mountain Engineers, Madrid.—Fabrics and ropes of esparto. 229

191 Provincial Deputation of Múrcia.—Esparto work. 229

192 Fernandez Bros. & Co., Aguilas, Province of Múrcia.—Mats. 229

193 Mazarrasa, Gregorio, Santander.—Osier basket. 229

194 Peró & Buxeda, Barcelona.—Cotton textiles. 229

195 Pagés & Co., Salvador, Mataró, Province of Barcelona.—Bleached linen. 229

196 Oliver, Ponrodona, Mataró, Province of Barcelona.—Cotton canvas. 229

197 Volart Bros. & Conill, Barcelona.—Cotton fabrics. 229

198 Puig & Co., José, Esparraguera, Province of Barcelona.—Madapolans, etc. 229

199 Contí, Juan, Barcelona.—Cotton fabrics. 229

200 Ribot & Bros., Estéban, Granada.—Thread. 229

201 Roiz de la Parra, Gerónimo, La Cavada, Province of Santander.—Twisted cotton. 229

202 Solé, Esteban, Reus, Province of Tarragona.—Cotton. 229

203 Regordosa & Co., Mariano, Sans, Province of Barcelona.—Dyed cotton. 231

204 Parellada, Fiaquer & Co., Sans, Province of Barcelona.—Cotton velvets. 231

205 Clariano Ciuró, Angé, & Co., Granollers, Province of Barcelona.—Cotton thread and fabrics. 231

206 Batlló Bros., Barcelona.—Cotton. 231

207 Cavelles y Ferré, José, Reus, Province of Tarragona.—Serges, nankin, etc. 231

208 Ferrer & Co., José, Villanueva y Geltrú, Province of Barcelona.—Cotton, percales, etc. 231

209 Ferrer y Vital, José, Barcelona.—Cotton, percales, etc. 231

210 Casas y Jover, Joaquín, San Martin de Provençals, Province of Barcelona.—Cotton prints. 231

212 Saladrigas Bros., Barcelona.—Cotton prints. 231

213 Jaumandreu & Co., Barcelona.—Cotton prints. 231

214 Achon, José, Barcelona.—Cotton prints. 231

215 Toiré & Co., José, Barcelona.—Cotton and madapolans. 231

216 "España Industrial," Barcelona.—Dyed and printed cotton fabrics. 231

217 Torrallo & Co., Mateo, Barcelona.—Cotton prints. 231

218 Borrás, Eduardo, Barcelona.—Printed cotton shawls. 232

219 Ricart & Co., Barcelona.—Cotton prints. 232

220 Rivas & Co., Francisco, Barcelona.—Cotton prints. 232

221 Beltran y Lopez, José, Elche, Province of Alicante.—Hempen bags. 233

222 Iguadálina, Algodonera, Barcelona.—Bleached linens. 233

222 Sádó, Jaime, Barcelona.—Table linen and towels. 233

223 Contí, Juan, Barcelona.—Drilling fabrics, for ladies’ dresses, and Turkish towels. 233

224 Mestra Pedro, Barcelona.—Linen drilling. 233

225 Provincial Commission of Burgess.—Linen cloth and towels. 233

226 Society of Friends of the Country Las Palmas, Canary Islands.—Pita cloth for girdles. 233

227 Salomó & Co., Francisco Antonio, Vinaróz, Province of Castellón.—Cottons. 233

228 Bas y Verdera, Juan Bautista, Vinaróz, Province of Castellón.—Canvas. 233

229 Ribot & Bros., Esteban, Granada.—Saddle bag, hemp fabric, bags and hemp soles for sandals. 233

230 Iglesia, Francisco, Sevilla.—Andalusian saddle-bag. 233

231 Garcia Valdeavellano, J., Sevilla.—Table linen, etc., made on hand-loom. 233

232 Landa, Sons of Salvador, Calatayud, Province of Zaragoza.—Linen cloth. 233

233 Vega & Co., Sevilla.—Oil cloth. 234

For classes of exhibits, indicated by numbers at end of entries, see Classification. pp. 27-45.
Woven Goods.

235 Boronás Soler, Antonio, Alcoy, Province of Alicante.—Linilla cloth. 235
236 Hernandez Osa, Juan, Alcoy, Province of Alicante.—Paten cloth. 235
237 Candelas, Miguel, Alcoy, Province of Alicante.—Paten cloth. 235
238 Canta, Tomás, & Sons, Alcoy, Province of Alicante.—Paten cloth. 235
239 Gisbert Pascual, Camilo, Alcoy, Province of Alicante.—Paten cloth. 235
240 Jordá & Sons, José, Alcoy, Province of Alicante.—Paten cloth. 235
241 Llacser, Agustin, Alcoy, Province of Alicante.—Paten cloth. 235
242 Llopis & Son, Widow of C., Alcoy, Province of Alicante.—Paten cloth. 235
243 Mataix, Cristobal, Alcoy, Province of Alicante.—Tricot and edredon cloth. 235
244 Miró, Sons of Gabriel, Alcoy, Province of Alicante.—Paten, caster, and edredon cloth. 235
245 Pastor, Moltó, & Co., Alcoy, Province of Alicante.—Paten cloth. 235
246 Moltó y Sanz, José, Alcoy, Province of Alicante.—Satin. 235
247 Moltó y Valor, Francisco, Alcoy, Province of Alicante.—Tricot and paten cloth. 235
248 Monllor & Sons, Miguel, Alcoy, Province of Alicante.—Paten cloth. 235
249 Pascual & Co., Fabian, Alcoy, Province of Alicante.—Paten and edredon cloth. 235
250 Pascual, Santiago, Alcoy, Province of Alicante.—Paten cloth. 235
251 Perez & Son, Benito, Alcoy, Province of Alicante.—Corduroy cloth. 235
252 Perez, Sons of J., Alcoy, Province of Alicante.—Velvet cloth. 235
253 Poblet, Antonio, Alcoy, Province of Alicante.—Paten cloth. 235
254 Reig, Rafael, Alcoy, Province of Alicante.—Paten and velvet cloth. 235
255 Sanz & Sons, Widow of Felipe, Alcoy, Province of Alicante.—Paten cloth. 235
256 Vicedo, José, Alcoy, Province of Alicante.—Tricot. 235
257 Amores, Miguel, Badajoz.—Mantas cloth. 235
258 Clariana, Criuró, Angé, & Co., Province of Barcelona. a Woollen fabrics and cloths. 235
                a Shawls. 237
                b Mixed fabrics. 237
ej)  d Paten cloths. 241
259 Provincial Commission, Burgos.—Woolen articles. 235
260 Mendiola & Co., Casimiro, Munilla, Province of Logroño.—Cloth, melton, tweeds etc. 235
261 Provincial Commission of Lugo.—Woolen fabrics. 235
262 Rodriguez Arias, Cipriano, Béjar, Province of Salamanca.—Cloth. 235
263 Rodriguez Bros., Béjar, Province of Salamanca.—Cloths. 235
264 Gonzalez Sanz, Luis, Riaza, Province of Logroño.—Cloths. 235
265 Sanz, Manuel, Molinos de Razon, Province of Soria.—Cloths. 235
266 Torre, José, Almenar, Province of Soria.—Cloths and woolen fabrics. 235
267 Tarrat & Sociats, Teruel.—Cloths. 235
268 Garcia Aranda, Antoni, & Co., Sonsena, Province of Toledo.—Cloths. 235
269 Bonel & Sons, Benito, Tarazona, Province of Zaragoza.—Cloths. 235
270 Provincial Commission of Pradoluengo, Province of Burgos.—Flannels. 235
271 Delgado & Co., Faustino, Antequera, Province of Málaga.—Flannels. 235
272 Moreno, Widow of, Antequera, Province of Málaga.—Flannels. 235
273 Alia y Lopez, Miguel, Escalonilla, Province of Toledo.—Serge. 235
274 Delgado & Co., Faustino, Seville.—Waistbands. 237
275 Murtró y Turelló, Widow of A., Reus, Province of Tarragona.—Matafris (waistbands). 237
276 Conti, Juan, Barcelona.—Woolen fabrics. 238
277 Planas, Sons of M., Sabadell, Province of Barcelona.—Woolen fabrics. 238
278 Salaires & Son, Juan, Sabadell, Province of Barcelona.—Woolen fabrics. 238
279 Buxeda Bros, Sabadell, Province of Barcelona.—Woolen fabrics. 238
281 Dalinau, José M., Barcelona.—Flannels. 238
282 Sert Bros. & Solá, Barcelona.—Woolen goods. 238
283 Badia, José, Sabadell, Province of Barcelona.—Woolen yarns. 238
284 Arafé, Enrique, San Martin de Provençals, Province of Barcelona.—Woolen yarns. 238
285 Bresca & Co., Province of Barcelona.—Mérinoes. 238
286 Serret & Turlu, Sabadell, Province of Barcelona.—Woolen shawls etc. 238
287 Viejo, Isidoro, Burgos.—Woolen blankets. 238
288 Blanco, Bartolina, Valverde del Camino, Province of Huelva.—Saddlebag. 238
289 Murtró Turelló, Widow of A., Reus, Province of Tarragona.—Cloak, tartans, woolen yarns, etc. 238
290 Clariana, Criuró, Angé, & Co, Santa Coloma de Queralt, Province of Tarragona.—Mixed fabrics, shawls etc. 238
292 Casaramona, Juan, Barcelona.—Blankets and mantas. 233
293 Baucells & Co., Narciso, Barcelona.—Moleskins and mantas. 238
294 Serret & Turlu, Sabadell, Province of Barcelona.—Woolen web and shawls. 238
295 Viejo, Isidoro, Burgos.—Mantas. 238
296 Nuñez Ramos, Francisco, Torrejoncillo, Province of Cáceres.—Coarse cloth. 238
297 Moreno y Sanchez, Francisco, Torrejoncillo, Province of Cáceres.—Coarse cloth. 238

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.
Woven Goods, Silk.

298 Llanos de Pedro, José, Torrejoncillo, Province of Cáceres.—Coarse cloth.
299 Llanos Nuñez, Pedro, Torrejoncillo, Province of Cáceres.—Coarse cloth.
300 Llanos Valle, Sebastian, Torrejoncillo, Province of Cáceres.—Coarse cloth.
301 Llanos Moreno, Saturnino, Torrejoncillo, Province of Cáceres.—Coarse cloth.
302 Bonilla, Ramon, Torrejoncillo, Province of Cáceres.—Coarse cloth.
303 Serrano, Benito, Torrejoncillo, Province of Cáceres.—Coarse cloth.
304 Society of Friends of the Country, Las Palmas, Canary Islands.—Coth. 238
305 Guinera Bro., Giner, Morella, Province of Castellon.—Woolen textile.
306 Provincial Board of Agriculture, Morella, Province of Castellon.—Woolen mantas.
307 Aparicio, Jaime, Córdoba.—Ends of cloth, and cloak. 238
308 Alvarez Onn Bros., Córdoba.—Mountain cloaks and jerugs. 238
309 Corporation of Pozoblanco, Province of Córdoba.—Mantas and blankets. 238
310 Corporation of Bujalanc, Province of Córdoba.—Mantas and jerugs. 238
311 Corporation of Villa del Río, Province of Córdoba.—Mantas, jerugs, and mountain cloaks. 238
312 Cabezás, Sarabia, José, Córdoba.—Mountain cloak.
313 Provincial Deputation of Murcia.—Manta.
314 Fuentes, Maria, Prádanos, Province of Patencia.—Coarse cloth. 239
315 García, Mauricio, Prádanos, Province of Patencia.—Coarse cloth. 239
317 Val, Angel, Prádanos, Province of Patencia.—Coarse cloth. 239
318 Martin, Domingo, Prádanos, Province of Patencia.—Coarse cloth. 239
319 Gomez, Andres, Astudillo, Province of Patencia.—Manta. 239
320 Olmeda, Faustino, Astudillo, Province of Patencia.—Coth. 239
321 Sanmillán, Manuel, Astudillo, Province of Patencia.—Cloth. 239
322 Rodiguez Mambilla, Manuel, Astudillo, Province of Patencia.—Cloth. 239
323 Hera, Vicente de la, Patencia.—Mantas. 239
324 Aroyo, Gerónimo, Patencia.—Mantas. 239
325 Aguilar Calvo, Antonio, Amusco, Province of Palencia.—Flamel. 239
327 Corporation of Vitigudino, Province of Salamanca.—National manta and sayal. 239
329 Allia & Lopez, Miguel, Escalonilla, Province of Toledo.—Counterpane. 239
330 Maizquez y Tomás, T., Valencia.—Manta and fabrics for upholstering. 239
331 Fernandez Laza, & Sons, M., Valladolid.—Manta. 239
332 Perdiguero, Guillermo, Valladolid.—Mantas. 238
332 Castell de Pons, Antonio, Barcelona.—Tapestry. 239
332 His Majesty the King of Spain, Madrid.—Tapestry from the royal factory, Madrid. 239
333 Alsina, Juan, San Andrés de Palomar, Province of Barcelona.—Velvets. 241
334 Casanovas & Sons, Jaquín, Sabadell, Province of Barcelona.—Woolen cloths. 241
335 Carominas, Salas, & Co., Sabadell, Province of Barcelona.—Woolen fabrics. 241
337 Durán, J., & Son, Sabadell, Province of Barcelona.—Woolen fabrics. 241
338 Montilier Bron., Sabadell, Province of Barcelona.—Cloths and woolen goods. 241
339 Volta Vivé, José, Sabadell, Province of Barcelona.—Woolen fabrics and fine woolen yarns. 241

Silk and Silk Fabrics.
340 Carrillo, Blas, & Co., Santa Cruz de la Palma, Canary Islands.—Yellow and White Silk. 242
341 Diaz Varela, Celestino, Sober, Province of Lugo.—Raw Silk. 242
342 Víctor, Navarro, Pedro, Espinardo, Province of Málaga.—Silks. 242
343 Martinez, Faustino, Sevilla. 238
a Raw silk. 242
b Silk thread and twist. 243
c Ribbons. 248
344 Oñate, Sons of, Valencia. 238
a Raw silk. 242
b Twisted Silk. 243
345 Piedrola, Juan de Dios, Granada. 238
—Twisted silk. 243
346 Economía de Málaga.—Silks and cord made of the gut of silkworms. 243
347 Andron, Heirs of, Málaga. 238
a Silks, twist, and cord. 243
d Silk purses. 247
350 Farróls & Sons, Barcelona.—Silk textiles. 244
351 Provincial Deputation of Málaga.—Silk taja (national waistband) and shawls. 244
352 Ferrer & Co., Joaquin, Barcelona.—Silk goods. 245
353 Gué & Co., G., Barcelona.—Silk goods. 245
354 Diaz Varela, Celestino, Sober, Province of Lugo.—Silk fabrics. 245
355 Freixa, Sebastian, Reus, Province of Tarragona.—Gró (silk fabric). 245
356 Pascual & Co., Antonio, Reus, Province of Tarragona.—Gró, glased, and other silk fabrics. 245
357 Ibañez Palenciaño, Fernando, Valencia.—Gró, taffeta, damasks, and poplins. 245
358 Rodriguez, Arias, Cipriano, Barcelona.—Silk goods. 246
359 College of Superior Works of Art in Silk, Barcelona.—Portrait of H. M. the King of Spain. 246

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27—45.
Silk, Clothing, Embroidery.

360 Reig & Co., Barcelona.—Silk fabrics. 245
361 Masoliver Bros., Barcelona.—Silk hosiery, etc. 247
362 Pascual & Co., Antonio, Province of Tarragona.—Velvets. 248
363 Plédróla, Juan de Dios, Granada.—Woven silk. 248
365 Bimaco, Emilio, Seville.—Trimmings. 249
366 Sanchez, Francisco, Seville.—Trimmings. 249

Clothing, Jewelry, and Ornaments.
367 Solanas, Antonio, Barcelona.—Shirts. 250
367a Tarriba Pablos, Clemente, Palencia.—Embroidered Manta. 250
368 Escaler, Benito, Barcelona.—System of cutting garments. 250
369 Provincial Commission of Salas de los Infantes, Province of Burgos.—National dress and photographs. 250
370 Corporacion de Bualance, Province of Córdoba.—Jacket. 250
371 Salgado Rodriguez, Rafael, Santiago, Province of la Coruña.—Jacket, pants, and vest. 250
372 Direction of Cavalry, Madrid.—Military equipment. 250
373 Gonzalez, Benito, Vilabo, Province of Pontevedra.—Country woman's cloak, made of rush. 250
374 Luna, Ramon, Havana, Cuba.—Figure dressed in the uniform of a captain of volunteers. 250
375 Marfa, Cayetano, Mataró, Province of Barcelona.—Cotton hosiery. 250
376 Sala Baladía & Coll, Barcelona.—Cotton hosiery. 250
377 Oliver & Co., Mataró, Province of Barcelona.—Cotton shirts, hose, and socks. 250
378a Garcia, Aranda, & Co., Antonio, Sonseca, Province of Toledo.—Working men's cloaks. 250
378 Beltran & Lopez, José, Elche, Province of Alicante.—Sandals and slip-shoes. 251
378a Ceva y Llorens, Enrique, Elche, Province of Alicante.—Sandals. 251
378b Diaz Corrales, Antonio, Madrid.—Boots, shoes, and slippers. 251
381 Cardona Baldrich, José, Barcelona.—Corsets and waistbands. 251
382 Freixa & Son, Barcelona.—Boots, shoes, and gaiters. 251
383 Conde Puerto & Co., Barcelona.—Shirts. 251
384 Says, José, Barcelona.—Boots and shoes. 251
385 Véderau, Luis, Barcelona.—Shirts. 251
386 Provincial Commission of Burgos.—Shoes, gloves, and caps. 251
387 Zamorano & Bros., Nemesio, Burgos.—Kid gloves. 251
388 Bueso Herrando, José, Castellon.—Sandals. 251

389 Carpi, Vicente, jr., Castellon.—Sandals. 251
390 Provincial Board of Agriculture, Castellon.—Sandals. 251
391 Ruiz Vicent, Francisco, Castellon.—Sandals. 251
392 Verchill y Marqués, Francisco, Castellon.—Sandals for women. 251
393 Pintado y Morales, Luis, Ciudad Real.—Hat. 251
394 Devesa Dominguez, José, Santiago, Province of Coruña.—Boots and shoes. 251
395 Rodriguez, Rafael, Coruña.—Boots and shoes. 251
396 Ribot & Bros., Esteban, Granada. Sandals and slip-shoes. 251
397 Fernandez & Toscano, José Huelva.—Shoes and boot patterns. 251
398 Mantero & Asuero, Manuel, Valencia.—Province of Huesca.—Riding-boots. 251
399 Montiel, José, Huelva.—Boots. 251
400 Acero & Son, José, Jaen.—Hats. 251
401 Ares, Rosendo, Villalba, Province of Lugo.—Clogs. 251
402 Fraga, José, Corpeito, Province of Lugo.—Clogs. 251
403 Pallares, Count of, Villalba, Province of Lugo.—Sabots. 251
404 Robledo, Luis Paulino, Fonsagrada, Province of Lugo.—Clogs. 251
405 Villasante, Francisco, Madrid.—Hats. 251
406 Huelin & Son, Guillermo, Málaga.—Palm-leaf hats. 251
407 Provincial Deputation of Múrcia.—Sandals. 251
408 Crespo, Melchor, Peñaranda, Province of Salamanca.—Hats. 251
409 Galindo, Rafael, Peñaranda, Province of Salamanca.—Hats. 251
410 Gonzalez, Fermín, Peñaranda, Province of Salamanca.—Hats. 251
411 Ralerio, Epifanio, Segovia.—Shoes. 251
412 Chia & Ganga, Francisco, Seville.—Boots and shoes. 251
413 Gely Bros. & Co., Seville.—Kid gloves. 251
414 Sarton, Gregorio, Seville.—Hats. 251
415 Villen, José, Valencia.—Shoes. 251
416 Ronchetti Denti, B., Valladolid.—Gloves. 251
417 Stampa Bula, Felipe, Valladolid.—Gloves. 251
418 Iborna, Mateo, Zamora.—Hats. 251
419 Melendez Carvalj & Co., Havana, Cuba.—Hats. 251
420 Central Commission, Havana, Cuba.—Hats. 251
421 Garcia & Garcia, Juliana, Avila.—Lithographed embroidery. 252
422 Martinez, Rosamunda, Avila.—Silk embroidery. 252
423 Provincial Convett, Superior of, Avila.—Embroidered altar cloth. 252
424 Nin & Mañé, Benito & Luisa, Barcelona.—Embroidery. 252

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Embroidery, Fancy Goods, Stationery.

425 Marti de Dettrel, Dolores, Barcelona.—Embroidered sofa cushion. 252
426 Pi & Solanes, Jose, Barcelona.—Laces. 252
427 Tejada, Antolina, Cáceres.—Open-work. 252
428 Vidal, Rosa, Plasencia, Province of Cáceres.—Embroidered handkerchief. 252
429 Delgado, Rita, Alcalá de los Gazules, Province of Cádiz.—Countertops. 252
430 Bianchi & Mellado, Pedro, Almagro, Province of Ciudad-Real.—Guipure lace. 252
431 Barinaga de Oteiza, Amalia, Madrid.—Embroidered tapestry. 252
432 Agudo, Asuncion, Madrid.—Embroidered handkerchief. 252
433 Guibelalde, Caledonia, Madrid.—Embroidered picture. 252
434 His Majesty the King of Spain, Madrid.—Embroideries for the lay brothers of San Lorenzo. 252
435 President of the Women's Catholic Association, Madrid.—Church ornaments. 252
436 Asylum of San Manuel, Málaga.—Handkerchief bag. 252
437 Asylum of Mendicity, Seville.—Embroidered shirt and handkerchief. 252
438 Eguiazu, Leon, San Sebastian, Province of Guipúzcoa.—Objects of maskeened iron. 252
439 Ibarzabal de Eibar, Teodoro, San Sebastian, Province of Guipúzcoa.—Objects of maskeened iron. 252
440 Feu, P. & Sons, Madrid.—Crosses and ornaments. 252
441 Hernandez, Demetrio, Salamanca.—Teethpick case, of filigree silver. 252
442 Moran, Ramon S., Salamanca.—Cross and earrings. 252
443 Fernandez de Sola, Dolores, Madrid.—Embroidered shawls and other emboideries. 252
444 Martinez, Rosmunda, Avila.—Basket of wax grapes. 254
445 Garcia & Garcia, Julia, Avila.—Branch of flowers. 254
446 Garcia, Cristina, Badajoz.—Embroidered picture. 254
447 Lucenqui de Pimentel, Waldia, Badajoz.—Paper pictures and album of design. 254
448 Oriol, Son of J., Barcelona.—Fans, umbrellas, and sunshades. 254
449 Riba Bros., Barcelona.—Hooks and eyes, and buttons. 254
450 Provident Commission, Vivero, Province of Lugo.—Basket and needle case of straw. 254
451 Feu, P., & Sons, Madrid.—Buttons. 254
452 Gutierrez, Juan Enrique, Madrid.—Fan. 254
453 Mozoncillo, Concepcion, Madrid.—Paper fan. 254
454 Gonzalez, Maria Cruz, Madrid.—Sunshade of embroidered satin. 254
455 Villalón, Eduardo, Madrid.—Human hair work. 254
456 Peña, Pantaleon, Madrid.—Wigs, human hair, album, etc. 254
457 Rey Gomez, Andres, Presidio de Santaona, Province of Santander.—Lady's work-box, covered with straw. 254
458 Gimenez, Justo, Presidio de Santaona, Province of Santander.—Glove-box, covered with straw. 254
459 Fraola, Jose, Santaona, Province of Santander.—Bottles, covered with straw. 254
460 Bembal, Manuel, Santaona, Province of Santander.—Straw hampers. 254
461 Urbina, Meliton, Santaona, Province of Santander.—Hampers and match-box, of straw. 254
462 Plaza, Salvador de la, Riaza, Province of Segovia.—Pins. 254
463 Soto & Barrera, Matilde, Toledo.—Flower basket. 254
464 Santos de Mardevall, Alejandro, Valencia.—Fans. 254
465 Massaguer & Lledó, Valencia.—Fans. 254
466 Noailles, Antonio, Zaragoza.—Canes and cane-heads. 254
467 Salvi y Don Antonio, Barcelona.—Combs of horn and tortoise shell. 254
468 Sabato Bros., Barcelona.—Leather belt. 254
469 Ribot & Bros., Esteban, Granda.—Felt mantelle. 254
470 Martinez, Benito, Seville.—Leather trunks. 254
471 Yayas, Francisco, Barcelona.—Toys. 254
472 Casas, Jose, Havana, Cuba.—Hair work. 254
473 Fuentes & Ponte, Javier, Murcia.—Embroidered belt, cap, sandals, and photographts of national costumes. 257
474 Becerra & Gomez, Braulio, Vidriles, Province of Zamora.—Dress worn in the valley of Vidriles. 257
475 Perez, Miguel, Carvajales, Province of Zamora.—Cloak. 257
476 Herna, Elena de las, Almeida, Province of Zamora.—Complete woman’s dress. 257
477 Paper, Blank Books, and Stationery. 257
477 Quintana, Juan de, Las Palmas, Canary Islands.—Blotting sand. 258
478 Ferrer & Son, Wido, of, Alcoy, Province of Alicante.—Cigarette paper. 259
479 Blanes Bros., Alcoy, Province of Alicante.—Cigarette paper. 259
480 Payà & Gisbert, Facundo, Cocentaina, Province of Alicante.—Cigarette paper. 259
481 Romani & Puigdengolas, Juan, Capellades, Province of Barcelona.—Paper. 259
482 Vila & Son, Cristóbal, Capellades, Province of Barcelona.—Paper. 259
483 Valadia, Conrado, Barcelona.—Cigarette paper. 259
484 Capdevila & Co., Barcelona.—Paper. 259

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.
Stationery, Weapons, Medical and Surgical Appliances.

485 Villaseca & Paiggene, José, Barcelona.—Paper. 259
486 Ruis & Co., Pedro, Barcelona.—Cigarette paper. 259
487 Guarro, Wenceslao, Géjida, Province of Barcelona.—Paper. 259
488 Perrer & Roca, Widow of F., Capel- lades, Province of Barcelona.—White and colored paper. 259
489 Romani & Tarres, Sons of, Capell- lades, Province of Barcelona.—Paper. 259
490 Prats, Widow & Sons of, José, Capel- lades, Province of Barcelona.—Card-board for the manufacture of playing-cards. 259
491 Provincial Commission, Burgos.—Writing-paper. 259
492 Torras Bros., San Juan las Fonts, Province of Gerona.—Writing-paper. 259
493 Riber & Co., Widow & Sons of José, Segovia.—Cigarette paper. 259
494 García Martin, Modesto, Segovia.—Cigarette paper. 259
495 Gavarra & Son, Jaime, Reus, Province of Tarragona.—Cigarette paper. 259
496 Gavaara, Mora, José, Bocayrente, Province of Valencia.—Cigarette paper. 259
497 Comas Delgado, Rafael, Onteniente, Province of Valencia.—Cigarette paper. 259
498 Pesquera, Alonzo, Miguel, Sardon del Duero, Province of Valencia.—Cigarc- ette paper. 259
499 La Peña, Partners of, Bilbao, Province of Vizcaya.—Cigarette paper. 259
500 Provincial Commission, Burgos.—Printing paper. 260
501 Coromina & Antiga, San Juan las Fonts, Province of Gerona.—Straw paper. 260
502 Martínez Lopez, Francisco, Caravaca, Province of Múrcia.—Brown paper. 260
503 Fulladosa & Co., Barcelona.—Playing-cards. 262
504 Inclán, Ramon, Yoca de Jarros, Province of Burgos.—Card-boards. 262
505 Olea, Segundo of, Cádiz.—Complete pack of cards. 262
506 Maffei, Patrocínio, Cádiz.—Complete pack of cards. 262
507 Loix, Francisco, Rivadeo, Province of Lugo.—Papier-maché. 262

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.

508 Metallurgical Company of San Juan de Alcaraz, Province of Albacete.—Cartridges for the Remington system. 265
508a Bronze Foundry, Seville.—Shells and canister shot. 265
509 Soldevilla, Estanislao, Madrid.—Double-barreled pistols. 265
510 National Manufactory of Fire- arms, Oviedo.—Rifle parts. 265
511 Manufactory of Arms, Toledo.—Remington cartridges. 265

512 Museum of Artillery, Madrid.—Bronze gun and accessories. 266
513 Artillery Corps, Seville.—Piasencia gun and accessories. 266
514 National Manufactory of Trubia, Province of Oviedo.—Carriage for eight centimeter mountain gun. 266
515 Manufactory of Side-arms, Toledo.—Side-arms. 268
516 Nieulant, Count of, Valencia.—Bayonet. 268
517 Manufactory of Arms, Toledo.—Hunting knife, Arabian sword blade, gamina (dagger) blade, and dagger. 268
518 Harzabel, Teodoro, San Sebastian, Province of Guipúzcoa.—Sword, dagger, and shield. 268
519 Osorio, Fernando, Madrid.—Pistols. 269
520 Fabra, Camilo, San Martin de Provencats, Province of Barcelona.—Mechanical fishing-rods. 270
521 Alien, Pedro, Gracia, Province of Barcelona.—Mechanical and hand fishing rods. 270
522 Roca Bros., Múrcia.—Worm-gut fishing line. 270

Medicine, Surgery, Prosthesis.

523 Arnaus, Melchor, Sabadell, Province of Barcelona.—Odontalgic elixir. 272
524 Gener, Pompeyo, Barcelona.—Medicinal syrups. 272
525 Terrades & Vallmana, Jaime, San Felio de Guixol, Province of Gerona.—Liquid vulcanized sulphur. 272
526 Rubio Perez, Juan, Granada.—Essences, pastilles, syrups, and extracts. 272
527 Martinez, Carlos, Madrid.—Cica- trisant preparation. 272
528 Zaragoza, Manuel, Málaga.—Balsams, unguent, and Zaragoza waters. 272
529 Orduña, Calixto, Cascante, Province of Navarra.—Poppy capsules. 278
530 Gibert & Soler, Juan, Torredem- barra, Province of Tarragona.—Lemon essence. 278
531 Corporation of Viluesa, Province of Soria.—Chamomile. 272
532 Pelaz, Raphael, Havana, Cuba.—Balsam. 272
533 Serra & Font, José, Sabadell, Province of Barcelona.—Stomach liquor. 273
534 Casademont, Modesto, Barcelona.—Apparatus for the finishing of pills. 274
535 Revuelta Carrillo & Montes, Doctor, Jerez de la Frontera, Province of Cádiz.—Uteroscope. 274
536 Gaistalbo, Doctor José, Madrid.—Blepharotome. 276
537 Pozuelo & Canto, Francisco, Madrid.—Gynecological apparatus. 276
538 Losada, Leocadio, Palacios de Goda, Province of Avila.—Set of teeth, atmospheric pressure. 277
539 García, Martinez Francisco, Santiago de Compostela, Province of Coma.—Superior set of teeth, atmospheric pres- sure. 277

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Surgical Appliances, Hardware, Harness, Art.

540 Centeno, Luis, Seville.—Anatomical piece, and set of artificial teeth. 277
541 Valenzuela, Manuel, Seville.—Set of artificial teeth. 277
542 Military Park of Health, Madrid.—Sanitary material. 278

Hardware, Edge Tools, Cutlery, and Metallic Products.

543 Corporation of Bujalance, Province of Cordoba.—Gimlets for hard woods. 280
544 Cabeza, Angel, Husillos, Province of Palencia.—Hammers. 280
545 National Factory of Trubia, Province of Oviedo.—Files. 280
546 Rosa & Carin, Jaime, Torres-Torres, Province of Valencia.—Watchmaker's tool. 280
547 Metallurgical Co. of San Juan de Alcaraz, Province of Albacete.—Knocks, door knobs, latches, bolts, etc. 284
548 His Majesty the King of Spain, Madrid.—Locks and ornamental ironwork for dwellings. 284
549 Corcho, Domingo, Santander.—Bronze nails. 284
550 Flechoso, Gregorio, Santander.—Key and latch. 284
551 Benito, Santiago de, Escorial, Province of Madrid.—Lock and padlock. 284
552 Metallurgical Co. of San Juan de Alcaraz, Province of Albacete.—Collection of objects of metal. 284

Carriages, Vehicles, and Accessories.

553 Fuentes & Ponte, Javier, Múrcia.—Piece from the body of an antique coach. 292

Machines and Implements of Spinning, Weaving, Felting, and Paper-making.

569 Alberiel, José Carreras.—Harness and reeds for looms. 521

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

570 Escuder y Castella, Miguel.—Sewing machines. 531

Motors and Apparatus for the Generation and Transmission of Power.

571 Bentaból y Ureta, Horatio, Madrid.—Apparatus for the rectilinear transmission of power. 278

554 Salz, Juan, Burgos.—Saddle armor. 296
555 Direction General of Cavalry, Madrid.—Complete mounting. 296
556 Rodriguez Zurdo, José, Madrid.—Ladies' saddles, with bridles, bits, etc. 296
557 Diaz, Antonio, Malaga.—Andalusian harness. 296
558 Fuentes & Ponte, Javier, Múrcia.—Soft skin put on the forehead of working oxen to prevent their being hurt by the yoke; halter, breast-plate, crupper. 296
559 Rio, Rafael del, Peñaranda de Bracamonte, Province of Salamanca.—Hemp bridles. 296
560 Muñoz, Bruno, Peñaranda de Bracamonte, Province of Salamanca.—Horse cover. 296
561 Martin & Bros., Damián, Peñaranda de Bracamonte, Province of Salamanca.—Horse cover. 296
562 Aranda & Co., Garcia, Antonio, Somesca, Province of Toledo.—Horse covers. 296

Miscellaneous Art Objects.

563 Feu, P., é hijos, Madrid.—Collection of medals. 454
564 Gelabert, R. y hermano, Barcelona.—Ornamental models in frames. 454
565 Laties, Marcos, Madrid.—Four shields; coat of arms; six frames, with subjects in bronze. 454
566 Pando, Acha y García, Seville.—An ornamented iron frame. 454
567 Metallic Co. of San Juan de Alcaraz, Province of Albacete.—Collection of metallic objects. 454
568 Harzahal, Teodoro, St. Sebastian, Province of Guipuzcoa.—Sword, knife, and shield. 454

Railway Plant, Rolling Stock, and Apparatus.

572 Campos, Manuel Maria, Habana, Cuba.

a. Models of wagons. 571
b. System of movable rails. 574

Aerial, Pneumatic, and Water Transportation.

573 Ballesteros, Elias Aurcelo, Madrid.—Apparatus for aerial navigation. 592
576 Arozena, Sebastian, Santa Cruz de Palma, Canary Islands.—Designs and models of boats and vessels. 594

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-45.
PHILIPPINE ISLANDS.

(South of Nave, Columns 16 to 18.)

COLLECTIVE EXHIBIT.

Chemical Manufactures, Woven Goods.

<table>
<thead>
<tr>
<th>Chemical Manufactures</th>
<th>23 Provincial Board, Province of Batangas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Inspecciones-General of Woods &amp; Forests.—ashes.</td>
<td>a Buri mats. 220</td>
</tr>
<tr>
<td>2 Rodriguez, Lucía, Province of Pampanga.—Tintarron.</td>
<td>b Cotton fabrics. 230</td>
</tr>
<tr>
<td>3 Buison, Nicasio, Province of Batan. —Tintarron.</td>
<td>c Sinamay, Guinaras, and Jusi fabrics. 233</td>
</tr>
<tr>
<td>4 González, Mariano, Province of Santa Cruz, Province of Manila.—Japan varnish.</td>
<td>202</td>
</tr>
<tr>
<td>5 Rodriguez, José, Province of Ilocos Sur.—Indigo.</td>
<td>202</td>
</tr>
<tr>
<td>6 Rodoreda, Francisco, Province of Manila.—Indigo.</td>
<td>202</td>
</tr>
<tr>
<td>7 Llamas, Gabriel de, Province of Manila.—Balsam Dugungajas.</td>
<td>203</td>
</tr>
<tr>
<td>8 Gruppé, Gustavo, Province of Manila.—Philippine drugs.</td>
<td>203</td>
</tr>
<tr>
<td>9 Reynman, Oscar, Province of Manila.—Philippine essences.</td>
<td>203</td>
</tr>
<tr>
<td>0 Westernhagen, Agustin, Province of Manila.—Philippine essences.</td>
<td>203</td>
</tr>
<tr>
<td>1 Provincial Board, Province of Batangas.—Balsam maria, and Pacay.</td>
<td>203</td>
</tr>
</tbody>
</table>

Yarns and Woven Goods, of Vegetal or Mineral Materials.

| 12 Albalas, Crisanto, Province of Bulacan.—Buri mats. | 229 |
| 13 Gil, Rafael, Province of Pampanga.—Buri brooms. | 230 |
| 14 Villamarzo, Tiburcio, Province of Tayabas.—Buri mats. | 230 |
| 15 Oliveros, Miguel, Province of Pampanga.—Buri mats and bags. | 230 |
| 16 Buison, Julian, Province of Pampanga.—Buri mats. | 230 |
| 17 Rojas, Juan M., Province of Pangasinan.—Buri mats and Saguran matting. | 230 |
| 18 Vera Bauton, Maria, Province of Albay.—Work baskets. | 230 |
| 19 Ramos, José, Province of Bohol.—Saguran mats. | 230 |
| 20 Provincial Board, Province of Masbate.—Nito baskets. | 230 |
| 21 Provincial Board, Province of Mindoro.—Basket of cane and nito. | 230 |
| 22 Provincial Board, Province of Bohol.—Saguran, Sabatan mats and buri bags. | 230 |
| 23 Provincial Board, Province of Batangas.—Buri and sinamay fabrics. | 233 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 47-49.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### DEPT. II.—MANUFACTURES.

#### Clothing, Fancy Goods, Weapons, Harness.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>94</td>
<td>Leonardo, Quintin, Province of Laguna.—Salacot (national head-dress) of horn and silver.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>95</td>
<td>Ilagan, Gregoria; Ilagan, Leoncia; Cabrera, Eulalia; Garcia, Leoncia; Montenegro, Eulalia; Montenegro, Maria, Province of Batangas.—Feathers with gold.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>96</td>
<td>Ilustre, Timotea, Province of Batangas.—Flowers of glass beads.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>97</td>
<td>Máximo, Isabel &amp; Evarista, Province of Batangas.—Artificial flowers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>98</td>
<td>Jordana &amp; Morera, Manila, Province of Manila.—National wearing apparel.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>99</td>
<td>Provincial Board, Province of Batangas.—Pantaloons and saya, the national garment.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

---

### Weapons, etc.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Economical Society, Province of Manila.—Collection of national arms and photographs of same.</td>
<td></td>
<td>265</td>
</tr>
<tr>
<td>101</td>
<td>Provincial Board, Province of Mindanao.—Collection of national arms and photographs.</td>
<td></td>
<td>265</td>
</tr>
<tr>
<td>102</td>
<td>Provincial Board, Province of Bulacan.—Hunting-knives and sheaths.</td>
<td></td>
<td>268</td>
</tr>
</tbody>
</table>

### Carriages, Vehicles, and Accessories.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>103</td>
<td>Osmeña, Rita, &amp; Co., Province of Cebú.—Harness made of abacá.</td>
<td></td>
<td>296</td>
</tr>
</tbody>
</table>

---
PORTUGAL.

(South of South Avenue, Columns 13 to 17.)

Chemical Manufactures, Ceramics.

Chemical Manufactures.

1. Direction of the Works at Mondego river & Figueira bar, Figueira da For.-Salt. 200
2. Samora Correa, Baroness, Lisbon.—Salt. 200
3. Companhia das Lezirias do Tejo e Sado, Lisbon.—Salt. 200
4. Vinva, A. J. Judice, Masilhaeira.—Salt. 200
5. Bandeira, A.S.B.M., Setubal.—Salt. 200
6. Branca, Anna Delphina, Alcacer do Sal.—Salt. 200
7. Bivar, Jeronymo, d'A. C. de Algarve.—Salt. 200
8. Cooke & Co., Figueira da Foz.—Salt. 200
9. Drack, Jr., José R. G., Lisbon.—Pharmaceutical preparations. 200
10. Cresswell & Co., Lisbon.—Salt. 200
11. Castello Branco, Joao da S. F., Villa Franca de Xira.—Salt. 200
12. Delegny Bros., Lisbon.—Chemicals. 200
13. Franco, Pedro Augusto, Belem.—Pharmaceutical preparations. 200
14. Figueiredo, Joaquim, Aviz.—Pharmaceutical preparations. 200
15. Ferraz, José Libertador Magalhaes, Coimbra.—Pharmaceutical preparations. 200
16. Galiano, Manuel d'Asfes, d'Oliveira, Oporto.—Pharmaceutical preparations. 200
17. Gragera, Antonio Maria Mendes, Villa Nova de Reguengos.—Pharmaceutical preparations. 200
18. Judice, V. A. J., Mexilhoeira.—Salt. 200
19. Jesus, Manuel Vicente de, Lisbon.—Pharmaceutical preparations. 200
20. Lezirias Co., Lisbon.—Salt. 200
21. Leite, Francisco de Paula, Alcacer do Sal.—Salt. 200
22. Lima, Guilherme A. E., Lisbon.—Pharmaceutical preparations. 200
23. Meirelles, Antonio Moreira de Sousa, Faro.—Salt. 200
24. Miranda & Sons, Lisbon.—Salt. 200
25. Pires, Joao Luiz, Lisbon.—Salt. 200
26. Pedroza, Dellaria José Lopes, Figueira.—Salt. 200
27. Pires, Joao de Jesus, Lisbon.—Patent medicines. 200
28. Rei, Jose Joaquim, Lisbon.—Pharmaceutical preparations. 200
29. Salgueiro, Nuno Freire Dias, Oporto.—Pharmaceutical preparations. 200
30. Serzedello & Co., Lisbon.—Chemicals. 200
31. Silva, Silverio Augusto Pereira da, & Francisco Antonio, Marques de Moura, Aveiro.—Salt. 200
32. Schurmann, Adolpho, Lisbon.—Patent medicines. 200
33. Torlades, O'Neill, Setubal.—Salt. 200
35. Alcacer do Sal, Viscount d', Alcacer-do Sal.—Salt. 200
36. Peres, Joaquim Manuel de Mattos, Evora.—Soaps. 201
37. Gueiroz, José Sequeira Pinto de, Viana.—Orange-pearl oil. 201
38. Navarro & Co., Beja.—Soap. 201
39. Tenorio, Francisco Domingues.—Soap. 201
40. Vieira, Agostinho José, Villa Nova de Gaia.—Soap. 201
41. Mello, Antonio José Teixeira, Lisbon.—Wax candles. 201
42. Esmoriz, Manuel Ferreira, Oporto.—Soaps. 201
43. Department of Public Works, Lisbon.—Wax candles. 201
44. Costa, Joaquim Soares da, Oporto.—Blacking. 202
45. Burnay, Viuva de J. B. B., Lisbon.—Oils. 202
46. Administrative Board of Works for the artificial port of Ponta Delgada.—Building materials. 202
47. Ferreira da Silva, Agostinho, & Co. —Common and fancy soaps. 201
48. Board of Public Forests, Lisbon.—Turpentine, oil, and spirits. 202
49. Costa, Rodrigo de Campos, Soure.—Writing-ink. 202
50. Moe das, José, Moura.—Building materials. 202
50a. Torres, Feliciano Luiz, Lisbon.—Paints and varnishes. 202
51. Mendona, Thomas Antunes de, Lisbon.—Blue. 202
52. Souza Braga, Joar José, Oporto.—Writing-ink. 202
53. Domingo, Juan, Lisbon.—Wax matches. 204
54. Silva, Miguel da, Evora.—Pottery, Porcelain, Ceramics—Pottery, Glass, etc. 206

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Ceramics, Glass, Furniture, Woven Goods.

55 Paparanhos, Balthasar José, Beja.—Bricks, tiles, and bricks dried in the sun, etc. 206
56 Pimentao, Antonio Ayres.—Pottery. 206
57 Marcal, Joao Lopes, Evora.—Bricks, tiles, etc. 206
58 Oliveira Soares, M. de, Evora.—Bricks and tiles. 206
59 Mira, José Paulo de, Evora.—Tiles, bricks, etc. 206
60 Neuvile, Luis, Lisbon.—Ceramics. 206
61 Joao, Antonio, Evora.—Ceramics. 206
62 Martins, Alberto Cypriano, Lisbon.—Pottery. 206
63 Coelho, Francisco, Torres Novas. a Bricks. 206
b Tiles. 208
64 Alves Cunha, José, & Mendonça, Henrique da S., Caldas da Rainha.—Ceramics. 206
65 Lamego, Antonio da Costa, Lisbon. a Architectural pottery. 206
b Tiles. 206
c Earthenware and faience. 210
66 Almeida da Costa, Antonio d', & Co., Lisbon. a Architectural pottery. 206
b Tiles. 206
c Earthenware and stoneware. 210
67 Boim & Co., Ponta Delgada. a Architectural pottery. 206
b Dutch tiles, plain and ornamented. 206
c Stone china. 210
68 Rio Junior, J. do, Oporto.—Dutch tiles. 208
69 Victoria, José Goncalves, Aveiro.—Earthenware. 210
70 Schoelfield, John Howarth, Lisbon.—Stoneware, faience, etc. 210
71 Marques, Pedro Antonio, Aveiro.—Glazed earthenware. 210
72 Marques, Joao da Rosa, Entremoz.—Earthenware. 210
73 Manuel Leita Pereira & Bro., Ponta Delgada.—Glazed pottery. 210
74 Maia, Manuel Cypriano Gomes, Caldas.—Ceramics (Caldas ware). 210
75 Conquis, Manuel, Ponta Delgada.—Earthenware. 210
76 Department of Public Works, Lisbon.—Earthenware. 210
77 Campoltni, Miguel, Oporto.—Earthenware. 210
78 Coimbra, Candido.—Black earthenware. 210
79 Fanzarao, Joao, Villa Verde.—Earthenware. 210
80 Cavaquinh, Joaquim Antonio, Beja.—Earthen water-vessel. 210
81 Borges, Joaquim Antonio, Vianna do Alentejo.—Earthenware. 210
82 Vista Alegre Porcelain Manufactory, Vista Alegre.—Table, toilet, and decorative porcelain. 213
83 Montes, Manuel Alvares, Oporto.—Cylindrical glass, plate and window glass. 214
84 Marinha Grande Royal Glass Manufactury.—Marinha Grande. a Glass. 214
b Glassware. 216
85 Margarido, Manucl d'Oliveira, Oporto.—Bottle and flasks. 215
86 Cabo Mondego Mining Industrial Co., Figueira.—Specimens of glass work. 216

Furniture and Objects of General Use in Construction and in Dwellings.

87 Barbosa & Costa, Lisbon.—Praying desk of pock wood. 217
88 Chaves, Augusto P. dos S., Lisbon.—Iron furniture. 217
89 Vallongo Slate & Marble Quarries Co., Oporto. a Billiard and other tables. 217
b Stoves. 222
91 Gaspar, Manuel Rodrigues, Furniture Co., Lisbon. 222
92 Industrial Institute of Oporto, Oporto.—Silver cup and trays. 218
93 Gold Working Co., Oporto.—Plate. 218
94 Santos & Bro., Oporto.—Mirrors. 219
95 Corta, Basto, & Co., Oporto.—Drawing-room stoves. 222
97 Maralha, Pedro, Beja.—Brass pitcher. 224
98 Department of Public Works, Lisbon.—Kitchen utensils. 224
99 Alcobia, Joao Thomé, Lisbon.—Tinware and apparatus used in cooking. 224
100 Moreira, Antonio B., & Bro.—Cast iron pots. 224
101 Santos, Joaquim Autunes dos, Lisbon.—Marble bath. 226

Yarns and Woven Goods of Vegetable or Mineral Materials.

102 Ferreira, Manuel Simoes, Aveiro.—Sieves. 228
103 Panada, Joar Luiz, Lisbon.—Woven goods of mineral origin. 228
104 Lopez do Campo, Amaro, Beja.—Sieves. 228
105 Carvalho, D. Maria da C., Ponta Delgada.—Articles of Guinea aloes fibre. 229
106 Borges, Manuel d'Avila, Ponta Delgada.—Grass mats. 229
107 Dabney, R. L., Fayal, Azores.—Straw mat. 229
108 House of Correction, Lisbon.—Mats, coarse fabrics of rushes. 229
109 Lisbon Central Jail, Lisbon.—Mats. 229
110 Machado, Manuel, Ponta Delgada.—Marsh reed matting and straw fabrics. 229
111 Lima, Carvalho, Fayal.—Plaited straw. 229
112 Melindre, Joaquim d'Oliveira, Oporto.—Matting. 229
113 Margarido, Manuel d'Oliveira, Oporto.—Matting. 229

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
| 114 Santos, José Marques, O var.— | Coarse matting. | 229 |
| 115 Silvas, Manuel Dias da, Oporto.— | Drawing-room matting. | 229 |
| 116 Silva, José Pinto, Aveiro.—Mats. | 229 |
| 117 St*wa, Bruno da, Lisbon.—Straw mats. | 229 |
| 118 Santos, Antonio Marques dos, Braga.—rush mats. | 229 |
| 119 Thomar Royal Weaving Co., Thomar.—Cotton yarns and fabrics. | 229 |
| 120 Xabregas Cotton Manufactory, Lisbon.—Cotton yarns and fabrics. | 229 |
| 121 Torres Novas National Spinning & Weaving Co., Torres Novas.—Cotton fabrics, bleached and unbleached. | 229 |
| 122 Souza & Silva, Antonio José, Vila-longa.—Cotton yarns. | 229 |
| 123 Rezende, Barbara, Ponta Delega-da.—Counterpane. | 229 |
| 124 Rio Vieira Weaving Co., Oporto.—Cotton yarns. | 229 |
| 125 Oporto Weaving Co., Oporto.—Cotton yarns. | 229 |
| 126 Neves, Casunirio de Castro, Oporto.—Cotton yarns. | 229 |
| 127 Nogueira, Manuel Augusto, Ponta Delgada.—Cotton canvas. | 229 |
| 128 Deut, José Rodriguez de, & Co., Torres Novas.—Unbleached cotton canvases. | 229 |
| 129 Leite, Tito José, Oporto.—Cotton yarns. | 229 |
| 130 Lisbon Spinning & Weaving Co., Lisbon.—Cotton yarns and fabrics, bleached and unbleached. | 229 |
| 131 Fraternal Association of Weavers & Correlative Trades, Brasil.—Cotton fabrics. | 229 |
| 132 Ferreira, Joao José, Oporto.—Toweling. | 229 |
| 133 Department of Public Works, Lisbon.—Cotton fabrics. | 229 |
| 134 Crestuma Weaving Co., Oporto.—Cotton yarns. | 229 |
| 135 Carneiro, Anná, Ponta Delgada.—Counterpane. | 229 |
| 136 Camara, Manuel da, Ponta Delgada.—Embroidered table cloth. | 229 |
| 137 Baraya, Maria, Safara, Alematijo.—Counterpane. | 229 |
| 138 Albuquerque, Caetano de A., Ponta Delgada.—Cotton rugs. | 229 |
| 139 Diaz, Rodrigo A. F., Oporto.—Cotton fabrics. | 229 |
| 140 Nabinho, José da Fonseca, Oporto.—Cotton twine. | 229 |
| 141 Bahia & Genro, Oporto.—Cotton fabrics. | 229 |
| 142 Michon, André, Oporto.—Cotton fabrics. | 229 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-45.
Woven and Felted Goods, Silks.

173 Magalhaës, Francisco Thia go, Taboa.—Linen fabric. 233
174 Lança, Francisco Farreire de, Castro Verde.—Linen fabrics. 233
175 Barboza Marinho, Veuva, Lisbon.— Oil cloths. 234

Woolen and Felted Goods of Wool, etc.
176 Silva, José Francisco, Redondo.—Brown woolen cloth (Saragossa). 235
177 Rosa, Vicencia, Ithava.—Woolen fabrics. 235
   a Cloths. 235
   b Cassimères. 238
179 Perdigao, Miguel Salvo, San Miguel de Machêde.—Brown woolen cloth. 235
180 Peres, Joaquim Manuel de Mat tos, Evora.—Woolen fabrics. 235
181 Neves, Balbina das, Serpa.—Coarse woolen fabrics. 235
182 Andrade, Antonio Pequito Sieras de Gaviâs, Portalegre.—Wool. 235
183 Padronello Woolen Manufacturing Co., Amarante.—Card-wool fabrics. 235
184 Ponte, Jose Caetano da, Almodovar.—Woolen fabrics. 235
185 Mello, Gil Taveiras, Ponta Delgada.—Yarn. 235
186 Netto, Antonio Eugenio Bello, Macaco.—Woolen fabrics. 235
187 National Rope Yard, Belem.—Yarn. 235
188 Mirrada, José Pedro Meudas, Macaco.—Card-wool fabrics. 235
189 Leandro, Manuel, Beja.—Woolen fabrics. 235
190 Lança, Francisco Farreire de, Castro Verde.—Woolen fabrics. 235
191 Lordelo Woolen Manufacturing Co., Oporto.—Cloths, cassimères. 235
192 Department of Public Works, Lisbon.—Woolen fabrics, yarns. 235
193 Campa Grande, Company of Woolen Manufacturers of, Lisbon.—Card-wool fabrics, kerseymeres, etc. 235
194 Custodio & Silva, Covilha.—Woolen fabrics. 235
195 Burnay, Constant, Lisbon.
   a Woolen fabrics, kerseymeres, plaid. 235
   b Blankets. 237
196 Costas & Carvalho, Oliveira, d’Azeimes.
   a Woolen cloths. 235
   b Shawls. 237
197 Colaço, Manuel Matheus, Castro verde.
   a Woolen fabrics. 235
   b Mixed wool fabrics. 238
198 Bibianno, Antonio Alves, Lisbon.—Broadcloth. 235
199 Bernardo, Daupias, & Co., Lisbon.—Woolen fabrics. 235
200 Nabinho, José da Fonseca, Oporto.
   —Woolen twine. 235

201 Pacheco, Francisco Jeronymo, Ponta Delgada.—Plain flannel. 236
202 Guillerme, Maria, Castro Verde.—Coarse blankets. 237
203 Símaes, Rosa Clara, Aveiro.—Blanket. 237
204 Pignatelli, José da Cunha, Guarda.—Blanket. 237
205 Piteira, Filipe, Serpa.—Blankets and mantilla. 237
206 Department of Public Works, Lisbon.—Blankets. 237
207 Guerra, Joaquim Baptista da Silva, Oporto.—Foplins. 238
208 Campos, Mello, & Co., Covilha.—Kerseymeres. 238
209 Costa, Clemente Joaquim da, Ponta Delgada.—Mixed fabrics of linen and wool. 238
210 Albuquerque, Caetano de A., Lisbon.—Counterpane of linen and wool. 238
211 Abren e Lima, João A., Ponta Delgada.—Table cloth of linen and wool. 238
212 Santos, Ascensio José dos, Valença.—Combined woolen fabrics. 238
213 Pacheco, J. V., Ponta Delgada.—Combined woolen fabrics, for blankets and wearing apparel. 238
214 Almeida & Silva, José Soares de, Oporto.—Mats. 239
215 Fernandes, Manuel, Coimbra.—Goat’s hair cloth. 240

Silks and Silk Fabrics.
216 Sonto, Antonio Manuel Granzo, Nova Visen.—Silk cocoons. 242
217 Vasconcelias, Jacintha P., Villa Nova de Leiria, Oporto.—Raw silk. 242
218 Silva, Antonio José de Lansa e Vallongo, Oporto.—Silk cocoons. 242
219 Patricio, Francisco Antonio, Guarda.—Silk cocoons. 242
220 Queiroz, José de Sequeira Pinto, S. Sebastião du Duque, Viana do Castelo.—Raw silk. 242
221 Reis, José Antonio, Moncorvo, Bragança.—Raw silk. 242
222 Pereira, Antonio de la Velha, Bragança.
   a Raw silk, silk cocoons. 242
   b Throw silk. 243
223 Vasconcelias, Joas da Camara Seure Hornema, Funchal, Madeira.
   a Raw silk. 242
   b Spun silk and weft. 244
224 National Silk Spinning & Weaving Manufactury, Lisbon.
   a Cocoons, raw silk. 242
   b Twisted silk. 243
   c Woven silks. 245
224a Pereira, Antonio de la Velha, Bragança.
   a Raw silk. 242
   b Throw silk. 243
   c Silk cocoons. 244
225 Brandao, José Marçal, Oporto.—Twisted sewing-silk. 243
226 Silva, Antonio J. P. da, & Alves.—Twisted sewing-silks. 243

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Woven Goods, Silks, Clothing.

<table>
<thead>
<tr>
<th>227</th>
<th>Egyptian Silk Growing Co., Oporto. — Spun silk yarns.</th>
<th>244</th>
</tr>
</thead>
<tbody>
<tr>
<td>228</td>
<td>Cavalho, Jose Baptista Vale, Passos, Villa Real.— Spun silk.</td>
<td>244</td>
</tr>
<tr>
<td>229</td>
<td>Azevedo, Miguelina Julia de J., Guimaraes, Oporto.— Spun silk.</td>
<td>244</td>
</tr>
<tr>
<td>230</td>
<td>Ribas, Limas, Guarda.— Silk wefts.</td>
<td>244</td>
</tr>
<tr>
<td>231</td>
<td>Silva, David Jose da, &amp; Sons, Oporto.</td>
<td>245</td>
</tr>
<tr>
<td>232</td>
<td>Pimentel &amp; Queiroz, Oporto.</td>
<td>245</td>
</tr>
<tr>
<td>233</td>
<td>Moreira, Verdeiras de Manuel Custodio, Oporto.</td>
<td>245</td>
</tr>
<tr>
<td>234</td>
<td>Fouseca, Manuel da Motta, Oporto.</td>
<td>247</td>
</tr>
<tr>
<td>235</td>
<td>Avaujo, Antonio J. B. de, Braga. — Damasked silk.</td>
<td>246</td>
</tr>
<tr>
<td>236</td>
<td>Guerra, Joaquim Baptista da Silva, Oporto.</td>
<td>246</td>
</tr>
<tr>
<td>237</td>
<td>Vasconcellos, Jose da Silva Pereira, Braga. a Damask.</td>
<td>246</td>
</tr>
<tr>
<td>238</td>
<td>Manuel Joaquim de Luna &amp; F., Oporto.— Black velvet.</td>
<td>247</td>
</tr>
<tr>
<td>239</td>
<td>Silva, Manuel Jose Francisco da, Braga. a Gold lustre upholstery silk.</td>
<td>247</td>
</tr>
<tr>
<td>240</td>
<td>Motta, Augusto Antonio da, Oporto.— Silk and cotton ribbon.</td>
<td>248</td>
</tr>
<tr>
<td>241</td>
<td>Nogueira, Francisco Jose, Oporto. a Ribbons.</td>
<td>248</td>
</tr>
<tr>
<td>242</td>
<td>Silva Guimaraes, Custodio Jose, Oporto.— Samples of gauzons.</td>
<td>249</td>
</tr>
<tr>
<td>243</td>
<td>Machado, Julio Rodrigues, Oporto.— Bindings, braids, cords, etc.</td>
<td>249</td>
</tr>
<tr>
<td>244</td>
<td>Coelho, Jose de Senna, Pena fell. — Gauze.</td>
<td>249</td>
</tr>
<tr>
<td>245</td>
<td>Braga, Manuel J. V., Coimbra.— Silk trimmings.</td>
<td>249</td>
</tr>
<tr>
<td>246</td>
<td>Autunes, Jeronimo J., Braga.— Elastic braids.</td>
<td>249</td>
</tr>
</tbody>
</table>

Clothing, Jewelry, and Ornaments; Traveling Equipments.

| 241a | Dabney, S. W., Fayal, Acores.— Alpaca shawl, knitted hose, jacket, sash, etc. | 249 |
| 242a | Serrana, Florencio, Aveiro.— Waistcoat. | 250 |
| 241d | Rezende, Francisco de, Ponta Delgada.— Colored petticoat. | 250 |
| 242d | Rego, A. P., Lisbon.— Clothing. | 250 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Clothing, Fancy Goods, Jewelry.

276 Delaye, Hypolite, Lisbon.—Kid gloves. 251
277 Dias, Antonio, Oporto.—Wooden shoes. 251
278 Dabney, R. L., Fayal Azores.—Hat made of wood shavings. 251
279 Dorta, Braga, & Son, Oporto.—Hats. 251
280 Ponta Delgada, Committee of, San Miguel.—Straw hats. 251
282 Coutinho, José M, da C., Ponta Delgada.—Linen and woolen caps. 251
283 Carvalho, Joaquim José, Guimaraes.—Woolen shoes, slippers. 251
284 Barreiros, Francisco J., Beja.—Boots and shoes. 251
285 Bahia, Antonio José R., Braga.—Hats. 251
286 Bahia, Custodio J. R., Braga.—Hats. 251
287 Almeida, Germano, Lisbon.—Boots and shoes. 251
288 Aren, Manuel J. da S., Braga.—Boots and shoes. 251
289 Santos & Bro., St. Vincente de Pereira.—Hats. 251
290 Calheta, Maria Pereira da, Ponta Delgada. 
a. Woolen caps. 251
b. Linen embroidery. 251
291 Department of Public Works, Lisbon. 
a. Wooden shoes, hats. 251
b. Laces, bindings, and brads. 251
c. Costumes. 257
292 Infant School, Barcellos. 
a. Knit stockings. 251
b. Needlework embroideries. 252
293 Oliveira, J. F. de, Funchal. 
a. Caps. 251
b. Embroideries. 252
295a Camara, Manuel da, Ponta Delgada.—Cotton lace. 252
294 Tavares, Rita de J., Aveiro.—Lace. 252
295 Theresa de Jesus, Ponta Delgada.—Needlework. 252
296 Teixeira, Carlota Matilde, Funchal.—Embroideries. 252
297 Themudo, Maria Eduarda, Castro Verde.—Lace. 252
298 Viva Ferreira Campos & Co., Oporto.—Materials for gold and silver embroidery, gold lustring, gallons, and lace. 252
299 Magalhaes, Anna Maria Barboza da, Aveiro.—Lace. 252
300 Gois, Francisca, Emilia de, Aljustrel.—Lace. 252
301 Davies, John, Payial.—Pin-cushion covers, crivo work. 252
303 Carvalho, Anna C. L. da C., Ovar.—Embroideries. 252
304 Coelho, Joanna Maria Dias, Ovar.—Embroideries. 252
305 Bivar, Manuel d' A. C. de, Algarve.—Lace. 252
307 Abren e Lima, Joao, B., Ponta Delgada. 
a. Embroideries. 252
b. Frame with pricked paper work. 254
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
308 Carneiro, Francisco dos Santos, Oporto.—Gilt tissue. 252
309 Teixeira, José Rodrigues, Oporto.—Silver jewelry. 252
310 Seabra, José dos Santos, Oporto.—Gold and silver jewelry. 253
311 Montinho Sousa, F. de, Oporto.—Gold and silver jewelry. 253
312 Nogueira, Antonio Marques, Oporto.—Gold jewelry. 253
313 Montinho, Luiz Pinto, Oporto.—Silver jewelry. 253
314 Marques, Manuel Martius, jr., Oporto.—Silver jewelry. 253
315 Lobao & Ferreira, Oporto.—Gold and silver jewelry. 253
316 Leitao & Irinao, Oporto.—Gold and silversmith's work, jewelry. 253
317 Gold Working Co., Oporto.—Goldsmith's work, jewelry. 253
318 Castro, Francisco Augusto V., Oporto.—Gold and silver jewelry. 253
319 Conto, Antonio Guilherme, San Pedro da Cova.—Silver jewelry. 253
320 Coutinho, A., & Titho, Oporto.—Gold and silver jewelry. 253
321 Augusta, Maria da P., Coimbra.—Toothpicks. 254
322 Martins, Jeronymo, & Son, Lisbon.—Toothpicks. 254
323 Martins Jeronymo & Bro., Lisbon.—Toothpicks. 254
324 Avellar & Miranda, Lisbon.—Toothpicks. 254
325 Cunha, Augusto Mendes da, Guimaraes.—Horn combs. 254
326 Dabney, S. W., Fayal, Azores.—Eagle made of fig-tree pith. 254
327 Goncalves, Ribas, & Co., Oporto.—Buttons and materials of manufacture. 254
328 Maria, Joaquim, Coimbra.—Tree composed of toothpicks. 254
329 Margues, José Antonio, Braga.—Umbrellas. 254
330 Diogo, Antonio Manuel, Oporto.—Umbrellas. 254
331 Gandencio, Jose, Coimbra.—Toothpicks. 254
332 Maria, José, Coimbra.—Toothpicks. 254
333 Lauriano & Tavares, Ponta Delgada.—Pin-cushion of silk and aloes- thread. 254
334 Pinho, Guithermina d'Oliveira, Ponta Delgada.—Flowers made of feathers and rags. 254
335 Passos, Augusto Fructuoso, Guimaraes.—Horn combs. 254
336 Mello, Antonio Machado de Souza, Ponta Delgada.—Bead work, flowers, and lace. 254
337 Schalck, H., Lisbon.—Buttons, hooks and eyes, etc. 254
338 Silva, José Goncalves, Oporto.—Bird cages. 254
339 Souza, Maria Magdalena, Ponta Delgada.—Artificial flowers of stearine and Guinea aloe fibres. 254
340 Silva, Joaquim da, Coimbra.—Toothpicks. 254
Traveling Equipments, Stationery, Weapons, Hardware, etc.

341 David, José de A., Oporto.—Portmanteau and hat-boxes. 255
342 Conceição, Umbelina da, Castro Verde.—Saddlebags. 255
343 Ramos, Joaquim Antonio, Beja.—Leather bottles. 255
344 Neves, Baimba dos, Serpa.—Saddlebags. 255
345 Rocha, Francisco José da Silva, Oporto.—Leather portmanteau, traveling bags, valises, belts, and game pouches. 255

Paper, Blank Books, Stationery.
346 Manilha, Francisco dos Santos Lopes, Valongo.—Slate. 258
347 Lemos, J. Gonçalves de, Louzan.—Paper. 259
348 Galino, Manuel d'A., d'O., Oporto.—Cigarette paper. 259
349 Menrier, Raul, Coimbra.—Cigarette paper. 259
350 Freitas, Feliciano Gabriel de, Lisboa.—Writing-paper. 260
351 Prado Paper Manufacturing Co., Thomar.—Paper. 260

352 National Printing Office, Lisbon.
   a Printing materials, etc. 260
   b Playing cards, etc. 262

353 Reis & Monteiro, Oporto.
   a Typographical proofs. 260
   b Lithographic proofs. 260

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.
355 Cardozo, José Pereira, Oporto.—Lead shot. 265
356 National Printing Office, Lisbon.—Weapons, etc. 265
356 Manuel, Antonio da Silva, & Sons, Lisbon.—Lead shot. 265
357 Carvalho e Mello, Adriano José, Braga.—Convertible bowing-piece and cane. 269

Medicine, Surgery, Prosthesis.
358 Nobreza, Francisco Augusto da Silva, Figueira.—Vermifuge lozenges. 272
359 Rodrigues, José Pereira, Lisbon.—Pharmaceutical preparations. 272
360 Andrade, Albano Abilio de, Oporto.—Surgical instruments. 276

Hardware, Edge Tools, Cutlery, and Metallic Products.
361 Direction of the Works at Mondego river & Figueira bar, Figueira da Foz.—Tools employed in the salt pits. 280
362 Santos, Manuel Moreira, Oporto.—Carpenters' tools and calking irons. 280
363 Industrial Institute of Oporto, Oporto.—Stone-cutters' tools. 280
364 Cardozo, Joao Thomas, Villa Nova de Gaia.
   a Cooper's tools. 280
   b Locks and nails. 280
365 Cunha, August Mendes de, Guimarães.—Knives, scissors. 281
365a Guimarães, Joaquim M. da S., Guimarães.—Scissors. 281

366 Alves, Antonio, jr., Villa Real.—Pruning knives. 281
367 Cruz, Luiz F. de S., Oporto.—Cast iron escutcheons. 283
368 Souza, Luiz Augusto de, Evora.—Small bells. 285
369 Santos Rocha & Morena, Oporto.—Leaden tubes. 283
370 Corta, Basto, & Co., Oporto.
   a Cast iron cross, lead pipes. 283
   b Tinned hardware. 284
371 Cruz, Luiz F. de S., Oporto.—Ranges and bushels for axles. 284
372 Santos, Joaquim Antunes dos, Lisbon.—Card of wire and wire nails. 284
373 Schallck, H., Lisbon.—Nails, etc. 284
374 Peixoto, Rodrigo José, Penafiel.—Brass nails. 284
375 Pacheco, Francisco Gomez, Braga.—Nails. 284
376 Ferreira, M. J., & da Silva, Jos., Braga.—Hardware. 284
377 Guerra, Antonio José de Sousa, Oporto.—Brass cocks, hinges, etc. 284
378 Department of Public Works, Lisbon.—Hardware. 284
379 Camara, Antonio da, Ponta Delgada.—Nails, lock. 284
380 Ponta Delgada, Committee of, San Miguel.—Lock. 284
381 Ben Saude, Jacob, Ponta Delgada.—Copper nails. 284

Fabrics of Vegetable, Animal, or Mineral Materials.
382 Ileauriques, Antonio Alexandre, Oporto.—Elastic webs for boots and shoes. 285
383 Cardozo, Manuel Joaquim, Oporto.—Elastic webs for boots and shoes. 285
384 Costa, José Antonio, Oporto.—Elastic webs for boots and shoes. 285
385 Lisbon Central Jail, Lisbon.—Scouring brushes. 286
386 Carvalho, Antonio Raymundo, Lisbon.—Brushes. 286
387 Oliveira, Baltasar, Pinto.—Ropes. 287
388 National Rope Yard, Belem.—Ropes. 287
389 Lauriano & Tavores, Ponta Delgada.—Osier baskets. 287
390 Castro, Joao Vaz Pacheco, Ponta Delgada.—Rope. 287
391 Barboza, Antonio José, Oporto.—Flax and hemp ropes and twines. 287
392 Cruz, Joao Maria.—Hemp and esparto ropes. 287
393 Department of Public Works, Lisbon.—Statistical monograms. 288
394 Braga, Antonio P. da S., Braga.—Portuguese armorial bearings. 288
395 Tavares, Jose, Oporto.—Willow baskets. 289
396 Matlos, Antonio José de, Barcelos.—Basket work. 289
397 Department of Public Works, Lisbon.
   a Basket ware. 289
   b Wooden spoons. 289

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-15.
Woodenware, Harness, Art.

399 Baptista, Joao Guerreiro, Almodovar.—Wooden spoons. 289
400 Mattos, F. C. Pereira de, Faro.—
   Palm-leaf flails. 289
401 Araiyo, Jose Antonio, Barcellos.—
   Basket work. 289
402 Mendonca, Manuel Fernandes de, Lisbon.—Spools. 289
404 Direction of the Works at Mondego river & Figueira bar, Figueira da Foz.—Baskets and mats, tatch. 289
405 Lemos & Antunes, Figueira da Foz.—Pulley blocks. 289

Carriages, Vehicles, and Accessories.
406 Cunha, Augusto Mendes da, Guimaraes.—Horse bits, snaffles, spurs. 296
407 Carvalho, Manuel, Guimaraes.—
   Horse bits, stirrups, spurs. 296

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

408 Guimaraes, Joao Carvalho, Guimaraes.—Horse bits, spurs. 296
409 Sonto Jose Sebastiao, Oeiras.—
   Horse-shoe. 296
410 Silva, Joao d'Oliveira, Braga.—
   Horse furniture. 296
411 Silva, J. Baptista da, Guimaraes.—
   Horse bits. 296

Sculpture.
412 Goncalves, A. D.—Christ Crucified (in marble). 400

Oil Paintings.
413 Segueira, D. A.—Distribution of Soup in Lisbon to the Refugees during the French Invasion of 1810. 410
TURKEY.

(South of Nave, Columns 14 to 17.)

Chemical Manufactures.

1. Ali Effendi, Angora.—Salt. 200
2. Allah, Tuzula, Bosnia.—Salt. 200
3. Djorbajik, Chio, Dardanelles.—Sulphate of antimony. 200
4. Ayvadik, Government of, Dardanelles.—Sea salt. 200
5. Adana, Government of, Adana.—Salt. 200
7. Canea, Government of, Crete.—Sea salt. 200
8. Djidjé, Government of, Hidjar.—Salt. 200
9. Kara-Hissar, Government of, Sivas.—Alum. 200
10. Tous-Hissar, Government of, Sivas.—Sea salt and white salt. 200
11. Toutous, Government of, Sivas.—Nitre. 200
12. Syria, Government of,—Dead Sea salt. 200
13. Van, Government of, Erzeroum.—Nitre. 200
14. Beker, Hadji, Aleppo.—Salt. 200
15. Seit, Hadji, Koniah.—Crude potash. 200
16. Ligory, Effendi, Stankens, Dardanelles.—Sulphate of iron. 200
17. Maktis, Diarbekir.—Balsam flower. 200
18. Mehemed, Aleppo.—Salt. 200
19. Membia Memour, Kangre, Castamouni.—Salt. 200
20. Moustapha, Diarbekir.—White and red salt. 200
21. Pano Mamatti, Prævèze, Yanina.—Salt. 200
22. Suleiman, Prævèze, Yanani.—Salt. 200
23. Saldne, Erzeroum.—Salt. 200
24. Saline de Coniah, Koniah.—Salt. 200
25. Zanni, Constantinople.—Pharmaceutical preparations. 200
   a. Sea salt. 200
   b. Olive oil. 200
   a. Mineral salt. 200
   b. Soap. 200
   a. Berax. 200
   b. Orpiment (a pigment). 200
29. Riza, Effendi, Constantino,——.Candles. 201
30. Anaghosti Dascalò Paolo, Sfakia, Crete.—Wild mint, apple, and daphne oils. 201
31. Vaskopoly, Arnasnoti, Canea, Crete.—Sumac, rosemary, and red oils. 201
32. Chakir Agha, Ayvadjik, Dardanelles.—Olive oil. 201
33. Chakir Elkté, Aleppo.—Soap. 201
34. Chaul Kepka, Berat, Yanina.—Olive oil. 201
35. Chamotte, Malatia, Diarbekir.—Opium oil. 201
36. Costa, Prævèze, Yanina.—Soap. 201
37. Mazalaki, Dimitri, Canea, Crete.—Oil of sweet and bitter almonds. 201
38. Eflimitaki, Giorgui, Canea, Crete.—Essential oil. 201
39. Salonica, Government of.—Olive oil. 201
40. Sams, Government of,—Soap and olive oil. 201
41. Volania, Government of, Yanina.—Olive and other oils. 201
42. Haranlar, Boyorki, Mytilene, Dardanelles.—Soap. 201
43. Koudour, Hadji, Aleppo.—Olive and sesame oils. 201
44. Yehrapalaki, Hadji, Nicolas, Lachite, Crete.—Oil of myrtle. 201
45. Schidebalaki, Hadji, Nicolas, Lachite, Crete.—Oil of juniper. 201
46. Fezli Ogli Samy, Bey, Hadji.—Soaps. 201
47. Hussein, Saret, Diarbekir.—Soap. 201
48. Foliatiis, Joseph, Smyrna, Aydin, Soap. 201
49. Mehemed, Piseren, Monastir.—Soap. 201
50. Pedros, Diarbekir.—Olive oils. 201
51. Pla Oghli, Smyrna, Aydin.—Soap. 201
52. Tanassi, Aydonat, Yanina.—Olive oil. 201
53. Tassia Didé, Prævèze, Yanina.—Olive oil. 201
54. Yani Paoli, Narda, Yanina.—Olive oil. 201
55. Salomon, Salonica.—Soap. 201
56. Panayote, Petron, Chio, Dardanelles.—Oil of flowers. 201
57. Nicoforaki, Théophane, Canea, Crete.
   a. Olive oil. 201
   b. Orange flower and rose waters. 203

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
| 58 | Anastassiades, George, Constantinople. | c | Olive wood shelves, wall pockets, frames, etc. |
|    | a Fancy soaps.                          |    | 201 |
|    | b Perfumery, tooth powder, cosmetics, etc. |    | 202 |
| 59 | Garatoela, Aleppo.                     | d | Olive wood candlesticks. |
|    | a Scented soap.                         |    | 201 |
|    | b Perfumed argil for baths.             |    | 203 |
| 80 | Kisim, Government of, Salonica.—       |    |    |
|    | Chronne.                               |    | 202 |
| 61 | Massoudjiou, Diarbekir.—Ochre.         |    |    |
| 62 | Mory, Bey, Fokat, Sivas.—Madder.       |    |    |
| 64 | Roussio, Tchihlah, Sfakia, Crete.—Red ochre. |    |    |
| 65 | Salé, Zubei, Ziem.—Indigo.             |    |    |
| 66 | Feizoula, Constantinople.—Perfumery, essences, cosmetics, soap, etc. |    |    |
| 67 | Aleppo, Governor of.—Rose and orange blossom waters. |    |    |
| 66 | Menteche, Governor of, Aydin.—Incense. |    |    |
| 68 | Aydin, Government of, Aydin.—Liquorice juice. |    |    |
| 69 | Seim Agha, Prévézé, Yanina.—Cedar and orange blossom waters. |    |    |
| 70 | Medina, Government of, Higidz.—Kena, for coloring the nails. |    |    |
| 71 | Maktis, Diarbekir.—Violet, marshmallow, virgin maria, and rose flowers. |    |    |
| 72 | Papaz, Oglou Bros., Philippopolis, Adrianople.—Rose oil. |    |    |
| 73 | Abdoullah, Tahil, Higidz.—Essence of roses; mint and rose waters. |    |    |
| 74 | Ali Agha Bachkin, Tripoli, Tripoli.—Essences of geranium and orange flowers. |    |    |
| 75 | Ali Mehemed, Efendi, Koniah, Koniah.—Essence of mint and wild thyme oil. |    |    |
| 76 | Christo, Philippopolis, Adrianople.—Rose oil and rose water. |    |    |
| 77 | Ali, Agha, Roostchook, Danube.—Flower pots. |    |    |
| 78 | Djebar Oglou Mustapha, Vardar, Bosnia.—Pottery. |    |    |
| 79 | Kirkor, Aintab.—Terra-cotta pot.       |    |    |
| 80 | Ousta, Tahir, Dardanelles.—Flower pots. |    |    |
| 81 | Ousta, Hussein, Dardanelles.—Terra-cotta vases, flower pots. |    |    |
| 82 | Kirkor, Terssus, Adana.                |    |    |
|    | a Water pots.                          |    | 206 |
|    | b Eartheware cup.                      |    | 210 |
| 83 | Nicoforaki, Théophani, Canea, Crete.—Yellowware. |    |    |
| 84 | Mehemed, Hadji, Constantinople.—Eartheware coffee pot, boxes, cups and saucers, plates, spoons, pipe bowls, vases, etc. |    |    |
| 85 | Vester, Jerusalem, Syria.              |    |    |
|    | a Olive wood table.                     |    | 217 |
|    | b Olive wood sugar bowls, napkin rings, cups. |    | 218 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
113 Jerusalem, Government of, Syria.—Earth cup. 218
114 Zaframbo, Government of, Castamouni.—Marble drinking cups. 218
115 Vissoka, Government of, Bosnia.—Coffee cup and saucer. 218
116 Giorki, Bérat, Yanina.—Pitchers and dishes. 218
117 Boch Kirkor, Aintab.—Forks and spoons. 218
118 Avedis Papazoglou, Trebizond.—Copper pitcher, water pots, decanter, etc. 218
119 Assi Agha, Trebizond. a Plate. 218
b Chandelier. 223
120 Ali Agha, Roostchouk, Danube.—Coffee and tea set, decanter and plate, glasses, jam pots, spoon holder, tumbler, and brandy service. 218
121 Abdourahman, Mehemed Ousta, Castamouni, Castamouni.—Dinner sets. 218
122 Miran Moundjia, Constantinople.—Picture frame. 220
123 Rizzo Giorki, Yanina, Yanina.—Looking-glass frames. 220
124 Moustapha, Effendi, Constantinople.—Brass brazier. 222
125 Ibrahim Agha, Hadji, Aintab.—Belows. 222
126 Ovakin, Constantinople.—Lantern. 223
127 Tanasse, Yanina, Yanina. a Brass chandelier, candlesticks, censor, hand bell, scales, steel-stands, pestle and mortar, liquor flask. 223
b Hand bell, scales, steel-yard, pestle and mortar, liquor flask. 224
128 Usine Hassan, Retimo, Crete.—Chandeliers. 223
129 Abdoulah, Hadji, Bosnia. a Gilt copper lantern. 223
b Copper per water pots. 224
130 Suleiman, Bosnia.—Coffee-grinders. 224
132 Raz Oglou Hussein, Bello, Castamouni.—Copper tea pot, coffee pot. 224
133 Moustapha, Constantinople. a Mortar and pestle. 224
b Wash basin. 225
134 Keur Ali, Koniah, Koniah.—Earthen pitcher. 224
135 Jacob Ousta, Bello, Castamouni.—Copper vessel, refrigerator, water pitcher, and tea pots. 224
136 Prevèce, Government of, Yanina.—Dishes. 224
137 Kara-Hissar, Government of, Si-vas.—Wooden spoons. 224
138 Medina, Government of, Hidjaz.—Coffee pot and roaster. 224
139 Espahi, Tripoli, Tripoli.—Pestle and mortar. 224
140 Ali Ousta, Koniah.—Earthen pitchers. 224
141 Abdourahman, Castamouni, Castamouni.—Copper plate. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

142 Aintab, Government of.—Reed mat. 229
143 Basra, Government of, Bagdad.—Palm leaf mats. 229
144 Bagdad, Government of. a Palm mats. 229
b Cotton fabrics. 230
c Linen fabrics, coverlet. 233
145 Cherif Effendi, Aintab.—Mat. 229
146 Tiraki Selim Agha, Retimo, Crete.—Cotton fabric. 230
147 Salih, Tripoli.—Cotton tissue. 230
148 Tanach, Yanina.—Cotton fabric. 230
149 Tchoula Cheyfi, Aintab, Aleppo.—Cotton cloth. 230
150 Seid Cherif, Aleppo.—Cotton tissues. 230
151 Razakoula, Aleppo.—Embroidered cotton fabric. 230
152 Pirik Oglou, Pedro, Aleppo.—Cotton tissue. 230
153 Ou nedji, Osman, Castamouni.—Duck. 230
154 Bolad, Nicolas, Damascus.—Cotton fabric. 230
155 Nersesse, Marach, Aleppo. a Sheet, etc. 230
b Printed calicoes. 232
156 Moustapha Bey, Castamouni.—Sheeting. 230
157 Maktès Bagdo, Ourpha, Aleppo. a Sheet, etc. 230
b Printed calicoes. 232
158 Mehemeda, Nabachir du Tidjan, Canea, Crete.—Cotton fabric. 230
159 Me hammer Ben Adouraj, Tripoli, Tripoli.—Cotton tissue. 230
160 Mahmod, Effendi, Damascus.—Cotton fabric. 230
161 Mahmod Couzzi, Tripoli, Tripoli.—Cotton tissue. 230
162 Mitchez, Yanina.—Cotton foulards. 230
163 Kasban, Madame, Koniah.—Cotton yarn. 230
164 Kaisparexecko & Co., Aleppo.—Cotton fabrics. 230
165 Koussou Kirkor, Aintab, Aleppo. a Sheet, etc. 230
b Printed calicoes. 232
166 Ibrahim, Miss, Dardanelles.—Cotton fabric. 230
167 Ibrahim Agha, Canea, Crete.—Cotton shirting. 230
168 Ilias Hatte, Aleppo.—Silk and cotton tissue. 230
169 Ibrahim, Cyprus. a Cotton fabrics. 230
b Handkerchief and napkin stuff, counterpane, sheet, and table cloth. 233
170 Iskildijan, Canea, Crete. a Cotton fabrics and thread. 230
b Linen napkins. 233
171 Mansour, Hadji, Tripoli, Tripoli.—Cotton coverlet. 230
172 Aghop, Hodja, Adrianople.—Cotton cord. 230

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Woven Goods.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>173</td>
<td>Ilias, Hodja, Aleppo.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>a Embroidered cotton fabrics.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Colored cotton fabrics.</td>
<td>231</td>
</tr>
<tr>
<td>174</td>
<td>Mehemed Agha, Hadji, Bartia, Castamouni.—Cotton fabric.</td>
<td>230</td>
</tr>
<tr>
<td>175</td>
<td>Hassan, Ousta, Angora.—Cotton thread.</td>
<td>230</td>
</tr>
<tr>
<td>176</td>
<td>Hassan Ali, Houdehida, Yiemen.—Cotton fabrics; curtains.</td>
<td>230</td>
</tr>
<tr>
<td>177</td>
<td>Hassan Chaban, Houdehida, Yiemen.—Cotton fabrics.</td>
<td>230</td>
</tr>
<tr>
<td>178</td>
<td>Hakim, Hadji, Bros., Aleppo.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>a Embroidered cotton fabric, tissues.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Silver-embroidered table cloth.</td>
<td>233</td>
</tr>
<tr>
<td>179</td>
<td>Constantinople, Government of.—Cotton cloths.</td>
<td>230</td>
</tr>
<tr>
<td>180</td>
<td>Aintab, Government of, Aleppo.—Tent curtains.</td>
<td>230</td>
</tr>
<tr>
<td>181</td>
<td>Beyroot, Government of, Syria.—Cotton fabrics.</td>
<td>230</td>
</tr>
<tr>
<td>182</td>
<td>Aleppo, Government of.—Cotton tissues.</td>
<td>230</td>
</tr>
<tr>
<td>183</td>
<td>Karraissalo, Government of, Adana.—Cotton thread.</td>
<td>230</td>
</tr>
<tr>
<td>184</td>
<td>Kerbella, Government of, Bagdad.—Cotton yarn.</td>
<td>230</td>
</tr>
<tr>
<td>185</td>
<td>Kara-Hissar, Government of, SiVAS.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>a Cotton threads and fabrics.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Calicoes.</td>
<td>232</td>
</tr>
<tr>
<td></td>
<td>e Linen cloths and duck, towels, etc.</td>
<td>233</td>
</tr>
<tr>
<td>186</td>
<td>Erzeroum, Government of.—Cotton thread.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Unbleached linen.</td>
<td>233</td>
</tr>
<tr>
<td>187</td>
<td>Nich, Government of, Danube.—Cotton tissues.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Linen, coverlets, etc.</td>
<td>233</td>
</tr>
<tr>
<td>188</td>
<td>Gasko, Gaspard, Aleppo.—Cotton fabric.</td>
<td>230</td>
</tr>
<tr>
<td>189</td>
<td>Eminé, Koniah.—Shirting.</td>
<td>230</td>
</tr>
<tr>
<td>190</td>
<td>Esmé, Ani, Koniah.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>a Sheeting.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Linen textile.</td>
<td>233</td>
</tr>
<tr>
<td>189</td>
<td>Edié Factory, Damascus.—Cotton yarn.</td>
<td>230</td>
</tr>
<tr>
<td>192</td>
<td>David Ilias, Yanina.—Cotton thread, twill, and cord.</td>
<td>230</td>
</tr>
<tr>
<td>193</td>
<td>Chicho Zeko, Makrincha, Yanina.—Quilts.</td>
<td>230</td>
</tr>
<tr>
<td>194</td>
<td>Bassardji Maktés, Ourpha, Aleppo.—Cotton cloths.</td>
<td>230</td>
</tr>
<tr>
<td>196</td>
<td>Bruffel, Kricca, &amp; Co., Smyrna.—Spun cotton.</td>
<td>230</td>
</tr>
<tr>
<td>197</td>
<td>Ahmed Agha, Aleppo.—Cotton thread.</td>
<td>230</td>
</tr>
<tr>
<td>198</td>
<td>Abir Tarip, Aleppo.—Cotton fabric.</td>
<td>230</td>
</tr>
<tr>
<td>199</td>
<td>Abadj Molacha, Aintab, Aleppo.—Divan stuff.</td>
<td>230</td>
</tr>
<tr>
<td>200</td>
<td>Antoli, Miss Mados, Dardanelles.—Spun cotton.</td>
<td>230</td>
</tr>
<tr>
<td>201</td>
<td>Aiché, Koniah.—Shirting.</td>
<td>230</td>
</tr>
<tr>
<td>202</td>
<td>Ayaza Oglon Ahmed, Kangre, Castamouni.—Cotton cloths.</td>
<td>230</td>
</tr>
<tr>
<td>203</td>
<td>Allahladjé Aloj, Aleppo.—Cotton cloth.</td>
<td>230</td>
</tr>
<tr>
<td>204</td>
<td>Atidgé, Madame, Koniah.—Cotton cloth.</td>
<td>230</td>
</tr>
<tr>
<td>205</td>
<td>Astardji Narssás, Aintab, Aleppo.—Cotton fabrics.</td>
<td>230</td>
</tr>
<tr>
<td>206</td>
<td>Ahmed, Agha, Sivas, Sivas.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>a Cotton thread.</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>b Linen.</td>
<td>233</td>
</tr>
<tr>
<td>207</td>
<td>Papazaki, Manoli, Candia, Crete.—Cotton.</td>
<td>230</td>
</tr>
<tr>
<td>208</td>
<td>Iskilechina, Crete, Crete.—Striped ticking.</td>
<td>231</td>
</tr>
<tr>
<td>209</td>
<td>Abdul Hahat, Mosul, Bagdad.</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>a Cottonade.</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>b Towels, bathing linen, and handkerchiefs.</td>
<td>233</td>
</tr>
<tr>
<td>210</td>
<td>Mehemed Ali, Zoubid, Yiemen.—Printed calicoes.</td>
<td>232</td>
</tr>
<tr>
<td>211</td>
<td>Kachpi, Zoubid, Yiemen.—Printed calicoes.</td>
<td>232</td>
</tr>
<tr>
<td>212</td>
<td>Hana Meti, Mosul, Bagdad.—Printed calico.</td>
<td>232</td>
</tr>
<tr>
<td>213</td>
<td>Hartin, Adana, Adana.—Printed calico.</td>
<td>232</td>
</tr>
<tr>
<td>214</td>
<td>Ali Hadji, Koniah.—Printed calico.</td>
<td>232</td>
</tr>
<tr>
<td>215</td>
<td>Mahmoud Hadji, Aleppo.—Printed calicoes.</td>
<td>232</td>
</tr>
<tr>
<td>216</td>
<td>Chaban Hussein, Zoubid, Yiemen.—Calico.</td>
<td>232</td>
</tr>
<tr>
<td></td>
<td>b Bathing linen.</td>
<td>233</td>
</tr>
<tr>
<td>217</td>
<td>Van, Government of, Erzeroum.—Calicoes.</td>
<td>232</td>
</tr>
<tr>
<td></td>
<td>b Linen cloths.</td>
<td>233</td>
</tr>
<tr>
<td>218</td>
<td>Garabet, Tokat, Sivas.—Printed calico.</td>
<td>232</td>
</tr>
<tr>
<td>219</td>
<td>Caba Oglou Mehemed, Gueugnek. Castamouni.—Printed calico.</td>
<td>232</td>
</tr>
<tr>
<td>220</td>
<td>Ahmed Ousta, Castamouni.—Printed calico.</td>
<td>232</td>
</tr>
<tr>
<td>221</td>
<td>Aghop, Sivas, Sivas.—Printed calicoes.</td>
<td>232</td>
</tr>
<tr>
<td>222</td>
<td>Ezinchan, Government of, Erzeroum.—Printed calicoes.</td>
<td>232</td>
</tr>
<tr>
<td>224</td>
<td>Voussef, Mosul, Bagdad.—Bathing linen.</td>
<td>233</td>
</tr>
<tr>
<td>225</td>
<td>Voussef Gunki, Diarbekir.—Linen cloth.</td>
<td>233</td>
</tr>
<tr>
<td>226</td>
<td>Yasmadji, Mehemed, Tefrik, Constantinople.—Fabric for counterpanes and pillows.</td>
<td>233</td>
</tr>
<tr>
<td>227</td>
<td>Waskili, Yanina.—Linen cloth.</td>
<td>233</td>
</tr>
<tr>
<td>228</td>
<td>Vital, J. M., Constantinople.—Linens.</td>
<td>233</td>
</tr>
<tr>
<td>229</td>
<td>Thomas, Diarbekir.—Bathing linen.</td>
<td>233</td>
</tr>
<tr>
<td>230</td>
<td>Ohannés, Agha, Angora.—Pillow cases.</td>
<td>233</td>
</tr>
<tr>
<td>231</td>
<td>Ohan, Diarbekir.—Thread.</td>
<td>233</td>
</tr>
<tr>
<td>232</td>
<td>Musulmé, Madame, Koniah.—Table cloth.</td>
<td>233</td>
</tr>
<tr>
<td>233</td>
<td>Marquar, Trebizond.—Napkins and bathing apron.</td>
<td>233</td>
</tr>
<tr>
<td>234</td>
<td>Mourouk, Oglou Ohanés, Brousse.—Toilets, napkins, bathing linen, etc.</td>
<td>233</td>
</tr>
<tr>
<td>236</td>
<td>Mehemed Effendi, Denizli, Aydin.—Linen, napkins, divan cover, towels, burnous, sheeting, etc.</td>
<td>233</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-15.
273 Ali Imi, Madame, Koniah.—Towels.

Woven and Felted Goods of Wool, etc.

274 Zokopolani, Maria, Canea, Crete.—Wool fabric.

275 Zafere mbolo Orphan School, Zafere mbolo, Castamouni.—Cloth for garments.

276 Vassil Postak, Salonica.—Cloth.

277 Youssou Blouna, Aleppo.—Woolen yarns.

279 Tasse Kochman, Berat, Yanina.—Cloth.

280 Tatham, Trebizond.—Woolen fabrics.

281 Trentefli, Miss, O Tou louk, Adrianople.—Pants stuff.

282 Sahak Ousta, Angora.—Woolen fabric.

283 Kamps, Oglou, Angora.—Woolen fabric.

284 Ohannes Agha, Angora.

285 Maripa Golopo, Canea, Crete.—Striped yellow cloth.

286 Mollat Ahmed, Salonica.—Wool fabric.

287 Moussé Kapsal, Yanina.—Woolen fringe.

288 Mustapha, Tripoli, Tripoli.—Wool yarn.

289 Mehemed Effendi, Boldan, Aydin.—Cloth for garments.

290 Mehemed Effendi, Saroukhian, Aydin.—Cloth for garments.

291 Mehemed Ousta, Biledjeki, Brousse.—Furniture cloth.

292 Marie, Madame, Koniah.

293 Mehemed, Mousra, Castamouni.—Woolen fabric.

294 Mehemed Agha, Hadji, Bartia, Castamouni.—Woolen fabric.

295 Mahmouda, Hadji, Sivas, Sivas.—Felts.

296 Erzeroum, Government of.—Woolen fabrics.

297 Kenci Oglou Trantchi, I sil mia, Adrianople.—Woolen fabrics.

298 Usni, Hadji, Brousse.

299 Constantinople, Government of.

300 Nich, Government of, Danube.

301 I ne boli, Government of, Castamouni.—Woolen yarn.

302 Van, Government of, Erzeroum.

303 Bagdad, Government of.

1 For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### MANUFACTURES.

**Woolen Goods, Carpets.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>304</td>
<td>Feviki, Erzeroum.—Woolen yarn.</td>
</tr>
<tr>
<td>305</td>
<td>Djamián, Gabriel, Kara-Hissar.—Woolen fabric.</td>
</tr>
<tr>
<td>306</td>
<td>Cherí Oglou Ahmed Agha, Kangre, Castamouni. a Woolen textile. b Angora wool yarn.</td>
</tr>
<tr>
<td>307</td>
<td>Cherí Oglou Ahmed Agha, Zafrembolu, Castamouni.—Woolen textiles.</td>
</tr>
<tr>
<td>308</td>
<td>Ahmed Agha, Madame, Mousra, Castamouni.—Woolen fabric.</td>
</tr>
<tr>
<td>309</td>
<td>Ahmed Ousta, Balat, Brousse.—Cloth.</td>
</tr>
<tr>
<td>310</td>
<td>Zaha, Mosul, Bagdad. a Shawls. b Carpet.</td>
</tr>
<tr>
<td>311</td>
<td>Tehezi Agha, Adrianople.—Blanket.</td>
</tr>
<tr>
<td>312</td>
<td>Sali Agha, Madame, Koniah.—Woolen big.</td>
</tr>
<tr>
<td>313</td>
<td>Poto Yani, Kerénié, Yanina.—Woolen counterpane.</td>
</tr>
<tr>
<td>314</td>
<td>Ousta Ahmed, Cherisor, Bagdad.—Counterpane.</td>
</tr>
<tr>
<td>315</td>
<td>Ousta Mehemed, Suleimaneyah, Bagdad.—Woolen coverlet.</td>
</tr>
<tr>
<td>316</td>
<td>Mekon, Kiron, Sivas.—Woolen shawls.</td>
</tr>
<tr>
<td>317</td>
<td>Mehalourt, Suleimaneyah, Bagdad.—Counterpane.</td>
</tr>
<tr>
<td>318</td>
<td>Mosia Mahmoud, Diarbekir.—Woolen sheet.</td>
</tr>
<tr>
<td>319</td>
<td>Moustapha, Suleimaneyah, Bagdad.—Woolen coverlet.</td>
</tr>
<tr>
<td>320</td>
<td>Matros, Erzeroum.—Blanket.</td>
</tr>
<tr>
<td>321</td>
<td>Ibrahima, Canea, Crete.—Woolen counterpane.</td>
</tr>
<tr>
<td>322</td>
<td>Marie, Gueuridje, Monastir.—Woolen coverlet.</td>
</tr>
<tr>
<td>323</td>
<td>Cassim Baker, Hadji, Tripoli, Tripoli.—Blankets and coverlets.</td>
</tr>
<tr>
<td>324</td>
<td>Kerénié, Government of, Yanina.—Woolen cover.</td>
</tr>
<tr>
<td>325</td>
<td>Mosul, Government of, Bagdad.—Shawls.</td>
</tr>
<tr>
<td>326</td>
<td>Cherifé, Madame, Koniah.—Blanket.</td>
</tr>
<tr>
<td>327</td>
<td>Abdoullah Oglou Hassan, Guengnek, Castamouni.—Woolen shawl.</td>
</tr>
<tr>
<td>328</td>
<td>Nicolaki, Yanina.—Organzine.</td>
</tr>
<tr>
<td>329</td>
<td>Minodoro, Sophia, Danube.—Woolen and silk fabric.</td>
</tr>
<tr>
<td>330</td>
<td>Oumlia, Hadji, Sophia, Danube.—Woolen and silk fabrics.</td>
</tr>
<tr>
<td>331</td>
<td>Dervich, Oglon Ko Kas, Brousse.—Mohair.</td>
</tr>
<tr>
<td>331a</td>
<td>Deli Mourad, Diarbekir.—Various fabrics.</td>
</tr>
<tr>
<td>332</td>
<td>Casas, David, Yanina.—Organzine.</td>
</tr>
<tr>
<td>333</td>
<td>Kanaki Micholi, Prevézé, Yanina.—Carpet.</td>
</tr>
<tr>
<td>334</td>
<td>Yorgaki, Miss, Dardanelles.—Tapestry.</td>
</tr>
<tr>
<td>336</td>
<td>Said Effendi, Sivas, Sivas.—Carpets.</td>
</tr>
<tr>
<td>337</td>
<td>Rakinié, Madame, Koniah.—Prayer carpet.</td>
</tr>
<tr>
<td>338</td>
<td>Papa, Gorki, Volonia, Yanina.—Carpet.</td>
</tr>
<tr>
<td>339</td>
<td>Rahime, Madame, Haltah, Koniah.—Carpet.</td>
</tr>
<tr>
<td>340</td>
<td>Osman Agha, Sivas, Sivas.—Divan carpet.</td>
</tr>
<tr>
<td>341</td>
<td>Omer Agha, Sivas, Sivas.—Carpets.</td>
</tr>
<tr>
<td>342</td>
<td>Ohanna, Angora.—Carpet.</td>
</tr>
<tr>
<td>343</td>
<td>Manapola, Catherine, Sfakia, Crete.—Carpet.</td>
</tr>
<tr>
<td>344</td>
<td>Mourad Kasson, Ayvadjik, Dardanelles.—Carpet.</td>
</tr>
<tr>
<td>345</td>
<td>Mehemed Oglou Alichan, Turgoskhan, Koniah.—Prayer and other carpets.</td>
</tr>
<tr>
<td>346</td>
<td>Mehemed Agha, Gabewa, Danube.—Carpet.</td>
</tr>
<tr>
<td>347</td>
<td>Mohamed, Hanari, Mecca.—Carpet.</td>
</tr>
<tr>
<td>348</td>
<td>Mehemed Kirkit, Tripli, Tripli.—Carpets.</td>
</tr>
<tr>
<td>349</td>
<td>Marie, Madame, Larik, Koniah.—Cushion carpet.</td>
</tr>
<tr>
<td>350</td>
<td>Karabet, Kangre, Castamouni.—Carpet.</td>
</tr>
<tr>
<td>351</td>
<td>Kerim, Suleimaneyah, Bagdad.—Prayer carpet.</td>
</tr>
<tr>
<td>352</td>
<td>Ibrahim Effendi, Salonica.—Carpets.</td>
</tr>
<tr>
<td>353</td>
<td>Hussein Agha, Sivas, Sivas.—Divan carpet.</td>
</tr>
<tr>
<td>354</td>
<td>Hampassoum, Sivas, Sivas.—Carpet.</td>
</tr>
<tr>
<td>355</td>
<td>Hassan, Hadji, Kircheré, Angora.—Carpet.</td>
</tr>
<tr>
<td>356</td>
<td>Mehemed, Hadji, Kircheré, Angora.—Carpet.</td>
</tr>
<tr>
<td>357</td>
<td>Tahera, Hadji, Volonia, Yanina.—Carpet.</td>
</tr>
<tr>
<td>358</td>
<td>Haicha Agha, Koniah.—Carpet.</td>
</tr>
<tr>
<td>359</td>
<td>Castamouni, Government of.—Carpets.</td>
</tr>
<tr>
<td>360</td>
<td>Semare, Government of, Bagdad.—Carpets.</td>
</tr>
<tr>
<td>361</td>
<td>Rekanié, Government of, Veles.—Carpets.</td>
</tr>
<tr>
<td>362</td>
<td>Smyrna, Government of.—Carpets.</td>
</tr>
<tr>
<td>363</td>
<td>Prévézé, Government of, Yanina.—Carpet.</td>
</tr>
<tr>
<td>364</td>
<td>Oulé, Government of, Bagdad.—Carpets.</td>
</tr>
<tr>
<td>365</td>
<td>Bourd, Government of, Bagdad.—Carpet and prayer carpet.</td>
</tr>
<tr>
<td>366</td>
<td>Widin, Government of, Danube.—Carpet.</td>
</tr>
<tr>
<td>368</td>
<td>Chakir, Trebizond.—Carpet.</td>
</tr>
<tr>
<td>369</td>
<td>Chamedon, Ohanes, Angora.—Carpet.</td>
</tr>
<tr>
<td>370</td>
<td>Chakir Agha, Ayvadjik, Dardanelles.—Carpet.</td>
</tr>
<tr>
<td>371</td>
<td>Chicho Zeko, Kerénié, Yanina.—Carpet.</td>
</tr>
<tr>
<td>372</td>
<td>Allatorini, Piaz, Adana.—Carpet.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Silk Goods.

450 Bolad, Nicolas, Damascus.
   a Silk fabrics, mixed cotton and silk fabrics.
   b Figured silk fabrics.
   c Silk goods.
   d Silk cord.

451 Mourad Agha, Brousse.
   a Silk fabrics, foulards.
   b Silk gauzes.

452 Mostapha Effendi, Brousse, Orgazine.

453 Moureuq Oglou Ohanes, Brousse.
   a Silk foulards.
   b Silk gauzes.

454 Mikali, Redjani, Yanina.—Silk fabrics.

457 Kirkor, Mamour, Diarbekir.—Silk fabrics.

458 Mallah Ahmed, Malech, Salonica.—Silk fabrics.

459 Metroug, Berat, Yanina.—Silk tissue.

460 Kendi Oglou Tranctchi, Adrianople.—Silk fabrics.

461 Talep, Hadji, Brousse.
   a Silk fabrics, satin, etc.
   b Gauzes.

463 Ibrahim, Cyprus.
   a Silk fabric and mixed cotton and silk fabric.
   b Silk handkerchief.

464 Youssouf, Hodja, Aleppo.—Silk and silver foulards.

465 Aghop, Hodja, Adrianople.
   a Organzine.
   b Ribbons.
   c Cord.

466 Thomas, Hodja, Diarbekir.—Silk fabric.

467 Thomas, Hadji, Malatia, Diarbekir.—Silk fabrics and foulards.

468 Heleni, Berat, Yanina.
   a Silk fabric.
   b Silk gauze.

469 Hassan Ali, Houdheida, Yieman.
   a Silk and cotton fabrics.
   b Silk pillow case.

470 Hakim Bros., Aleppo.
   a Silk and cotton mixed piqué, silk fabrics, etc.
   b Silk handkerchiefs and tissue.

471 Gasko, Gaspard, Aleppo.—Cotton and silk mixed fabric.

472 Vassili, Piaz, Adana.—Silk cloth.

473 Gascandil, Trebizond.
   a Silk tissue and coverlet.
   b Silk belt.

474 Alepp0, Government of.—Silk crapes.

475 Amassia, Government of Sivas.
   Silk fabrics for shirts and bed coverings.

476 Gergi Melouk, Damascus.
   a Silk fabric.
   b Silk coverlet.

477 Beyroot, Government of, Syria.
   a Silk fabrics, organzine, etc.
   b Silk laces, belts.
   c Ribbons.
   d Silk embroidery.

478 Karkali, Dimitri, Yanina.—Silk fabrics.

479 Eminé, Trebizond.
   a Tissue for shifting.
   b Silk belt.

480 Deli Mourad, Diarbekir.
   a Silk fabric.
   b Silk prayer carpet.

481 Chicho Zeka, Volonina, Yanina.—Silk fabric.

482 Constanti Giorki, Berat, Yanina.—Silk fabrics.

483 Birkor, Trebizond.—Colored tissues.

484 Bezas Effendi, Diarbekir.—Silk fabrics.

485 Atanach, Mosés, Dardanelles.—Silk sheet.

486 Ahmed Effendi, Mamour, Diarbekir.—Silk fabric.

487 Abir Tarip, Aleppo.—Silk fabric.

488 Abbas Riza, Damascus.—Silk fabric.

489 Alii Fakildin, Damascus.—Silk fabric.

490 Abdul Hamid, Damascus.—Silk foulders.

491 Anagnosti, Yanina.—Silk fabric.

492 Anastassi, Yanina.—Silk shirting.

493 Ana, Yania, Bosnia.—Silk and cotton fabric.

494 Neßse, Madame, Ichkohra, Mostasir.
   a Embroidered foulards.
   b Silk coverlet.

494a Elias Hatti, Hadji, Aleppo.—Upholstery satins.

495 Marionga, Constantinople.—Silk counterpane.

496 Mehemed Emin, Constantinople.—Upholstering fabrics.

497 Matthé, Lady, Adrianople.—Figured silk.

498 Ludovic & Vallaui, Constantinople.—Upholstery and divan fabrics.

499 Kadir Oglou Abdul Kader, Said Ili, Koniah.—Divan cover.

500 Gueudjehan, Ohaness, Constantinople.—Silk fabrics, taffeta, moreen, etc.

501 Constantinople, Government of.—Silk curtain fabrics.

502 Sagoundjaki, Letteraki, Canea, Crete.—Silk gauze.

503 Seid Alii, Damascus.—Silk goods.

504 Thomas, Diarbekir.
   a Silk belt.
   b Silk ribbons.

505 Taquoui, Madame, Adrianople.—Gauzes.

506 Regnier, Yanna.—Gauze.

507 Reich Edendi, Damascus.—Silk lace.

508 Omeraki, Ibrahim, Canea, Crete.—Silk gauze.

509 Neßse, Madame, Tripoli, Syria.—Silk shirts.

510 Nasmi Effendi, Madame, Candia, Crete.—Silk gauze.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Silk Goods, Clothing.

511 Naoun Miltelete, Aleppo.—Silk and cotton and silk tissues. 247
512 Monnouk Ozlou, Brousse.—Silk fabric and aprons. 247
513 Muniri, Brousse.—Silk lace. 247
514 Milaki, Nicolaki, Melle, Canea, Crete.—Silk gauze. 247
515 Maroli, Kara Yanapola, Canea, Crete.—Silk crape. 247
516 Marouli, Madame Giorgui Sefakani, Canea, Crete.—Silk gauze. 247
517 Meururel Fathama, Candia, Crete.—Gauze. 247
518 Marie, Yanina.—Silk gauze. 247
519 Moussa Chaouch, Oglou Ibrahim, Canea, Crete.—Gauzes. 247
520 Ismail Agha, Hadj Brousse.—Silk counterpanes. 247
521 Istiphanidja, Candia, Crete.—Silk gauze. 247
522 Kamil, Tripoli, Syria.—Embroidered gauze foulard and silk pillow cases. 247
523 Mahmoud Deguiz, Hadji, Tripoli, Tripoli.—Silk coverlets. 247
524 Ismail Agha, Hadj, Candia, Crete.—Silk gauze. 247
525 Mikali, Hadji, Tripoli, Syria.—Silk coverlets. 247
527 Gothia, Tripoli, Tripoli.—Silk shirts. 247
528 Kara-Hissar, Government of, Sivas.—Silk belt. 247
529 Seriher, Government of, Monastir.—Silk caps. 247
530 Emzia, Ibrichindji Nicoli, Mme., Candia, Crete.—Gauze. 247
531 Dervich Oglou Kokas, Brousse.—Silk gauzes, silk burnous, scarf and belt. 247
532 Cazas Abdoullah, Damascus. a Silk belts. 247
b Silk cords, etc. 249
533 Cazas Ahmed, Damascus.—Silk crochet belt. 247
534 Ana, Madam, Mosul, Bagdad.—Silk lace. 247
535 Cazas Said, Tripoli, Syria.—Silk belts and suspenders. 247
536 Assibi, Madame, Koniah.—Silk lace. 247
537 Avadiz, Miss, Dardanelles.—Silk lace. 247
538 a Makboubi, Trebizond.—Silk towels and shirtings. 247
539 Isaac Effendi, Bello, Castamouni.—Silver ribbon. 248
539 Selim, Mosul, Bagdad.—Turban cord. 249
540 Sali Kamber, Piseren, Monastir.—Gold and silver filigree cord. 249
541 Hadji, Bonajdi, Adriapole.—Cord. 249

Clothing, Jewellery, Ornaments; Traveling Equipments, etc.

542 Zoardji Gocha, Yanina.—Goat-hair shepherd's vest. 250
543 Yani, Smyrna.—Men's suit. 250

544 Zahardji Gotcha, Yanina.—Vests. 250
545 Yani, Hadji, Berat, Yanina. a Vests. 250
b Gaiters. 251
546 Yani, Forol, Trebizond. a Woolen hose. 250
b Woolen gloves. 251
547 Vely Bey, Sivas, Sivas.—Woolen socks. 250
548 Seid Hassan, Mosul, Bagdad.—Turkish garment. 250
549 Siméon, Trebizond.—Ladies' trowsers, jacket. 250
550 Seid Cherif, Aleppo.—Cotton belts. 250
551 Seid Abdul Hamid, Damascus. a Cotton scarf. 250
b Embroidered cap and slippers. 251
c Tobacco pouch. 254
552 Raphaelian, Gabriel, Constantino-ple. a Collars and cuffs. 250
b Crochet caps, slippers. 252
c Crochet fichu, curtains, etc. 252
553 Rinko, Permiadi, Yanina.—Ladies' hose. 250
554 Palasse, Madame, Trebizond.—Gown. 250
555 Rina, Yanina.—Chemise, embroidered with gold. 250
556 Ousta Bachou, Forol, Trebizond.—Woolen hose. 250
557 Ousta Yano, Bonajdi, Adriapole.—Woolen hose. 250
558 Ousta Yani, Miss, Bonajdi, Adriapole.—Men's woolen hose. 250
559 Nogho, Uskop, Monastir.—Woolen apron and stockings. 250
560 Moustapha Agba, Damascus.—Woolen garment. 250
561 Moustapha, Miss, Barelk, Dardanelles.—Bridal trousseau. 250
562 Moussa Chaouch Oglou Ibrahim, Canea, Crete. a Silk embroidered shirt, etc. 250
b Tobacco pouch. 254
563 Mahmoud Agha Djiri, Damascus.—Turkistsh garments. 250
564 Mehemed Abdul Hamid, Houdeida, Yiemen.—Drawers. 253
565 Mehemed Ousta, Koniah.—Gorget. 259
566 Mikahal Seboul, Damascus.—Turkish garments. 253
567 Lambronn, Phrasine, Yanina.—Chemise. 250
568 Mer Allah, Zoubid, Yiemen.—Percal shirt. 259
569 Mitscherle, Marie, Yanina.—Men's and women's hose. 259
570 Mikahl Agha, Adriapole.—Jacket. 250
571 Karabet, Yangre, Castamouni.—Cloak belt. 259
572 Kurschu Casmad, Diarbekir.—Wolf-skin jacket. 259
573 Isaac, Mosul, Bagdad.—Turkish garment. 250
574 Ibrahim Agha, Brousse.—Bathing suit, woolen burnous. 250

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
Clothing, Fancy Articles.

575 Osman, Hadjji, Koniah.—Turkish woolen belt. 250
576 Hadji, Trebizond.—Ladies’ trousers, vest. 250
577 Ahmed, Hadjji, Aleppo.—Turkish belt. 250
578 Hakim Bros., Hadjji, Aleppo.—Silk, cotton, and other garments. 250
579 Mikhalili, Hadjji, Adrianople.—Woolen garments. 250
580 Osman, Hadjji, Suleimaneyeh, Bagdad.—Shepherd’s cloak. 250
581 Hassan, Cyprus.—Silk underskirt. 250
582 Hussien Chaban, Zobbia, Ziemen.—Cotton jacket, Turkish belt. 250
583 Hassan Agha, Trebizond.—Turkish trousers and vest. 250
584 Hassan Efendi, Kachettissar, Castamouni.—Woolen belts. 250
585 Haler Oglou Hassan, Kara Bair.—Woolen hose. 250
586 Haler Oglou Hassan, Koniah.—Woolen hose. 250
587 Haidar, Mosul, Bagdad.—Turkish garment. 250
588 Haido, Bagdad.—Turkish garment. 250
589 Halidi Oulmia, Sophia, Danube. a Turkish belts. 250
     b Woolen gloves, mittens. 251
c Necktie, etc. 254
590 Helen, Miss, Bonandji, Adrianople.—Waterproof cloak. 250
591 Asco, Giorgio, Yanina.—Vest. 250
592 Heleni, Perimid, Yanina. a Ladies’ hose. 250
     b Gold embossed fichu. 252
593 Giorki, Miss, Bonandji, Adrianople.—Woolen hose. 250
594 Damascus, Government of, Syria.—Woolen hose. 250
595 Bourd, Government of, Bagdad.—Stockings. 250
596 Oannes Agha, Angora. a Woolen and cotton hose. 250
     b Head-dress ornament, belt. 254
597 Mechetef, Government of, Bagdad.—Turkish garment. 250
598 Kara-Hissar, Government of, Sivas.—Belts. 250
599 Senaré, Government of, Bagdad.—Veils, Turkish garment. 250
600 Nedjep, Government of, Bagdad.—Turkish garments. 250
601 Van, Government of, Erzeroum.—Woolen belt. 250
602 Uskup, Government of, Monastir.—Woolen stockings. 250
603 Eizinchan, Government of, Erzeroum.—Turkish belt, woolen trousers. 250
604 Piseren, Government of, Monastir.—Turkish belt, lisle thread hose. 250
605 Fatma, Madame, Koniah. a Woolen hose. 251
     b Purse. 254
606 Elvadjy Youssouf, Diarbekir.—Vest. 250

607 Erza Yaco, Yanina.—Albanian skirt. 250
608 Eminé, Trebizond.—Silk shirt. 250
609 Diptou Noutoukdji, Damascus.—Woolen belt. 250
610 Delepné, Koniah.—Woolen stockings. 250
611 Despot, Yanina.—Women’s hose. 250
612 Delal Mached, Diarbekir.—Clay. 250
613 Dervichian, Smyrna. a Shirt. 250
     b Embroidered belt, silk lace. 254
     c Ladies’ cuffs and collars, necktie and cushion. 254
614 Casas David IIias, Perimid, Yanina. a Horsery. 250
     b Cotton cap. 251
c Cotton ribbons, and buttons. 252
d Purse, garters. 254
615 Christo, Daughter of, Bonandji, Adrianople.—Waterproof suit. 250
616 Christo, Bonandji, Adrianople.—Turkish garments. 250
617 Casas Said, Tripoli, Syria.—Belt. 250
618 Cheik Moussa, Mardin, Diarbe- kir.—Arabian garment. 250
619 Kontzanty, Miss, Stankeny, Dardanelles.—Socks. 250
620 Chavirdi Hadji, Ourpha, Aleppo.—Vests. 250
621 Balthazar, Miss, Dardanelles.—Cloth chemises. 250
622 Bagdad, Government of, a Turkish garments, embroidered belt. 250
     b Boots and shoes. 254
c Silver tobacco-box, pipes, Narghiles, pipe-bowls, combs, pouches, etc. 250
623 Abdul Kader Ostya, Koniah.—Em- broidered jacket. 250
624 Abdourahman, Erzeroum.—SHEEP- skin jacket. 250
625 Moustapha, Abadjji, Bigha, Aleppo.—Vest. 250
626 Ismail, Abadjji, Aintab, Aleppo.—Vest. 250
627 Abas Ousta, Piseren, Monastir.—Cotton chemises. 250
     Velvet jacket and vest. 250
628 Anastassia, Heleni, Yanina.—Chemise. 250
629 Alexia, Miss, Bonandji, Adrianople.—Men’s woolen hose. 250
630 Aiche, Koniah.—Shirt. 250
631 Antaki, Giorki, Aleppo.—Belt. 250
632 Ali, Diarbe- kir.—Vest. 250
633 Astor, Aleppo.—Woolen socks. 250
634 Atidjé, Madame, Eski-Kariel, Koniah.—Woolen hose. 250
635 Astadjy Oglou Narcisse, Aleppo.—Turkish belt. 250
636 Zorée, wife of Ahmed, Yanina.—White cap. 251
637 Zahrard Nocha, Yanina.—Woolen gaiters. 250
638 Zekiyet, Madame, Koniah.—White cap. 251
639 Stéphanie, Dardanelles.—Boots and shoes. 251

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Needle Work.—Fancy Articles, Jewelry.

705 Kamile, Madame, Tripoli, Syria.—Embroidered napkin, etc. 252
706 Koliopoula, Maria, Canea, Crete.—Embroidery, embroidered handkerchiefs, cuffs. 252
707 Ismyrnopola, Heleni, Canea, Crete.—Crochet table cloth. 252
708 Ishphakanopola, Aspasia, Canea, Crete.—Crochet table cloth. 252
709 Iskildijan, Canea, Crete.—Crochet work, napkins, etc. 252
710 Isaac Agha, Brousse.—Stand-cover. 252
712 Derwich Effendi, Hadji, Canea, Crete.—Embroidered handkerchiefs and belts. 252
713 Héleni, Madame, Constantinople.—Laces. 252
714 Heminé, Madame, Koniah.—Crochet cap. 252
715 Beyroot, Government of, Syria. 252
   a Trimmings, gold lace, cords. 252
   b Tobacco pouch. 254
716 Grandaki Ahmed Effendi, Canea, Crete.—Embroidered handkerchiefs, belts, etc. 252
717 Grandaki Ahmed Effendi, Madame, Canea, Crete.—Gold embroidered napkins. 252
718 Fatma Eminé, Koniah.—Embroidered napkins. 252
719 Ellissi, Madame, Constantinople. 252
   a Laces. 252
   b Tobacco pouch. 254
720 Feriyé, Madame, Koniah.—Crochet lace. 252
721 Derwich Oglou Kokas, Brousse.—Embroidered neckties, handkerchiefs, and skirt. 252
722 Catherine, Constantinople.—Silk embroidered fabric. 252
723 Boyachi polani, Marigo, Canea, Crete.—Crochet lounge cover. 252
724 Abdi Azadé Ali Bey, Canea, Crete.—Embroidery, silk and silver lace, embroidered handkerchiefs and belt, etc. 252
725 Aghop, Miss, Dardanelles.—Silk lace. 252
726 Aiacha, Madame, Koniah.—Embroidered handkerchief. 252
727 Avanza, Tokkí, Miss, Canea, Crete.—Crochet chair cover. 254
728 Assabi, Madame, Koniah.—Embroidered belt. 252
729 Vester, Jerusalem, Syria. 252
   a Olive wood cuff buttons. 253
   b Olive wood ladies’ companions, caskets, purses, needle cases, tobacco pots and boxes, book and album covers; card cases, spectacle cases, cane and cane heads; match boxes, cigar case and holders, challaces, crosses, glove boxes, postage stamp boxes, pipes, beads, snuff boxes, toys, etc. 254
730 Touph Hanéch Hadji, Trebizond. 252
   a Watch chain. 253
   b Ornaments, etc. 254
731 Sako, Aintab.—Gold silver bracelets. 253
732 Sassi Nahil, Tripoli, Tripoli.—Silver bracelets. 253
733 Rapate, Mikail, Aleppo. 253
   a Necklace, earrings, and pin. 253
734 Omer Agha, Canea, Crete.—Silver and gilt chains. 253
735 Manouk, Aleppo.—Gilt silver purse chain. 253
736 Mikail, Aleppo.—Gilt silver earrings. 253
737 Mikail, Aintab. 253
   a Ring. 253
   c Silver cigarette pincers. 253
738 Mesrouhout, Tripoli, Tripoli.—Gold bracelets. 253
739 Lalotte Ahmed, Siros, Salonica.—Amethysts. 253
740 Kirio, Aleppo.—Silver vest buttons. 253
741 Golak...glou Nicolas, Trebizond. 253
   a Earrings, brooches, sleeve buttons, locket, etc. 253
   b Silver snuff box, pin, cigarette holders, bouquet holder, etc. 254
742 Raphaelion, Gabriel, Constantinople. 253
   a Amber brooches, earrings, crosses, etc. 254
   b Pipe stems and bowls, cigarette holders, and canes. 254
743 Suleimaneeyah, Government of, Bagdad.—Rock crystal seal and beads. 253
744 Babani Azeré, Tripoli, Tripoli.—Gold ear-rings. 253
745 Cher...s Berke, Jerusalem.—Mother-of-pearl lockets. 253
746 Andonaki, Kenprenz, Dardanelles. —Amethysts. 253
747 Meskout Serros, Tripoli, Tripoli.—Silver earrings. 253
748 Abil, Aleppo. 253
   a Silver and silver gilt jewelry. 253
   b Silver thimble, pincers, and paint flasks. 254
749 Zenoupe, Marie, Constantinople.—Embroidered necktie. 254
750 Yanaki, Widin, Danube.—Tobacco box. 254
751 Thomas, Diarbekir.—Head-dress ornament, ladies’ belt. 254
752 Tanach, Thomas, Yanina, Yanina.—Silver filigree belt, snuff box, cigarette box, looking glass, cigarette holders, etc. 254
753 Selim Zeukaki, Damascus.—Narghile stems. 254
754 Sedj Agha, Madame, Koniah.—Purse. 254
755 Selim Arikili, Damascus.—Accessories of the narghile. 254
756 Sehi Tassane, Djidjé, Hidjaz.—Cigarette cases. 254
757 Selim Zia Effendi, Candia, Crete.—Pipes. 254
758 Sali Kamber, Piseren, Monastir.—Garter ornamented with gold. 254
759 Sako, Aleppo.—Silver filigree cigarette holder. 254
760 Suleiman, Djidjé, Hidjaz.—Mother-of-pearl ash receivers. 254
761 Suleiman Agha, Yania, Bosnia.—Pipe bowl. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
303

Needle Work, Fancy Articles, Jewelry.

762 Amassia, Government of, Sivas.—
Night cap and tobacco pouch. 254
763 Panoucha, Yanina.—Morocco belt. 254
764 Emara, Government of, Bagdad.
Silver saucer. 254
765 Djide, Government of, Hidjaz.—
Fan. 254
766 Oustour, Aleppo.—Canes. 254
767 Oannès, Sivas, Sivas.—Ladies' companion. 254
768 Mehamed Tourmac, Ousta, Tripoli,
Tripoli.—Suspender belt. 254
769 Chaban Assiani, Ousta, Tripoli,
Tripoli.—Suspender belt. 254
770 Ferrad, Keuprulu, Ousta, Salonica.
—Cigarette cases. 254
771 Nazar Kerkok, Aleppo.—Silver filigræe goblet, comb case, silver comb, etc. 254
772 Namik Effendi, Yanina.—Silk purse. 254
773 Nicoforaki, Theophani, Oulia, Crete.—Linen belt. 254
774 Nazar Kezork, Aintab.—Silver filigræe cigarette holders; silver belt buckle. 254
775 Nazar Kerkor, Aintab.—Silver needle case. 254
776 Moustapha Agha, Constantinople.
—Ivory needle case, box, wooden spindle, pipe, etc. 254
777 Moustapha Oglou, Salonica.—
Purse. 254
778 Moustapha Ousta, Brousse, Brousse.—Cane. 254
779 Moustapha, Tripoli, Tripoli.
—Cigarette holders. 254
780 Mehemed Ali, Kerat, Damascus.
—Accessories of the narghiš. 254
781 Mehemed Dervich, Roostchotch, Danube.—Fan. 254
782 Manol Veledidinko, Karchova, Monastir.—Silver cigarette basket. 254
783 Marie, Madame, Constantinople.
—Purse, tobacco pouch, and cushion. 254
784 Mikail Antaki, Aleppo.—Silver filigræe box, and saucer. 254
785 Keban, Madame, Koniah.—Watch holder. 254
786 Kouyoumdjou Epsso, Piseren, Monastir.—Silver filigræe box and belt. 254
787 Kessiar, Sivas, Sivas.—Silver pipe,
snuff box, cigarette holders, and pipe stems. 254
788 Ibrahim, Cyprus.—Embroidered handkerchief. 254
789 Ibrahim Ousta, Terssus, Adana.
—Canes. 254
790 Ismail Ibrahim, Ak-Hissar, Bosnia.
—Pipe. 254
791 Ismail, Tripoli, Tripoli.—Rhinoceros-horn cup and saucers. 254
792 Ismail Ousta, Koniah, Koniah.—
Earthen pipe bowls. 254
793 Ismila, Sivas, Sivas.—Pipe stem. 254
794 Koudour, Hadji, Aleppo.—Pipes, pipe bowls, cigarette holders, etc. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

795 Hussein, Hadji, Mardin, Diarbe- kir.—Pipe heads. 254
796 Hadjjudi Ousta, Bollo, Castamouni.
—Silver tobacco box and cigarette cases. 254
797 Hassan Usine, Retimo, Crete.—
Cigars, narghiš pipe, cigarette holder, and tobacco vase. 254
798 Hussein Ousta, Dardanelles.
—Cigarette holders, ash receivers, tobacco pots, and toys. 254
799 Hussein, Ousta, Sivas, Sivas.
Cigarette holders and pipe stems. 254
800 Hussein Agha, Zakra, Tripoli.—
Cane, cigarette box. 254
801 Feti, Mosul, Bagdad.—Pipe stems. 254
802 Kasseudje, Giorgi, Aleppo.—Pipe. 254
803 Kerbella, Government of, Bagdad.
—Palm-leaf fans and fly-brush. 254
804 Uskup, Government of, Bagdad.—
Cigarette holder, snuff box, knife, knife-hilt, and bellows. 254
805 Vissoka, Government of, Bosnia.—
Cigarette cases. 254
806 Dervich Osman, Herede, Casta- mouni.—Cigarette cases. 254
807 Emina, Madame, Ichkodra, Monastir.—Handkerchief. 254
808 Dervich Yaya, Uskup, Monastir.
—Pipe bowls. 254
809 Djëza Hirl Moscapha, Tripoli,
Tripoli.—Ivory fan, fly-brush. 254
810 Dervichian, School for Young
Ladies, Smyrna.—Divan cushions, chatelet, slippers, lace collar, needle case, etc. 254
811 Caras Said, Tripoli, Syria.—Garters. 254
812 Catherine, Redjani, Redjani, Yanina.—Collars and cuffs. 254
813 Bekir Agha, Ourpha.—Narghiš heads. 254
814 Baby, Saret, Diarbekir.—Ebony wood canes. 254
815 Beram, Agha, Trebizond.—Cane. 254
816 Abil, Aintab.—Silver needle case,
cigarette holder, belt buckles, finger cover, gilt silver relix shrine. 254
817 Suriani, Anton, Aleppo.—Silver filigræe cigarette holder. 254
818 Ahmed Hassan, Adila, Yieyan.—
Mother-of-pearl ash receivers. 254
819 Ahmed Chibire, Houdehida, Yie- man.—Rhinoceros-horn and wooden cups and saucers; canes, cigarette box and holders, ash receivers. 254
820 Ali, Aintab.—Ash receivers. 254
821 Ali Agha, Roostchotch, Danube.
—Pipe heads, tobacco pot, and cigarette holder. 254
822 Ali Agha, Widin, Danube.—Ash receivers. 254
823 Ali, Houdehida, Yieyan.—Bamboo cup and cigarette box. 254
824 Ahmed Ousta, Trebizond.
 a Pipe inlaid with silver. 254
 b Cartridge box, case, and bag. 254
Fancy Articles, Stationery, Weapons, Medicines.

825 Ar dovissa, Madame, Constantinople.— Thread baskets. 254
826 Avadiz, Miss, Dardanelles.— Tobacco pouch, silk purse. 254
828 Moundjian Kirkor, Constantinople.— Traveling bag. 255
829 Moustapha, Mosul, Bagdad.— Morocco pistol cases. 255
830 Moustapha Ani, Koniah.— Couriers' bags. 255
831 Ibrahim, Hadji, Tripoli, Tripoli.— Morocco pistol holsters. 255
832 Hachmet, Trebizond.— Cartridge box. 255
833 Abdoullah Chili, Tripoli, Tripoli.— Morocco cushion cover. 255
834 Ahmed Cherif, Damascus.— Morocco cartridge box and case. 255
835 Ali Oglou Velz, Lari, Koniah.— Courier's bag. 255
836 Aghop, Erzeroum.— Fox furs. 256

Paper, Blank Books, Stationery.
837 Dervich, Oglou Nacif, Hadji, Candia, Crete.— Writing materials and inkstands. 258
838 Koniah, Government of.— Turkish inkstands. 258
839 Chirignan, Constantinople.— Turkish inkstands. 258
840 Dimitri, Yanina, Yanina.— Turkish inkstands. 258
841 Birch Kirkor, Aintab.— Inkstand. 258
842 Bekir Agha, Ourpha, Aleppo.— Inkstands. 258
843 Ahmed Chibre, Houdehida, Yie man.— Turkish inkstand. 258
844 Ali Agha, Roostchok, Danube.— Turkish inkstands. 258
845 Karabet, Constantinople.— Turkish inkstands. 258
846 Zatemholo, Government of, Cast amouni.— Marble inkstand. 258
847 Vester, Jerusalem, Syria.— Olive wood desks, inkstands, penholders, paper weights, calipers, rulers, seals, paper knives, paper boxes, etc. 258
848 Ferrad, Ousta, Keuprulu, Salonica.— Office utensils. 258
849 N.ico for aaki, Théophani, Canea, Crete.— Green parchment. 258
850 Ludovic & Vallauri, Constantinople.— Liquor labels. 258

Weapons, etc.
851 Christo, Polita, Trebizond.— Pistol and case. 258
852 Vidal, J. M., Constantinople.— Old firearms. 258
853 Constantinople, Government of. a Schneider rifles, knapsack and cartridge box. 258
b Sabres. 268
854 Ahmed Agha, Poya, Trebizond, Yataghan. 268
855 Ahido, Adrianople.— Yataghan. 268
856 Ali Osman, Broussa, Broussa.— Knives. 268
857 Raphaelion, Gabriel, Constantinople.— Tomahawk. 268
858 Mehemed, Mosul, Bagdad.— Cartridge boxes, pistol cases, military belt, saddle bags. 269

Medicine, Surgery, Prothesis.
859 Spalhareon, Government of, Samos.— Amanthus. 272
860 Abdourhman, Aleppo.— Sumac berries. 272
861 Anguel, Ichkodra, Monastir.— Leaves of the adragante plant. 272
862 Boghend Luzzena, Constantinople.— Benzine. 272
863 Pakari, Aleppo.— Nigella. 272
864 Smyrne, Government of, Aydin.— Jalap. 272
865 Tootchana, Government of, Monastir,— Opium. 272
866 Saroukhan, Government of, Aydin.— Opium, and tinpangule. 272
867 Medina, Government of, Hidjaz.— Zathère and chinan plants, used as medicines. 272
868 Mosul, Government of, Bagdad.— Mint, dried roses, etc. 272
869 Kara-Tach, Government of,— Poutargue. 272
870 Kerbella, Government of, Bagdad.— Opium. 272
871 Kara Issalé, Government of, Adana.— Asphodele plant. 272
872 Koyondja, Government of, Bosnia.— Orpiment, a narcotic. 272
873 Catara, Government of, Yanina.— Salep. 272
874 Damascus, Government of, Syria.— Poppy heads, cardamum seeds and blossoms. 272
875 Canea, Government of, Crete.— Laudanum. 272
876 Broussa, Government of,— Opium. 272
877 Hazzou, Aleppo.— Bastard saffron. 272
878 Hab Usu, Sullé, Koniah.— Chalèb alcalmus. 272
879 Moustapha, Hadji, Marach, Aleppo.— Opium. 272
880 Hussein Effendi, Koniah, Koniah.— Opium. 272
881 Liliás Manou, Aleppo.— Poppy heads. 272
882 Koular Oglou Mehemed, Lap sekí Dardanelles,— Poutargue. 272
883 Nicolas, Prévazé, Yanina.— Poutargue. 272
884 Starri, Oglou, Castamouni, Castamouni.— Salep. 272
885 Sali, Ichkodra, Monastir.— Poutargue. 272
886 Tadjiché, Malatía, Diarbekir.— Opium. 272
887 Tarrou & Co., Volonía, Yanina.— Poutargue. 272
888 Tayk Pasha, Constantinople.— Opium. 272
889 Mourad Oglou Ali, Ayvadjik, Dardanelles.— Scammony. 272
890 Yussuf Mocha, Salonica.— Poutargue. 272

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### HARDWARE, WOODENWARE, HARNESS.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>891</td>
<td>Mussa Soleiman, Tdomane, Yanina.</td>
</tr>
<tr>
<td>892</td>
<td>Zuccala, Carlo, Constantinople.</td>
</tr>
<tr>
<td>893</td>
<td>Abazar Ketour, Saret, Diarbeikir.</td>
</tr>
<tr>
<td>894</td>
<td>Hardware, Edge Tools, Cutlery, and Metallic Products.</td>
</tr>
<tr>
<td>895</td>
<td>Bagdad, Government of.</td>
</tr>
<tr>
<td>896</td>
<td>Palonka, Government of.</td>
</tr>
<tr>
<td>897</td>
<td>Isaac Agha, Hadji, Constantinople.</td>
</tr>
<tr>
<td>898</td>
<td>Hussein, Constantinople.</td>
</tr>
<tr>
<td>899</td>
<td>Chaouch, Ibrahim, Constantinople.</td>
</tr>
<tr>
<td>900</td>
<td>Ibrahim, Ousta, Constantinople.</td>
</tr>
<tr>
<td>901</td>
<td>Sulaiman, Constantinople.</td>
</tr>
<tr>
<td>902</td>
<td>Ludovic &amp; Vallauri, Constantinople.</td>
</tr>
<tr>
<td>903</td>
<td>Suriani, Anton, Aleppo.</td>
</tr>
<tr>
<td>904</td>
<td>Hartine, Sivas, Sivas.</td>
</tr>
<tr>
<td>905</td>
<td>Kdja Osman Agha, Bosnia.</td>
</tr>
<tr>
<td>906</td>
<td>Laz Oglou Giorki, Castamouni, Castamouni.</td>
</tr>
<tr>
<td>907</td>
<td>Noury Eddin Ousta, Piseren.</td>
</tr>
<tr>
<td>908</td>
<td>Mhasha, Yida, Yanina.</td>
</tr>
<tr>
<td>909</td>
<td>Soliman, Candia, Crete.</td>
</tr>
<tr>
<td>910</td>
<td>Tanasse, Yanina, Yanina.</td>
</tr>
<tr>
<td>911</td>
<td>Moustapha, Constantinople.</td>
</tr>
<tr>
<td>912</td>
<td>Ahmed, Ousta, Trebizond.</td>
</tr>
<tr>
<td>913</td>
<td>Kirker, Antab.</td>
</tr>
</tbody>
</table>

Fabric of Vegetable, Animal, or Mineral Materials.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>913</td>
<td>Ludovic &amp; Vallauri, Constantinople.</td>
</tr>
<tr>
<td>914</td>
<td>Medina, Government of, Hidjaz.</td>
</tr>
<tr>
<td>915</td>
<td>Ali Marach, Aleppo.</td>
</tr>
<tr>
<td>916</td>
<td>Yazacoula, Marach, Aleppo.</td>
</tr>
<tr>
<td>917</td>
<td>Mehemed, Ousta, Koniah.</td>
</tr>
<tr>
<td>918</td>
<td>Andon, Mitchre, Yanina.</td>
</tr>
<tr>
<td>919</td>
<td>Alijde, Madame, Koudehida, Yie-man.</td>
</tr>
<tr>
<td>920</td>
<td>Tchobano, Dimitri, Yanina, Yanina.</td>
</tr>
</tbody>
</table>

Carriages, Vehicles, and Accessories.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>937</td>
<td>Abdourahman, Aman, Zoubeid.</td>
</tr>
<tr>
<td>938</td>
<td>Boch, Kirker, Aintab.</td>
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<td>939</td>
<td>Cazas, Thomas, Diarbeikir.</td>
</tr>
<tr>
<td>940</td>
<td>Delima, Sulaimaneeyah, Bagdad.</td>
</tr>
<tr>
<td>941</td>
<td>Dip Notutsch, Damascus.</td>
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<tr>
<td>942</td>
<td>Bagdad, Government of.</td>
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<td>943</td>
<td>Constantinople, Government of.</td>
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<td>944</td>
<td>Ibrahim, Oglou Ali, Koniah.</td>
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<td>945</td>
<td>Maktez, Heron, Ourpha, Aleppo.</td>
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<td>946</td>
<td>Mehemed, Larih, Koniah.</td>
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<td>947</td>
<td>Moustapha, Omer, Koniah.</td>
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<td>948</td>
<td>Osman Effendi, Broussa.</td>
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<td>949</td>
<td>Ousta Mehemed Tournous, Tripoli.</td>
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<td>950</td>
<td>Sarak, Salif, Damascus.</td>
</tr>
<tr>
<td>951</td>
<td>Sarradj, Moustapha, Marach, Aleppo.</td>
</tr>
<tr>
<td>952</td>
<td>Tanasse, Yanina, Yanina.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-15.
Agriculture, Arboriculture, and Forest Products.

982 Zaferampolo, Government of, Castamouni.—Saffron. 602
983 Mihalgazi, Government of, Castamouni.—Sumac leaves. 602
984 Kara-Issali, Government of, Adana, a Sumac leaves, b Mastic tree resin. 602
985 Iskild, Government of, Castamouni, a Scammony, b Yellow seeds. 602
986 Adana, Government of, a Gall-nuts, etc. b Adragante seed. 602
987 Suleimaneeyah, Government of, Bagdad. a Galls, gall-nuts, etc. b Vegetable gum. c Yellow seeds. 602
988 Saroukhan, Government of, Aydin, a Gall-nuts. 602
989 Smyrna, Government of, Aydin, a Pine tree bark. b Pitch. c Dilique seed. 602
990 Retimo, Government of, Crete.—Gall-nuts. 602
991 Abdourahman Effendi, Kangre, Castamouni. a Gall-nuts. b Yellow seed. 602
992 Artin Effendi, Adana, Adana.—Madder root. 602
993 Ali Effendi, Angora. a Madder. b Yellow and black pitch. 602
994 Oghan, Sivas, Sivas.—Black pitch and tar. 602
995 Suleiman, Ichkodra, Monastir.—Pitch. 602
996 Nicolaik, Jovan Ogloou, Baira- mich, Dardanelles.—Resin. 603
997 Maktis, Diarbekir.—Manna. 603
998 Mahmoud Katlani, Aleppo.—Pitch. 603
999 Moustapha Effendi, Koniah, Koniah.—Gall-nuts. 602
1000 Las Osman, Kangre, Castamouni.—Adragante gum. 602
1001 Kouyou, Ogloou, Andoni, Angora.—Opium and adragante gum. 602
1002 Ismail, Cherishor, Bagdad.—Vegetable gum. 603
1003 Illias Manou, Aleppo.—Pine resin. 603
1004 Erzeroum, Government of.—Pitch. 603
1005 Etakia, Government of, Crete.—Vegetable pitch, resin. 603
1006 Yidis-Ili, Government of, Sivas.—White pitch. 603
1007 Merssine, Government of, Adana.—Yellow pitch. 603
1008 Volonia, Government of, Yanina.—Pitch. 603
1009 Akhati, Gorki, Aleppo.—Apricot tree gum. 603
1010 Toutous, Government of, Sivas. a Vegetable gum. b 603

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Arboriculture, Pomology, Agricultural Products.

1011 Samos, Government of.  
   a Resin.  
   b Carob bean.  

1012 Central Drug-store, della Sudda's.  
   Brossua.—Scammony resin.  

1013 Ycconomides, Antonio, Canea, Crete.—Mastic.  

1014 A ham ed, Agha, Alada, Koniah. —  
   —Resin.  

1015 A ham ed, Agha, Koniah, Koniah. —  
   —Vegetable and purified pitch.  

1016 Mehemel Galz Effendi, Damascus. —Marshmallow.  

1017 Theophani, Nieoforaki, Canea, Crete.—Sweet almonds; seeds.  

1019 Stiraki, Marinaki, Canea, Crete.—  
   Sweet almonds.  

1020 Over, Agha, Malalio, Diarbekir.—  
   Pistachio-nuts.  

1021 Latzindaki, Nicolai, Canea, Crete. —  
   —Sweet almonds.  

1022 Missa Yian, Diarbekir.—Yellow seeds.  

1023 Moustapha, Bandjak, Adana.—  
   —Palma-christi seed.  

1025 Mehemel Rechio, Diarbekir.—  
   Batones, a species of pistachio-nuts.  

1026 Mehemel Ousta, Koniah, Koniah.—Yellow seeds.  

1027 Karabet, Kangre, Castamouni.—  
   Yellow seeds.  

1028 Latzindaki, Hadji Yorghi, Canea, Crete. —  
   —Sweet almonds.  

1029 Ali Bekir, Hadji, Sarret, Diarbekir.—  
   Batones, species of pistachio-nuts; hazel-nuts.  

1030 Allepo, Government of.—Yellow Avignon seed.  

1031 Esine, Government of, of Dardanelles.—Gall-nuts.  

1032 Fokat, Government of, of Sivas.—Avignon seed.  

1033 Houran, Government of, of Syria.—  
   Aspodelle seed.  

1034 Chagir, Agha, Canea, Crete.—  
   —Sweet almonds.  

1035 Bolesse, Diarbekir.—Yellow seeds.  

1036 Ali Ani, Sullé, Koniah.—Yellow seed.  

1037 Ali Baba, Allepo.—Pine seeds.  

Pomology.  

1038 Ali Bekir, Hadji, Sarret, Diarbekir.—  
   —Crab apples.  

1039 Carnic Ali Agha, Kangre, Castamouni.—Cornith grapes.  

1041 Pefik, Mamor, Diarbekir.—Cherries.  

1041 Seid, Hadji, Koniah, Koniah.—  
   —Cornith grapes.  

1042 Over Agha, Malatío, Diarbekir.—  
   —Grapes.  

1043 Abdouliah, Allepo.—Almonds.  

1044 Abdourahman, Allepo.—Hazelnut; and pistachio nuts.  

1045 Austagan, Adrianople.—Gombo fruit.  

1046 Djemal Ali, Sarret, Diarbekir.—  
   —Dried figs.  

1046b Yanacoli, Canea, Crete.—Sweet almonds.  

1047 Amassia, Government of, of Sivas. —Nuts.  

1048 Retimo, Government of, of Crete.—  
   Salted olives.  

1049 Cattari Giorki, Yanina, Yanina.—  
   Olives.  

1050 Tschataldja, Government of, of Yanina.—Green olives.  

1051 Ichel, Government of, of Adana.—  
   —Olives.  


1053 Samos, Government of.—Olives, almonds, and raisins.  

1054 Prévèze, Government of, of Yanina.—  
   —Codras, a sort of lemon.  

1055 Churadé, Hadji Ali, Tripoli, Tripoli.—Raisins.  

1056 Kemer Kikor, Mamor, Diarbekir.—Dried almonds.  

1057 Youssouf, Allepo.—Jujube.  

1058 Chaouch, Moustapha, Ayvadjik, Dardanelles.—Olives.  

1059 Mehemel Effendi, Dardanelles, Dardanelles.—Almonds and nuts.  

1060 Djucie, Mehemel, Tripoli, Tripoli.—Dates.  

1061 Petro, Bèrat, Yanina.—Almonds and nuts.  

1062 Seid Husua, Mardin, Diarbekir.—  
   —Mahaleb.  

1063 Salomon, Salonica.—Olives.  

1064 Smyrna, Government of, of Aydin. —  
   —Almonds, olives.  

Agricultural Products.  

1065 Topchin Mulasin, Koniah, Koniah.  
   a Oats.  
   b Flaxseed.  

1066 Toran Costa, Philippopolis, Adriane pole.  
   a Wheat, rye, maize, barley, rice, and millet.  
   b Vetch.  

1067 Youssouf, Diarbekir. —  
   a Cereals: wheat, barley, and millet.  
   b Gray pens.  
   c Kuchen seed.  

1068 Abdi Agha, Prévèze, Yanina. —  
   —Oats.  

1069 Ab-del Kader Kourou Ateche, Adana.—Sesame.  

1070 Abdourahman, Allepo.—  
   a White sorghum.  
   b Lentils, gray peas.  
   c Dolippe seed.  

1071 Ahmed, Tschataldja, Yanina.—  
   —Barley.  

1072 Banouch Agha, Perimidi, Yanina.—  
   —Wheat.  

1073 Christo, Yanina, Yanina. —  
   a Wheat, barley, rye, oats, maize, and millet.  
   b Lentils, green peas.  
   c Dolippe seed.  

1074 Christo, Volonia, Yanina.—Barley.  

1075 Christo, Prévèze, Yanina.—Barley.  

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
1076 Ahmed, Chasouch, Cas-Kouri, Dardanelles.—Oats.  620
1077 Dibra Gaza, Aleppo.  
   a Rice.  620  
   b Kidney beans.  621
1078 Emin Agha, Constantinople.  
   a Wheat, maize, oats, sesame, millet, spelt, etc.  620  
   b Lentils, vetch, and grach.  621  
   c Flaxseed.  624
1079 Perssouz, Adana, Adana.—Wheat.  620
1080 Fodolali, Nazif Agha, Candia, Crete.—Barley.  620
1081 Gorki, Antaki, Aleppo.—Sesame.  620
1082 Gorki, Volonia, Yanina.  
   a Rice.  620  
   b Kidney beans.  621
1083 Aydin, Government of.  
   a Wheat, barley.  620  
   b Liquorice root.  622
1084 Berat, Government of, Yannina.  
   a Maize.  620  
   b Tobacco.  623
1085 Cherishor, Government of, Bagdad.—Rice.  620
1086 Damascus, Government of, Syria.  
   a Wheat, maize, barley, white sorghum, etc.  620  
   b Vetch and gray peas.  621  
   c Lotus and coriander seed.  623  
   d Barley, fenem, and hemp seed.  624
1087 Daribekir, Government of—Wheat.  620
1088 Erzeroum, Government of.  
   a Wheat, rye, and barley.  620  
   b Flaxseed.  624
1089 Houran, Government of, Syria.—Sesame.  620
1090 Kara-Hissar, Government of, Si- 
   vies.  
   a Wheat and barley.  620  
   b Gray peas, kidney beans, lentils.  621
1091 Kerbela, Government of, Bagdad.  
   a Rice, millet, sesame, barley, wheat, white sorghum.  620  
   b Lentils, beans, masch (vegetable).  624  
   c Dolique seed.  624
1092 Medina, Government of, Hidjaz.—Wheat and barley.  620
1093 Mentefek, Government of, Bagdad.  
   a Wheat, millet, and rice.  620  
   b Beans, mash.  621  
   c Dolique seed.  624
1094 Mosul, Government of, Bagdad.  
   a Maize.  620  
   b Peas.  621  
   c Coriander.  623  
   d Flaxseed.  624
1095 Serfchou, Government of, Monas- 
   tir.—Wheat, rye, barley, and maize.  620
1096 Smyrna, Government of, Aydin.  
   a Wheat, maize, evirer, millet, sesame, white sorghum.  620  
   b Peas and beans.  621  
   c Fenem, cumin.  624
1097 Sulemaneeyah, Government of, Bag- 
   dad.  
   a Barley, millet, and rice.  620  
   b Vetch and beans.  621

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

1098 Tahif, Government of, Hidjaz.—White and red sorghum, millet, wheat, and barley.  620
1099 Tootchana, Government of, Monas- 
   tir.—Rice.  620
1100 Toutchana, Government of, Sivas.  
   a Cereals.  620  
   b Chick-peas.  621  
   c Reddish and flaxseed.  624
1101 Uskup, Government of, Monastir.  
   a Wheat and rye.  620  
   b Leaf tobacco.  623
1102 Volonia, Government of, Yanina.  
   a Maize.  620
1103 Ali Agha, Hadji, Koniah, Koniah.  
   a Wheat.  620
1104 Ali Agha, Hadji, Kangre, Casta- 
   noul.—Rice.  620
1105 Ali, Hadji, Koniah, Koniah.— 
   Wheat.  620
1106 Ali Bou Allia, Hadji, Tripoli, Tripoli.  
   a Wheat, barley, maize.  620  
   b Lentils and beans.  621  
   c Coriander and cumin.  623
1107 Ali Bougali, Hadji, Tripoli, Tripoli.  
   a Millet.  620  
   b Sorghum seed.  624
1108 Bekir Effendi, Hadji, Adana, Adana.—Barley and millet.  620
1109 Esseid Effendi, Hadji, Koniah, Koniah.— 
   Wheat.  620
1110 Ismail, Hadji, Koniah, Koniah.  
   a Wheat.  620
1111 Ismaila, Hadji, Cas-Kouri, Dardan- 
   elles.—Barley.  620
1112 Moustapha Agha, Hadji, Adana, Adana.—Gray peas.  621
1113 Sali, Hadji, Anabon, Monastir.  
   a Wheat and maize.  620
1114 Weisser, Hadji, Dardanelles, Dar- 
   danelles.—Evriyr, a cereal.  620
1115 Hassam Agha, Koniah, Koniah.  
   a Wheat.  620
1116 Hussein, Aleppo.—Maize.  620
1117 Ismail Agha, Abdil Touli, Koniah.  
   a Black barley.  620  
   b Radish seed.  624
1118 Ismail, Tchataldja, Yanina.  
   a Wheat.  620
1119 Ismail Effendi, Candia, Crete.  
   a Wheat.  620
1120 Kavilian, Stepen, Sivas.—Wheat.  620
1121 Kutchuk Ali Agha, Dardanelles, Dardanelles.—Wheat.  620
1122 Manoli, Boyadjaki, Candia, Crete.  
   a Barley.  620
1123 Mehemed Effendi, Dardanelles, Dardanelles.—Indian corn, sesame.  620
1124 Mehemeda, Cas-Kouri, Dardan- 
   elles.—Rye.  620
1125 Merdik, Mardin, Daribekir.—Ses- 
   ame.  620
1126 Moussis Oglo Seid, Koniah, Koniah.  
   a Barley.  620  
   b Gray peas.  621
1127 Mourazede, Aleppo.—Unhulled rice.  620

Agricultural Products.
<table>
<thead>
<tr>
<th>Agricultural Products.</th>
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<tbody>
<tr>
<td>1158 Moussa Oglou Veli, Alada, Koniah.—Rye.</td>
</tr>
<tr>
<td>1159 Moussin Effendi, Koniah, Koniah.—Evier, a cereal.</td>
</tr>
<tr>
<td>1160 Moustapha Effendi, Cherkech, Castamonu.—Wheat and barley.</td>
</tr>
<tr>
<td>1161 Moustapha, Agha, Canea, Crete.—Barley.</td>
</tr>
<tr>
<td>1162 Nougai Baitimour, Adana, Ada-.—Millet.</td>
</tr>
<tr>
<td>1163 O hannes, Aleppo.—Wheat and barley.</td>
</tr>
<tr>
<td>1164 Olah Artin, Adana, Adana.—Oats.</td>
</tr>
<tr>
<td>1165 Oudjou Christo, Yanina, Yanina.—White sorghum.</td>
</tr>
<tr>
<td>1166 Pachistizzi, Volonia, Yanina.—Maize.</td>
</tr>
<tr>
<td>1168 Petro, Berat, Yanina.—Rice and oats.</td>
</tr>
<tr>
<td>1170 Portocalai, Moustapha Agha, Canea, Crete.—Wheat.</td>
</tr>
<tr>
<td>1171 Salbé, Diarbekir.—Rice, hulled and unhulled.</td>
</tr>
<tr>
<td>1172 Saïd, Ichkodra, Monastir.</td>
</tr>
<tr>
<td>1173 Salih, Government of, Bagdad.—Barley, rye, oats, wheat, and maize.</td>
</tr>
<tr>
<td>1174 Seid, Government of, Adana.—Beans, peas, lentils.</td>
</tr>
<tr>
<td>1175 Seid Mehmed Agha, Angora, Government of.</td>
</tr>
<tr>
<td>1176 Kara Issalé, Government of, Adana.</td>
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<td>1177 Samos, Government of.</td>
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<tr>
<td>1178 Saroukhan, Government of, Aydin.</td>
</tr>
<tr>
<td>1179 Mehemed, Hadji, Diarbecirk.—Rye.</td>
</tr>
<tr>
<td>1180 Iscoat, Hodja, Aleppo.—Lentils, peas, and mash.</td>
</tr>
<tr>
<td>1181 Ismail Agha, Koniah, Koniah.—Vetch.</td>
</tr>
<tr>
<td>1182 Mehemel Ali Agha, Saradjik, Dardanelles.—Beans, peas.</td>
</tr>
<tr>
<td>1183 Ahmed, Erzeroum.—Lentils, kidney beans, and peas.</td>
</tr>
<tr>
<td>1184 Aghoba, Kingnessa, Adana.—Lentils.</td>
</tr>
<tr>
<td>1185 Ali Ousta, Koniah, Koniah.—Kidney beans.</td>
</tr>
<tr>
<td>1186 Charouh Akassi, Diarbecirk.—Lentils.</td>
</tr>
<tr>
<td>1187 Christo, Palatnos, Yanina.—Beans.</td>
</tr>
<tr>
<td>1188 Kachomia, Christo, Tdomai, Yanina.—Kidney beans.</td>
</tr>
<tr>
<td>1189 Diaba, Heudeurlé, Adana.—Kidney beans.</td>
</tr>
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<td>1190 Giorki, Aleppo.</td>
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<td>1191 Mehemed Seid, Angora.</td>
</tr>
<tr>
<td>1192 Molah Ahmed, Adana, Adana.—Beans.</td>
</tr>
<tr>
<td>1193 Sidmaki, Sfakia, Crete.—Dried beans.</td>
</tr>
<tr>
<td>1194 Fetou, Aleppo.—Kidney beans.</td>
</tr>
<tr>
<td>1195 Yorganhodhaki, Sfakia, Crete.—Vetch.</td>
</tr>
<tr>
<td>1196 Valah, Vandiria, Sfakia, Crete.—Lentils.</td>
</tr>
<tr>
<td>1197 Youssouf Mamor, Diarbekir.—Kidney beans.</td>
</tr>
<tr>
<td>1198 Youssouf Manoc, Aleppo.—Beans.</td>
</tr>
<tr>
<td>1199 Akhati, Giorki, Aleppo.—Soapwort root.</td>
</tr>
<tr>
<td>1200 Moustapha, Hadji, March, Aleppo.—Scammony.</td>
</tr>
<tr>
<td>1201 Hazrou, Aleppo.—Coriander seed.</td>
</tr>
<tr>
<td>1202 Imperial Administration, Constantinople.—Tobacco.</td>
</tr>
<tr>
<td>1203 Kandi Bros., Erguiré, Yanina.—Snuff.</td>
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<tr>
<td>1204 Mehemed, Koniah, Koniah.—Cumin.</td>
</tr>
<tr>
<td>1205 Nassou Tarrouchian, Ichkodra, Monastir.—Leaf tobacco.</td>
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<tr>
<td>1206 Omer Oglou Kassan, Tchan, Dardanelles.—Leaf tobacco.</td>
</tr>
<tr>
<td>1207 Rahmin David, Tripoli, Tripoli.—Cumin.</td>
</tr>
<tr>
<td>1208 Ramazan, Effendi, Smyrna, Aydin.—Tobacco.</td>
</tr>
<tr>
<td>1209 Abil, Aleppo.—Snuff.</td>
</tr>
<tr>
<td>1210 Djourbachi, Antolu, Dardanelles, Dardanelles.—Cumin and anise.</td>
</tr>
<tr>
<td>1211 Bedros, Antoine, Philadelphia, Pa.—Turkish tobacco.</td>
</tr>
<tr>
<td>1212 Bekir Bey, Marach, Aleppo.—Scammony root.</td>
</tr>
<tr>
<td>1213 Costanti, Ay don at, Yanina.—Snuff.</td>
</tr>
<tr>
<td>1214 Aleppo, Government of.—Tobacco.</td>
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<tr>
<td>1215 Amassia, Government of, Sivas.—Tobacco.</td>
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<tr>
<td>1216 Kenidje, Government of, Salonica.—Tobacco.</td>
</tr>
<tr>
<td>1217 Haskanorich Ali, Korimidja, Bosnia.—Tobacco.</td>
</tr>
<tr>
<td>1218 Manoli Galergui, Papa, Canea, Crete.—Leaf tobacco.</td>
</tr>
<tr>
<td>1219 Taksim Effendi, Tchataldja, Yanina.—Tobacco.</td>
</tr>
<tr>
<td>1220 Tokatlou, Trebizond.—Leaf tobacco.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Agricultural, Animal, and Vegetable Products.

1191 Yani, Oglou Andin, Angora, Angora.—Tobacco. 623
1192 Youssouf, Chaouch, Nemat, Yanina.—Tobacco. 623
1193 Youssouf, Chaouch, Tchataldja, Yanina.—Tobacco. 623
1194 Manouk, Youssouf, Aleppo.—Tobacco. 623
1195 Kayod, Hussein, Mardin, Diarbeikir.—Fennel seed. 624
1196 Moustapha Essendi, Koniah, Koniah.—Hemp seed. 623
1197 Kouyou Oglou, Anondie.—Seed. 624
1198 Youssouf, Hadji, Diarbeikir.—Palma-christi seeds. 624
1199 Kazikli, Government of, Aydin.—Anise seed. 624
1200 Cus-Kuri, Government of, Dardanelles.—Dolique seed. 624
1201 Djbra Gaza, Aleppo.—Fennel seed and cumin. 624
1202 Ali Bin Mehemed, Tripoli.—Tripoli;—Lucern seed. 624
1203 Youssouf, Aleppo.—Hemp, palma-christi, mekineche, melon, and watermelon seeds. 624
1204 Tamir, Djemete, Bokeva, Monastir.—Flax and hemp seed. 624
1205 Meaneza, Government of, Aydin.—Flaxseed. 624
1206 Adana, Government of.—Dolique seed. 624

Land Animals.
1207 Mazloum Aghia, Constantinople.—Insects. 638

Water Animals, Fish Culture and Apparatus.
1208 Ali Zotte, Volonia, Yanina.—Coral. 645

Animal and Vegetable Products.
1209 Lachite, Government of, Crete.—Sponges. 650
1210 Themeli, N., New York, N. Y.—Sponges. 650
1211 Mansour, Hadji, Tripoli, Tripoli.—Sponges. 650
1212 Djide, Government of, Hidjaz.—Sponges. 650
1213 Galinou, Rhodes, Dardanelles.—Sponges. 650
1214 Theophani, Nicoforaki, Cana, Crete. a Cheese. 651
b Leather and skins. 652
c Honey. 654
d Dried cherries. 656
1215 Minassian Miguerdj, Tokat, Sivas.—Cheese. 651
1216 Markora, Salonica.—Cheese. 651
1217 Mikal Agha, Adrianople.—Lamb skins. 652
1218 Mikaël, Kotchissar, Castamouni.—Beaver skin. 652
1219 Mehemeda, Dardanelles.—Morocco. 652
1220 Starri, Oglou, Kotchissar, Castamouni.—Marten skin. 652
1221 Nichan, Sivas, Sivas.—Skins. 652
1222 Nely, Ali, Marach, Aleppo.—Morocco. 652
1223 Moustapha, Ourpha, Aleppo.—Leather. 652
1224 Moustapha, Erzeroum.—Leather, morocco, etc. 652
1225 Mohadjeri Nahe, Adana, Adana.—Gazelle skin. 652
1226 Abdel Medjid, Vesalomon.—Goat skin. 652
1227 Abouloulah, Aroubliffe, Zoubie, Bagdad.—Morocco. 652
1228 Seyfouilah, Roostchook, Danube.—Leather. 652
1229 Sari Fakir Moustapha, Marach, Aleppo.—Morocco. 652
1230 Safran Bou, Zaferebolbi, Castamouni.—Morocco. 652
1231 Panoucha, Yanina.—Leather. 652
1232 Osmar Agha, Koniah.—Leather. 652
1233 Mehemed, Ousta, Boschir, Koniah.—Leather. 652
1234 Omer, Ousta, Piseren, Monastir.—Morocco. 652
1235 Ohametis Agha, Angora.—Angora goat skins. 652
1236 Ahmed Agha, Koniah.—Leather and morocco. 652
1237 Yanaki Kalviro, Yanina.—Goat skin. 652
1238 Youssouf, Caraman, Koniah.—Morocco. 652
1239 Vasali Borbo, Yanina.—Morocco. 652
1240 Tosty, Galota, Chio, Dardanelles.—Leather. 652
1241 Chinopoli, Thomas, Teralu, Yanina.—Sheep skin. 652
1242 Sirkit, Olan Andin, Angora.—Weasel skin. 652
1243 Sirch, Oglou, Andon, Angora.—Wolf, weasel, and fox skin. 652
1244 Atanach, Dardanelles, Dardanelles.—Sheep skin. 652
1245 Andria, Trebizond.—Grebe skins. 652
1246 Andon, Chio, Dardanelles.—Morocco. 652
1247 Anastach, Kangre, Castamouni.—Goat skin. 652
1248 Ali, Omer, Bigha, Dardanelles.—Deer skin. 652
1249 Ali, Salonica.—Leather. 652
1250 Ali, Mosul, Bagdad.—Beaver, fox, and wolf skin. 652
1251 Ahmed, Ousta, Castamouni, Castamouni.—Angora goat skin. 652
1252 Zeio, Christo, Yanina.—Red morocco. 652
1253 Cherbedji Mehemed, Marach, Aleppo.—Goat and sheep skin. 652
1254 Moussa Agha, Cheik, Diarbeikir.—Goat and sheep skin. 652
1255 Chaban Oglou, Mehemed, Koniah, Koniah.—Cat skin. 652

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>1256</td>
<td>Cassal, Adana, Adana.—Goat and sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1257</td>
<td>Cafak, Abdoullah, Marach, Aleppo.—Goat and sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1258</td>
<td>Bekir Agha, Sivas, Sivas.—Leather, morocco, and skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1259</td>
<td>Balto Oglou Youssouf, Guengnek, Castamouni.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1260</td>
<td>Giano, Giorki, Yanina.—Skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1261</td>
<td>Eyoup, Ourpha, Aleppo.—Goat and sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1262</td>
<td>Echof Effendi, Trebizond.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1263</td>
<td>Ebouker, Chérif, Tripoli, Tripoli.—Sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1264</td>
<td>Dchohan Oglou Mehemed, Koniah.—Fox skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1265</td>
<td>Corporation of Curriers, Smyrna.—Leathers, skins, and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1266</td>
<td>Daulu, Christo, Yanina.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1267</td>
<td>Corporation of Curriers, Damasc..—Leather and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1267</td>
<td>Calman, Government of, Syria.—Goat skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1268</td>
<td>Cherishor, Government of, Bagdad.—Leather, and skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1269</td>
<td>Bouard, Government of, Bagdad.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1270</td>
<td>Ohanès Agha, Marach, Aleppo.—Ounce and weasel skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1271</td>
<td>Bagdad, Government of.—Buffalo skin and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1272</td>
<td>Moustapha, Hadjji, Marach, Aleppo.—Skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1273</td>
<td>Adana, Government of.—Roebuck and calf skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1274</td>
<td>Godché, Erondi, Prévézé, Yanina.—Leather.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1275</td>
<td>Gulbin, Oglou Mehemed, Koniah.—Jackal skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1276</td>
<td>Tahij, Government of, Hidjaz.—Sheep and goat skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1277</td>
<td>Kara Issa, Government of, Adana.—Deer skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1278</td>
<td>Feughehete, Government of, Syria.—Deer skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1279</td>
<td>Erzeroum, Government of.—Goat skin, morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1280</td>
<td>Diarbekir, Government of.—Leather and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1281</td>
<td>Dardanelles, Government of.—Goat skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1282</td>
<td>Damascus, Government of, Syria.—Sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1283</td>
<td>Constantiopole, Government of.—Morocco and other leathers.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1284</td>
<td>Manik, Hadjji, Erzeroum.—Fox skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1285</td>
<td>Ismail Effendi, Hadjji, Koniah, Koniah.—Otter skin, etc.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1286</td>
<td>Ismail, Hadjji, Aintab.—Calf skin, leather, and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1287</td>
<td>Ibrahim, Hadjji, Angora.—Leather and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1288</td>
<td>Damiano, Hadjji, Bosnia.—Bear, fox, weasel, badger, and martenskins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1289</td>
<td>Amparson, Hadjji, Trebizond.—Jackal, fox, weasel, lamb, and sable skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1290</td>
<td>Ahmed, Hadjji, Angora.—Goat and sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1291</td>
<td>Achmet Agha, Hadjji, Angora.—Lamb skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1292</td>
<td>Rafoul, Hodja, Marach, Aleppo.—Wildcat, fox, otter, and jackal skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1293</td>
<td>Hassan Oglou Ahmed, Dardanelles, Dardanelles.—Wildcat, fox, beaver, weasel, and jackal skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1294</td>
<td>Hassan, Ousta, Castamouni.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1295</td>
<td>Harani Oglou, Castamouni, Castamouni.—Ounce skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1296</td>
<td>Haho, Babanoun Hamed Agha, Koniah.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1297</td>
<td>Yassin, Hadjji, Saret, Diarbekir.—Leather.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1298</td>
<td>Rouchen, Hadjji, Trebizond.—Goat and calf skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1299</td>
<td>Omer Agha, Hadjji, Diarbekir.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1300</td>
<td>Moustapha Ahmed, Hadjji, Tripoli, Tripoli.—Morocco, tanned skins, etc.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1301</td>
<td>Kourdju, Hadjji, Diarbekir.—Beaver skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1302</td>
<td>Karabet Agha, Erzeroum.—Weasel and wolf skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1303</td>
<td>Kara, Poutama, Prévézé, Yanina.—Goat and sheep skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1304</td>
<td>Ismail, Agha, Boschir, Koniah.—Leather.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1305</td>
<td>Ismail, Hadjji, Marach, Aleppo.—Leather.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1306</td>
<td>Issac, Aleppo, Aleppo.—Lamb skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1307</td>
<td>Ipsilanki &amp; Co., Samos, Castamouni.—Leather.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1308</td>
<td>Ibrahim, Uskup, Monastir.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1309</td>
<td>Hussein Effendi, Salonica.—Tanned hides and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1310</td>
<td>Mehemed Emin, Mosul, Bagdad.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1311</td>
<td>Mehemed Effendi, Adrianople.—Leather, morocco, goat, and calf skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1312</td>
<td>Mehemed, Koniah, Koniah.—Wolf skin.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1313</td>
<td>Masloum Agha, Candia, Crete.—Goat skins and morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1314</td>
<td>Salomon, Salonica.—Goat and lamb skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1315</td>
<td>Maroquin, Dardanelles.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1316</td>
<td>Kurjut Casmat, Diarbekir.—Fox and weasel skins.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1317</td>
<td>Piseren, Government of, Monastir.—Morocco.</td>
<td>Morocco</td>
</tr>
<tr>
<td>1318</td>
<td>Abdoullah Ousta, Angora.—Leather.</td>
<td>Morocco</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Animal and Vegetable Products.

1319 Ana Bini, Tanasse, Sarret, Diarbekir.—Wax. 654
1320 Yeni Ahmed, Chûr, Yanina.—Wax. 654
1321 Ahmed Agha, Lapseki, Dardanelles.—Yellow wax. 654
1322 Sahalim Bacbac, Tripoli, Tripoli.—Honey. 654
1323 Derbian, Pedro, Sivas, Sivas.—Yellow wax. 654
1324 Ohannès, Son of Varcha, Angora.—Honey. 654
1325 Mouessi Effendi, Koniah, Koniah.—Yellow wax. 654
1326 Ahmed, Aintab, Aleppo.—Honey and wax. 654
1327 Samos, Government of. 654
   a Honey. 654
   b Wine and brandy. 660
1328 Madina, Government of, Hijjar.—Honey. 654
1329 Cherif Effendi, Trebizond. 654
   a Honey. 654
   b Gourd, pear, and rose marmalade. 656
   c Mulberry vinegar. 656
1330 Arpadji Mahmoud Agha, Adana, Adana.—Wax. 654
1331 Lefteri mo, Aposthol, Tirala, Yanina.—Honey. 654
1332 Andonaki, Angora.—Wax. 654
1333 Pisereken, Government of, Moustafir.—Crude wax. 654
1334 Ali Zotte, Golos, Yanina.—Yellow wax. 654
1335 Mahmoud Agha, Adana, Adana.—Honey. 654
1336 Keranche Oglou, Kotchissar, Castamouni.—Wax. 654
1337 Hussein Dédé, Klîd-Bahar, Dardanelles.—Honey. 654
1338 Haktar Mehemed, Aleppo.—Yellow wax. 654
1339 Osman, Hadji, Sarret, Diarbekir.—Honey. 654
1340 Volonia, Government of, Yanina.—Honey and wax. 654
1341 Sulaimaneeyah, Government of, Bagdad.—Wax. 654
1342 Smyrna, Government of, Aydin. 654
   a Honey and wax. 654
   b Dried grapes, raisins. 656
c Wine. 660
1343 Abdourrahman, Erzeroum.—Yellow wax. 654
1344 Abdourrahman, Zubei, Viemen.—Wax. 654
1345 Catari, Giorki, Golos, Yanina.—Olives. 656
1346 Ali Oglou Moussa.—Dried morellas. 656
1347 Ahmed Agha, Aleppo.—Raisins. 656
1348 Yussuf Sarret, Diarbekir.—Raisins. 656
1349 Tetoullah Effendi, Darenge, Sivas.—Prunes. 656
1350 Serdar, Hassan Oglou Hussein, Cana, Crete.—White and black raisins. 656
1351 Seid, Mehemed Agha, Angora.—Dried apples, prunes, cherries, apricots. 656
1352 Pembejdje, Oglou Moustapha, Mardin, Diarbekir.—Prunes. 656
1353 Koyoun, Andonik, Angora. 656
   a Dried and salt beef, sausages. 656
   b Brandy, wine, and vinegar. 660
1354 Kirkor, Ayvânik, Diarbekir.—Mulberry paste. 656
1355 Hussein, Gaat, Mardin, Diarbekir.—Prunes. 656
1356 Haskanorich, Ali, Korimdu, Yanina.—Prunes. 656
1357 Osman, Hadji, Koniah, Koniah.—Raisins. 656
1358 Ali, Hadji, Aleppo.—Dried prunes, quinces, cherries, and apricots. 656
1359 Zaferampolo, Government of, Castamouni.—Dried prunes. 656
1360 Nitch, Government of, Danube.—Prunes. 656
1361 Nasli, Government of, Aydin.—Black figs. 656
1362 Mikali, Nicolaidi, Cana, Crete.—Orange, apple, orange blossom, cherry, and pear marmalade. 656
1363 Mikali, Aleppo. 656
   a Dried prunes, cherries, apricots, raisins, and apples. 656
   b Mastic. 660
1364 Merkioss, Mamor, Diarbekir.—Dried mulberries. 656
1365 Mehemed Aich, Tripoli, Tripoli.—Soup and vegetable paste, vermicelli. 656
1366 Mehemed, Malatia, Diarbekir.—Mulberry paste. 656
1367 Mazloum, Aghia, Constantinople.—Trehalja and trehalja pastes. 656
1368 Maki Yani, Chio, Dardanelles.—Mastic, orange, rose, and lemon-blossom comfitures. 656
1369 Mark, Samos, Samos.—Muscat raisins. 656
1370 Kournik Ali Agha, Kangre, Castamouni.—Dried apricots. 656
1371 Pedros, Mihalga, Castamouni.—Raisins. 656
1372 Over Agha, Malatia, Diarbekir.—Raisins. 656
1373 Osman Bin Mohamed, Korimdu, Bosna.—Prunes. 656
1374 Omer Djerbi, Tripoli, Tripoli.—Vermicelli and soup paste. 656
1375 Moustapha, Malatia, Diarbekir.—Dried peaches. 656
1376 Attef Dédé, Brousse, Brousse.—Angelica-root marmalade 656
1378 Widin, Government of, Danube. 656
   a Sausages and smoked beef tongues. 656
   b Raspberry wine. 660
1379 Moustapha Agha, Adana, Adana.—Raisins. 656
1380 Ahmed, Erzeroum.—Dried prunes. 656
1381 Mehemed Djebari, Tripoli, Tripoli.—Semoule flour. 657
1382 Koudour Hadji, Aleppo.—Grenade syrup. 657

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Vegetable Products, Wines, Textile Substances.

1383 Ohannes, Diarbekir.—Grape syrup. 669
1382 Central Drug Store, Constanti- nople.—Fruit syrups, etc. 699
1385 Ispiro, Salonica.—Orange, cherry, and grenade syrups. 699
1386 Raftopoulos, Nicolas.—Mint, sage, and almond liquors. 660
1387 Kirkor Effendi, Erzeroum.—Alcohol. 660
1388 Karabet, Diarbekir.—Orange, rose, juniper, and other brands. 660
1389 Ychrapalaki, Hadji, Nicolas, Retino, Crete.—Mulberry brandy. 660
1390 Gubing Ogou Kkakout, Koniah, Koniah.—Wine and brandy. 660
1391 Salomon, Gumuldjin, Salonica.—Wine. 660
1392 Retino, Government of, Crete.—Wine and brandy. 660
1393 Monastir, Government of.—Wine, 660
1394 Gostcho Djivare, Preveze, Yanina.—Wine. 660
1395 Vafadi Giorki, Salonica.—Wine. 660
1396 Distillery of Zahari, Piseren, Monastir.—Brandy. 660
1397 Tountcha Litché, Tinrova, Yanina.—Wine. 660
1398 Tomochordo, Piseren, Monastir.—Wine. 660
1399 Tietora, Theodore, Samos.—Muscat wine. 660
1400 Theophasaky Ysiako, Canea, Crete.—White wine. 660
1401 Stamadji Marneraki, Lachite, Crete.—Red wines. 660
1402 Pereno Papa, Adana, Adana.—Brandy. 660
1403 PeKiaides, John, Samos.—Muscat wine. 660
1404 Youssef, Tokat, Sivas.—Rose mastic. 660
1404 Papaz Ogou, Salonica.—White wine. 660
1405 Nicoloreuzi Bros., Samos.—Muscat wine. 660
1406 Yanaki, Nicolas, Ile of Bousida, Dardanelles.—Wine and vinegar. 660
1407 Manoli Musé, Tinrova, Yanina.—Vinegar. 660
1408 Direction of the Vineyards Pacha Liman, Brussa.—Red and white wines, cognac. 660
1409 Leonisaki, Dimitri, Canea, Crete.—Brandy. 660
1410 Safijedak, John, Samos.—Alcohol and wines. 660
1411 Bodou Agha, Diarbekir.—Wine. 660
1412 Bano, Adana, Adana.—Wine. 660
1413 Bedre, Anton, Aleppo.—Vinegar. 660
1414 Andin Chako, Narda, Yanina.—Mulberry brandy. 660
1415 Youssef, Tokat, Sivas.—Rose vinegar and brandy. 660
1416 Yani, Lachite, Crete.—Mulberry brandy. 660
1417 Yani, Pappa Antoanaki, Lachite, Crete.—Grape brandy. 660
1418 Mehandjji, Foly, Candia, Crete.—Rose brandy and wine. 660
1419 Manoli Prizi, Candia, Crete.—Wine and white brandy. 660
1420 Ipsamarki Yani, Ile of Bousida, Dardanelles.—Brandy. 660
1421 Mark, G. L., Samos.—Brandy and wine. 660
1422 Missir, Joseph, Samos.—Muscat wine. 660
1423 Tousseano, Diarbekir.—a Vinegar. 660
   b Mint oil. 662
1424 Moustapha, Dardanelles.—Coffee biscuits. 661
1425 Ipsamarki Yani, Chio, Dardanelles.—Vine-branch oil. 662
1426 Ahmed, Antakia, Aleppo.—Almond and palma-christi oils. 662
1427 Thérif Ogou Mehemed, Philippopolis, Adrianople.—Wild thyme and mint oil. 662
1428 Hetoulat, Diarbekir.—Batom oil. 662

Textile Substances of Vegetable or Animal Origin.

1429 Hussein Agha, Adana, Adana.—Cotton. 665
1430 Bekir, Hadji, Adana, Adana.—Cotton, cotton bolls. 665
1431 Uskup, Government of, Monastir.—a Cotton. 665
   b Span hemp. 666
c Coconos. 668
1432 Saroukhani, Government of, Aydin.—Cotton. 665
1433 Mosul, Government of, Bagdad.—a Cotton. 665
   b Coconos. 668
1434 Kerbella, Government of, Bagdad.—a Cotton. 665
   b Indian hemp. 667
c Wool. 667
1435 Feulgehete, Government of, Syria.—a Cotton. 665
   b Wool. 667
1436 Etíep, Government of, Aleppo.—Cotton and cotton bolls. 665
1437 Théophani, Nicoforaki, Canea, Crete.—a Cotton seed. 665
   b Spun flax. 666
   c Wool. 667
   d Blue and yellow coconos. 668
1438 Salomon, Salonica.—a Cotton. 665
   b Tow. 666
   c Wool. 667
1439 Pano Mamatti, Prévézé, Yanina.—Cotton. 665
1440 Moussa, Palatnos, Yanina.—Cotton bolls. 665
1441 Mardili, Oustidi, Diarbekir.—Crude cotton. 665
1442 Laz Osman, Kangre, Castamouni.—Cotton. 665
1442a Kozon, Andonaki, Angora.—Cotton. 665

For classes of exhibits, indicated by numbers at end of entries, see Classification op. 27-45.
Textile Substances of Animal and Vegetable Origin.

1443 Ismail Effendi, Sulle, Koniah.— Cotton. 665
1444 Ibrahim Effendi, Gueugnek, Castamouni.— Cotton. 665
1445 Amassia, Government of, Sivas. 665
a Cotton. 665
b Indian hemp. 666
1446 Dimitri, Giorgaki, Prévèsé, Yana. 665
1447 Dimitri, Constanti, Tirala, Yania.— Cotton. 665
1448 Cazi, Agha, Caraman, Koniah.—Cotton balls. 665
1449 Astadj, Narcisse, Aleppo.—Cotton. 665
1450 Djourbachi, Antolu, Mados, Dardanelles.—Cotton. 665
1451 Andon, Constanti, Palatnos, Yanna.—Cotton. 665
1452 Tarako, Uskup, Monastir.—Spun flax. 665
1453 Mehemed, Marach, Aleppo.—Hemp. 666
1454 Damascus, Government of, Syria. 666
—Hemp. 666
1455 Maimoun, Tripoli, Tripoli.—Wool. 667
1456 Kiyork, Dellale Oglou, Esiné, Dardanelles.—Wool. 667
1457 Kirkara, Adana, Adana.—Wool. 667
1458 Khalil Agha, Ourpha, Aleppo.—Wool. 667
1459 Hadji, Koniah, Koniah.—Wool. 667
1460 Volonia, Government of, Yanina.—Wool. 667
1461 Suleimaneyah, Government of, Bagdad. 667
a Wool. 667
b Goat and other hair. 667
1462 Smyrna, Government of, Aydin. 667
a Wool. 667
b Cocoons. 668
1463 Youssouf, Aleppo, Aleppo.—Wool. 667
1464 Tigour Ahmed, Kangre, Castamouni.—Wool. 667
1465 Tefti Oglou Moussa, Koniah, Koniah.—Wool. 667
1466 Starri, Kangre, Castamouni.—Wool. 667
1467 Selim Kohi, Ichkodra, Monastir.—Wool. 667
1468 Panor Mamatti, Volonia, Yanina. 667
—Wool. 667
1469 Moustapha, Hadji, Painbé Zadé, Esiné, Dardanelles.—Black wool. 667
1470 Mehemed Agha, Koniah, Koniah.—Wool. 667
1471 Couyoum Oglou Andon, Angora.—Wool. 667
1472 Cherif Agha, Ezeroum.—Wool. 667
1473 Zadé Moustapha, Cheik, Kangre, Castamouni.—Wool. 667
1474 Avadjan, Sivas, Sivas.—Sheeps' wool. 667
1475 Arab Mehemed, Mardin, Diarbekir.—Wool. 667
1476 Anagnosti, Pappadaki, Lachite, Crete.—Wool. 667
1477 Aghme Agha, Kangre, Castamouni.—Wool. 667
1478 Kocaf Ajediz, Antakia, Aleppo.—Cocoons. 668
1479 Karabet, Salonica.—Cocoons. 668
1480 Ibrahim Effendi, Hadji, Mihalgazi, Castamouni.—Cocoons. 668
1481 Samos, Government of.—Yellow and white cocoons. 668
1482 Berat, Government of, Yanina.—Cocoons. 668
1483 Estur Oglou Estur, Tias, Ada. —Cocoons. 668
1484 Banouch, Son, Kirinei, Yanina.—Cocoons. 668
1485 A v r a m, Adrianople.—Japanese cocoons. 668
1486 Yanaki, Tdomane, Yanina.—Cocoons. 668
1487 Yanaki, Thomas, Volonia, Yanina.—Cocoons. 668
1488 Yanak, Arap, Tdomane, Yanina.—Cocoons. 668
1489 Sukiasian, Adrianople.—Cocoons. 668
1490 Pemno Petcha, Tiraia, Yanina.—Cocoons. 668
1491 Nakach, David, Diarbekir.—Cocoons. 668
1492 Mihali, Sulle, Koniah.—Cocoons. 668
1493 Makiani, Ipsser, Bigha, Dardanelles.—Cocoons. 668
1494 Anguel, Ichkodra, Monastir.—Cocoons. 668
1495 A n a s t a s s i, Antonofaki, Canca, Crete.—Blue and yellow cocoons. 668
1496 Ali Zotte, Caza, Yanina.—Cocoons. 668
1497 Mahmoud, March, Aleppo.—Goat hair. 669
1498 Hussein, Hadji, Koniah, Koniah.—Camel hair. 669
1499 Mohamed, Hadji, Koniah, Koniah.—Goat hair. 669
1500 Ali Effendi, Angora.—Angora goat wool. 669

Machines, Implements, and Processes of Manufacture.

1501 Christo, Yanina, Yanina.—Harness. 879

Ornamental Trees, Shrubs, and Flowers.

1502 Théophani, Nicoforaki, Canca, Crete.—White lupine. 799

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
RUSSIA.

(South of Nare, Columns 19 to 23.)

<table>
<thead>
<tr>
<th>Chemical Manufactures.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Koroleff, A., Vologda.—Ferrocyanate of potassa.</td>
<td>200</td>
</tr>
<tr>
<td>2 Lepeshkin, Nicolas, Moscow.</td>
<td></td>
</tr>
<tr>
<td>a Chemical products.</td>
<td>200</td>
</tr>
<tr>
<td>b Dyes, pigments of vegetable and animal origin.</td>
<td></td>
</tr>
<tr>
<td>3 Ooshkoff, Peter, Elaboog, Government of Viatka.—Yellow chrome, blue copperas, and alum.</td>
<td>200</td>
</tr>
<tr>
<td>4 Poel, Alexander, St. Petersburg.—Oils, volatile extracts from the rose mallow (sedum polystre).</td>
<td></td>
</tr>
<tr>
<td>5 Philosophoff, Basil &amp; Co., Kineshma, Government of Kostroma.—Chemicals.</td>
<td></td>
</tr>
<tr>
<td>6 Rastergäf, Gregory, St. Petersburg.—Chemicals.</td>
<td>200</td>
</tr>
<tr>
<td>7 Matteissen, Nicolas, Moscow.—Potash.</td>
<td>200</td>
</tr>
<tr>
<td>8 Shipple, Moscow.—Chemicals.</td>
<td></td>
</tr>
<tr>
<td>9 Bett, Theodore, Cronstadt.—Oil, refined lubricating.</td>
<td>201</td>
</tr>
<tr>
<td>10 Calcined Bone Manufacturing Co., St. Petersburg.—Burnt bone, bone grease, ammoniac, etc.</td>
<td>201</td>
</tr>
<tr>
<td>11 Calix, John, St. Petersburg.—Oil, lubricating.</td>
<td>201</td>
</tr>
<tr>
<td>12 Hartman, W., Riga.</td>
<td></td>
</tr>
<tr>
<td>a Oils, refined and drying.</td>
<td>201</td>
</tr>
<tr>
<td>b Oil varnish.</td>
<td>202</td>
</tr>
<tr>
<td>13 Yssakovitch, J. &amp; M., Odessa.—Soap.</td>
<td>201</td>
</tr>
<tr>
<td>14 Krestovnikoff Bros., Kazan.—Searine candles and glycerine.</td>
<td>201</td>
</tr>
<tr>
<td>15 Schmidt, C., Riga.—Oil, refined, linseed, oil cakes.</td>
<td>201</td>
</tr>
<tr>
<td>16 Talhiem, George, Riga.—Lubricating grease.</td>
<td>201</td>
</tr>
<tr>
<td>18 Lankovski &amp; Lkop, Mitau.—Inks, writing, copying, and fluids.</td>
<td>202</td>
</tr>
<tr>
<td>20 Poiteling, Peter, St. Petersburg.—Varnish and lacquer.</td>
<td>202</td>
</tr>
<tr>
<td>21 Wulf, Nicetas, Sokolovo, Government of Tver, District of Staritsa.—Mineral ochre.</td>
<td>202</td>
</tr>
<tr>
<td>22 Kramata von Sonsnowee Zinc Works, Piotrkoft, District of Béndzin.—White zinc.</td>
<td>202</td>
</tr>
<tr>
<td>23 Reichel, Julius, Warsaw.—Permanent marking colors.</td>
<td>202</td>
</tr>
<tr>
<td>24 Serdukoff, Basil, Borovitchi, Government of Novgorod.—Cosmetics.</td>
<td>203</td>
</tr>
<tr>
<td>25 Schmidt, Frederic, St. Petersburg.—Cosmetic soap.</td>
<td>203</td>
</tr>
<tr>
<td>26 Linde, F., St. Petersburg.—Glycerine, soap, and cosmetics.</td>
<td>203</td>
</tr>
<tr>
<td>27 Winner, St. Petersburg.—Black powder, exhibitor's system.</td>
<td>204</td>
</tr>
<tr>
<td>28 Okhta Gunpowder Mills, near St. Petersburg.—Black powder and its compounds.</td>
<td>204</td>
</tr>
<tr>
<td>29 Haase, J., Mitau.—Matches.</td>
<td>204</td>
</tr>
<tr>
<td>30 Kristesvolfich, P. C., Gorodishte, Government of Penza.—Refractory bricks.</td>
<td>205</td>
</tr>
<tr>
<td>31 Khazlampoff, M., St. Petersburg.—Ceramic statuary.</td>
<td>206</td>
</tr>
<tr>
<td>32 Rasterrauff, Gregory, St. Petersburg.—</td>
<td>206</td>
</tr>
<tr>
<td>33 Perf Gun Foundry, Perm.—Graphite crucibles.</td>
<td>207</td>
</tr>
<tr>
<td>34 Demidoff, Paul, Prince of Donato, Nigni Tagil, Ural Mountains, Government of Perm.—Clay stones; refractory furnace materials.</td>
<td>207</td>
</tr>
<tr>
<td>35 Museum of Fine Arts applied to Industry, Moscow.—Ornamental tiles.</td>
<td>208</td>
</tr>
<tr>
<td>36 Bonafeide, Leopold, St. Petersburg.</td>
<td></td>
</tr>
<tr>
<td>a Enamed ornamental tiles.</td>
<td>208</td>
</tr>
<tr>
<td>b Enamed ornamental vases and plates.</td>
<td>211</td>
</tr>
<tr>
<td>37 Moltchanoff, Wladimir, Nigni Novgorod and Gyil, Government of Moscow, District of Bogorodsk.—Faience and earthenware.</td>
<td>209</td>
</tr>
<tr>
<td>38 Krasnostchekoff, Paul, Moscow.—Painted faiance ware.</td>
<td>210</td>
</tr>
<tr>
<td>39 Cibulski, Cassimir Smeloff, Government of Rovod, District of Opatoff.—Stoneware.</td>
<td>210</td>
</tr>
<tr>
<td>40 Ter-Davydoff, St. Petersburg.—Earthenware jugs.</td>
<td>210</td>
</tr>
<tr>
<td>41 Museum of Fine Arts applied to Industry (attached to the Stroganoff School of Design).—Painted porcelain and stoneware.</td>
<td>211</td>
</tr>
<tr>
<td>42 Zaitzevski, St. Petersburg.—Ornamental pottery.</td>
<td>211</td>
</tr>
<tr>
<td>43 Korniloff Bros., St. Petersburg.—China cups and plates.</td>
<td>213</td>
</tr>
</tbody>
</table>

Furniture and Objects of General Use in Construction and in Dwellings.

| 47 Akimoff, Spiridionius Zagarzi, Government of Moscow, District of Bogorodsk.—Articles of church decoration. | 217 |
| 48 Wunsh, Adolphus, St. Petersburg.—Writing-table and arm-chair. | 217 |
| 49 Shrader, St. Petersburg.—Writing-table and arm-chair. | 217 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Furniture, Woven Goods.

50 Shootoff, St. Petersburg.—Armchair, fancy. 217
51 Leontieff, St. Petersburg.—Japanese furniture. 217
52 Jroomoff, St. Petersburg.—Artistic furniture. 217
53 Brigen, Charles, St. Petersburg.—Billiard tables. 217
54 Stroom, Augustus, St. Petersburg.—Table furniture, in bronze. 218
55 Semenoff, Moscow.—Silver plate, gilt and enamelled. 218
56 Morand, Adolphus, St. Petersburg.—Bronze samovar and bowl. 218
57 Ivanoff, N., St. Petersburg.—Silver plate, gilt and enamelled. 218
58 Glookhoff, N. G.—Japanese ware. 218

60 Dutkevicz, X., Warsaw.—Melchior tea-pots, tray, and samovar (heated by a mineral oil lamp). 216
61 Bryzgalooff, St. Petersburg.—Silver-gilt jugs, cups, etc. 218
62 Botasheff, Basil, Tools.—Bronze and brass samovars. 218
63 Beliajeff, George, Fastavoff, near Moscow.—Japanese trays, with pictures. 218
63a Hessrich & Woerffel, St. Petersburg.—Decorative articles of furniture, malachite, lapis, Jasper, rhodonite, nephrite, labradorite, with bronze fittings. 219
64 Jeveff, Andrew, Moscow.—Gilt frames. 220
65 Khrenoff, Pantelej, Egerievsk, Government of Kirzan.—Carved frame, gilt. 220
66 Glinka, Paul, St. Petersburg.—Leather frames and decorative objects. 220
67 Goroshhoff, P., Yaroslaw.— Tin household utensils. 224
68 Belszkevicz, Henry.—Portable cooking apparatus, heated by petroleum, with kitchen utensils. 224
69 Iyanitzki, L., Jarow, Government of Minsk, District of Retchitza.—Inlaid flooring. 227


70 Neuman, Hugo, Warsaw.—Endless copper-wire cloth, for paper-making machines. 228
71 Pashkoff, Basil, Bogajwlensk & Verkhatiorie Copper Works, Government of Oasa.—Copper-wire cloth. 228
72 Beliajeff, Theodore, Moscow.—Mats and bags of lime-tree bark. 229
72a Loth, Edward, Warsaw.—Straw and bast goods. 229
73 Garelin, John, Yanovo Voznessensk, Government of Wladimir.
   a White calico and long cloth. 230
   b Red cotton stuffs. 231
   c Printed calico. 232
74 Garelin, Nikon, & Sons, Yanovo Voznessensk, Government of Moscow.—Cotton yarn. 230
75 Konshin, John, Serpoookhoff, Government of Moscow.—Cotton yarn. 230

76 Pale, T. Ch., St. Petersburg.
   a Long cloths and twills. 230
   b Cotton fabrics dyed. 231
c Cotton prints and calico. 232

   a Cotton goods, plain and twilled. 230
   b Red cotton stuff and Adrianepp dye. 231
c Printed calico. 232

82 Reichel, Julius, Warsaw.—Cotton stuffs, printed from stone, wood, and metal. 232
83 Possilin, Alexis, Yanovo Voznessensk.—Cotton stuffs. 232
84 Poloshin, Nicholas, Yanovo Voznessensk, Government of Wladimir.—Printed calico. 232
86 Lopatin, Paul, Yanovo, Voznessensk.—Printed calico. 232
87 Menshikoff’s, W. S., Yanovo Voznessensk.—Printed calico. 232
89 Koovajeff, Catherine, Yanovo Voznessensk.—Printed goods. 232
90 Garelin, Nixon, & Sons, Yanovo Voznessensk.—Printed calico and kerchief. 232
91 Borissoff, Stephen, & Sons, Yanovo Voznessensk, Government of Wladimir.—Printed calico. 232
93 Stiegilitz, Baron Alexander, near Narva.—Sail cloth. 233
94 Mindovsky, Brakhanoff, & Babkin, Yoorjeveitcz, Government of Kosstroma.—Flat yarn and thread. 233
95 Hille & Dietrich, Girardovo, Government of Warsaw.—Linen cloth, table linen, Turkish towels, etc. 233
96 Gribanoff, James, Sons, Oostioog, Government of Volegda.—Linens and linen yarns. 233
97 Alofoozoff & Alexandrcoff, Kazan.—Linen fabrics and yarns. 233

Woolen and Felted Goods of Wool, etc.

98 Stiegilitz, Baron Alexander, near Narva.—Woolen cloths. 235
99 Seliverstoff, Nicolas, Romontzero, Government of Simbirsk, District of Karsoom.—Woolen cloths and satins. 235
100 Sooviroff, V. N., Tooshino, Government and District of Moscow.—Woolen cloths and satins. 235
101 Kazajjeff, Stephen, Kerensk, Government of Penma.—Gray army cloth. 235
102 Geotchoff, Efim, Moscow, Woolen cloth goods. 235
103 Possilin, Alexis, Yanovo Voznessensk, Government of Wladimir.—Woolen shawls. 235
104 Kommichau, Germanius, Belostok, Government of Grodno.—Woolen goods and blankets. 237
105 Gratchesoff, John, Moscow.—Woolen shawls and scarfs. 237
106 Oassooff, Peter, Moscow.—Dress goods (ladies’ wear). 237
Woven Goods, Silk, Clothing.

107 Bagdanoff, W. T., St. Petersburg.—Cushions.

108 Zolotareff’s Widow & Ribakoff, Moscow.—Silk and mixed goods.

109 Shrader, Augustus, Moscow.—Woven goods.

110 Poliaikoff, N. & A., Bros., near Moscow.—Woolen and mixed fabrics.

111 Nikitin, Gorjaiief, & Co., Moscow.—Woolen and mixed goods.

112 Mikhailoff, Theodore, & Son, Moscow.—Woolen and mixed goods.

113 Ganeshin W. & N. Bros., & Co., Moscow.—Woolen yarn.

114 Borodin, Michael, Moscow.—Mixed silk fabrics, with cotton and wool.

115 Armand, Eugene, & Sons, Moscow.—Woolen and Worsteds.

116 Durham, Bragestad, Finland.—Embroidered carpet.

117 Voyeikoff, Demetrius, Sisran, Government of Simbirsk.—Camel’s hair cloth.

118 Petroff & Medvedeff, St. Petersburg.—Woven goat and hair shawls.

119 Deliverstoff, Nicholas, Roomiantzevo, Government of Simbirsk, District of Karsoon.—Camels’ and goats’ hair.

120 Komaroff, Mercury, St. Petersburg.—Table covers.

Silk and Silk Fabrics.


125 Timasheff, Alexander, Moscow.—Silk and mixed goods.

126 Emilianoff & Rochefort, Moscow.—Silk and mixed goods.

127 Zooboff, Sergius, Khomootovo, Government of Moscow, District of Bogorodsk.—Plain silk goods.

128 Shelaiff, S. & G., Bros., Moscow.—Plain silk goods, satin, and faille.

129 Peregelpkin, John, St. Petersburg.—Silk stuffs for umbrellas.

130 Kondrasheff Bros., Grebenevo, Government of Moscow, District of Bogorodsk.—Silk goods, plain.

131 Sapojnikoff, A. & W., Moscow.—Figure silk goods and brocades.

132 Mozjookhin’s, Theodore, Sons, Moscow.—Figured silk goods (upholstery).

133 Formitcheff, Alexis, Moscow.—Silk goods, plain and figured.

134 Syttof, John, Moscow.—Gold and silver cloth brocades.

135 Reichel, Julius, Warsaw.—Silk ties.

136 Boonin, John, Moscow.—Hosier.

137 Lange & Co., Moscow.—Silk ribbons and wool ribbons.

138 Syttof, John, Moscow.—Galloons and trimmings.

139 Zinslering, Charlotte, St. Petersburg.—Tape, cord, and bindings.

Clothing, Jewelry, and Ornaments; Traveling Equipments.

140 Reichel, Julius, Warsaw.—Shirt fronts.

141 Beoinin, John, Moscow.—Hosier.

142 Florand, Jules, St. Petersburg.—Shirt fronts, embroidered.

143 Vinogradova, Anne, Nijni-Novgorod.—Fancy articles in ladies’ dress, swan’s down.

144 Weckmann, Malvina, Helsingfors.—Hosier.

145 Shereshevsky, Nicolas, Moscow.—Silks, chemises, and jackets.

146 Chief Intendancy of War, St. Petersburg.—Articles of army equipments; illustrations of array dress.

147 Hooving, Walter, Wiborg, Finland.—Articles of Ladies’ dress, pelerines.

148 Sacken, Boettcher, Schmidt, & Ooss, Riga.—Millinery.

149 Popp, J., Riga.—Hats.

150 Sossoolnikoff, John, Nijni-Novgorod.—Felt boots and caps.

151 Bagdanoff, W. T., St. Petersburg.—Boots, shoes, and slippers.

152 Timasheff, Theodore, Moscow.—Gloves.

152a Til, Charles, Moscow.—Boots, and felt caps.

153 Sitnoff, Gregory, Moscow.—Boots.

154 Laude, Peter, St. Petersburg.—Boots.

155 Szeliiffeff, Theodore, St. Petersburg.—Boots and shoes.

156 Sorokin, Tichon, Moscow.—Gloves.

157 Kudelsky, Helen, Warsaw.—Kid gloves.

158 Szczepansky, F., Warsaw.—Boots, shoes, and slippers.

159 Strelnikoff, Basil, Yaransk, Government of Viatka.—Felt, boots, and shoes.

160 Smirnoff, N., Nijni-Novgorod.—Boots and shoes, felt.

161 Kitaizteff, W., Moscow.—Boots and galoshes.

162 Hubner, Nicolas, St. Petersburg.—Boots and shoes.

163 Fominas, Basil, Kongoor, Government of Perm.—Boots.

164 Filimonoff, Alexander, St. Petersburg.—Military caps.

165 Wilkin, Leon, Moscow.—Hats and caps.

166 Weigt, Theodore, Warsaw.—Hats.

167 Shubert, Levis, Riga.—Hats.

168 Mikotin, John, St. Petersburg.—Hats and caps.

170 Tchistiaikoff, Basil, Schawkin, St. Petersburg.—Hats and caps.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Clothing, Embroidery, Jewelry, Fancy Articles, Stationery.

171 Nazareff, E., St. Petersburg.—Helmet (horse guards). 251
172 Ribe, Frederic, Riga.—Hats. 251
174 Kamaroff, Mercury, St. Petersburg.—Embroideries. 252
175 Stechekoff, Sergiesky, Possad, near Moscow.—Embroidered articles of church furniture. 252
176 Moltchanoff, Wladimir, Vologda.—Russian lace and embroidery. 252
177 Koroleff, Basil, Toryok, Government of Twr.—Embroidered articles. 252
178 Koroleff, L., Moscow.—Embroidered and inlaid leather cushions. 252
179 Karelin, Toryok, Government of Twr.—Embroidered sashes, etc. 252
180 Kamenstchikoff, Toryok, Government of Twr.—Embroidered cushions, sashes, etc. 252
181 Arsenjeff, F., Vologda.—Russian ceilings and embroidered cloths. 252
182 Tikhomandritzky, Napoleon, St. Petersburg.—Embroideries, table cloths, etc., and articles of national costume. 252
183 Shadrin, Elias, Moscow.—Embroideries for uniforms, etc. 252
184 Sovetoff, Mary, St. Petersburg.—Embroidered shirt. 252
185 Society for the Encouragement of Women's Labor, Moscow.—Embroideries, towels, handkerchiefs. 252
186 Reichel, Julius, Warsaw.—Embroideries, handkerchiefs. 252
187 Nevozilszteff, M., St. Petersburg.—Embroideries, lace. 252
188 Nadporosky, M., Belozersk, Government of Novgorod.—Embroideries, laces. 252
189 Hodjaieff, Karapet, St. Petersburg.—Silk and gold embroideries. 252
190 Gorodetzki, Alexander, Moscow.—Embroideries. 252
191 Hodjaieff, Karapet, St. Petersburg.—Brooch and earrings (Caucasian style). 253
192 Adler, W., Moscow.—Jewelry. 253
193 Alexeieff, A., Krasonoe & Sidorioufke, Government of Kostroma.—Silver chains and earrings. 253
194 Krumbügel, Otto, Moscow.—Jewelry. 253
195 Tchitcheleff, John, Moscow, Jewelry, diadems, bracelets, earrings, etc. 253
196 Grikoroff, St. Petersburg.—Silver ornaments, bracelets, brooches, belts, and studs. 253
197 Hessrich & Woerffel, St. Petersburg.—Jewelry, personal adornments in malachite, rhodolite, jasper, lapis, lazuli, and other Siberian hard stones. 253
198 Bach, St. Petersburg.—Silver bracelets in Niello and enamel. 253
199 Glinkin Bros., Government of Vologda, District of Kadnikoff.—Hornt articles. 254
200 Aksenoff, Paul, Moscow.—Toys. 254
201 Perepelkin, John, Petersburg.—Umbrellas. 254

202 Minheimer, L., Warsaw.—Metallic buttons. 254
203 Maass, T., Mitau.—Wigs. 254
204 Loth, Edward, Warsaw.—Basket artificial flowers. 254
205 Kotzmann, E., Reval—Umbrellas. 254
206 Hodjaieff, Karapet, St. Petersburg.—Cigar holders; Niello, with silver. 254
207 Bernstein Bros., H. & B., Ostrolenko, Government of Loenza.—Fancy articles in amber. 254
208 Pravotoroff, George, Moscow.—Umbrellas. 254
209 Fogt, St. Petersburg.—Pictures, made from dried plants and insects. 254
210 Vishniakoff, Joseph, & Sons, Ostashkovo, near Moscow.—Lacquered paper-maché articles, and japanned trays. 254
211 Nissen, William, St. Petersburg.—Leather goods, valises, trunks, bags, leather cushions. 255
212 Kleeberg, St. Petersburg.—Russia leather blotting case and pocket book. 255
213 Zimmerman, Roman, Moscow.—Portmanteaus and traveling-bags. 255
214 Mikhailoff, Alexiss, Moscow.—Fur goods, carpet, costume. 256
215 Grünwald, M., Riga.—Furs; mohair carpet. 256
216 Petroff & Medvedeff, St. Petersburg.—Furs, articles of winter dress for ladies. 256
217 Odinoooshesky, M., & Sons, St. Petersburg.—Muffs, collars, and gorgette; sable and stone. 256
218 Soorin, Paul, St. Petersburg.—Mosiac fur carpet of three thousand pieces. 256
219 Komaroff, Nicetas, Moscow.—Articles of dress in sheepskin. 256
220 Litoff, K., Vologda.—National costumes of the Tyrians. 257
221 Hoving, Walter, Viborg, Finland.—Dolls, in national costumes. 257
222 Aristoff, Alexis, Moscow.—Cotton and leather, dressed as sashes by the Russian peasantry. 257
223 Vedernikoff & Mikalooff, St. Petersburg.—National costumes and articles of clothing. 257
224 Sidoroff, Mikhail, St. Petersburg.—National costumes of Samoieds and Ostiaks, from extreme north of Russia. 257

Paper, Blank Books, Stationery.

225 Tahlheim, George, Riga.—Sealing wax. 258
226 Mirkovski Paper Mill Co., Weruzaeger Government of Calisiz, District of Velun.—Writing-paper. 258
227 Epstein, John, Soczewka, Warsaw, District of Gostyn.—Writing-paper, drawing and blotting paper. 259
228 Sergeyeff, P. W., Pensia.—Writing-paper. 259
229 Frenkel, J. K., & Son, Tammerfort, Government of Vavastus, Finland.—Writing-paper. 259

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
RUSSIA.

Stationery, Weapons, Surgical Instruments, Hardware.

230 Vagooin Bros., St. Petersburg.
   a Writing-paper. 259
   b Printing-paper. 260

231 Koomanin, Nicolas, Moscow.—Account books.

232 Kleeberg, Henry, Riga.—Account books. 261

233 Franaszek, T., Warsaw.—Paper-hangings. 264

Weapons, etc.

234 Kniaz Mikhailoff's Crown Copper Works.—Gun barrels. 265

235 Kozzmin, G., Tooia.
   a Guns. 265
   b Dirks. 268

236 Grianzoff, Alexis, Tooia.
   a Pistols. 265
   b Double-barreled guns. 269

237 Hahn, Baron, St. Petersburg.—Fortress rifle cartridges. 265

238 Imperial Rifle Manufactory, Tooia.
   —Infantry rifles with bayonets; sections of a gun-barrel. 265

239 Metallic Cartridge Manufactory, St. Petersburg.—Specimens of illustrations, metallic cartridges, distance fuses, and percussion. 265

240 Sestroretzk Rifle Manufactory, near St. Petersburg.—Calvary carbines, Cossack muskets. 265

241 Tenner, St. Petersburg.—Apparatus for wrapping bullets with paper. 265

242 Pootiloff Iron Works Co.—St. Petersburg.—Eleven-inch projectiles. 267

243 Raskazoff, St. Petersburg.—Model of a double stand for two forty-ton guns. 267

244 Ordnance Department, St. Petersburg.—Mortar and gun carriage (Semena and Engelhardt's system). 265

245 Oboookff Steel Foundry, near St. Petersburg.—Heavy ordnance gun carriages and platforms (wedge mechanism for breech loading). 267

246 Naval Artillery, Workshop of the port of Kronstadt.—Gun carriages and platforms, general, Pestrich's system. 267

247 Administration of the Olenetz Mining District.—Six-inch projectile with zinc covering. 267

248 Zlatoust Crown Armor Factory, Government of Orenburg.—Damascus swords, blades, daggers, and knives. 267

249 Hodjiaieff, Karapat, St. Petersburg.—Asitic daggers. 268

250 Yachimek, John, & Sosnowski, Jacob, Warsaw.—Double-barreled gun. 269

Medicine, Surgery, Prothesis.

251 Schmidt, Dr. von, St. Petersburg.—Guaco plaster. 272

252 Matteissen, Nicolas, Moscow.—Vegetable and animal products in medicine. 272

253 Pik. Jacob, Warsaw.—Surgical instruments. 272

254 Ebermann, Alexander, St. Petersburg.—Urethrotome (exhibitor's system). 276

255 Crown Surgical Instrument Manufactory, St. Petersburg.—Set of surgical instruments (special purpose). 276

256 Wywodzeff, St. Petersburg.—Apparatus for embalming. 276

257 Bauch, Charles, St. Petersburg.—Artificial teeth, teeth and palate; apparatus for stummebers. 277

258 Finkheim, William, Revel.—Artificial teeth, appliances for deformities of teeth and palate; apparatus for stummebers. 277

259 Majewski, T., Warsaw.—Odontalgie drops. 277

260 Bernardo, Berkmeier, Dr. L., Moscow.—Collection of artificial teeth and jaws. 277

261 Ivanoff, Timothy, Moscow.—Portable hospital couch (photographic copy). 278

262 Lilpop, Rau, & Loevenstein, Warsaw.—Steps for hospital wagon and springs for litter. 278

Hardware, Edge Tools, Cutlery, and Metallic Products.

263 Zavialoff, Alexis, Vorosma Government of Nijni-Novgorod.—Knives, pen-knives, and scissors. 261

264 Russian Rail Manufacturing Co., Government of Riazan, District of Pronsck.—Iron and steel sewing and knitting needles. 261

265 Kondratoff, Demetrius, Vatcha, Government of Vladimir, District of Moorm.—Knives and pen-knives. 281

266 Kaliakin, John, & Sons, Pavlovo, Government of Nijni-Novgorod.—Knives and pen-knives. 261

267 Kozzmin, T., Tooia.—Cutlery, knives, and scissors. 261

268 Benkofski, Albert, Warsaw.—Cutlery (knives, pen-knives, scissors, etc). 261

269 Tarassoff, John, Novania, Government of Moscow, District of Bogorodsk.—Embossed brass images (iron) and crosses. 263

270 Sossoolinikoff, John, Nijni-Novgorod.—Brass crosses. 263

271 Fedoroff, John, Zagarje Government of Moscow, District of Bogorodsk.—Silvered tureens and brass hand-wash basin. 253

272 Kataloff, Basil, Krooppino, Government of Moscow, District of Bogorodsk.—Brassware. 263

273 Elaghin, Constantine, Moscow.—Brass ornamental castings. 263

274 Salobanoff, D. A., Nijni-Novgorod.—Embossed brass images and crosses. 263

275 Naomoff, Basil, Krooppino, Government of Moscow, District of Bogorodsk.—Bronze candlesticks. 283

276 Yeffrio, St. Petersburg.—Gasalier of forged iron. 264

277 Bessonoff Bros., Moscow.—Brass and iron hardware, bolts, etc. 264

278 Starr & Co., Riga.—Wire tare and square nails. 265

279 Hantke, Bernard, Warsaw.—Hardware, wire tare, railway ties, telegraphic fittings, chains, etc. 284

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
DEPT. II.—MANUFACTURES.

Rubber, Wooden, Basket, Paper Ware, Harness.

Fabrics of Vegetable, Animal, or Mineral Materials.

280 Russian American India-Rubber Co., St. Petersburg.—India-rubber goods, golashes, waterproofs, fire-engine hose, belts, etc. 285

281 Nemiloff, Clement, Ryeff, Government of Twer.—Hemp yarn. 287

282 Herczinski, W. Opolye, Government of Lublin, District of Nova Alexandria.—Cordage. 287

283 Nemiloff, Clement, Ryeff, Government of Twer.—Hemp, rope, and bolt rope yarns. 287

284 Fedoroff, John, Moscow.—Lime-tree bast hampers, samples of same material. 289

285 Booroff, S., Moscow.—Articles turned in wood. 289

286 Skorniakoff, E., Yanoslav.—Articles turned in wood. 289

287 Serebrenikoff, Sergius, Nijni-Novgorod.—Painted wooden tureens and utensils for house. 289

288 Molchanoff, Vladimir, Nijni-Novgorod, Vologda, and Sergievski, Passad, near Moscow.—Wooden tureens and household articles. 289

289 Beliaieff, George, Fastavo, near Moscow.—Albums, papier-maché. 289

290 Safoonoff, S. A., Sergievsky, Passad, Government of Moscow.—Toys carved in wood. 289

292 Mikhaeloff, Mrs., St. Petersburg.—Ornamental wooden tureens and spoons. 289

293 Mikhaeloff, Basil, Kretzky, Government of Novgorod.—Painted wooden household utensils. 289

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Established 1780.

BATES, WALKER & CO.,
DALE HALL, BURSLEM, STAFFORDSHIRE, ENGLAND,
MANUFACTURERS OF

EARTHENWARE.

AGENCIES AND SHOW ROOMS:

PHILADELPHIA: 407 Arch Street.
NEW YORK: 58 Barclay Street.
MONTREAL: 346 and 348 St. Paul's Street.

LONDON: 30 Holborn.
PARIS: 3 Rue Bieue.
BERLIN: Oranienburgerstrasse 75.


A. S. TOMKINSON, AGENT,
407 ARCH STREET.

THE WATCOMBE TERRA COTTA CO., LIMITED,
ST. MARY'S CHURCH, TORQUAY, DEVON, ENGLAND,
AND 202 OXFORD STREET, LONDON,
Manufacturers of a select assortment of Works of Art, Ornamental Vases, and other productions in Terra Cotta, suitable for Drawing and Dining-room Ornaments, and for general use.

Besides general Pottery and Fine Art Ware, the Company manufacture Architectural and Horticultural Terra Cotta.

A. S. TOMKINSON, Agent,
407 ARCH STREET.

JAMES EDWARDS & SON,
DALE HALL POTTERY, BURSLEM, STAFFORDSHIRE, ENGLAND,
Manufacturers of Electrical, Chemical, Galvanic, and Photographic Apparatus. Also, White Granite and Decorated Dinner, Tea, and Toilet Ware, suitable for the American Market.

SAM'L QUINCY & CO., Sole Agents, 58 Barclay St., New York.
A. S. TOMKINSON, 407 Arch Street, Philadelphia.

A. S. TOMKINSON,
407 Arch Street, PHILADELPHIA,
IMPORTER AND MANUFACTURERS' AGENT FOR
ENGLISH CHINA and EARTHENWARE,
AND AMERICAN GLASSWARE.
THE SUN NEWSPAPER

Is printed and published every day in the year, at 166, 168, and 170 Nassau Street, New York City. Its regular edition on secular days now (April, 1876) averages about 140,000; its weekly edition over $85,000; and its Sunday issue is nearly 100,000. It thus prints and sells more than a million copies a week, which are read all over the United States. This is a circulation unprecedented in American journalism, and it is constantly on the increase. In proof of this, let the following figures testify. They show the number of copies of The Sun printed every week during the year ending March 11, 1876.

<table>
<thead>
<tr>
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In printing these papers, no less than three million four hundred and twenty-six thousand six hundred and ten (3,426,610) pounds of paper were consumed.

ADVERTISING RATES.

DAILY AND SUNDAY, 40 cents a line, ordinary advertising; large type, 80 cents; and preferred positions, 50 cents to $2.50, according to classification.

WEEKLY, 50 cents a line; no extra charge for large type. Preferred positions, from 75 cents to $2.00.

SUBSCRIPTION RATES.

DAILY (4 pages), by mail, 55c. a month, or $6.50 a year, postpaid; with Sunday edition, $7.70.

SUNDAY (8 pages), $1.20 per year, postpaid.

WEEKLY (8 pages), $1.20 per year, postpaid.

Address, THE SUN, New York.
Education Systems, Methods, and Libraries.


2. New York Institution for the Blind, New York, N. Y.—Maps, mathematical apparatus, books, tablet for tangible writing and musical notation. (South Gallery.)


3. Smith, J. L., Map Publisher & Manufacturer, No. 27 South Sixth Street, Philadelphia.—Wall maps, pocket maps, atlases, guide books, globes. A large assortment of plain and mounted drawing-paper, all widths and lengths, and prepared to order; map cases and spring map rollers, hold four to sixteen large maps. 1st, for economy of space; 2d, they preserve the maps; 3d, they do not get out of order; 4th, they work easily. See circulars. T 74.

3a. Shepherd, Henry E., Superintendent of Public Instruction, Baltimore, Md.—Book-case (as prescribed), examination work, drawings, school furniture. (South Gallery.)


5a. Doyle Bros., Bangor, Me.—School desk and folding seat. W 53.


7a. Boothby, Chas. W., New Orleans, La.—Bound manuscript and album of drawings. (South Gallery.)


9a. Roos, Peter, Boston, Mass.—Drawings. (East Gallery.)

10. Steiger, E., 22 & 24 Frankfort street, New York, N. Y.

a. Kindergarten material, kindergarten books.

b. Ahn-Henn’s series of German and French school books for Americans, with reading charts, readers, and keys; German school books for Germans in America; automatic tellurian and school clock combined; Schedler’s terrestrial and celestial globes, of from three to twenty inches diameter, costing from $1.50 to $175 each, altogether sixty different numbers; Schedler’s relief maps. T 73 to 78.


10d. Ingham University, Le Roy, N. Y.—Paintings and crayons. T 46.


a. Text books and wall maps for schools.

b. Illustrated works.

11a. Adams, S. C., Cincinnati, O.—Illustrated map of the world’s history. T 73.

11b. Whitall, Henry, Philadelphia, Pa.—Movable planispheres of the heavens, astronomical indicator. (South Gallery.)


a. Outline wall maps.

b. Normal school books.

c. Publications of five generations of Sower family.


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
13. Massachusetts Institute of Technology, Boston, Mass.—Students' work, drawings, designs, note-books, theses, published memoirs, models, apparatus, inventions, metallurgical products, etc. (East Gallery.)

14. Stevens Institute of Technology, Hoboken, N. J.—A school of mechanical engineering. Course, four years in mathematics, physics, chemistry, mechanical drawing, mechanical engineering, French, German, and belles-lettres, with extensive laboratories, workshops, drawing-rooms, etc. Exhibit consists of instruments of measurement and for illustration, exhibiting methods of instruction. Designs of machinery made by students, and finished machines and instruments actually constructed by students; these illustrating the results of instruction. Lastly, results of original investigations carried out by members of the faculty. Illustrated catalogues sent on application. T. 67. 302

14a. Cooper Union Evening School of Science and Art, New York, N. Y.—Collection of drawings. T 46. 302

15. Hampton Normal & Agricultural Institute, Hampton, Va.—Views, oil paintings, ground plan of building and of experimental farm; photographs of building and of students, examination papers. (South Gallery.)

15a. Meyer, Louis, Philadelphia, Pa.—Sheet music and music books. T 73 to 75. 302

15b. American Printing House for the Blind, Louisville, Ky.—Books and apparatus for the blind, reports. (South Gallery.)


Reports and works of Indiana authors. Drawings from schools. "Indiana School Journal," plans of buildings, maps of cities, school blanks, etc.

Herbarium and botanical specimens prepared by pupils of schools at Bedford and Indianapolis.

Scientific apparatus from Terre Haute.


Electrical apparatus for weighing under glass, invented by Prof. H. W. Wiley, Purdue University.

Chemical products by pupils of Purdue University.

Indiana fishes, prepared by Prof. Cope, of Indianapolis High School.

Zoological specimens, prepared by pupils of Indianapolis High School.

Photographs of the Institute of Huntington county, by pupils of Huntington city schools.

Drawings from Fort Wayne, Indianapolis, and La Fayette schools.

Photographed blackboard work, specimens of penmanship and written music from Indianapolis schools.

School law of the State, condensed. Photographed blackboard work from La Fayette, Fort Wayne, and Terre Haute schools.

Photographs of prominent educators.

Primary work of Indianapolis and Fort Wayne schools.

Buildings of Ward and High School buildings at Indianapolis, Fort Wayne, Evansville, Muncie, Terre Haute, and La Fayette.

Model of log school house, the first built in Delaware county, Indiana.

Charts, exhibiting school system and its growth, and the college system of the State.

Banners, exhibiting school system, statistics, distribution of school houses, and the growth of the system in twenty years by semi-decades.

Banners showing Purdue, Asbury, and State Universities, Wabash, Union, Christian, and Eastham Colleges.

Banners showing State and Northern Indiana normal schools, and Indianapolis and Huntington city systems. (South Gallery.)

17. State of Michigan (F. W. Noble, Secretary, Detroit, Mich.).—Michigan school system, its history, statistics, plans, elevations, interior views, and students' work in public, primary, graded, and high schools, universities, and colleges. Rare birds and marine and land animals from museum of Michigan University. (South Gallery.)

18. State of Wisconsin Educational Department (by Edward Searing, Superintendent of Public Instruction).—Students' work, photographs of school buildings, educational map, books, etc. (South Gallery.)

19. Educational Exhibit of Ohio (by Charles S. Smart, State Commissioner of Common Schools).—History of educational effort and progress in Ohio; local histories of colleges, universities, private and technical schools, city, town, and village schools, giving rise and development of graded school system, etc.; manuscripts of students' work, including drawing, perspective, arithmetic, English, German, French, English composition, geography, natural sciences, music, high school branches, etc.; graphic illustrations of school statistics and progress; photographs and lithographs of school and college grounds and buildings; reports of city schools for year ending 1875, and of State Commissioner of Common Schools from 1857 to 1875 inclusive; catalogues of colleges and technical schools; reports of benevolent institutions; centennial contribution from the pioneer association of Athens county, Ohio. (South Gallery.)

19a. University of Nebraska.—Photographs of building, etc. (South Gallery.)

20. State of Rhode Island Board of Education, Providence, R. I. (by T. B. Stockwell, Commissioner of Public Schools).—General history of education in the State; full set of State school reports; common school manual; annual reports for 1875 from the various cities and towns; documents relating to Brown University; history of Rhode Island Institute of Instruction; catalogues of State Normal School and Mowry & Goff's School; set of State and Newport school blanks; file For location of objects, indicated by letter and figure, see Key to Notation, p. 75; ground plan, p. 26.
of the Rhode Island "Schoolmaster:'; statistical chart; school map of State and cities of Providence and Newport; course of study for State Normal School.

Providence public schools—Examination from grammar and high schools, map and free hand drawing, design from that copy, industrial drawings and crayon portraits, Wariner's Commercial College—Drawings and penmanship; writing specimen from primary, intermediate, grammar, and high schools, with map and free hand drawing and designs from Newport, Westerly, Woonsocket, Coventry, War- 

21 State of New Hampshire, Department of Public Instruction (by John W. Simonds, State Superintendent, Franklin, N.H.).—Kindergarten school—Specimens of kindergarten work. Public schools—Statutes covered with work of primary pupils; specimens of scholars' written work, and examinations, compositions, draw-

22 State of Connecticut Educational Department (by E. G. Northrop, Secretary, Hartford, Conn.).—Work by scholars and Chinese students; photographs of school houses; works by former members of Yale College. (South Gallery.)

24 State of Maine, Educational Department (by Warren Johnson, State Superintend- 

25 State of Iowa, Educational Department (by Alonzo Abernethy, Des Moines).—Collective exhibit of the public schools of Davenport, Des Moines, Atlantic, Mus- catic, Ottumwa, Marengo, Boone, Si-

26 State of Maryland Educational Ex-
hbit. (T 38 and South Gallery.)

26 State of Tennessee Educational Department, collective exhibit. Trousdale, Leon, State Superintendent of Schools, Nashville, Tenn.—Reports and school banner.

27 State of Illinois, Department of Public Instruction (by S. M. Ettter, Super-

28 State of New York, Department of Education (by E. B. Washburn, Secretary, Albany).—Examination from grammar and high schools, map and free hand drawing, design from that copy, industrial drawings and crayon portraits, State Normal School—Drawings and penmanship; writing specimen from primary, intermediate, grammar, and high schools, with map and free hand drawing and designs from Woonsocket, Coventry, and Smithfield public schools.

Perspective views of new library of Brown University and Woonsocket new high school, with plans and specifications; plans of some of the school buildings in Providence; views of Rhode Island State Normal School (study hall), Friends' Boarding School, and intermediate school of Providence; views of school houses of Tiverton, Bristol, Newport, and Woon-socket. 

State volumes of photographs, Brown University, 1876; school furniture from E. M. Thurston, Providence; blackboard from H. H. Burrinton, Providence; book holders from J. S. & C. N. Brown, Providence. (South Gallery.)

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26 State of Tennessee Educational Department, collective exhibit. Trousdale, Leon, State Superintendent of Schools, Nashville, Tenn.—Reports and school banner.

27 State of Illinois, Department of Public Instruction (by S. M. Ettter, Super-
Nashville, Tenn.—Examination manuscripts, drawings, school banner, and annual reports.
Perkins, W. H., Principal Peabody Graded School, Powell's Station, Tenn.—Examination manuscripts of classes D and C, second grade.

Tennessee Medical Society, Nashville, Tenn.—Transactions of the session 1845—Lindley, J. Berrian, Nashville, Tenn.—Life and works of Philip Lindley.
Giers, C. C., Nashville, Tenn.—Photographs of educators. (South Gallery): 304

27 Commonwealth of Massachusetts,
Department of Education and Science. DRAWING AND MODELING.—Industrial, mechanical, and free hand; from the public day, evening, and Normal Art School; from the Massachusetts Institute of Technology, the Worcester Free Institute, and Boston Art Academy, nearly one thousand exhibits.

The Massachusetts System of Art Instruction for industrial, free hand, mechanical, and other drawing; designs of various kinds, models, and text books for schools and advanced study in drawing, designing, and modeling. Prepared by Butler Smith, published by L. Prang & Co.; exhibited in twenty-eight text books, over three hundred and thirty-eight studies, forty-seven models, and fifty-seven casts.

PHOTOGRAPHS.—Universities, Colleges, and Technical Schools: Howard University, Bussey Institute, Williams College, Amherst College, Tufts's College, Boston College, College of the Holy Cross, Museum of Comparative Zoology, Massachusetts Institute of Technology, and Worcester Free Institute.

Women's Colleges: Mt. Holyoke, Wellesley, and Smith, Clarke's Articulating School for the Deaf.

Normal Schools: Bridgewater, Framingham, Westfield, Salem, and Worcester (interiors and exteriors).

School houses: Primary, grammar, high, and central schools of Boston, New Bedford, Greenfield, Salem, and other towns.

Harvard University, represented by photographs, catalogues, and courses of study.

Williams College, by photographs, catalogues, text books, and publications of its presidents and professors.

Amherst College, by photographs, catalogues, text books, history, and student life at Amherst.

Tufts's College, by photographs, text books, and catalogues; from the scientific department, instruments for the projection of Lissajous' curves, and the epiptode, by Prof. Dolbear.

Boston University, by year-books.

Boston College, by photographs and catalogues.

College of the Holy Cross: Photograph and historical sketch.
Mt. Holyoke Seminary: Photographs, water colors, catalogues, reports, documents, and history, memoir of Miss Lyon, first principal.

Wellesley College: Photographs, water colors, and drawings of buildings and interiors, circulars, pamphlet of history, and sketch.

Smith's College: Photographs, water colors, ground and other plans, history, and pamphlets.

Museum of Comparative Zoology: drawings, illustrated catalogues, bulletins, and reports, bust of Prof. Agassiz, contributions to natural history of the United States.

Massachusetts Institute of Technology: Photographs, documents, and students' works, as follows: drawings and original designs in civil and mechanical engineering; architectural; physical, metallurgical, mining, and surveying apparatus; results of physical experiments; models of engineering structures; silver and lead extracted from the ore; tablet of the metric system; several essays by graduates in civil, mechanical, and mining engineering, architecture, chemistry, metallurgy, natural history, physics, science, and literature and philosophy; designs for various textile fabrics, oil-cloths, porcelain decorations, etc., by students of the Lowell Free Course of Practical Design.

Worcester Free Institute: Drawings and photographs, plan of study and discipline, students' work exhibited in examination papers, drawings, designs, physical apparatus and models.

Theological Institution, Andover: Memorial catalogues, etc.

Clark's Institution for the Deaf, Northampton: Photographic history, and system of teaching by articulation and lip-reading, annual reports; system of visible speech, by A. Graham Bell.

Perkins' Institution for the Blind: Specimens of books printed at the asylum; work of pupils; Dr. Howe's reports.

Nathanial Bowditch: Bust and works.

定价 Mann: Portrait, life, lectures, and reports.

Collective Exhibits: From Boston, New Bedford, and Greenfield, illustrating the system of public instruction in the large and small cities and towns, including text books, reference books, and apparatus: text books used in Tufts's College, Williams, and Amherst, in the public schools of Boston, New Bedford, Greenfield; text books used in different cities and towns of the State.

Pupils' Work.—From primary, grammar, and high schools, in two hundred and sixty bound volumes and on seventy-two slates; specimens of sewing from grammar schools, in six portfolios; desk-mat, primary department, Graton.

Public Libraries. Boston Public Library: Seventeen bound volumes, history, catalogues, administration, monthly and quarterly reports.

Catalogues and photographs of libraries in Salem, Springfield, Lynn, Concord, and other towns.

Reports.—Complete set of reports of State Board of Education, from 1857 to 1865, bound in twenty-nine volumes.

Complete set of annual school reports for 1875, from eighteen cities and three hundred and forty-four towns, in twelve volumes.

Annual State Reports for 1875.—Board of Education, Board of State Charities, Board of Health, Bureau of Labor Statistics, Registration of Births and Deaths, State Librarian, Board of Agriculture, Treasurer, Adjutant-General, Auditor, Annual Returns of Corporations, Trustees of the Perkins Institution for the Blind, Trustees of the School for Idiotic and Feeble-Minded Children, Commission-
ers of Railroads, Commissioners of Harbors, Commissioners of Insurance, Commissioners of Taxes, Commissioners of Banks, Commissioners of State Prison, Inspectors of State Workhouse, Inspectors of State Almshouse, Inspectors of State Primary School, Inspectors of State Gas; Trustees Industrial School for Girls; Trustees State Reformatory School, Westboro; Trustees Lunatic Asylum; Trustees Lunatic Asylum, Northampton; Trustees Lunatic Asylum, Worcester; Trustees Lunatic Asylum, Danvers; Census of the State for 1875; Acts and Resolves for 1876; Public Documents, 1862 to 1874; Plymouth Colony and Massachusetts Bay Records; Decisions of Supreme Judicial Courts; Directories, city and county, from Sampson, Davison & Co., Greenough & Co., D. Dudley & Briggs; Publications and Text books, from Brewer & Tileston, G. & C. Merriam, Thompson, Brown & Co., School at & Model of R. S. Draper & Co.; W. F. Draper, Grinn Bros., Oliver Ditson. Publications of Societies: Natural History, Numismatic, Historic, Genealogical, Medical, Improvements. Reports of associations, organizations, towns, public libraries, etc.; Psycho Advertiser of Entomology. Periodical Literature: A copy of every newspaper and periodical published in Massachusetts in 1876, bound in eleven volumes; New England Journal of Education for 1875 and 1876. American Academy of Arts and Sciences: Proceedings, memoirs, and other works, thirty-four volumes. Essex Institute: Full set of works; American Naturalist, nine volumes. Peabody Academy of Science: Two volumes; complete set of Asa Gray’s works; scientific, educational, and miscellaneous publications by Massachusetts authors; photographs and autographs of some of the living authors of Massachusetts; a series of astronomical drawings (thirty-four), from the physical observations of L. Trouvelot, Cambridge; painted drawings from actual telescopic observations requiring ten years for their preparation, representing most interesting objects in astronomy, as comets, clusters, nebulae, meteors, solar spots and protuberances, eclipses of planets, comets, planets, zodiacal light, aurora borealis, etc. Reports specially prepared for this exhibit.—American Board of Commissioners for Foreign Missions; College of the Holy Cross; Boston College, 1874-1876; Clarke Institute for the Deaf; Mount Holyoke Seminary; Wellesley College; Smith College; Worcester Free Institute; Worcester Academy; Worcester Lyceum; Worcester Public Library; State Normal School, Bridgewater; State Normal School, Westfield; Publications Williams College, 1793-1876; Public Charities of Massachusetts, 1776-1876; Statistics of Schools, Greenfield; Statistics of High Schools, Pittsfield; Report of Grammar School, Pittsfield; Questions for Written Examinations, Worcester; Worcester Truant School; Worcester Productive Union; Worcester Coon, Country & Musical Association; Worcester Choral Union; Worcester Young Men’s Christian Association; Worcester Home for Aged Females; Worcester Children’s Friend Society; Massachusetts Temperance Alliance; New England Home for Women and Children; Temperance Home for Homeless Prisoners; Home for Little Wanderers; School for Pauper Boys; Industrial School for Girls, Dorchester; Caucasian Home for Women. Maps.—Educational, representing the universities, colleges, professional and technical institutions, academies, normal, high, grammar, primary, and ungraded schools, and public libraries in the State; geological, hypsometric, density of population, proportion of foreigners to native population, trades and occupations, land under cultivation, wealth, railroads, births, deaths, and marriages; Numucket historical and geographical map; Hoosac tunnel, large profile, twenty-three feet in length, with fifty-eight photographs; illustrated missionary map of the world, showing every station of the A. B. C. F. M.; globe, by E. C. Fitz. Architectural Illustrations of Insane Asylum at Danville, Worcester, and Northampton; New England Hospital for Women and Children, in Boston; Washingtonian Home, at Boston; Reformatory Prison for Women, at Stoughton; School for Neglected Children, at Deer Island (private); Institution for Feeble Minded Youth, at Barre; Warren Street Chapel, Boston; Abbeott, at Brighton. Distances by canoes.—Carving of canoe made from Washington’s elm, Cambridge; illustration and description of Mastodon giganticus; astronomical lantern, from J. F. Clarke; system of tachygraphy, by Eliza Linsley; specimen penmanship, by K. O. Herline; arithmetical cards, by Misses Faxon & Walcutt; tablet of metric system, J. P. Putnam, with pamphlet; natural history series and aids to object teaching, L. Prang & Co.; case containing two thousand crayons, Parminter & Walker, Waltham; reversible blackboard, by Zalimitt & Walker; table of weights, by A. Knight; method of teaching music, by Mrs. J. B. Paige and H. M. Tappan; stereoscope and stereoscopic views of public buildings of Boston; table of inter-station insurance tickets, by Elizar Wright; school furniture, from A. G. Whitcomb and W. O. Haskell & Son; combination desk and organ, George Woods & Co. Kindergarten: Inventions of children from four to six years of age; material for instruction, by Milton, Bradley, & Co. Micro-photographs by Dr. E. Cutter. Photographs of cities, libraries, high and other schools. Exhibit illustrating the interest, progress, and condition, by the Essex Institute, four tables and one hundred and twenty-eight photographs, charts, models, and books, from S. E. Warren. Society for the “Prevention of Cruelty to Dumb Animals,” with improved methods for their treatment, books, newspaper, tracts, etc. Photographs of specimens from Brown High School, Newburyport. (East Gallery.)

27a State of Minnesota, Educational Department.—Bound volumes of examination papers, maps, drawings, etc., from the public schools of St. Paul, L. M. Barrington, Superintendent of Public Schools; bound volumes of examination papers, maps, drawings, etc., from the public
Students' Work, Educational and General Publications.

326 DEPT. III.—EDUCATION AND SCIENCE.

schools of Minneapolis and Winona, O. V. Tousley, Superintendent; designs and plans for school buildings, exhibited by A. Langdon, Winona. (South Gallery.)

28 State of New Jersey, Department of Public Instruction (by Ellis A. Appar, Trenton, N. J.).—Work by school children, viz.: maps drawn from memory; mathematical operations; analysis and parsing; compositions; spelling; primary and miscellaneous work; artistic drawing in crayon, Indian ink, and lead pencil; mineral and natural history collections; mechanical contrivances; photographic views, exterior and interior of school-houses, and decennial exhibit of their improvements, showing condition in 1866 and 1876; kindergarten work; penmanship; history of schools in N. J.; New Jersey works written by alumni of Princeton and Rutgers Colleges, and photographic views of the same. (South Gallery.)

29 State of Pennsylvania.—Educational exhibit shown in Pennsylvania Educational Hall.

29a Peirce's Union Business College.—Exhibit noticed under special buildings. (Pennsylvania Educational Hall.)


31a Lockwood, George R., New York, N. Y.—Audubon's Birds of America and Birds and Quadrupeds of America. T. 75.

32 Porter & Coates, Philadelphia, Pa.—Books. T. 73 to 78.

32a Merriam, G. & C., Springfield, Mass.—Copies of Dr. Noah Webster's works. T. 72 to 78.


33a Methodist Book Concern, New York, N. Y.—Miscellaneous books, Bibles, and hymn-books, Sunday-school libraries, teachers' helps. T. 76.

34 Burley, S. W., Philadelphia, Pa.—Historical, descriptive, and statistical works. T. 73.

34a Marshall, B. F. jr., Mobile, Ala.—The accountant's vade mecum. T. 73 to 78.


35a Clark & Maynard, New York, N. Y.—Educational, Masonic, and miscellaneous works. T. 73 to 78.


36a Miller, James, New York, N. Y.—Books. T. 77.

37 Kohler, Ignatius, Philadelphia, Pa.—Publisher of German family bibles, theological, classical, and miscellaneous works, viz., Schiller's Works, German two editions, two volumes, and twelve volumes; Schiller's Works, English, complete in two volumes; Schiller's Poems, German-English, on opposite pages; German-English dictionaries, etc., etc. German classical, theological, and miscellaneous works. T. 73 to 78.

37a Gevin Bros., Boston, Mass.—Educational and other works. T. 77.


38a Peters, J. L., New York, N. Y.—Musical magazines, sheet music, etc. T. 73 to 78.


39a Hoyt, Henry, Boston, Mass.—Books. T. 77.


40a McLoUghlin Bros., New York, N. Y.—Toy books, games, etc. T. 73 to 78.

41 Ivison, Blakeman, Taylor, & Co., New York, N. Y.—School and college text-books; Spenciliar system of penmanship. T. 77.

41a Estes & Lauriat, Boston, Mass.—Books. T. 77.


42a Blodget, Lorin, Philadelphia, Pa.—Meteorological works and charts. T. 75.


43a Cook, E. A., & Co., Chicago, Ill.—Expositions of Freemasonry, etc. T. 73.


45 National Temperance Society, New York, N. Y.—Temperance books, tracts, pamphlets, papers, diagrams, etc. T. 76.

45a Harding, W. W., Philadelphia, Pa.—Bible commentaries, and photograph albums. T. 73.


46a Sherwood, George, & Co., Chicago, Ill.—Educational books. T. 73 to 78.


For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Books, Publications.


48 Swasey, J. N., Yonkers, N. Y.—Iconographic chart. P 52. 306

49 Kelly, Thomas, New York, N. Y.—Catholic prayer books and Bibles. T 77. 306

49 Atwood, John M., Philadelphia, Pa.—Map of North America. T 73. 306

50 Sheldon & Co., New York, N. Y.—School and college text-books; theological, religious, miscellaneous, and juvenile books; 'Gala'y magazine. T 77. 306

50 Dewey, D. M., Rochester, N. Y.—Plates of ornamental trees, fruits, and flowers of America. T 73 to 78. 306


51 Townsend, G. W., Philadelphia, Pa.—Napoleon question slips, for educational use, and the greatest good to the greatest number. For sale by Claxton, Remsen & Haffelfinger, Philadelphia, Pa, in packages, fifty cents and one dollar. T 73. 306


52 Virtue & Vorston, New York, N. Y.—


53 United States Publishing Co., New York, N. Y.—Our First Hundred Years, and other books. T 73. 306

54 Orange Judd Co., New York, N. Y.—'American Agriculturist' and rural books. T 73. 306

55 American Sunday-School Union, Philadelphia, Pa.—Evangelical publications for Sunday-schools and families. T 73. 306

55 Goodrich, D. W., New York, N. Y.—Books and calendars. T 73. 306


57 Gebbie & Barrie, Philadelphia, Pa.—Fine art publications. N 71. 306

58 Roberts, Rev. H. Floy, Williamsburg, N. Y.—Manuscript interlinear New Testament; the original Greek text, verbally translated, compared with our English version. T 73. 306

59 Asher & Adams, New York, N. Y.—Pictorial album, atlases, maps, and specimens of printing. T 73. 306

60 American Bible Society, New York, N. Y.—Bibles in ancient and modern languages and various bindings. T 75. 306


62 Griffiths, John W., New York, N. Y.—Works on ship building. T 76. 306

62 Michels, Ivan C., New York, N. Y.—Book containing the Lord's Prayer in five hundred languages; work of great research, comprising the labor of twenty-three years. T 75. 306


66 Rice, D., & Co., Philadelphia, Pa.—McKenney's Indian Tribes of North America, one hundred and twenty illustrations (government edition), folio, three volumes; Michaut & Nutall's Syva, two hundred and seventy-seven illustrations, five volumes; National Portrait Gallery of Distinguished Americans, one hundred and fifty illustrations, three volumes. 75. 306

67 Brewer & Tileston, Boston, Mass.—Worcester's dictionaries, arithmetics, histories, etc. T 76. 306

68 University Publishing Co., New York, N. Y.—School books; Murray's geographies and wall maps; Venable's mathematics; Holmes's readers, United States history and grammars; Gilder-sewe's Latin books; Carter's general history, etc. T 77.

69 Houghton, H. O., & Co., Riverside Press, Cambridge, Mass.; Hurd & Houghton, New York, N. Y.—Specimens of fine book printing, selected from their own publications and books printed for others; among them, Lord Bacon's Works, five copies only, printed on India paper; Notes on Columbus; and the Bibliotheca Americana, being the catalogue of the library of the late John Carter Brown of Providence. Also framed specimens of plain and colored lithographic printing, designed and printed at the Riverside Printery, among them Longfellow's portrait, drawn by Baker, issued only with the Atlantic Monthly. (On the Invasion of the American Book Trade Association.) T 72. 306

70 Masonic Publishing Co., New York, N. Y.—Masonic books and publications. T 73. 306

71 Wells, S. R., & Co., New York, N. Y.—Phenological books and specimens, including busts and paintings, miscellaneous publications. T 77. 306

72 Scribner, Armstrong & Co., New York, N. Y.—Books, maps, etc. T 77. 306

73 American Tract Society, New York, N. Y.—Books, tracts, periodicals, wood engravings, teachers' Bibles, etc. T 76. 306

74 Sabin, J., & Sons, New York, N. Y.—Dictionary of books relating to America. T 73. 306

75 Leyboldt, F., New York, N. Y.—Publishers' Weekly, Trade List Annual, and other trade publications. T 75. 306

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 77-45.
### Books, Publications, Archeological Collections.

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>77</td>
<td>Lindsay &amp; Blakiston, Philadelphia, Pa.—Medical, dental, and scientific books; physicians' visiting list.</td>
<td></td>
<td>T 73.</td>
</tr>
<tr>
<td>79</td>
<td>Lee &amp; Shepard, Boston, Mass.—Books.</td>
<td></td>
<td>T 73 to 78.</td>
</tr>
<tr>
<td>82</td>
<td>Seventh Day Adventist Publishing Association, Battle Creek, Mich.—</td>
<td></td>
<td>Periodicals, books, and tracts.</td>
</tr>
<tr>
<td>83</td>
<td>Knapp, Albert E., Poulteny, Vt.—Pictorial family Bible and continuous geological family record, for photographs and autographs of heads of families for successive generations.</td>
<td></td>
<td>T 73.</td>
</tr>
<tr>
<td>85</td>
<td>Miller's Bible &amp; Publishing House, Philadelphia, Pa.—Bound Bibles and other books.</td>
<td></td>
<td>T 73.</td>
</tr>
<tr>
<td>86</td>
<td>Dick &amp; Fitzgerald, New York, N. Y.—Dick's Encyclopedia, books of popular information, etc.</td>
<td></td>
<td>T 77.</td>
</tr>
<tr>
<td>90</td>
<td>Gill, Wm. F., &amp; Co., Boston, Mass.—Monument device of books, in the form of Bunker Hill monument.</td>
<td></td>
<td>T 74. 3-6</td>
</tr>
</tbody>
</table>

### Institutions and Organizations.

<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>91</td>
<td>Burleigh, J. B., Philadelphia, Pa.—Indian relics, illustrating the pre-historic age of the western continent.</td>
<td></td>
<td>T 57.</td>
</tr>
<tr>
<td>91a</td>
<td>Allen, Geo. W., St. Louis, Mo.—Archaeological specimens from the ancient mounds of Missouri.</td>
<td></td>
<td>T 63.</td>
</tr>
<tr>
<td>91b</td>
<td>Sloan, W. B., Port Clinton, O.—Flint and stone implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91c</td>
<td>Read, A. N., Norwalk, O.—Stone implements.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91d</td>
<td>Cutler, C., Hudson, O.—Flint, stone, and iron implements.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91e</td>
<td>Kelley, Gustavus, Kelso's Island, O.—Flint and stone implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91f</td>
<td>Paul, Daniel, Martinsburg, O.—Flint and stone implements.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91g</td>
<td>Fireland Historical Society, Norwalk, O.—Stone and flint implements and ornaments, pottery, etc.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91h</td>
<td>Agricultural College of Ohio, Columbus, O.—Copper and stone implements, etc.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91i</td>
<td>Archæological Society of Ohio, Columbus, O.—A map showing the location of ancient earthworks in the State.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91j</td>
<td>Western Reserve College, Hudson, O.—Copper implements, stone pipes, hammers, etc.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91k</td>
<td>Force, W. F., Cincinnati, O.—Copper implements of the mound builders.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91l</td>
<td>Neff, Peter, Gambier, O.— Implements of stone and flint.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91m</td>
<td>Bucktel College, Akron, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 61.</td>
</tr>
<tr>
<td>91n</td>
<td>Mt. Union College, Alliance, O.—Flint implements and weapons, pests and mortars, slingstones, pipes.</td>
<td></td>
<td>V 61.</td>
</tr>
<tr>
<td>91o</td>
<td>Matson, John S. B., Shelby, O.—Mound implements, ornaments, etc.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91q</td>
<td>Gabriel, Peter J., Perry, Me.—Implements, ornaments, and utensils used by the Passamaquody Indians; weapons, costumes, house implements, and books.</td>
<td></td>
<td>P. 65.</td>
</tr>
<tr>
<td>91r</td>
<td>Kenney, T. Mc., Portsmouth, O.—Stone relics, hammers, rollers, pests, chisels, plates, pendants and other ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91t</td>
<td>Judge, J. F., Cincinnati, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91u</td>
<td>Morgan, M. C., Urbana, O.—Stone and flint implements.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91v</td>
<td>Bartlett, C. L., Ravenna, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 61.</td>
</tr>
<tr>
<td>91w</td>
<td>Munday, Gilbert, Montezuma, O.—Stone implements.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91x</td>
<td>Ashtabula County Historical Society, Ashtabula, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91z</td>
<td>Beard, John, Attica, O.—Flint and stone implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91a</td>
<td>Bennett, H., Putnam, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91c</td>
<td>Schroyer, J. C., Cincinnati, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
<tr>
<td>91d</td>
<td>Byrnes, L. M., Cincinnati, O.—Stone and flint implements and ornaments.</td>
<td></td>
<td>V 63.</td>
</tr>
</tbody>
</table>

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Archaeological Collections, Scientific Instruments.

92a Cleeney, Thomas, Cincinnati, O.—Stone implements and pottery. V 63. 312

92b Diugue, Florien, Cincinnati, O.—Flint, stone, shell, and bone implements and ornaments. V 63. 312

92c Mercer, R. W., Cincinnati, O.—Pottery from mounds of Ohio. V 63. 312

92d Hill, H. H., Cincinnati, O.—Flint, stone, bone, and copper implements and ornaments, pottery, etc. V 63. 312

92e Hosea, L. M., Cincinnati, O.—Flint and stone implements and ornaments, pottery, etc. V 63. 312

92f Simerell, C. B., Cincinnati, O.—Flint, stone, shell, and bone implements and ornaments. V 63. 312

92g Hawley, R. E., Cleveland, O.—Flint and stone implements and ornaments. V 63. 312

92h Freeman, L. R., Cincinnati, O.—Pottery, stone, and flint implements and ornaments. V 63. 312

92i Johnson, J. M., Mt Union, O.—Stone implements and ornaments. V 63. 312

92j Larkins, John F., West Mansfield, O.—Stone implements. V 63. 312

92k Smucker, Isaac, Newark, O.—Flint and stone implements and ornaments, casts and photographs. V 63. 312

92l Read, M. C., Hudson, O.—Flint and stone implements and ornaments, casts and photographs. V 63. 312

92m Chase, G. W., Newark, O.—Photographs and drawings of mounds, stone images and implements. V 63. 312

92n Zane, Carbon, Mifflin, O.—Stone and flint implements. V 63. 312

93a State Archaeological Association of Ohio.—Relics of pre-historic races and Indians of Ohio. V 63. 312

93b Dickeson, M. W., Philadelphia, Pa.—Mound relics. T 68. 312

93c Western Reserve Historical Society, Cleveland, O.—Relics of Indians and pre-historic races of Ohio. V 61. 312

93d Anderson, Marshall, Circleville, O.—Flint and stone implements, etc. V 63. 312

Scientific and Philosophical Instruments and Methods.

94 Kuebler, Wm., Philadelphia, Pa.—Surveyors’ and engineers’ instruments; mining transit. N 60. 320

94a Wilder, Charles, Peterborough, N. H.—Thermometers and portable barometers. N 78. 320

95 Kuhnel, Paul, New York, N. Y.—Terrestrial and celestial planisphere globe. N 56. 320

96 Ritchie, E. S., & Sons, Boston, Mass.—Philosophical and nautical instruments. N 57. 320

96b Bianck, G., New York, N. Y.—Parallel rule. N 54. 320

97 Keuffel & Esser, New York, N. Y.—Drawing instruments, models, and machinery for scientific schools. N 57. 320

98a Rogers, Wm. A., Assistant, Harvard College Observatory, Cambridge, Mass.—Automatic machines for ruling microscopic lines on glass or metals; for gridding and polishing ruling diamonds; for polishing parallel surfaces on glass; for dividing any unit into equal parts; microscope, specimens of diamond and etched rulings on glass, and water motor. N 55. 320

98b Allen, Horatio, South Orange, N. J.—Astronomical instruments. P 76. 320

99 Clum, H. A., Elmira, New York, N. Y.—Photograph or storm writer for pre-determining storms. N 60. 32

99a Leete, Isaac P., Branford, Conn.—Atomizer and vaporizer. N 70. 320

100 Muller’s Sons, Nicholas, New York, N. Y.—Thermometers. P 76. 320

101 Benjamin, E. B., New York, N. Y.—Chemical glass and porcelain ware; rare chemical and assaying instruments; tools for blow pipiing; students’ sets; Geissler tubes and physical apparatus. N 55. 320


103 Lowe, N. M., Boston, Mass.—Terrestrial orrery; graphic hygrometer. N 55. 320

105 Prentice, James, New York, N. Y.—Engineers’ and surveyors’ instruments. N 58. 320

106 Heller & Brightley, Philadelphia, Pa.—Surveying, engineering, mathematical, optical, and astronomical instruments. N 59. 320

107 Alteneder, Theodore, Philadelphia, Pa.—Joint draughting instruments, protractors, triangles, and drawing scales. N 59. 320

108 Fauth, C. & Co., Washington, D. C.—Astronomical, geodetic, and scientific instruments; equatorial-universal alt-azimuth, theodolites, levels, etc. N 57. 320

109 Tarr, Henry S., & Son, Philadelphia, Pa.—Dry level; plumb and level combined. N 57. 320

110 Bahmann Bros., New York, N. Y.—Hydrometers, thermometers, and chemical glass instruments. N 58. 320

111 Schloterbeck, A. S., Portland, Maine. M 78. 320

112 Tagliabue, Giuseppe, New York, N. Y.—Recording barometer, thermometer, and rain gauge; pyrometers, milk tester, hydrometers. N 58. 320

113 Kroeidel, Franz, New York, N. Y.—Chromometer for surveying. (West Gallery.) 320

114 Knox & Shaw, Philadelphia, Pa.—N 57. 320
a Engineering instruments. 320
b Telegraph instruments. 326

115 Young’s, Wm. J., Sons, Philadelphia, Pa.—N 59. 320
a Astronomical circle, equatorial sextant, transits. 320
b Telescopes. 324

116 Riggs & Bro., Philadelphia, Pa.—N 59. 320
a Ships’ binnacles and logs. 320
b Watchmen’s clocks, balance springs for chronometers and watches. 323

117 Queen, Jas. W., & Co., Philadelphia, Pa.—N 59. 320
a Mathematical and drawing instruments and accessories for students and professional men. 320
b Microscopes. 324

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
   a Ships' logs, register fastened to taffrail; rotator attached and towed astern. 320
   b Marine chronometers, entirely American manufacture, with auxiliary compensa-
   tions; watchmakers' portable transit instruments, for obtaining correct time. 323
   a Philosophical instruments, mandrel-drawn tulas. 320
   b Green-house syringes; portable fire engine and garden pump. 720
   120 Watts & Co., Baltimore, Md.—N 61.
   a Scientific apparatus. 320
   b Electrical apparatus. 325
   121 Stewart, A., Philadelphia, Pa.—Fare controller and indicator; mechanical
   instruments. N 56. 321
   121a Pottin Register Manufacturing Co., Philadelphia, Pa.—Registers for car-
   rfences, billiards, and money drawers. P 57. 321
   122 Darling, Brown, & Sharpe, Providence, R. I.—Rules, try squares, wire
   gauges, and tools for accurate measurements. P 70. 322
   and steel. N 57. 322
   125 Weaver, Henry M., Mansfield, O.—Automatic balance scales. N 56. 322
   126 Juvet, L. P., Glen's Falls, N. Y.—Time globe. N 55. 323
   127 Tiffany & Co., New York, N. Y.—N 41. 327
   127a Hietel Bros., Philadelphia, Pa.—Spring lever for watch escapement. 323
       N 58.
   128 Elgin National Watch Co., Elgin, Ill.—Watch movements and materials. 323
       P 67.
   128a Galena Oil Works (limited), Franklin, Pa.—Oil well clocks. P 47. 323
   129 Seth Thomas Clock Co., Thom-
   aston, Conn.—Clocks. N 65. 323
   130 Hagstoz & Thorpe, Philadelphia, Pa.—Stiffened gold watch cases. 323
       P 43.
   131 American Watch Co., Waltham, Mass.—Watches and watch movements,
   gold and silver watch cases, watch mate-
   rials. P 67. 323
   132 Mehr, Geo., 1918 Hutchinson street, Philadelphia, Pa.—Patent sun dials
   made of marble, showing time of day, and distance of nineteen cities from Phila-
   delphia. (Outside.) 323
   133 Ithaca Calendar Clock Co., Ithaca, N. Y.—Perpetual calendar clock. N 66. 323
   135 Teske, Charles, Saratoga Springs, N. Y.—Watch regulator. N 56. 323
   136 Ansonia Brass & Copper Co., Ansonia, Conn.—Brass and nickel move-
   ment clocks. N 57. 323
   137 Speller, Louis H., Doylestown, Pa.—Regulator, with new mode of hang-
   ing the pendulum, and anchor pin escapement. N 55. 323
   138 Empire City Watch Co., Jersey City, N. J.—Watches, watch movements, and
   watch materials. N 55. 393
   139 Fasoldt, Charles, Albany, N. Y.—Astronomical tower clock. N 56. 393
   140 Eison, Julius, Boston, Mass.—Safety attachments and regulators for
   watches. N 56. 393
   141 Lapp, Fer.d., Detroit, Mich.—Carved black walnut clock case. N 56. 393
   142 Fortenbach & Sons, Carlstadt, N. J.—Silver watch cases. N 55. 393
   143 Paulus, E., Philadelphia, Pa.—Watches and clocks. N 55. 393
   144 Hummel, Alois, Baltimore, Md.—Musical clock. N 66. 393
   145 Robbins, Clark & Biddle, Phila-
   delphia, Pa.—Watches, clocks. N 43. 393
   146 Gropengiesser, Jno. L., Phila-
   delphia, Pa.—Astronomical clock. N 56. 393
   148 E. N. Welch Manufacturing Co., Forestville, Conn.—Clocks. N 65. 393
   150 Imhauser & Co., New York, N. Y.—Watchman's time detector. This
   watch clock, which is fastened at the
   watchman's belt, is supplied with twelve
   keys. In making his rounds, the watch-
   man inserts the keys in the watch, which will
   perfectly show his movements. N 56. 393
   151 Bacon, B. H., Philadelphia.—Lunar clock. N 56. 393
   153 Pequignot, C. & A., Philadelphia, Pa.—Watches and watch cases. N 63. 393
   154 Hahl, A., & Co., Baltimore, Md.—Electric clocks, bells, indicators, burglar
   alarms, tower clocks. N 63. 393
   156 Schenck, John H., New York, N. Y.—Illuminated clock, "phantasma-
   goria." N 66.
   157 Hill, J. W., Waterville, Kansas.—Clock that will run 100 years without
   winding, with a new escapement. With
   this escapement clocks can be made that will
   run the longest time, and with least
   machinery, and be perfectly accurate.
   (Kansas Building.) 393
   158 Wilson, T. A., & Co., Reading, Pa.—Steel spectacle and eyeglass frames;
   lenses for optical purposes. N 58. 324
   158a Black, L. &., Co., Detroit, Mich.—Spectacles and eye glasses. N 64. 324
   159 Zentmayer, Joseph, Philadelphia, Pa.—Microscopes and accessories. 324
       N 58.
   159a Beatty, George D., Baltimore, Md.—Microscopic slides, showing vegetable
   tissue. T s0. 324
   160 Bausch & Lomb Optical Co., Rochester, N. Y.—Optical instruments, N 55. 324
   161 Wales, W., Fort Lee, N. J.—Micro-
   scope object glasses, with back for photo-
   graphing; photomicrographs. N 58. 324

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 46.
Scientific and Philosophical Instruments.

162 Weiskopf, E., New York, N. Y.—Lenses for solar printing, lenses for magic lanterns, lenses and faryngoscopes and other microscopes; mirrors for eye, ear, and throat; instruments for dentists, and microscopes. N. 57. 324


164 Edgerton, N. H., Philadelphia, Pa.—Philosophical instruments, telescopes, microscopes, and spectacles; self-condensing gas cylinders. N. 58. 324

165 Diamond, J., Pittsburgh, Pa.—Spectacles and eyeglasses; Russian relay. N. 56. 324

166 Miller Bros., New York, N. Y.—Microscope and specimens. P. 47. 324

167 Walsley, W. H., Philadelphia, Pa.—Microscopic preparations. N. 55. 325

168 American Optical Co., Southbridge, Mass.—Spectacles and eyeglasses. N. 57. 324

169 Alle Lock Manufacturing Co., Stamford, Conn.—Anodes for nickel-plating. P. 72. 325

169a Pulvermacher Galvano Co., Cincinnati, O.—Electro-galvanic appliances, etc., for medical purposes. N. 55. 325

170 Bryan, Jas. C., Philadelphia, Pa.—Magnetic and magnetico-electrical lighting rods. N. 63. 325

170a Gardiner, Samuel, Washington, D. C.—Electrical gas lighting apparatus. T. 64. 325


170c Garratt, Alfred, Boston, Mass.—Electric disc. N. 55. 325

171 Kidder, Jerome, New York, N. Y.—Electro-medical apparatus. A gold medal of progress was awarded to Dr. Kidder at the fair of the American Institute, in the fall of 1875, for the "best electro-magnetic machine." For illustrated catalogue, address Dr. Jerome Kidder, at the northeast corner of 4th street and 4th avenue, New York. N. 56. 325

172 Patrick & Carter, Philadelphia, Pa.—Telegraph sounders, learners' apparatus, hotel annunciators, Philadelphia relay, electric bells, and burglar alarms. N. 64. 325

173 Fleming & Talbot, Philadelphia, Pa.—Electrical instruments and batteries for physicians and surgeons. N. 63. 325

174 Cornish, Thos. E., Philadelphia, Pa.—Electric burglar alarm, annunciators, bell calls, clocks, batteries, gold, wire, etc. N. 64. 325

175 Munson, David, Indianapolis, Ind.—Lightning rods. N. 59. 325

176 Western Electric Manufacturing Co., Chicago, Ill.—Electrical apparatus, electrically physical, medical, and harmonic instruments, annunciators, railway signals, etc. N. 60. 325


180 Brittian, R. J., Hedenberg Works, Newark, N. J.—Electro-medical instruments. N. 65. 325


181a Buckman, Ira, Brooklyn, N. Y.—Annunciators. N. 68. 325

182 Galvano-Paradigm Manufacturing Co., New York, N. Y.—Electrical instruments for medical use. N. 57. 325

183 Launert & Decker, Cleveland, O.—Bulletin. a Indicating annunciators and burglar alarm. 325

b Alphabetical telegraphic instruments. 326

183a Finger, Hare, & Co., Boston, Mass.—Electro-magnetic annunciator. N. 78. 325

184 McCormick, James, Philadelphia, Pa.—Burglar alarm and door fastener. H. 72. 325

185 National Fire Alarm Telegraph Co., Richmond, Ind.—System of fire alarm and police telegraph. N. 65. 326

186 Holmes Burglar Alarm Telegraph Co., New York, N. Y.—Bank vault and safe protector, burglar alarm telegraph, electric hotel and house annunciator, electrical bells. N. 64. 326

187 Brooks, David, Philadelphia, Pa.—Underground cables for telegraph lines. (Nave.) 326

188 Edison, Thos. A., Newark, N. J.—Koman letter, etheric, domestic, automatic, and quadruplex telegraph; electro-magnetograph, doubler, and electric pen. N. 63. 326

188a Cleveland Lighting Rod Co., Garrettsville, O.—Lighting rods, vanes, and ornaments. (Ohio building.) 326

189 Dowden, Geo. A., Newark, N. J.—Burglar alarm and automatic annunciator. N. 65. 326

189a American District Telegraph Co., Philadelphia, Pa.—Telegraph signal boxes. (Nave.) 326

190 Henry, D. F., Chief Engineer Water Works, Detroit, Mich.—Model of subsquous tunnel; telegraphic current meter; flexible jointed water pipe. P. 65. 326

190a Gamewell, John N., New York, N. Y.—Fire alarm telegraph signal boxes. (Nave.) 326

191 Rice, Jas. D., Philadelphia, Pa.—Lightning rods and points. N. 66. 326

191a Gray & Barton Western Electric Telegraph Co., Chicago, Ill.—Printing telegraph instrument. (Nave.) 326

192 Atlantic & Pacific Telegraph Co., Philadelphia, Pa.—Automatic and duplex telegraphic apparatus. (Nave.) 326


193a Philips, W. J., Philadelphia, Pa.—Printing telegraph instruments. (Nave.) 326

194 Vigneron, Charles, Providence, R. I.—Piano insulator. N. 58. 326

194a Lockwood, Brooks, & Co., Boston, Mass.—Computing telegraph. P. 47. 326

195 Welch & Andres, Boston, Mass.—Magneto-printing and dial telegraphic instruments; watchman's time recorders. N. 61. 326

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Scientific, Philosophical, Musical Instruments.

195a Gray, Eltisha, Chicago, Ill.—Electro-harmonic telegraph. ( Narr.) 326
196 Watkins, Wm. B., New York, N. Y.—Automatic fire and burglar telegraph and fire extinguisher; electric thermostats, fire signal boxes, duplex telegraph. N 59. 326
196a Bell, A. Graham, Boston, Mass.—Electro-harmonic telegraph. N 64. 326
197 Wearn, Union Telegraph Co., New York, N. Y.—Telegraphic apparatus. N 63. 326
197a Frost & Hanline, Philadelphia, Pa.—Automatic thermostat for fire alarm telegraph. (Narr.) 326
198 Day, Austin G., office, 120 Broadway, New York, N. Y.—Kerite insulated telegraph wire and cables; Kerite battery cups; electrical battery. Manufacturer of Kerite insulated telegraph wire and cables. Do not require protection from long exposure in hot climates in the air, earth, or water, or from the corrosive action of acids, alkalies, oils, or gases. Can be kept on storage for a long term of years without alteration. N 63. 326
200 Coston, Wm. F., Philadelphia, Pa.—Application of Coston sight signal to the International and N. Y. Nautical Club codes. H 62. 326
202 Hale, B. S., & Co., Lawrence, Mass.—Electric wire. N 75. 326
203 Otto, John William, St. Louis, Mo.—Piano. P 60. 327
203a Siebenhüner, Anton, New York, N. Y.— Violins and bows. P 64. 327
204 Pfaff, John, Philadelphia, Pa.—Clarinetons, ivory flute, tail piece for violining pipe. B 62. 327
204a Greiner, Geo., Philadelphia, Pa.—Piano. N 64. 327
206 Pratt, Read, & Co., Deep River, Conn.—Ivory combs, piano forte and organ keys, ivory veneers, and other ivory goods. P 62. 327
206a Monroe Organ Reed Co., Worcester, Mass.—Organ reeds and organ material. P 59. 327
207 Burdett Organ Co., Erie, Pa.—Burdett organs. P 64. 327
207a Boulanger, Louis, St. Louis, Mo.—Violin. T 63. 327
208 Meyer, Conrad, & Sons, Philadelphia, Pa.—Square piano forte, original iron-plate frame piano, Conrad Meyer inventor, 1833. P 65. 327
210 Hallet, Davis, & Co., Boston, Mass.—Orchestral, concert, and parlor grands, upright, and square grand pianos. N 61. 327
211 Miller, Henry F., Boston, Mass.—Piano fortés. N 65. 327
212 Zimmermann, C. F., Philadelphia, Pa.—Musical instruments. N 63. 327
213 Albert, Chas. F., Philadelphia, Pa.—Y.—Violins, chin and cell rests, wrapped strings, guitars, a Stradivarius and a Guarnieri violin. P 62. 327
214 Mason & Hamlin Organ Co., Boston, Mass.—Cabinet organs. P 66. 327
215 Albert, John, Philadelphia, Pa.—Stradivarius Violins made by Albert’s machine. P 62. 327
216 Seefeldt, Wm. F., Philadelphia, Pa.—Brass and German silver musical instruments. P 59. 327
218 Estey, J., & Co., Brattleboro’, Vt.—Organs. Call special attention to,—elegance and solidity of their structure; 2d, durability of manufacture throughout; 3d, richness of tone; 4th, number of organs manufactured and sold; 5th, reputation throughout the world, highest endorsement of the best artists as Rubinstein, Stein, helmi, Abt, Luca, Joachim, Freyer, Kucken, Czerny, Ole Bull, Saint-Saëns, Tinell, and many others. P 63. 327
219 Dolge, Alfred, New York, N. Y.—Piano forte and polishing felt; spruce sounding-board material. P 66. 327
220 Faas, Anthony, Philadelphia, Pa.—Pianos. P 64. 327
221 Waters, Horace, & Sons, New York, N. Y.—Organs. P 64. 327
222 RooseveIt, H. F., New York, N. Y.—Organs, hydraulic engines, and other blowing apparatus. (North gallery.) 327
223 Calender, Vaupel, & Co., New York, N. Y.—Piano fortés. P 64. 327
224 Hazleton Bros., New York, N. Y.—Grand, cabinet grand, upright, and square pianos. N 64. 327
224a Eiselt, M., St. Louis, Mo.—Piano movement. V 60. 327
225 Albrecht & Co., 610 Arch street, Philadelphia, Pa. (Charles Albrecht, Frederick Rickes, Edmund Wolfsiefer)—Piano manufacturers of first-class, grand, square, and upright pianos. Prices low, for cash, and five years’ guarantee. P 68. 327
225a Hamlin, Emmons, Boston, Mass.—Violins. T 66. 327
226 Woods, Geo., & Co., Cambridgeport, Mass.—Organs. P 61. 327
227 Gemundner, Geo., Astoria, N. Y.—Stradivarius quartet, one Stradivarius, and one Guarnieri violin. P 59. 327
228 Dürner, Chas. F., Quakertown, Pa.—Church organ. P 61. 327
229 Shoninger, B., Organ Co., New Haven, Conn.—Reed organs. Manufacturers of reed organs for churches and families, with all improvements, including a stool, a chime of bells, which make the instrument very complete. N 68. 327
230 Steinway & Sons, New York, N. Y.—Orchard upright, and square piano fortés. P 66. 327
231 Decker Bros., New York, N. Y.—Concert and parlor grand, upright, and square piano fortés. P 67. 327

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Musical Instruments.

232. Lehnhert, Henry G., Philadelphia, Pa.—Improved brass instruments, for bands and orchestras. P 64.


235. Neff, James, Philadelphia, Pa.—Quartette of musical stringed instruments. P 64.

236. United Piano Makers, Brooklyn, N. Y.—Grand, upright, and square pianos. P 64.


238. Manhattan Piano Forte Co., New York, N. Y.—Piano fortos. This company, composed of practical mechanics, was established 1863. Their pianos are admired by every one for their sweet and powerful tone, as well as the pleasing touch they possess. P 63.


243. Peloubet, Pelton, & Co., New York, N. Y.—Reed organs. The standard organs here shown are exhibited as specimens of the daily work of the manufacturers. P 65.


244. Jennison, Wm. A., Camden, Miss.—Violin. P 65.


246. Lehnhert, Carl, Boston, Mass.—Cymbals and gongs, Turkish and Chinese combination of metals. P 62.


254. Moeller, A., Hartford, Conn.—Upright piano. P 63.


258. McDonald, Jas., Williamsport, Pa.—Square grand piano forte. P 63.


266. Knabe, Wm., & Co., Baltimore, Md.—Grand, square, and upright pianos; and a harpsichord made by Tschudi & Brodwood for Chas. Carroll of Carrollton. P 60.


268. Steiff, Chas. M., Baltimore, Md.—Grand, square, and upright pianos. N 64.

269. New Haven Organ Co., New Haven, Conn.—Organs. P 64.


271. Knauff, Theodore O., Philadelphia, Pa.—Mechanical and pipe organs. (Outside.)

272. Hinzen & Rosen, Louisville, Ky.—Piano. P 64.


274. Perry, J. R., Wilkesbarre, Pa.—Organs; testing and toning box for reed organs. P 64.

275. Rogers Upright Piano Co., Boston, Mass.—Upright pianos. The mechanical principles employed secure claims for this instrument of the greatest utility and practical importance to musicians and amateurs. P 65.


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Musical Instruments, Engineering Designs.

283 Mathushek Piano Manufacturing Co., New Haven, Conn.—Pianos. P 59. 327
285 Secor, Jerome B., Bridgeport, Conn.—Automaton singing birds in cages and vases. T 68. 327
286 Kranch & Bach, New York, N. Y.—Grand, upright, and square piano forms. N 63. 327
287 Clough & Warren Organ Co., Detroit, Mich.—Parlor organ. P 63. 327
288 Missenharter, Chas., New York, N. Y.—Excelsior musical instruments. P 64. 327
289 Kompf, Ph., New York, N. Y.—Military drums, banjos, and tambourines. L 62. 327
290 Lighte & Ernst, New York, N. Y.—Grand square piano forths. P 65. 327
291 Willis, Aug. L., Philadelphia, Pa.—Octave coupler for piano forths. H 71. 327
292 Browne & Buskewell, New York, N. Y.—Grand art double action harp and music desk. P 63. 327
293 Conn & Dupont, Elkhart, Ind.—Musical instruments for bands; improved mouthpieces for band instruments. P 61. 327
294 Boston Musical Instrument Manufactury, Boston, Mass.—Brass band musical instruments. P 64. 327
296 Taylor & Farley Organ Co., Worchester, Mass.—Cabinet and church reed organs. P 59. 327

Engineering, Architecture, Charts, Maps, and Graphic Representations.

297 Lowthorp, Francis C., Trenton, N. J.—Photographs of iron bridges erected, plans of wrought iron bridge and turn tables. T 67. 330
297a Barnum, Richardson, & Co., Lime Rock, Conn.—Drawings relating to various works. (West Gallery.) 330
298 American Bridge Co., Chicago, Ill.—Model of rigid suspension bridge, details of construction, photographs and drawings. T 67. 330
298a Carroll, Francis, New Orleans, La.—Model of automatic damper for gas furnaces. (West Gallery.) 330
299 Clarke, Reeves, & Co., Phoenixville Bridge Works, Philadelphia, Pa.—Photographs and models of bridges, viaducts, and other iron structures actually executed. (West Gallery.) 330
299a Philadelphia & Reading R. R. Co., Philadelphia, Pa.—Bridge models, etc. V 53. 330
300 Pettit, Henry, & Wilson, Jos. M., Engineers and Architects, Philadelphia, Pa.—The Main Exhibition building, Manufacturers Hall and adjacent boiler houses for the International Exhibition, 1876. (In Park.) 330
300a Thomas Iron Co., Hokendaqua, Pa.—Drawings relating to iron works. (West Gallery.) 330
301 King Iron Bridge & Manufacturing Co., Cleveland, O.—Wrought iron highway bridge between Horticultural Hall and Art Gallery. 330
301a North Chicago Rolling Mill Co., Chicago, Ill.—Drawings relating to various works. (West Gallery.) 330
302 Pearsons, G. W., Ogdensburg, N. Y.—Model of standpipe and turbine wheel. (West Gallery.) 330
303 Pettit, Henry, Philadelphia, Pa.—Bridges and bridge construction. (West Gallery.) 330
304 Wilson, Jos. M., Philadelphia, Pa.—Bridge and bridge construction. (West Gallery.) 330
305 Centennial Commission of the American Society of Civil Engineers of the United States.—Papers, drawings, photographs, and models of engineering used in America. (West Gallery.) 330
306 Chautu, Octave, New York, N. Y.—Engineering exhibits relating to bridges and bridge construction. (West Gallery.) 330
306a Morris, E. H., Boonton, N. J.—Models and drawings relating to various works. (West Gallery.) 330
307 Croes, J. James R., Yonkers, N. Y.—Engineering exhibits relating to water works. (West Gallery.) 330
307a Morris, R. C., Nashville, Tenn.—Drawings of early and late bridges in the Southern States. (West Gallery.) 330
308 Herring, Rudolph, Philadelphia, Pa.—Plans of bridges, with photographs showing progress: section of sewers of Philadelphia. (West Gallery.) 330
308a McDonald, Charles, New York, N. Y.—Drawings and photographs of various iron bridges. (West Gallery.) 330
309 Chester, Stephen, New York, N. Y.—Exhibit relating to electrical engineering. (West Gallery.) 330
309a Pearse, J. B., Philadelphia, Pa.—Drawings relating to various works. (West Gallery.) 330
310 Linville, J. H., Philadelphia, Pa.—Bridges and bridge construction. (West Gallery.) 330
310a Phoenix Iron Co., Philadelphia, Pa.—Drawings relating to various works. (West Gallery.) 330
311 Clark, Reeves, & Co., Philadelphia, Pa.—Bridges and bridge construction. (West Gallery.) 330
311a Johnson, J., La Salle, Ill.—Drawings relating to various works. (West Gallery.) 330
312 Rockwood, Geo. F., New York, N. Y.—Photographs showing successive stages of engineering construction. (West Gallery.) 330
312a Fowler, Charles E., New Haven, Conn.—Plans, sections, and details of the sewerage and drainage system of New Haven and other public works. (West Gallery.) 330
313 Crezier, D. W. C., Chicago, Ill.—Model of hydrant and stopcock. (West Gallery.) 330
313a Bethlehem Iron Co., Bethlehem, Pa.—Drawings relating to various works. (West Gallery.) 330

For location of objects, indicated by letter and figure, see Key to Notation, p. 251; ground plan, p. 26.
314 Jervis, John B., Rome, N. Y.—
Engineering drawings, relating to con-
struction of canals; Carbondale railroad
and Crown aqueduct. (West Gallery.) 330
314a Severt, Wm. A., Syracuse, N. Y.
—Drawings relating to various works.  (West Gallery.) 330
314b Cox, E. T., Indianapolis, Ind.—
Drawings relating to various works.  (West Gallery.) 330
314c Drinker, Henry S., Philadelphia, Pa.—
Drawings relating to tunnel excavation
and timbering. (West Gallery.) 330
315 Foster, Wilbur F., Nashville, Ten.—
Model of Howe truss bridge. (West Gallery.) 330
316 Artington, James H., Brooklyn, N. Y.—
Exhibit relating to gas engineering.  (West Gallery.) 330
316a Smedley, Samuel L., Philadelphia, Pa.—
Drawings of Public Works in the City of Philadelphia. (West Gallery.) 330
316b Davis, E. T. C., Pottsville, Pa.—
Drawings and photographs relating to
various works. (West Gallery.) 330
316c Darrach, S. A., East Orange, N. J.—
Drawings relating to the Water Works
of Philadelphia. N. 58. 330
316d Canfield, Frederic A., Dover, N. J.
—Drawings relating to various works.  (West Gallery.) 330
316e Grant, Wm. A., New York, N. Y.
—Topographical map of recent additions
to New York City, with proposed street
and avenue plans. (West Gallery.) 330
317 Thurston, Robert M., Hoboken, N. J.—
Exhibit relating to mechanical en-
gineering; detail drawings of machinery, etc., by Robert Fulton. (West Gallery.) 330
317a Tarr, H. G. H., Orbesonia, Pa.—
Steel plates cast in 1763 and 1792. (West Gallery.) 330
317b Stanley, I. N., Brooklyn, N. Y.—
Improved setting of retorts. (West Gallery.) 330
318 Ellis, Theo. G., Hartford, Conn.—
Engineering exhibit relating to river and
harbor improvement. (West Gallery.) 330
319 McAlpine, Wm. J., Albany, N. Y.—
Engineering exhibits relating to canals
and inland navigation. (West Gallery.) 330
320 Bowden, J. H., Wilkesbarre, Pa.
—Drawings relating to various works. (West Gallery.) 330
321 Smith, Wm. Sooy, Maywood, Ill.—
Engineering exhibit relating to foundations and masonry. (West Gallery.) 330
322 Shed, J. Herbert, Providence, R. I.—
Engineering exhibits relating to
sewerage and sanitary purposes. (West Gallery.) 330
323 Briggs, Robert, Philadelphia, Pa.—
Exhibits of illustrations and diagrams of
ventilating fans. (West Gallery.) 330
323a Thompson, D. M., Providence, R. I.—
Pictures of cotton mill with de-
scription. (West Gallery.) 330
323b Union Iron Co., Buffalo, N. Y.—
Model relating to iron works. (West Gallery.) 330
323c Wren, W. C., Brooklyn, N. Y.—
Model of gas machinery. (West Gallery.) 330
323d Witherbee, J. P., Fort Henry,
N. Y.—Drawings and models relating to
iron works. (West Gallery.) 330
Drawings and photographs relating to
iron works. (West Gallery.) 330
323f Smith & Sayre, New York, N. Y.—
Drawings of exhaust engine, shafting,
and other machinery for gas works. (West Gallery.) 330
323g Paulding, Kemble, & Co., Cold
Spring, N. Y.—Drawings relating to iron
works. (West Gallery.) 330
323h Prindle, F. C., Philadelphia, Pa.—
Drawings of dredging machinery, and
gun, powder, etc. (West Gallery.) 330
323i Patton, J. D., Norristown, Pa.—
Drawings of machinery for burning petro-
leum gas on cars. (West Gallery.) 330
323j Risdon Iron & Locomotive
Works.—Drawings of hydraulic machi-
neries. (West Gallery.) 330
323k School of Mines of Columbia Col-
lege, New York, N. Y.—Selected meta-
lurgical drawings. (West Gallery.) 330
—Drawings relating to iron works. (West Gallery.) 330
323m Cambria Iron Co., Johnstown, Pa.
—Drawings relating to iron works. (West Gallery.) 330
323n Birkenbine, H. P. M., Philadel-
phia, Pa.—Drawings of combined high
and low pressure pumping engines, por-
tfolio of details and drawings. (West Gallery.) 330
323o Hornig, Julius, Chicago, Ill.—
Model of improved method of canal boat
propulsion, with track and traction chain. (West Gallery.) 330
—Engineering exhibit relating to railroads
and rolling stock. (West Gallery.) 330
323q Nichols, H. K., Pottsville, Pa.
—Model of rail splice. (West Gallery.) 330
323r Bishop, D. E., New York, N. Y.—
Models of special rail joint. (West Gal-
tery.) 330
324 Sandberg, C. F., London, Eng-
land.—Drawings of standard rail sections. (West Gallery.) 330
325 Emery, Chas. E., New York, N. Y.—
Drawings of marine engines and
boilers; connected arch boiler; compound engine for Phoenix Iron Company. (West Gallery.) 330
325a Gaujot, E., Philadelphia, Pa.—
Geological maps, sections, and pamphlets
of the State of Michigan. Vol. 69 to 69. 330
326 Hanging Rock Iron Region, Iron-
ton, Pa.—Geological map of the con-
tinental portions of the Hanging Rock iron regions. (Presented by Mr. John Campbell.) T. 68. 335

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Engineering Designs, Gymnastic Apparatus, Benevolent Societies.

327 Earnshaw, Henry, Cincinnati, O.—Photographs of parks and cemeteries, water works machinery, reservoirs, and drawing of tunnel. (West Gallery.)

328 Cleveland, H. W. S., Chicago, Ill.—Design (adopted) for improvement of E. South Park, Chicago. (West Gallery.)

329 Bowditch, Ernest W., Boston, Mass.—Plans of proposed chain of parks for Boston; a cemetery, and a country estate. (West Gallery.)

330 Krause, H., New York, N. Y.—Topographical maps. (West Gallery.)

331 Sibeth, Otto, New York, N. Y.—Construction map New York Central Park. (West Gallery.)

332 Walling, H. T., Boston, Mass.—Topographical maps and atlases. (West Gallery.)

333 Bogart, John, New York, N. Y.—Engineering exhibit relating to park work, surveying, and geodesy. (West Gallery.)

Physical, Social, and Moral Condition of Man.


335 Shibe, J. D., Philadelphia, Pa.—Base balls. B 77.

335a Automatic Swing Co., St. Louis, Mo.—Automatic swings. (Outside space.)


341 Derrom, Andrew, Passaic, N. J.—Workman’s cottage. (In Park.)

342 Kasson, W. M., Department of Public Comfort. (North, South, and West Entrances.)

343 Department of Public Comfort—Stationery, newspapers, periodicals, and photographs for sale. H 70 and N 6.

344 Rudolph & Walter, Camden, N. J.—Buffet. T 43 to 47.

345 Department of Public Comfort—Café, Leland’s. T 33 to 36.

345a Hinvest, Robert, New York, N. Y.—Clamp and band for scouring masonry, hollow brick for ventilation, chimney top. (Outside.)


350 Investors’ Protective & Benevolent Association of the United States, Pittsburgh, Pa.—Working models of inventions of members of the Association. (West Gallery.)

350a American Society for the Prevention of Cruelty to Animals, New York, N. Y.—Deodands, or instruments used in torturing dumb animals, taken from offenders; banners and illustrations. D 79.

350b American Missionary Association, New York, N. Y.—Map, showing location of institutions and mission stations in the United States, photographs of buildings, examination papers, catalogues. (South Gallery.)

351 Young Men’s Christian Association of North America, Executive Committee, Richard C. Morse, Secretary, New York, N. Y.—Map, pictures, and plans of association buildings; reports, circulars, and other literature. (South Gallery.)

351a Dod, S. B., Hoboken, N. J.—Bust of Col. John Sterns. (West Gallery.)

351b Shippen, W. W., Hoboken, N. J.—Portraits of the Messrs. Stevens. (West Gallery.)

351c Miller, William J., Philadelphia, Pa.—Engravings on whitening. 421


351e Sweeney, Thomas S., Cleveland, O.—Transparent photographic views in Ohio. (Vested inter vivos, Ohio State Building.)

352 Heard & Sons, Cleveland, O.—Architectural design of the Ohio State Building.

353 Pfeiffer, Carl, New York, N. Y.—Design of New Jersey State Building.


355 Busby, Albert G., Philadelphia, Pa.—Valve motor for blowing organ bellows, etc. P 66.

356 Stokes & Parrish, Philadelphia, Pa.—Passenger elevator. (S. E. Central Tower.)


For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.
Railroad Cars, Vessels, Agricultural Products.

359 Pullman’s Palace Car Co., Chicago, Ill.—Gold and silver model of a Pullman palace sleeping car. N 63. 571
360 Woodruff, Jonah, Philadelphia, Pa.—Silver model of sleeping car. N 61. 571
361 Snow, J. H., Bucksport, Me.—Model ship. H 70. 594
362 Neilson, George, Philadelphia, Pa.—Model of the ship “Independence,” of Philadelphia. (Centre Aisle.) 594
a Specimens of wood growing in New Jersey. T 70. 600
b Fertilizers and soils. 681

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
GREAT BRITAIN.

(South of Nave, Columns 23 to 38.)

Educational Books and Appliances.

Educational Systems, Methods, and Libraries.

1 Sunday-School Union, London.—Works for Sunday-schools.—Books, magazines, cards, reward tickets, illuminations, and large type texts, Sunday-school registers, roll books, librarian and minute books; Sunday-school newspaper. 300

2 Bartholomew, John, Edinburgh.—Maps. 300

3 Adams, Walter Marsham, London.—The problem of Pythagoras; colormeter for illustrating elementary astronomy; mensurator for solving triangles, etc. 302

4 Augener, George, & Co., London.—Editions of the classics and other printed music books. 302

5 Boosey & Co., London.—Band, choral, and household music. 302

6 Clark, Edward Podmore, Bath.—Military model apparatus for illustrating drill movements. 302

7 The British & Foreign Blind Association, for Promoting the Education and Employment of the Blind, London.—Writing frames, embossed books, and maps for the blind. 303

8 Dickinson & Higham, London.—The hexaglot Bible. 306

9 Dickens, William, London.—Chromo-lithography, engraving and photographic engraving, and photographic engraving and printing; framed oleographs, chromographs from stone and surface printing, wood engraving, photographic engraving, etc. 306

10 Scott, Robson John, London.—Blocks used for wood engravings; compound and bolted blocks of box and other woods. 306

11 Stephenson, Blake, & Co., Sheffield.—Specimens of printing types, book of specimens. 306

12 Ravenstein, Ernest George, Geological Institute, London.—General and geological maps of New Zealand; physical and statistical atlas of United Kingdom; relief map of the United States; geographical and statistical works. 306

13 Johnston, W. & A. K., Edinburgh, Scotland.—Maps; illustrations of human anatomy, astronomy, botany, and mechanical powers. 306

14 Palmer, Samuel, London.—Index to the "Times" newspaper, a quarterly publication. 306

15 Warner, Robert, London.—Works on "Select Orchidaceous Plants." 306

16 Loth, John Thomas, Edinburgh.—Educational books and illustrations of the thirty-three degrees of the ancient and accepted Scottish rite. 306

17 Audsley & Bowes, Liverpool.—Work on "Keramic Art in Japan." 306

18 Lockwood, Crosby, & Co., London.—Books, rudimentary, scientific, educational, and classical series. 306

19 Cassell, Petter, & Galpin, London.—Illustrated books, publications, serials; educational books and appliances; electrotypes of engravings on wood. 306

20 Smith, David, Halifax, Yorkshire.—The "Dyer's Instructor." 306

21 Dowson, Sutherland, & Co. (limited), London.—Complete file of "Iron," a weekly newspaper. 306

22 Price & Co., London.—Fac-similes from ancient manuscripts and printed books. 306

23 Potts, Roberts, M.A., Trinity College, Cambridge.—Educational books. 306

24 Murray, Andrew, London.—Illustrations and specimens of galls produced by mites, aphides, flies (cecidomyia), sandflies, cymbidiae. 306


27 Rola, Vincent, Bayswater.—Method for the piano, with diagrams and specimens of music. 306

28 Proprietors of the "Graphic," London.—Process of producing an illustrated newspaper, from the receipt of sketches to the final issue of printed sheets to the public. 306

29 Holdsworth, Edmund William Hunt, London.—Work on deep sea fishing and fishing boats. 306

28 Johnson, J. M., & Sons (limited), London.—Printing in color, show tablets. 306

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

30 Rundell, Joseph Benjamin, South Kensington Museum, London.—Short-hand alphabet; maps, plans, etc., for educational arias and other purposes; lithographic printing as applied to maps. 306
31 Paul, William, Waltham Cross, Herts.—Works on horticulture. 306

Institutions and Organizations.

31a South Kensington Museum.—Objects exhibited by order of the Lords of the Committee of Council on Education. 306
31b Ordnance Survey of the United Kingdom of Great Britain and Ireland.—Ordnance maps. 311
31c Geological Survey of the United Kingdom of Great Britain and Ireland.—Maps. 311
31d Johnson, Edmund, London.—Catalogues and other works having reference to international exhibitions. 312

Scientific and Philosophical Instruments and Methods.

31a Hicks, James Joseph, London.—Meteorological and scientific instruments. 320
32 Siemens, Charles William, London.—Pyrometers. (In Machinery Hall.) 320
32a Clay, Randolph, London. a Instrument for tracing ellipses and other curves. 320
b Model of a deck seat with life-raft and of a boat distinguishing hook. 394
32b Negretti & Zamba, London.—Microscopes, monocular and binocular apparatus, objectives, telescopes, and photographic lenses. 324
33 Lyon, Washington, London.—Calculating table for rapidly multiplying numbers above 12. 321
33a Zimdars, C. E., London.—Pneumatic signal and communication apparatus; pneumatic railway signals, indicators, and registering apparatus. 321
34 Wier, M. A., & Co., London.—Hydrogyrometer or revolution indicator. 321
35 Morton, George, London.—Chronometer and watch balance springs, wire, and gauge. 323
35a Gibson, William, Belfast.—Watches and chronometers. 323
36 Smith, Horsham, London.—Watches and chronometers, cases, dials, and movements. 326
36a Goggin, Jeremiah, Dublin.—Timepieces. 326
36b Neal, John, London.—Gold and silver watches, chronometers, and timepieces. 326
37 Sewill, J., Liverpool.—Marine chronometers and watches. 323
38 Mercer, Thomas, London.—Marine chronometers. 323
39 Kullberg, Victor, London.—Marine chronometers, watches, chronographs, repeaters, etc. 323
40 Dent, M. F., London.—Marine chronometers, watches, chronometer clocks, etc. 323
41 Whitaker, Richard, London.—Keyless watches. 323
42 Poole, James, & Co., London.—Marine chronometers and watches. 323
43 Nicole, Nielson, & Co., London.—Watches, chronometers, complicated watches, and chronographs. 323
44 Claxton, Robert, London.—Chronometer jewels in all stages. 323
45 Froodsham, Charles, & Co., London.—Marine, clock, and chronometers for astronomical purposes; pocket and marine chronometers. 323
46 Swift, James, London.—Microscopes and apparatus. 324
47 Middleton, Thomas John, London.—Marine chronometers, dissolving view apparatus, dissolving top for the oxyhydrogen light, lantern slides, etc. 324
48 Beck, R. & J., London.—Microscopes, telescopes, race glasses, surveying and meteorological instruments and tools. 324
49 Wheeler, Edmund, London.—Specimens for the microscope. 324
50 Dalmeyer, John Henry, London.—Astronomical and terrestrial telescopes, microscopes, photographic lenses, cameras, and apparatus. 324
51 Ross & Co., London.—Microscopes, monocular and binocular apparatus, objectives, telescopes, and photographic lenses. 324
52 Crouch, Henry, London.—Microscopes, binocular, and with complete accessories for every class of scientific investigation; cabinets, lamps. 324
52a Rein, Frederick Charles, & Son, London. a Magneto-electric machines. 325
b Acoustic instruments, speaking tubes and trumpets; acoustical contrivances for churches, public buildings, etc.; anti-acoustic protector. 327
53 India-Rubber, Gutta-Percha, and Telegraph Works Co. (limited), Silver-town, Essex.—Telegraph cables, insulated telegraph wires. 326
54a Mayer & Meltzer, London.—Galvanic batteries. 326
54b Siemens Bros., London.—Cable samples, and gutta-percha as applied to the manufacture of cables. 326
54c Lacey, Richard George, Coast Guard Station, Leigh, Essex. a Alarm signal box for ships. 326
b Fisherman's block. 326
55 Kimpton, Thomas, London.—Pneumatic sound communicator. 326
56 Telegraph Construction & Maintenance Co. (limited), London.—Submarine telegraph cables. 326
57 Heaps, John Knowles, Holbeck, Leeds.—Violin and violoncello. 327
58 Smith, George, South Hackney.—Portable finger organ. 327
59 Beechy & Co., London.—Musical wind instruments, percussion instruments for bands. 327
58 Brinsmead, John, & Sons, London.—Grand, semi-grand, upright, and studio pianos; check repeat action for upright and grand pianos. 327
59 Collmann, Leonard W., London.—Cottage piano. 327
60 Besson, F., & Co., London.—Brass musical instruments. 327

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 57–45.
### DEPT. III.—EDUCATION AND SCIENCE.

Musical Instruments, Sports, Construction of Buildings.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>61</td>
<td>Browne, H. Justin, London.—Up-right cottage piano forte.</td>
<td></td>
<td>327</td>
</tr>
<tr>
<td>62</td>
<td>Nicholson, Hamlet, Rochdale.—Cricket and playing balls.</td>
<td></td>
<td>340</td>
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<tr>
<td>62a</td>
<td>Lewis, J., Edinburgh.—Curling stone.</td>
<td></td>
<td>340</td>
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<tr>
<td>63</td>
<td>Cochrane, Robert C. E., Athlone, Ireland.—Drawings illustrating the appli-</td>
<td></td>
<td>343</td>
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<tr>
<td></td>
<td>cation of concrete to the erection of an improved construction of dwellings.</td>
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<td></td>
</tr>
<tr>
<td>63a</td>
<td>Greenway, Henry, Plymouth.—Drawings of hospital construction.</td>
<td></td>
<td>346</td>
</tr>
</tbody>
</table>

((N. B.—Certain exhibits in this department from Great Britain are installed in Agricultural Hall, and catalogued in Part IV.))

### NEW SOUTH WALES.

*(North of Nave, Columns 10 to 17.)*

#### Educational Publications, Statistics, Maps, Photographs, etc.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mechanics' School of Arts, Sydney.—Wax seal impression of corporate seal.</td>
<td></td>
<td>302</td>
</tr>
<tr>
<td>2</td>
<td>Government Printing Office, Sydney, New South Wales.</td>
<td></td>
<td>304</td>
</tr>
<tr>
<td>3</td>
<td>Government gazettes, statutes, statute index, specifications of patents, parlai-</td>
<td></td>
<td>305</td>
</tr>
<tr>
<td></td>
<td>mentary hand book, blue book and statistical register, census reports on railways,</td>
<td></td>
<td>Rae's poems, newspapers, Australian languages.</td>
</tr>
<tr>
<td>3a</td>
<td>Government Printing Office, Sydney.—Industrial Progress of New South Wales; Transactions of Royal Society.</td>
<td></td>
<td>347</td>
</tr>
<tr>
<td>4</td>
<td>The Commission.—Photographic views of public buildings, scenery, etc., in and around Sydney, N. S. W.</td>
<td></td>
<td>430</td>
</tr>
<tr>
<td>5</td>
<td>Richards, T., Sydney.—Photographic views of buildings, etc., in and around Sydney; photographic views of Blue Mountains and valley of the Grose; photographic views of entomological collection of New South Wales.</td>
<td></td>
<td>430</td>
</tr>
<tr>
<td>6</td>
<td>New South Wales Commissioners, Sydney.—Birds of Australia, prepared by Thorpe.</td>
<td></td>
<td>312</td>
</tr>
<tr>
<td>7</td>
<td>Trustees of the Australian Museum, Sydney.—Specimens of natural history of Australia.</td>
<td></td>
<td>312</td>
</tr>
</tbody>
</table>

#### Institutions and Organizations.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
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<tr>
<td>3</td>
<td>New South Wales Commissioners, Sydney.—Birds of Australia, prepared by Thorpe.</td>
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<td>312</td>
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<tr>
<td>4</td>
<td>Trustees of the Australian Museum, Sydney.—Specimens of natural history of Australia.</td>
<td></td>
<td>312</td>
</tr>
</tbody>
</table>

#### Scientific and Philosophical Instruments and Methods.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Parrot, T. S., Sydney.—Semaphore, an instrument designed for army signaling purposes.</td>
<td></td>
<td>326</td>
</tr>
<tr>
<td>6</td>
<td>Postle, Sydney.—Ice machine.</td>
<td></td>
<td>568</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
VICTORIA.
(North of Nave, Columns 10 to 17.)

Publications, Statistics, etc.

Educational Systems, Methods, and Libraries.

1 Educational Department of Victoria, Melbourne.—Photographic views of state schools in Victoria. 302

2 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Portfolios of music by W. H. Glen. 302

3 Victorian Asylum & School for the Blind, Melbourne.—Baskets, perambulators, portmanteaus, trunks, mats, fancy woof-work, etc., made by the pupils. 303

3a Victorian Asylum for Deaf & Dumb.—Photographs. 303

4 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Official records, catalogues, lectures, reports, medical works, school books, sermons, and general literature. 304

5 Ferres, John, Government Printer, Melbourne.—Reports and statistics from the principal government institutions of Melbourne; Victorian newspapers. 305

6 Warrnambool, Borough Council for. —Statistics of the borough. 305

Scientific and Philosophical Instruments and Methods.

7 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Bell and stand. 307

8 Kilner, Joseph, Richmond.—Piano fortés. 307

Engineering, Architecture, Maps, etc.

9 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Miscellaneous maps, etc. 339

10 Surveyor-General of Victoria, Melbourne.—Maps and plans of the colony of Victoria. 339

Physical, Social, and Moral Condition of Man.

11 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.

a Patent ceiling ventilator; model of Victorian bush residence, with huts and various kinds of fencing. 342

b Severeigns and half-sovereigns from Royal Victorian mint, Melbourne. 344
c Baskets, mats, etc., made at Coranderrk aboriginal mission station; vocabulary of Victorian aboriginal dialects, bluestone tomahawk, photographs of Victorian aborigines. 344

12 Bank of Victoria, Melbourne.—Bank notes and statistics of the bank. 344

13 Commercial Bank of Australia, Melbourne.—Bank notes, photographs, and statistics of the bank. 344

14 National Bank of Australasia, Melbourne.—Bank notes and statistics of the bank. 348

15 Penal Department, Inspector-General of Melbourne.—Warder's uniform, prisoners' clothing, hats, boots, shoes, mats, etc. 345

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CANADA.
(North of Nave, Columns 16 to 23.)

Educational Collections.

Educational Systems, Methods, and Libraries.

1 Merritt, J. P., St. Catherine’s, Ont. —Metric and chronological tables, chronological of Canada. 300

2 Tennant & McLachlan, Hamilton, Ont.—Penmanship. 300

3 Pearse, James, Chatham, Ont.—Penmanship. 300

4 Browne, James, Toronto, Ont.—Chart stand and illustrator. 300

5 Educational Department, Toronto, Ont.—This is a department of State of the Province of Ontario, constituted by a committee of the Executive Council, and is presided over by a member thereof, who is directly responsible to the Legislature. Minister of Education, Hon. Adam Crook, LL.D.; Deputy Minister of Education, John George Hodgins, LL.D.; Secretary, Abraham Marling, LL.D. 300

6 Beatty, L. J., Belleville, Ont.—Penmanship. 300

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Educational Appliances, Scientific and Musical Instruments, etc.

7 Hector, Thos., Ottawa, Ont.—Rotary polar map of the world. 300
8 Genest, P. M. A., Quebec, Q.—Map of "La Nouvelle France." 300
9 Tackabury, J. N., Montreal, Q.—Dominion atlas, maps of Ontario and Quebec. 300
10 May, John P., Canada School Apparatus Co., Toronto, Ont.—Chemical laboratories, anatomical models, objects, lesson cabinets, etc. 300
12 English, Ch., St. John, N. B.—Composition blackboard. 300
13 Hill, C. P., Halifax, N. S.—Photograph Halifax Industrial School. 300
15 McGill University, Montreal, Q.—Calendars, medals, photographs of universities. 301
16 Université Laval, Quebec, Q. 303
17 College Nicolet, Nicolet, Q. 303
18 Maitrise St. Pierre, Montreal, Q. 303
19 Ecole du Plateau, Montreal, Q. 303
20 College Ste. Hyacinthe, Ste. Hyacinthe, Q. 303
21 Séminaire Ste. Thérèse, Ste. Thérèse, Q. 303
22 College Joliette, Joliette, Q. 303
23 Providence, Montreal, Q. 303
29 Bon Pasteur, Montreal, Q. 303
33 Hospital Général, Quebec, Q. 303
34 Hospital Général, Montreal, Q. 303
35 Frères de la Charité, Montreal, Q. 303
36 Hospital du Sacré-Cœur, Montreal, Q. 303
39 Convent de Sillery, Quebec, Q. 303
40 Campbell, James, Toronto, Ont.—Books. 306
41 Weld, W., London, Ont.—Farmer’s Advocate. 306
42 Lovell Printing & Publishing Co., Montreal, Q.—School and other books. 306
43 Webster, Geo., Hamilton, Ont.—Bible, printed. 306
44 Sheppard, W., Quebec, Q.—Bible (1555). 306

Institutions and Organizations.
46 Bell, Robert, Montreal, Q.—Indian curiosities and manufactures. 312
47 St. Amand, A., Loretto, Q.—Indian curiosities. 312
48 Advisory Board, Victoria, Br. Col.—Indian goods and manufactures. 312

Scientific and Philosophical Instruments and Methods.
49 Cornell, S., Widden Stantio, Ont.—Marine compass. 320
50 Meyer, Aleert, F. W., Montreal, Q.—Apparatus for determining inaccurate points. 320
51 Hearne & Harrison, Montreal, Q.—Surveying and other instruments. 320
52 Ross, Alex., Montreal, Q.
a Odometer. 320
b Indicating and registering apparatus. 321
53 Landham, F., Ottawa, Ont.—Lumbermen’s measuring rule. 322
54 Sabis, B., Point Levis, Q.—Sliding foot rule. 322
55 Adams, J. W., Hamilton, Ont.—Universal clock. 323
57 Duquet, C., Quebec, Q.—Watchman detector. 323
58 Lefort & Chapleau, Montreal, Q.—Watchman detector. 323
62 Marrin Bros., Parkhill, Ont.—Parlor organ. 327
63 Bell, W., & Co., Guelph, Ont.—Cabinet organs. 327
65 Delamere, J. H., Toronto, Ont.—Organs. 327
66 Mee, C., & Co., Kingston, Ont.—Mellodeon, parlor organ, and organ keys. 327
68 Dominion Organ Co., Bowmanville, Ont.—Organs. 327
70 Knott, John, & Son, Hamilton, Ont.—Upright piano. 327
71 Heintzman & Co., Toronto, Ont.—Square piano. 327
72 Kater, Th., Hamilton, Ont.—Pianos, parts of pianos, etc. 327
73 Weber & Co., Kingston, Ont.—Pianos. 327
74 Rainer & Son, Guelph, Ont.—Piano. 327
75 Draper, E., London, Ont.—Harmonic instructor and musical game. 327
77 Lyonais, T., Quebec, Q.—Violin. 327
79 Sheppard, W. G., Quebec, Q.—Violoncello, 1772. 327
80 New Dominion Organ Co., St. John, N. B.—Cabinet organs. 327
81 Gates, E. E., Halifax, N. S.—Cabinet organs. 327
82 Brockley & Co., Halifax, N. S.—Upright piano and stool. 327

Engineering, Architecture, Maps, etc.
83 Gray, F. Wood, Quebec, Q.—Engineering drawings. 330
84 Cousin, Paul, Quebec, Q.—Map of city of Quebec, etc. 330
86 Trout, W. H., Peterborough, Ont.—Mechanical drawings. 330
87 Johnstone, J., Ottawa, Ont.—Geographical drawings. 335
88 Burpee, M., Upper Sheffield, N. B.—Mechanical drawings. 335
89 Honeyman, Dr., Halifax, N. S.—Geological map of Nova Scotia. 335
90 Anderson, A. T., Br. Col.—Physical map of British Columbia. 335

Physical, Social, and Moral Condition of Man.
92 The Corporation of Toronto, Toronto, Ont.—Photographic views of buildings in Toronto. 345

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Educational Systems, Methods, and Libraries.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
</tr>
</thead>
</table>
| a    | School furniture.  
| b    | School materials. |
| 3     | Bapertesses, F., Paris.—School materials. |
| 4     | Desbarolles, Paris.—Works on penmanship. |
| 5     | Delalain, J., & Son, Paris.—School books in different languages. |
| 6     | Le Brun, Paris.—Elementary dictionaries. |
| 7     | Lagout, Nogent-sur Seine (Aube).—School materials. |
| 8     | Leroy, P., Brides-les-Bains, near Montiers (Savois).—Educational system. |
| 9     | Maitrepierre, Paris.—Copy books. |
| 10    | Raybaud, Draguignan (Var).—Reading method. |
| 11    | Touron, Emile, Bois de Colombes (Seine).—Geometrical problems. |
| 12    | Taulard, Principal of Menelou-Salon School, Menelou-Salon (Cher).—Pupils' work. |
| 13    | Mouret, Paris.—Globe. |
| 14    | Levesque, Villeneuve St. Denis (Seine et Marne).—Metrical system. |
| 15    | Eloff & Co., Paris.—Works on natural history; terrestrial globes. |
| 16    | Level, Paris.—Medical and graphic systems. |
| 17    | La Cointe, Evreux (Eure).—Arithmetical problems. |
| 18    | National School of Engineering, Paris.—Documents and reports of the school. |
| 19    | National School of Mines, Paris.—Documents and reports of the school. |
| 20    | Meliot, A., Paris.—Music method. |
| 21    | Dauphin, Lunéville (Meurthe and Moselle).—Painting in relief for the blind. |
| 22    | Dupont, Paul, Paris.—Works on government and education. |
| 23    | Duployé Bros., Paris.—System of stenography. |
| 24    | Dunod, Paris.—Scientific and mechanical works. |
| 25    | Dumaine, J., Paris.—Military books. |

**Educational Publications, School Apparatus.**

<table>
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<tr>
<th>Entry</th>
<th>Description</th>
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<tbody>
<tr>
<td>28</td>
<td>Ducrocq, P., Paris.—Children's books.</td>
</tr>
<tr>
<td>29</td>
<td>Deucher &amp; Co., Paris.—Works on art and architecture; chromo-lithographs, engravings and photographs.</td>
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<tr>
<td>30</td>
<td>Didier &amp; Co., Paris.—Academical books.</td>
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<tr>
<td>31</td>
<td>&quot;Gazette des Beaux Arts,&quot; Paris.—Specimens of the paper and its engravings.</td>
</tr>
<tr>
<td>33</td>
<td>Furnier, Jouvet, &amp; Co., Paris.—General literature.</td>
</tr>
<tr>
<td>34</td>
<td>Firmin Didot &amp; Co., Paris.—Illustrated literary works.</td>
</tr>
<tr>
<td>35</td>
<td>Laboulaye, Ch., &amp; Co., Paris.—Dictionary of arts and manufactures, and works concerning industrial art.</td>
</tr>
<tr>
<td>36</td>
<td>Jauast, D., Paris.—Literary works.</td>
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<tr>
<td>37</td>
<td>Jacqemin, Paris.—Historical costumes.</td>
</tr>
<tr>
<td>39</td>
<td>Hennuyer, Paris.—Books.</td>
</tr>
<tr>
<td>40</td>
<td>Hachette &amp; Co., Paris.—Educational, literary, and illustrated works.</td>
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<tr>
<td>41</td>
<td>Guillaumin &amp; Co., Paris.—Works on political economy and finance: &quot;Journal des Economistes.&quot;</td>
</tr>
<tr>
<td>42</td>
<td>Guérin, L., &amp; Co., Paris.—Works on science and art.</td>
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<tr>
<td>43</td>
<td>Lemerre, Alphonse, Paris.—Classical work.</td>
</tr>
<tr>
<td>44</td>
<td>Desteract, A., Paris.—Account books.</td>
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<tr>
<td>45</td>
<td>Leroy, André, Angers (Maine and Loire).—Pomological dictionary.</td>
</tr>
<tr>
<td>46</td>
<td>Leroy, P., N., Paris.—Illustrated historical works.</td>
</tr>
<tr>
<td>48</td>
<td>Loones, Paris.—History of painters.</td>
</tr>
<tr>
<td>49</td>
<td>Maison Rustique, Agricultural Library, Paris.—Works on agriculture and horticulture.</td>
</tr>
<tr>
<td>50</td>
<td>Marnel, H. de, New York.—Work on the commerce and industry of the United States.</td>
</tr>
<tr>
<td>51</td>
<td>Mame, A., &amp; Son, Tours.—Classical works.</td>
</tr>
<tr>
<td>52</td>
<td>Masson, G., Paris.—Works on medicine, natural history, etc.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

54 Plon & Co., Paris.— Illustrated works on history, jurisprudence, etc. 306
56 Delagrange, Ch., Paris.— Geographical and classical books. 306
57 Ballue, A., Paris.— Illustrated publications. 306
58 Balloy, A., Espaubeur (Oise).— Work on agriculture. 306
59 Baudry, T., Paris.— Works on engineering, mechanics, mining, metallurgy, and railroads. 306
60 Beckensteimer, Lyons.— Works on electricity. 306
61 Belin, Mrs., Paris.— Classical books; maps in relief. 306
62 Bellegarde, Col., Toulouse.— Report on hydrophobia; physiological reports. 306
63 Boulanger, Mrs., Paris.— Books. 306
64 Calman, Lévy, Paris.— Literature, history, and modern drama. 306
65 Charpentier & Co., Paris.— Various publications. 306
66 Colin & Co., Paris.— Classical books. 306
68 Rothschild, J., Paris.— Books. 306
69 Rudy, Charles, Paris.— The Chinese mandarin language. 306
70 Staaff, Paris.— Work on military tactics. 306
71 Tanera, Paris.— Topographical maps and plans of battles; military books. 306
72 Thirion, Ch., Paris.— Inventors' and patentees' tables. 306
73 Central Union of Fine Arts, Paris.— Albums and publications. 306
74 Chervin, Paris.— Method of curing stammering. 306
75 Dron, Paris.— Commercial books. 306
76 City of Paris.— Statistics, regulations, models, programmes, reports, books, and scholars' work of the schools of Paris; report on primary instruction by Mr. Gréard. 306

Institutions and Organizations.

77 Department of Public Education, Paris.— Regulations of the French Institute of the College of France, and the National Library; books and catalogues; report on primary education at the Vienna Exposition. 310
78 Chaix, A., & Co., Paris.— Scientific books. 311
79 Industrial School, St. Quentin and Asine.— Albums, cartoons, etc. 311
80 Elementary Education Society, Paris.— Pupils' works and report. 311
82 City of Paris.— Catalogue of the French section of the London Exhibition. 312
83 Bouvier, A., Paris.— Skeletons of gorillas; catalogue of the birds of Central Africa; map. 312
84 Department of Agriculture & Commerce, Paris.— Prizes awarded to agriculturists by various fairs. 312

Scientific and Philosophical Instruments and Methods.

85 Alvergniat Bros., Paris.— Scientific instruments. 320
86 Grivolt L., Paris.— Solar clock. 320
87 Lion & Guichard, Paris.— Barometers, thermometers, and pyrometers. 320
88 Louvet, A., Pont l'Evêque (Calvados).— Support for instruments. 320
89 Optical Society, Paris.
   a Mathematical instruments. 320
   b Optical instruments. 324
90 Mailigand, Ed., jr., Paris.— Alcohol tester. 320
91 Naudet & Co., Paris.— Barometers. 320
   a Instruments of precision. 320
   b Indicating apparatus. 321
93 Colange, Leo de, Philadelphia.— Automatic indicator. 321
94 Haas, B., jr., & Co., Paris.— a Carriage controllers. 321
   b Clocks, watches, musical boxes, and singing birds. 323
95 Nicolas & Chamon, Paris.— Water meters. 321
96 Rigolot, Paris.— Water meter. 321
97 Rubolti, Cesar, Grenoble.— Spigot meter. 321
98 Deschiens, Paris.— Calculating machines. 321
99 Fialont, Mrs., Paris.— Measuring tapes. 322
100 Chameroy & Co., Paris.— Scales. 322
101 Deleuil, Paris.— Photometer, scales, and pneumatic machines. 322
102 Panier, Ernest, Paris.— Mathematical instruments. 322
103 Faupier, Leonard, Paris.— Scales for railroads. 322
104 Trayvou, B., Paris.— Scales. 322
105 Savary & Rondeleux, Paris.— Gold and silver watches. 323
106 Boucher-Gravet, Paris.— Clocks. 323
107 Cressier, E., Besançon.— Watches and clocks. 323
108 Bréguet & Co., Paris.— Chronometers. 323
109‡ Hangard, Paris.— Springs for watches. 323
110 Farcot, Eugène, Paris.— Clocks. 323
110‡ Gondy, J. B., & Co., Pantallier (Doubs).— Watches. 323
111 Malfait, F., & Co., Paris.— Clocks. 323
111‡ Moat, Eugène, Paris.— Springs for watches. 323
112 Marrel, J. E., Paris.— Clocks. 323
113 Mayet-Tissot, Morez (Jura).— Regulators. 323

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Scientific and Musical Instruments, Engineering Designs.

114 Rodanet, A. H., Paris.—Marine and pocket chronometers, watches, and chains; clocks, registers. 323
115 Süssfeld, Lorsch, & Co., Paris.—Marble clocks. 323
116 Vignon, A., Paris.—Clocks. 323
117 Lachenal, Favre, & Co., Paris.—Stereoscopes with views on glass. 324
118 Bardou & Sons, Paris.—Optical instruments. 324
119 Darlot, Paris.—Photographic apparatus and photographs. 324
120 Derogy, Paris.—Optical instruments. 324
121 Duboscq, J., Paris.—Optical instruments. 324
122 Feil, Charles, Paris.—Optical goods. 324
123 Henry-Lepautre, Paris.—Lenses for lighthouses. 324
124 Hoel, J., Paris.—Spectacles and eyeglasses. 324
125 Lacombe, Paris.—Opera glasses. 324
126 Nacchet, A., Paris.—Microscopes. 324
127 Secrétan, Paris.—Astronomical and scientific instruments. 324
128 Radiguet, Paris.—Mirrors. 324
128—a Lemaire, Paris.—Eyeglasses, opera glasses, etc. 324
129 Loiseau, A., Son, Paris.—Electrical apparatus. 325
130 Bréguet, Paris.—Models of magneto-electric machines for laboratories. 325
131 Carré, E., Paris.—Pneumatic pumps, electrical machines, and light regulators. 325
132 Janin, Paris.—Magnets. 325
133 Gramme’s Magneto-Electric Machine Co., Paris.—Galvanoplasty machine, etc. 325
134 Walcker, A. G., Paris.—Pneumatic and telegraph bells applied to the navy and railways. 326
135 Alexandre & Son, Paris.—Church and parlor organs. 327
136 Anget & Dubreuil, Ivry-la-Batiale (Eure).—Wooden musical instruments. 327
137 Beunon, Paris.—Upright piano. 327
138 Baudet, Paris.—Pianos. 327
139 Bontems, B.—Singing and moving birds. 327
140 Brunning, Otto, Paris.—Upright pianos. 327
141 Debain & Co., Paris.—Mechanical piano. 327
142 Focké & Son, Paris.—Pianos. 327
143 Fortin Bros., Paris.—Pianos and organs. 327
144 Gavioli, C., jr., Paris.—Pianos and organs; automatic musical instruments. 327
145 Gavioli & Co., Paris.—Organs, pianos, flutes, and band instruments. 327
146 Gehring, Ch., jr., Paris.—Piano movements. 327
147 Goumas, P., & Co.,—Wind musical instruments and saxophone. 327
148 Koenig, Rudolph, Paris.—Acoustic apparatus. 327
149 Kriegelstein & Co., Paris.—Pianos. 327
150 Lecomte, A., & Co., Paris.—Musical instruments. 327
152 McNessson, Emil, Reims.—Violins, altos, basses, and double bass. 327
153 Morand & Tourneur, Paris.—Mechanical harmoniums. 327
154 Thibouville, Lamy, Paris.—Musical instruments. 327
155 Zimmermann, Henry, Paris.—Organ pipes. 327

Engineering, Architecture, Maps, etc.

156 Suez Canal Co., Paris.—Maps and plans of the Suez Canal. 330
157 Caligny, A. de, Versailles.—Report on hydraulics. 330
158 Blanchet, A. P., Henrichemont (Cher).—Projected channel through Nicaragua. 330
159 Chanudet, L., Neuwilly-sur-Seine.—Model of wooden pavement. 330
160 Le Moultrie, Paris.—Sample of pavement. 330
161 Department of Public Works, Paris.

a Roads, bridges, viaducts, dams, hydraulic press, docks, embankments, aqueducts, and reservoirs. 330
b Railroads: steel rails, depots, rolling stock, etc. 332
c Navigation: lighthouses, buoys, and beacons, with apparatus for lighting; lifesaving apparatus from the Life-Saving Society. 334
d Geological and agricultural maps, etc., of France; reports and documents from the National School of Mines. 335
162 Monteil & Cassaynes, Paris.—Technical report upon the Suez Canal. 330

163 City of Paris.—Reports of the various departments of the city of Paris, maps, plans, etc.; projected and completed bridges by Mr. Legrand; promenades by Mr. Alphand; architectural reports of public buildings by Messrs. Ballu, Baltard, Duc, Davioud, Magne, and Ferrand; portfolio of engravings of monuments; historical works; plan of Paris by Quesnal; archaeological reports by Vacquer; photographs; reports and plans of the sewers of Paris. 330
164 Edox, Leon, Paris.—Special system for mountain railways. 330
165 Transatlantic Steamship Co., Paris.—Model of the steamship “Pereire.” 334
166 Beaumarchey, Louis, Aix (Provence).—Astronomical maps and pictures, astronomical indicator, cosmographic apparatus. 335
167 Pay, de, War Department, Paris.—Relief plans. 335
168 Richard, Paris.—Geographical maps. 335
169 Furne, Jouvet, & Co., Paris.—Geographical military atlas adopted by the military school of St. Cyr. 335

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### DEPT. III.—EDUCATION AND SCIENCE.

**Engineering Designs, Physical Apparatus, Benevolence.**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>170</td>
<td>D'Italo, Enrico F., Paris.—Geographical works, atlas, and maps. 335</td>
</tr>
<tr>
<td>171</td>
<td>Thomas, Paris.—Chronometric and cosmographic instruments. 335</td>
</tr>
<tr>
<td>172</td>
<td>Wührer, L., Paris.—Geographical maps. 335</td>
</tr>
<tr>
<td>173</td>
<td>Lienard, F.—Plans in relief, of Paris and Jerusalem. <em>(In Park)</em> 335</td>
</tr>
</tbody>
</table>

**Physical, Social, and Moral Condition of Man.**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>174</td>
<td>Brière, Jules, Alençon (Orne).—Nursing-nipples. 340</td>
</tr>
<tr>
<td>175</td>
<td>Carue, Paris.—Gymnastic apparatus. 340</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>176</td>
<td>Paz, E., Paris.—Gymnastic apparatus. 340</td>
</tr>
<tr>
<td>177</td>
<td>Regnier, Paris.—Economical wooden roofing. 342</td>
</tr>
<tr>
<td>178</td>
<td>Thirion, Ch., Paris.—Writing tablets. 343</td>
</tr>
</tbody>
</table>

**Society of Comparative Legislation, Paris.—Legislative works. 345**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>179</td>
<td>Marbeau, Paris.—Plans, documents, etc., of a foundling hospital. 346</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180</td>
<td>City of Paris.</td>
</tr>
</tbody>
</table>

* For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
<table>
<thead>
<tr>
<th>Books, Maps, Engravings, Type.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Systems, Methods, and Libraries.</td>
</tr>
<tr>
<td>C O L L E C T I V E E X H I B I T O F T H E</td>
</tr>
<tr>
<td>of Germany.—Books, Lithographic</td>
</tr>
<tr>
<td>prints, Copper-plate and xylographic</td>
</tr>
<tr>
<td>work, Maps, photographs, graphic,</td>
</tr>
<tr>
<td>type founders' work.</td>
</tr>
<tr>
<td>Ackermann, Theodore, Munich.—</td>
</tr>
<tr>
<td>Books with engravings.</td>
</tr>
<tr>
<td>Amelang, C. F., Leipsic.—Books.</td>
</tr>
<tr>
<td>André, Joh., Offenbach-on-Main.—</td>
</tr>
<tr>
<td>Musical publications.</td>
</tr>
<tr>
<td>Bach, I. G., Leipsic.—Lithographs.</td>
</tr>
<tr>
<td>Baedeker, G. D., Essen.—Books.</td>
</tr>
<tr>
<td>Badecker, J., Iserlohn.—Illustrated books.</td>
</tr>
<tr>
<td>Badecker, Carl, Leipsic.—Books.</td>
</tr>
<tr>
<td>Bauer's Type Foundry, Frankfort-on-Main.—Type, etc.</td>
</tr>
<tr>
<td>Bomsdorf, Oscar von, Leipsic.—</td>
</tr>
<tr>
<td>Maps.</td>
</tr>
<tr>
<td>Albums.</td>
</tr>
<tr>
<td>Brandstetter, Friedrich, Leipsic.—</td>
</tr>
<tr>
<td>Illustrated and other books.</td>
</tr>
<tr>
<td>Breidenbach &amp; Baumann, Dusseldorf.—Art publications.</td>
</tr>
<tr>
<td>Breitkopf &amp; Härtel, Leipsic.—Musical classics, catalogue, etc.</td>
</tr>
<tr>
<td>Brockhaus, F. A., Leipsic.—Books and maps.</td>
</tr>
<tr>
<td>Back, Leipsic.—Publications.</td>
</tr>
</tbody>
</table>
54a Hirschman, I. M., Offenbach-on-Main.—Labels and signs.
55 Hirt, Ferdinand, Breslau.—School books.
56 Hirt & Son, Leipsic.—Geographical publications.
57 Hirzel, Solomon, Leipsic.—Dictionary and books.
58 Hofmeister, Fr., Leipsic.—Musical publications.
59 Hunderstund & Pries, Leipsic.—Engravings and prints.
60 Bibliographic Institute, Leipsic.—Classics, books of travel, and maps.
61 Geographical Institute, Weimar.—Atlases, maps, and globes.
62 Photo-lithographic Institute, Weimar.—Maps.
63 Isselb & Rietzschel, Gera.—Atlases, maps, and books.
65 Kaebeleg, Hugo, Leipsic.—Wood cuts.
66 Kafemann, A. W., Dantzic.—Books, etc.
67 Kern, I. U., Breslau.—Books.
68 Kirmayr, Max, Munich.—Map.
69 Klingen, Leipsic Bros., Detmold.—Scientific publications.
71 Kochler, Carl, Darmstadt.—Chromolithographic views, etc.
72 Kortkampf, Fr., Berlin.—Legal and political books.
72a Kressner, L., Wurtzburg.—Surgico-pathological tables.
73 Kratzschmar, Fr., Leipsic.—Lithographs.
74 Langenscheid Publishing House, Berlin.—Dictionaries and school books.
74a Leipsic Gazette, Leipsic.—"Leipsic Gazette."
75 Lesimpe, Adolf, Mayence.—Books.
76 Leukart, Breslau.—Medical works.
77 Lorc, Carl B., Leipsic.—Books.
78 Lüderitz, C. G., Berlin.—Books.
78a Mauke, W., Leipsic.—Housebook.
79 Mayer, Edward Heinrich, Cologne.—Books.
80 Meinhold, C. C., & Sons, Dresden.—Anatomical atlas.
81 Meissner, Otto, Hamburg.—Books.
82 Meissner & Buch, Leipsic.—Lithographs, etc.
82a Mentzel, A., Leipsic.—Books.
83 Mey & Widmayer, Munich.—Art publications.
84 Müller, C. Ed., Bremen.—Books.
85 Naumann, C. G., Leipsic.—Job printing.
86 Naumann, Justus, Leipsic.—Biblical pictures.
87 Nicolai's Publishing House, Berlin.—Books.
89 Nitzsche, Wilhelm, Stuttgart.—Atlases.
89a Oehmigke's Publishing House, Leipsic.—School books, etc.
90 Paetel Bros., Berlin.—Books.
91 Perthes, Justus, Gotha.—Atlases, etc.
92 Peters, C. F., Bureau de Musique, Leipsic.—Music.
92a Polz, E., Leipsic.—Leipsic "Tage-blatt."
93 Reimer, Dietrich, Berlin.—Maps, etc.
94 Röder, C. G., Leipsic.—Prints, etc.
95 Rommel, Wilhelm, Frankfurt-on-Main.—Illustrated heraldic works.
96 Römmel & Jonas, Dresden.—Prints.
97 Schlegel, Ernst, Aschersleben.—Art plates.
98 Schmidt, H. W., Halle-on-Saale.—Books.
98a Schmidt, Heinr. & Günther, Carl, Leipsic.—Books.
99 Schönfeld, G., Dresden.—Books.
101 Schotte & Co., Ernst, Berlin.—Globes, maps, etc.
102 Schreiber, J. F., Esslingen.—Picture books.
104 Seemann, E. A., Leipsic.—Books.
105a Schwann, L., Neuss.—Publications.
105b Schulze, Oldenburg.—Books.
106 Siegismund & Volkening, Leipsic.—Educational literature.
108 Sonneken, Fr., Remscheid.—Writing books.
109 Spamer, Otto, Leipsic.—Books.
110 Spemann, W., Stuttgart.—Art works.
110a Spiller, Ph., Berlin.—Books.
111 Springer, Julius, Berlin.—Books.
112 Steinhaus, J. F., Bremen.—Bibles.
113 Storch & Kramer, Berlin.—Chromos.
115 Strumper & Co., Hamburg.—Prints.
117 Tauchnitz, Bernhard, Leipsic.—Publications.
118 Tegetmeyer, Ferdinand, Leipsic.—Wood engravings.
119 Trefwundt, Eduard, Breslau.—Books and maps.
120 Voltz & Clasing, Leipsic.—Illustrated journals, religious works, etc.
121 Veith, J., Carlsruhe.—Art publications.
122 Vogel, F. C. W., Leipsic.—Books.
123 Voss, Leopold, Leipsic.—Books.
123a Wachsmuth, F. E., Leipsic.—Animal pictures.
123b Waldow, A., Leipsic.—Books and periodicals.
124 Wagner, R., Berlin.—Plates.
125 Wagner, H., & Debes, C., Leipsic.—Plates and maps.
126 Weber, J. J., Leipsic.—Diaries, etc.
128 Weigel, T. O., Leipsic.—German and Latin works.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Educational Appliances, Scientific and Musical Instruments, Clocks.

129 Westermann, George, Brunswick. — School books.
130 Wiegandt, Hempel, & Parey, Berlin. — Books on agriculture, etc.
131 Wigand, George, Leipsic. — Religious books, atlas, etc.
132 Wigand, Otto, Leipsic. — Dictionaries, year books.
133 Winter, C. F., Leipsic. — Illustrated works.
134 Wolf, Adolph, Dresden. — Illustrated journals and chronos.
136 Zernin, Eduard, Darmstadt. — Works on military science.

137 Hermes, Wilhelm, Berlin. — Drawing instructor and studies. 300
139 Grothe, Hermann, Berlin. — Apparatus for instruction in technical schools.
140 Steff, Paul, Berlin. — Books on furnaces, ovens, kilns, etc. 302
141 Raumer, C. V., Warmbrunn, Silesia. — Instruction book for the manufacture of bricks. 302
142 Blankenhorn, A., Carlsruhe. a Instruction books for wine growing and agriculture. 3.6
b Ecological reviews. 3.6
143 Keller, Heinrich, Son, Darmstadt. — Herbarium of forest and field grasses. 302
144 Schröder, J., Polytechnic Industrial Institute, Darmstadt. — Models for teaching purposes, drawing appliances. 302
145 Lette, Association, Commercial and Trades School, Berlin. — Placard relating to the labors of the Association. 302
146 Stenographial Society of Stolze, Berlin. — Books, reports, etc. 3.6
147 Moeser, W., Berlin. — Sundy literary works. 3.6
148 Bavarian Museum of Arts, Nuremberg. — Publications, communications, etc. 3.6

Scientific and Philosophical Instruments and Methods.

151 Riefler, Clem., Maria-Rhein, near Kempten. — Mathematical instruments. 320

COLLECTIVE EXHIBIT OF NUREMBERG: MATHEMATICAL INSTRUMENT MANUFACTURERS. 320

153 Schoenner, Georg, Nuremberg.
154 Bayer, Jean, Nuremberg.
155 Heisinger, Ludwig, Nuremberg.
156 Schultze, G. A., Berlin. — Philosophical apparatus. 321
157 Schäffer & Badenberg, Buckau. — Water gauges. 321
158 Sartorius, F., Göttingen. — Analytical scales. 321

COLLECTIVE EXHIBIT OF THE BLACK FOREST CLOCK MANUFACTURERS. 323

157 Lenzkirch Joint Stock Co., Lenzkirch.
158 Schwer, Benedict, jr., Triberg.
159 Haas, Ph., & Sons, St. Georgen.
160 Wehrle, Em., & Co., Furtwangen.
161 Kaltenbach, Leo, Furtwangen.
162 Ketterer, B., Sons, Furtwangen.
163 Bob, Lorenz, Furtwangen.
164 Beha, J. Baptist, & Sons, Eisenbach.
165 Weishaupt & Pfeig, Villingen.
166 Feser, Paul, Villingen.
167 Maurer & Höfner, Eisenbach.
168 Zimmer, J., Furtwangen.

169 United Clockmakers of Glashütte, Saxony. — Clock parts. 324
170 Becker, Gustav, Freiburg, Silesia. — Regulators.
171 Felsing, Conrad, Berlin. a Regulators, etc. 323
b Music boxes, melodions. 327
172 Hadank & Son, Hoyerswerda, Upper Lusatia. — Steeple clock and bell. 323
173 Lange, A., & Sons, Glashütte, Saxony. — Watches and watch parts. 323
174 Voigtlaender & Son, Brunswick. — Photographic objectives, opera glasses, field glasses, and telescopes. 324
175 Hirschmann, V. A., Berlin. — Electrical apparatus for medical use. 325
176 Joint Stock Co. for Telegraph Supplies, Berlin. — Materials for insulators. 326

COLLECTIVE EXHIBIT OF MUSICAL INSTRUMENTS AND STRINGS. 327

176 Přetzschner, G. A., Markneukirchen, Saxony.
177 Bauer, Albin, jr., Markneukirchen, Saxony.
178 Paulus & Schuster, Markneukirchen, Saxony.
182 Adler, Richard, Markneukirchen, Saxony.
183 Kämpfe, Gustav, Markneukirchen, Saxony.
184 Paulus, Ernst, Markneukirchen, Saxony.
185 Paulus, August, Markneukirchen, Saxony.

COLLECTIVE EXHIBIT OF MOUTH HARMONICAS. 327

187 Bilger, Chr., Trossingen.
188 Höhner, Math., Trossingen.
189 Koch, Andreas, Trossingen.
190 Messner & Co., Trossingen.
191 Hotz, Fr., jr., Knittlingen.
192 Jäger, Gottlob, Knittlingen.
193 Jäger, Joshua, Knittlingen.

194 Müller, C. A., Unterwiesenthal. — Gutstrings. 3.7
195 Euler, A. W., Frankfort-on-Main. — Clarinets, flutes, etc. 3.7
197 Pfaff, F., Kaiserslautern. — Brass and wood instruments. 3.7

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
### Musical Instruments, Statistics, Coins.

<table>
<thead>
<tr>
<th>Number</th>
<th>Vendor</th>
<th>Location</th>
<th>Item</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>198</td>
<td>Stratton, John F., &amp; Co., Gohlis</td>
<td>near Leipzig</td>
<td>Violins, etc.</td>
<td>327</td>
</tr>
<tr>
<td>199</td>
<td>Altenburg &amp; Graue, Bremen</td>
<td></td>
<td>Piano</td>
<td>327</td>
</tr>
<tr>
<td>200</td>
<td>Blüthner, Julius, Leipzig</td>
<td></td>
<td>Concert grand piano and piano</td>
<td>327</td>
</tr>
<tr>
<td>201</td>
<td>Ibach, Rudolfe, &amp; Son, Barmen</td>
<td></td>
<td>Concert grand piano and piano</td>
<td>327</td>
</tr>
<tr>
<td>202</td>
<td>Kaps, Ernst, Dresden</td>
<td></td>
<td>Concert grand piano</td>
<td>327</td>
</tr>
<tr>
<td>203</td>
<td>Neumann, F. L., Hamburg</td>
<td></td>
<td>Piano</td>
<td>327</td>
</tr>
<tr>
<td>204</td>
<td>Schiedmayer, J., Stuttgart</td>
<td></td>
<td>Concert grand piano and harmoniums</td>
<td>327</td>
</tr>
<tr>
<td>205</td>
<td>Schwenken, G., Berlin</td>
<td></td>
<td>Pianos</td>
<td>327</td>
</tr>
<tr>
<td>206</td>
<td>Seiler, Edward, Liegnitz</td>
<td></td>
<td>Piano</td>
<td>327</td>
</tr>
<tr>
<td>207</td>
<td>Stahlecker, C. F., Stuttgart</td>
<td></td>
<td>Metral piano</td>
<td>327</td>
</tr>
<tr>
<td>208</td>
<td>Gläsel, Moritz, Markenkirchen</td>
<td></td>
<td>Guitars, citherns, violins, etc.</td>
<td>327</td>
</tr>
<tr>
<td>209</td>
<td>Haslwanter, J., Munich</td>
<td></td>
<td>Citherns</td>
<td>327</td>
</tr>
<tr>
<td>210</td>
<td>Tiefenbrenner, Georg, Munich</td>
<td></td>
<td>Citherns</td>
<td>327</td>
</tr>
<tr>
<td>211</td>
<td>Walcker, E. F., &amp; Co., Ludwig</td>
<td></td>
<td>Church organ</td>
<td>327</td>
</tr>
<tr>
<td>212</td>
<td>Welte, M., &amp; Sons, Freiburg</td>
<td></td>
<td>Organ</td>
<td>327</td>
</tr>
<tr>
<td>213</td>
<td>Trayser, Ph. L., &amp; Co., Stuttgart</td>
<td></td>
<td>Cabinet organs</td>
<td>327</td>
</tr>
<tr>
<td>214</td>
<td>Geyer, W. &amp; Ed., Bros., Eisenberg</td>
<td></td>
<td>Buckskin for piano manufacturers' use</td>
<td>327</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
AUSTRIA.

(South of Nave, Columns 23 to 28.)

Educational and Engineering Appliances, Scientific Instruments.

Educational Systems, Methods, and Libraries.

1. Municipality of Vienna.—Photographs of objects pertaining to education. 309
2. Fuchs, John Bapt., Emmerich, Gaming.—Artistic penmanship. 309
3. Delhez, Constantine, Vienna.—Gymnastics of the senses. 300
4. Brunn, Dr., Vienna.—Plaster cast of the human face. 205
5. Politzer, Adam, Vienna.—Anatomical, pathological preparations of the organs of hearing. 302
6. Pechar, John, Teplitz, & A. Pez, Vienna.—Statistics of the import, export, and consumption of cotton in Austria in 1871. 305
7. Lehmann, Adolf, Vienna.—Residence and business directory. 306

Institutions and Organizations.

11. Schmitt, Hans, Vienna.—Piano study and compositions. 313

Scientific and Philosophical Instruments and Methods.

13. Kraft, E., & Son, Vienna.—Mathematical instruments. 329
14. Kriedl, Alois, Prague.—Chemical and physical apparatus for schools. 320
15. Kreuter, Franz, Brunn.—Tachometer, distance poles, leveling poles. 320
16. Lenoir & Forster, Vienna.—Chemical, physical, and mineralogical apparatus. 320
17. Paugger, F., Trieste.—Nautical instruments. 329
18. Florenz, Joseph, Vienna.—Scales and balances, gold and silver precision balances, balance scales, table balances. 322
19. Schmidt, John, Vienna.—Measuring and regulatng apparatus for petroleum. 322
22. Richter, C. W., Oedenburg.—Optical instruments, spectacles. 324
23. Plossl, S., & Co., Vienna.—Mechanical and optical instruments. 324
24. Kiendl, A., Vienna.—Cherns. 327
25. Cerveny, V. F., Koniggratz.—Musical instruments of wood and metal. 327
26. Bohland & Fuchs, Graslitz.—Metal instruments. 327
27. Fuchs, Daniel, Vienna.—Metal instruments. 327
29. Farsky, John F., Pardubitz.—Wind instruments. 327

31. Laussmann, John W., Linz.—Wood and metal wind instruments. 327
34. Placht Bros., Vienna.—Musical instruments. 327
37. Stecher, Karl, Vienna.—Musical wind instruments. 327
38. Thie, William, Vienna.—Mouth musical instruments. 329
40. Kirchner Bros., Vienna.—Guitar and violin strings. 327
41. Robitschek, H., Vienna.—Mouth musical instruments. 327

Engineering, Architecture, Maps, etc.

COLLECTIVE EXHIBIT OF ENGINEERING AND ARCHITECTURAL PHOTOGRAPHS, MODELS, DESIGNS, REPORTS, AND PLANS. 332 to 355

42. Vienna Building Association, Vienna.
43. Battig, Anton, Chief Engineer of the State Railroad Co., Vienna.
44. Bayer, Rudolph, Vienna.
45. Bomches, Fred., Trieste.
46. Claus, Heinrich & Gross, Vienna.
47. Fellner, Fred., & Hermann Helmer, Vienna.
47a. Friedmann, Alex., Vienna.
48. Doderer, Wilh., Vienna.
49. Danube Regulation Commission, Vienna.
49a. Helmer, Hermann, Vienna.
50. Dorfel, Julius, Vienna.
51. Hornig, Dr. Emil J. R., Vienna.
51a. Rziha, Franz, Vienna.
54. Schmidt, Heinrich, Inspector-General of the State Railroad Co., Vienna.
55. Forster, Emil Ritter von, Vienna.
56. Fraenkel, Wilh., Vienna.
57. Gaertner, Ernst, Vienna.
60. Hintrager, Moritz, Vienna.
61. Hubek, Peter, Vienna.
62. Holder, Alfred, Vienna.
63. Schmoranz, Franz, Vienna.
64. Klein Bros., Vienna.
65. Klinzinger, Paul, in Belinzoa.
66. Delhez, Constantine, Vienna.
67. Lazar, Adolph, Vienna.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 27-45.
### DEPT. III.—EDUCATION AND SCIENCE.

#### Engineering Designs, Commercial and Industrial Statistics.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>City</th>
</tr>
</thead>
<tbody>
<tr>
<td>68</td>
<td>Lehmann &amp; Wentzel</td>
<td>Vienna</td>
</tr>
<tr>
<td>69</td>
<td>Loh, August Ritter</td>
<td>Vienna</td>
</tr>
<tr>
<td>70</td>
<td>Frankl, Ludwig August</td>
<td>Vienna</td>
</tr>
<tr>
<td>71</td>
<td>Morawitz, Moritz</td>
<td>Vienna</td>
</tr>
<tr>
<td>73</td>
<td>Obach, Theodore</td>
<td>Vienna</td>
</tr>
<tr>
<td>74</td>
<td>Paradiser, W.</td>
<td>Pola</td>
</tr>
<tr>
<td>75</td>
<td>Neitsche, R.</td>
<td>Olmütz</td>
</tr>
<tr>
<td>76</td>
<td>Popovits, Lazar</td>
<td>Marchegg</td>
</tr>
<tr>
<td>77</td>
<td>Schachner, Friedrich</td>
<td>Vienna</td>
</tr>
<tr>
<td>78</td>
<td>Rumpelmayer, Victor</td>
<td>Vienna</td>
</tr>
<tr>
<td>79</td>
<td>Schlimp, Carl</td>
<td>Vienna</td>
</tr>
<tr>
<td>80</td>
<td>Schmidt, Friedr.</td>
<td>Vienna</td>
</tr>
<tr>
<td>81</td>
<td>Schmidt, Heinrich</td>
<td>Vienna</td>
</tr>
<tr>
<td>82</td>
<td>Schmoll, Adolph von</td>
<td>Eisenwerth</td>
</tr>
<tr>
<td>83</td>
<td>Schon, John George</td>
<td>Brunn</td>
</tr>
<tr>
<td>84</td>
<td>Schrabetz, Emil</td>
<td>Vienna</td>
</tr>
<tr>
<td>85</td>
<td>Serres, August de</td>
<td>Vienna</td>
</tr>
<tr>
<td>86</td>
<td>&quot;Stadtbauamt of Vienna.&quot;</td>
<td>Vienna</td>
</tr>
<tr>
<td>87</td>
<td>Tilp, Emil</td>
<td>Vienna</td>
</tr>
<tr>
<td>88</td>
<td>Pechar, Johann</td>
<td>Teplitz</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see "Classification, pp. 27-45.

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### Physical, Social, and Moral Condition of Man.

- 96 Commission in Vienna for the Philadelphia Exhibition, Vienna.—Graphical representation of the productions and foreign commerce of Austria, of its savings banks, etc. 343
- 96 Frankl, Lewis A., Vienna.—Plans and descriptions of the Institute for the blind in Vienna. 346
- 97 First Ordinary Civil Social Union of the Austro-Hungarian Monarchy, Vienna.—Representation of the activity and development of co-operative union of the Austro-Hungarian monarchy. 347
SWITZERLAND.
(North of Nive, Columns 52 to 55.)


Educational Systems, Methods, and Libraries.
1 Board of Education of the Canton of Appenzell Ausserrhoden.—Laws and regulations, books, maps, and plans. 300
2 Board of Education of the Canton of Basle City.—Annual accounts of the department of public instruction, reports and prospectus of the schools, school-books, plans of the Bernoullianum, special schools. 300
3 Board of Education of the Canton of Berne.—Obligatory and facultative text books and apparatus used in elementary and higher schools, laws and regulations, reports and plans. 300
4 Board of Education of the Canton of Fribourg.—Laws and regulations, books, maps, and plans. 300
5 Board of Education of the Canton of Geneva.—Obligatory and facultative text books and apparatus used in elementary and higher schools, laws and regulations, reports and plans. 300
6 Board of Education of the Canton of Lucerne.—Laws and regulations, books, maps, and plans. 300
7 Board of Education of the Canton of Neuchâtel.—Laws and regulations, books, maps, and plans. 300
8 Board of Education of the Canton of Solothurn.—Laws and regulations, books, maps, and plans. 300
9 Board of Education of the Canton of Zurich.—Obligatory and facultative series of books and apparatus used in elementary and higher schools, models and maps for instruction in drawing, laws and regulations, reports and plans. 300
10 Kindergarten, St. Gallen.—Collection of work and employments for children: "the education of children according to Fröbel's principles," by J. Wellauer, director of the orphan asylum St. Gallen, 1872, annual reports, statutes, and prospectus. 300
11 Beust, F., Hottingen, near Zurich.—Educational system, constructive method, for children of five to twelve years, text books, maps, models, apparatus, and pupils' work in mathematics, geography, and natural history. 300
12 Zollikofer Female Seminary, Romanshorn, Ct. Thurgau.—Publications, manuscripts, album of works executed by pupils. 300
13 Bachmann, Franz, Winikon, Ct. Lucerne.—Intuitive principle of instruction, tables and appliances. 300

14 Ferri, Felix, Lugano, Ct. Tessin.—Tables and album for the drawing of architectural ornaments. 300
15 Ganz, J., Zurich.—Photographs of microscopic preparations for instruction in natural sciences. 300
16 Hindermann & Siebenmann, Zurich.—Illustrations for little children, M. Staub's method. 300
17 Götzinger, Dr. E., St. Gallen.—Systematic course of topographical drawing. 300
18 Hofer, J. J., Zurich.—Korrodi's copy-writing-books. 300
19 Kaiser, Dr., St. Gallen.—Table for instruction in chemistry. 300
20 Keller, Heinrich, Zurich.—Large school map of Switzerland. 300
20a Lussy, Mathis, Stanz, Ct. Unterwalden.—Systematical course for musical studies. 300
21 Unterstrass Modeling School, near Zurich.—Pupils' work in modeling. 300
22 Paroz, J., Peseux, Ct. de Neuchâtel.—History of pedagogy, elementary instruction, intuitive multiplication table, table for the learning of fractions. 300
23 Rikli, Carl, Wangen, Ct. Berne.—Historical and chronological tables. 300
24 Sterlin, Dr. R., Lucerne.—Model of the glacier garden at Lucerne. 300
25 Steidinger, J., Thervyl, Ct. Basle-Land.—Writing-copies for the French ronde. 300
26 Zwicky-Laager, C., Mollis, Ct. Glarus.—Atlas of drawings for elementary schools. 300
27 Larglaéder, Rorschach, Ct. St. Gallen.—School-bench with movable reading-desk. 300
28 Saint George, W. H., de Nyon, Ct. de Vaud.—Treatise on the construction and hygiene of school-houses. 300
29 Agricultural & Professional College of Suisse romande, Serix, near Oron, Ct. de Vaud.—Statutes. 300
30 Free School for Apprentices, St. Gallen.—Report of the institution, selection of pupils' work. 300
31 Industrial School Association, Zurich and vicinity.—First report, 1875. 300
32 Asylum for Girls, B. Rittmeyer & Co., St. Gallen.—Reports, 1869-1873. 300
33 Dairy Station, Lausanne, Mont Riolent, Canton de Vaud.—Collection of writings on dairying and on Alpine cultivation. 300

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
34 Drawing School of the Board of Trade, St. Gallen.—Competition works of pupils, album of drawings by pupils, school report. 302
35 Blind Asylum, Lausanne, Ct. Vaud.—General regulations, Lausanne, 1864; reports, 1873–1874. 302
36 Private Blind Asylum, Berne.—Statutes, Berne, 1874; constitutional report, 1862; annual reports, 1869 to 1874. 303
37 Deaf & Dumb Asylum, Canton Vaud, Moudon.—Regulations, 1874. 303
38 Institution for Deaf Mutes, Aarau, Ct. Aargau.—Report, 1874. 303
39 Institution for Deaf Mutes, Richen, near Basle.—Prospectus, reports, and accounts, 1874; list of lessons, 1872–1876; view of the establishment; travels, by G. J. Jarrel, courses of study and appliances of instruction. 303
40 Institution for Deaf Mutes, St. Gallen.—Statutes of the Society for the Education of Deaf and Dumb Children, annual reports, 1873–1875. 305
41 Institution for Childless Children, Weissenheim, near Berne.—Annual reports, Berne, 1869 and 1872. 303
42 Federal Statistical Office.—Statistics of public instruction in Switzerland, by H. Kinkel. 304
43 Federal Polytechnical School, Zurich.—Report on the organization, laws, and regulations, plans of the localities. 304
44 Christen, J. J., Aarau.—Manuals for instruction, school books. 306
45 Dalp, J., Berne.—Manuals for instruction, school books. 306
46 Hitz, Chur, Ct. Graubünden.—Manuals for instruction, school books. 306
47 Huber, Jacques, Frauenfeld.—Pedagogical reviews, school books, drawing, musical works, agricultural instruction. 306
48 Meisel, C. J., Horgen, Ct. Appenzell, Inner Rhoden.—Manuals for instruction, school books. 306
49 Orell, Füssli, & Co., Zurich.—Manuals for instruction, school books. 306
50 Sauerländer, H. R., Aarau, Ct. Aargau.—Manuals for instruction, school books. 306
51 Schenklin & Zollikofer, St. Gallen.—Collection of manuals, books of instruction, maps. 306
52 Shultess, Friedr., Zurich.—Manuals for instruction, school books. 306
52a Sonderegger, Y. Y., St. Gallen.—Manuals for instruction. 306

Institutions and Organizations.
53 Federal Statistical Office.—The savings banks of Switzerland, by J. L. Shulthess, statistics of the newspapers in Switzerland, by Kinkel; history of the schools of the Canton of Berne, by J. J. Kummer. 311
54 Swiss Geodetical Commission.—Determination of longitudes, determination of pendulum-lengths, leveling of Switzerland. 311
55 Swiss Geological Commission.—Geology and geological maps of Switzerland. 311
56 Swiss Meteorological Commission.—Meteorological observations. 311
57 Swiss Statistical Society.—The mutual relief societies of Switzerland in 1865, by H. Kinkel; the public libraries in Switzerland in 1866, by E. Heitz. 311
58 Swiss Society for the Advancement of Natural Philosophy.—New memoirs, minutes, and reports; history of the society, statutes, list of members. 312
59 Swiss Historical Society.—List of documents on Swiss history, archives of Swiss history, indicator for Swiss history. 312
60 Swiss Alpine Club.—Annual reports, itineraries, maps. 311
61 Association of the Canton of Aarau for the Advancement of Natural Philosophy.—The scarcity of water in the Canton of Aarau, paper read at the 50th session, map of erratic blocks. 312
62 Historical Society, St. Gallen.—Reports, annual papers. 311
63 Society for the Advancement of Natural Philosophy, Basle.—Proceedings 1867–1873, paper read at the 50th anniversary. 311
64 Society for the Advancement of Natural Philosophy, Berne.—Proceedings 1863–1874. 311
65 Society for the Advancement of Natural Philosophy of the Canton of Graubünden.—Annual reports, statutes, papers on natural sciences. 311
66 Society for the Advancement of Natural Philosophy of the Canton of St. Gallen.—Reports and proceedings 1858–1874, and speech at the 50th anniversary by Dr. Wartmann. 311
67 Observatory, Neuchatel.—Reports and divers papers, photographs of astronomical instruments. 312

Scientific and Philosophical Instruments and Methods.
68 Gysi, Fr., Aarau, Ct. Aargau.—Complete collection of mathematical drawing instruments. 313
69 Herman & Pfister, Berne.—Polaris-trometers, hair-hygrometers, metallic thermometer. 320
70 Hipp, M., Neuchatel.—

a Chronoscope and chronograph with auxiliary apparatus. 320
b Registering apparatus. 321
c Regulators, tower, double dial, and electric clocks. 323
d Telegraph apparatus, Morse’s system. 326
71 Kern, J., Aarau, Ct. Aargau.—Swiss drawing instruments, transits, theodolites, leveling instruments. 320
72 Amsler-Laffon, J., Schaffhausen.—Planimeters, integrators, Wolfram’s current meter with electrical indication. 321
73 Aebl & Landry, Madretschi, near Biel, Ct. de Berne.—Watches and pieces showing the successive phases of the fabrication. 323
74 Watch-makers’ Union (J. B. Gondy & Co.), Chaux-de-Fonds, Ct. Neuchatel.—Gold and silver watches. 324

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 47–45.
Watches, Jewelry, Musical Instruments, Engineering Designs.

75 Antony Bovy, J. E., Chaux-de-Fonds, Ct. Neuchâtel.—Watch-hands, stems, springs, detached parts for stem-winders, steel cogwheels. 323
76 Aubert Bros., Savagnier, Ct. Neuchâtel.—Springs for watches. 323
77 Audemars, L., Brassus, Ct. Vaud.—Watches and chronometer springs. 323
78 Badollet, J. M., & Co., Geneva.—Watches and pocket chronometers. 323
79 Bmmoii Broii., Bienne, Ct. Berne.—Hair-springs of steel, tempered. 323
80 Berlie, Edouard, Geneva.—Lamina of hardened steel for lithographic pens and springs of watches. 323
81 Besancot-Blanc, Eug., Travers, Ct. Neuchâtel.—Ruby jewels for watches, cap jewels, jewelings of a repeating watch, two bridges with jewels set in gold, duplex rollers, English style; impulse jewels for chronometer escapements, cylinders and plugs. 323
82 Bitterlin-Schmidt, J. B., Locle, Ct. Neuchâtel.—Precious stones and jewels for jewelers and watch manufacturers, diamond powder. 323
83 Borel & Courvoisier, Neuchâtel.—Chronometers, watches, and movements of watches. 323
84 Breitling Bros., Locle, Ct. Neuchâtel.—Pocket chronometers, lever escapement, spring, with Philipp's system of double-curve. 323
85 Fleischmann, Fritz, Piquet, & Co., Geneva.—Temperéd steel for spirals. 323
86 Huguenin, A., & Son, Locle, Ct. Neuchâtel.—Watches, chronometers, and detached pieces. 323
87 Colliot Désiré, St. Imier, Ct. Berne.—Silver watches. 323
88 Corcelle, J., & Co., Geneva.—Enamel watch-dials. 323
89 Didisheim, Gabriel, St. Imier, Ct. Berne.—Watches. 323
90 Ducqcommun, D., Gorgier, Ct. Neuchâtel.—Movements of watches, stem-winders and key-winders. 323
91 Du foix, Lutz, & Son, Geneva.—Watch spirals. 323
92 Ekegrén, Hr., Geneva.—Chronometers. 323
93 Favre Bros., Neuvyville, Ct. Berne.—Watches of silver and German steel. 323
94 Francillon, Ernest, & Co., St. Imier, Ct. Berne (Longines Watch Co.).—Watches, watch movements, detached pieces for key and stem-winders. 323
95 Frankfeld, Louis, & Co., Geneva.—Chronographs, star-watches, movements, patent stem-winders. 323
96 Grandjean, Hr., & Co., Locle, Ct. Neuchâtel.—Marine and pocket chronometers, watches. 323
97 Grandjean-Perronoud, Henry, Chaux-de-Fonds, Ct. Neuchâtel.—Engraved movements for watches. 323
98 Honeyger, G., Bienne, Ct. Berne.—Movements of platina, nickel, and parts of watches. 323
99 Humbert, Ernest, Locle, Ct. Neuchâtel.—Watches. 323

100 Jacot Bros., Locle, Ct. Neuchâtel.—Pocket chronometers. 323
101 Jeanjaquet, Chs., Neuchâtel.—Springs for watches, steel for lithographic pens. 323
102 Klein, E., Geneva.—Springs for watches. 323
103 Ingold, P. F., Chaux-de-Fonds, Neuchâtel.—Cutters for giving the teeth of watch wheels the true form. 323
104 Martin, Ch., & Co., Geneva.—Neuchâtel chronometers, stem-winders. 323
105 Matile, H. Ls., Locle, Ct. Neuchâtel.—Precision watches. 323
106 Leuenberger & Son, Summiswald, Ct. Berne.—Clocks and regulator. 323
107 Montandon, C., Gentil-Lutz, Servette, near Geneva.—Tempered steel for spirals. 323
108 Nardin, James, Locle, Ct. Neuchâtel.—Pocket chronometers, precision watches. 323
110 Patek, Philippe, & Co., Geneva.—Pocket chronometers and watches. 323
111 Perrenoud, Aimé, Terreux, geneva.—A constant force escapement for chronometers, assortment of spirals of gold and tempered steel. 323
112 Perret's, D., Son, Neuchâtel.—Watches. 323
115 Raus, Ami, Geneva.—Enameled dial for watches. 323
114 Riguet, R. S., Locle, Ct. Neuchâtel.—New mechanism for Lepine watches without fusee. 323
117 Stahl, Maurice, Chaux-de-Fonds, Ct. Neuchâtel.—Chronometers and watches. 323
118 Taglieb, Carl, Zurich.—Watch in a finger-ring. 323
120 Brossard, B. A., Geneva.—Musical boxes. 327
121 Karrer & Co., Teufenthal, Ct. Aargau.—Musical boxes and fancy articles. 327
122 Karrer, S., Teufenthal, Ct. aargau.—Musical boxes. 327
125 Trost, J., & Co., Zurich.—Upright piano force. 327
(Machines and tools pertaining to watch-making are also exhibited in this department, but classified under Class 335.)

Engineering, Architecture, Charts, Maps, etc.

127 Building Department of the Canton of Basle-Stadt.—Plans for the enlargement of the city of Basle. 330
128 Building Direction of the Canton of Aargau.—System of roads, wooden bridges, canals, water-power. 330
129 Building Inspection of the Canton of Graubünden.—Correction of the Rhine in the Grisons. 330
Engineering and Architectural Designs.

130 Department of the Interior, Swiss Confederation, Berne.—Measures taken to correct and regulate the rivers and waters of Switzerland. 330

131 Department of Public Works, Canton of Vaud.—Public works, cost of various roads, drawings of objects of art. 330

132 Department of Public Works of the Canton of Berne.—Plans, maps, atlases, literary works, bridges for public roads, correction of rivers of the Jura mountains. 330

133 Swiss Society of Engineers & Architects.—The Swiss system of roads, iron bridges, water supply and canalization in Swiss towns. 330

134 Municipality of Chaux-de-Fonds, Ct. Neuchâtel.—Plans of the town of La Chaux-de-Fonds, 1794-1841, and for its enlargement. 330

135 Government of the Canton of St. Gallen.—Plans of roads and highway bridges, correction of the Rhine. 330

136 Rothenbach, Director of the City Gas and Water Works, Berne.—Gas works of Berne. 330

137 Rieter, Joh. Jacob, & Co., Winterthur, Ct. Zurich.—Photographs of turbines, with accessories, and of wire-ropes transmissions. 331

138 Weissenbach, W. C. E., Zurich.—The water-powers of Switzerland. 331

139 Department of Railroads & Commerce, Swiss Confederation, Berne, Bureau of Statistics.—Statistics of Swiss railways. 332

140 Department of Railroads & Commerce, Swiss Confederation, Berne, Scientific Bureau.—Standard drawings, forming part of the government regulations for Swiss railways. 332

141 Department of Railroads & Commerce, Swiss Confederation, Berne,Gotthard Inspection.—Report of the Gotthard railway, geological tables and sections. 332

142 Railroads of Jura-bernoise.—Photographs of railway works, general plan and longitudinal sections, railway construction, Zimmermegg tunnel. 332

143 Gotthard Railway Co.—Longitudinal sections of the line and tunnel, plans, collection of specimens of the most important rocks found in the great tunnel. 332

144 Swiss Society of Engineers & Architects.—Development and longitudinal sections of the Swiss railways. 332

145 Swiss National Railway Co., Winterthur, Ct. Zurich.—Drawings of bridges. 332

146 Swiss Northeast Railway Co., Zurich.—Plans, photographs, etc., of railway construction, its lines, rolling stock. 332

147 Swiss Locomotive & Machine Works, Winterthur, Ct. Zurich.—Photographs of locomotives. 332

148 Tobler, Chief Engineer of the Utliberg Railway, Zurich.—Description and drawings of the Utliberg railway and its rolling stock. 332

149 Tössthal Railway, Winterthur Ct. Zurich.—Surveys and plans, sections of bridges, carriages with two stories etc. 332

149a United Railroads of Switzerland.—Plans for railroads across the Splügen and the Lukmanier passes. 333

150 Würthenua, Von, Chief Engineer of the Swiss Central Railway, Basle.—Plans and drawings for the construction of the new lines. 332

151 Department of Forests & Streams, Canton Berne.—Plans of the new military buildings at Berne. 332

152 Federal Topographical Bureau.—Maps and atlases of Switzerland. 335

153 Becc, Edward, Bern.—Relief map of Switzerland and the Jura. 335

154 Leuzinger, R., Berne.—Section of "Grono," from the topographical atlases of Switzerland. 335

155 Wurster, Randegger, & Co., Winterthur, Ct. Zurich.—Atlases and scientific works on geography and natural history. 335

Physical, Social, and Moral Condition of Man.

156 Brunner, Ad. & Fr., Zurich.—Centralhof at Zurich (reconstruction of the old post-office) sketches and photographs of Swiss villas. 342

159 Department of Public Works, Canton Berne.—Plans of new, and photographs of existing public buildings. 342

161 Gladbach, Professor at the Federal Polytechnic School, Zurich.—Wood architecture of Switzerland. 342

162 Goss, J. E., Geneva.—Plans of the theatre in Geneva. 342

163 Guyer, Eduard, Zurich.—Modern hotels, their architecture, arrangement, and management. 342

164 Hartmann, Nicolaus, St. Moritz, Ct. Graubünden.—Plans of the villa Schickler in St. Moritz (Engadin), plans of Hof St. Moritz and of the hot-sulac and Victoria. 342

166 Jeuch, Caspr., Baden, Ct. Aargau.—Plans of the barracks in Aarau. 342

167 Jung, E., Winterthur, Ct. Zurich.—Photographs and ground plans of existing dwellings. 342

168 Koch, Alex., Zurich.—Plans for private residences and a school-house. 342

169 Maring, Basle.—Plans of the hall for the federal singing festival, 1875. 342

171 Moser, Robert, Baden, Ct. Aargau. a Churches. 342

b Houses of correction. 345

172 Municipality of Geneva.—Gallery Rath, school-house at Geneva. 342

173 Parquetry Factory, Interlaken, Ct. Bern.—Plans of Swiss cottages. 342

175 Town Council of Winterthur.—Plans of the town hall. 342

176 Stehelin, Basle.—Plans of the theatre and Bernoullianum in Basle. 342

178 Zurich Joint Stock Co. (Benevolent society for cheap dwellings).—Plans of cheap dwellings. 342

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 27-45.
179 Kunz, Heinrich, Zurich (Cotton Manufactories).—Workmen's dwellings at his cotton mill at Windisch. 342
180 Rieder, Joh, Jacob, & Co., Winterthur, Ct. Zurich.—Workmen's dwellings. 342
181 Ottmeyer, B., & Co., St. Gallen.—Workmen's dwellings. 342
182 Sarasin & Co., Basle.—Workmen's dwellings. 342
183 Sulzer, Bros., Winterthur, Ct. Zurich.—Workmen's dwellings. 342
184 Direction of the Zoological Gardens at Basle.—Plans of the zoological garden in Basle. 342
185 Swiss Society for Penitentiary Reform.—Plans and views of the principal houses of correction in Switzerland, regulations of organization, documents upon the management of prisons. 345
186 Swiss Society for Promoting the Public Welfare.—History, Swiss periodical for public utility. 346
186a Society for the Education of the Poor, Lenzburg, Ct. Aargau.—Reports and statutes. 346
187 Society for Promoting the Public Welfare, Ct. Appenzell, Inner Rhoden.—Annual reports. 346
187a Ernst, Heinrich, Zurich.—Plans of the children's hospital at Zurich. 346
188 Society for Promoting the Public Welfare, Basle.—Historical reports, statutes, and pamphlets. 346
188a Evangelic Missionary Association, Basle.—Annual report. 346
189 Society for Promoting the Public Welfare, Ct. Glarus.—Reports. 346
190 Society for Promoting the Public Welfare, Ct. St. Gallen.—Proceedings. 346
190a Aid Society, Herisau, Ct. Appenzell.—Reports and statutes. 346
191 Society for Promoting the Public Welfare, Canton Zurich.—Statutes, reports, catalogue of popular works. 346
192 Geneva Society for Public Utility.—Proceedings, reports. 346
192a Richter-Linder's Institute, Schoenen, near Basle.—Report on the house of refuge. 346
193 Vaudoise Society for Public Utility.—Reports. 346
193a Swiss Reformatory Institute for boys, Bachtelen, near Berne.—General Report. 346
194 Department of the Interior, Swiss Confederation, Federal Statistical Office.—Statistics of the Swiss establishments for the education of orphans and abandoned children, also for the deaf, dumb, and blind, by J. Wellauer and J. Müller. 346
195 Swiss Society for Instructing the Poor.—Descriptions of the asylums for the poor, minutes, report of the Society of Teachers for the Poor. 346
196 Society for Instructing the Poor, District of Aarau, Ct. Aargau.—Statutes, programmes, contracts, annual reports. 346
196a Building Direction, Canton Aargau.—Plans of the lunatic asylum at Königsfelden. 346

197 Institution for Instructing the Poor, Canton Basle-Land.—General report. 346
197a Department of Public Works of the Canton Vaud.—Plans of the lunatic asylum at Lausanne. 346
197b Department of Public Works, Canton Zurich.—Plans of the lyceum hospital at Zurich. 346
198 Institution for Instructing the Poor, Zurzach District, Ct. Aargau.—Statutes, annual reports. 346
199 Home Industry Society for Zurich and Vicinity.—Report, statutes, regulations. 346
200 Aid Society, St. Gallen.—Annual reports. 346
201 Aid Society, Zurich.—Reports, etc. 346
202 Mutual Aid Society, Val de Travers, Ct. de Neuchâtel.—Statutes, regulations, general report. 346
203 Wellauer, J., St. Gallen.—Report of the Society for the Education of the Poor, Swiss schools for the poor, by J. C. Zellweger. 346
204 Blösch, Eduard, Berne.—Reports of his orphan asylum in Klein-Wabern, Berne. 346
205 Orphan Asylum, Neuchâtel.—Reports, contracts, formulas; notes about Belmont. 346
206 Orphan Asylum, Daillens-Cossonay, Ct. Vaud.—Regulations and reports. 346
207 French Orphan Asylum, Wabern, Ct. Berne.—Report. 346
208 Orphan Asylum, Basle.—Description and history, annual reports, publications, plans, and views. 346
209 Orphan Asylum, St. Gallen.—The orphan asylum in St. Gall by F. von Tschudi, reports, statutes, plans of buildings, etc. 346
210 City Orphan Asylum, Zurich.—Reports, statutes, regulations, photographs, samples of pupils' clothing. 346
211 Aargau Reformatory, Olberg, Ct. Aargau.—Reports. 346
212 Grube Institution for Instructing the Poor, Ct. Berne.—Specimens of pupils' work. 346
213 Institution for Instructing Poor Girls, Steinbühlitz, near Berne.—Report, 1874. 346
214 Hosang Foundation, School for the Poor, near Chur.—Regulations for the admission of pupils into the establishment. 346
215 Bundner Reformatory, Foral, near Chur, Ct. Graubünden.—Annual reports of the orphan asylum. 346
216 Friedeck Reformatory Home, Basle.—Reports, Ct. Schaffhausen.—Historical report, specimens of pupils' work. 346
217 Swiss Reformatory, Sonnenberg, near Lucerne.—Statutes, circulars, reports, specimens of pupils' work, etc. 346
218 Topgenburg Reformatory, Hochsteg, near Wattwyl, Ct. St. Gallen.—Statutes, annual reports. 346

For classes of exhibits, indicated by numbers at end of entries, see Classification. pp. 27-45.
Art, Watch-making Machinery.

219 Victoria Institute for Poor Girls of the Canton of Berne, Klein-Wabern, near Berne.—Regulations for admission, organization, report. 346
219a Young Merchants Union of Switzerland.—General report of proceedings. 347

Sculpture.
220 Abegglen-Perrin, Iseltwald, Ct. Berne.—Chalrets, with and without music and clocks. 405
221 Abplanalp, J., Brienz, Ct. Berne.—Wood-carvings. 405
222 Baumann, A., Vater & Son, Brienz, Ct. Berne.—Wood-carvings. 405
224 Egglser, Jakob, Brienz-Oberdorf, Ct. Berne.—Wood-carvings. 405
225 Egglser, Johann, Brienz, Ct. Berne.—Wood-carvings. 405
226 Flück, J., Flühberg, near Brienz, Ct. Berne.—Wood-carvings. 405
227 Germain & Egglser, Brienz, Ct. Berne.—Wood-carvings. 405
228 Grossmann, Joh., Ringgenberg, near Interlaken, Ct. Berne.—Wood-carvings. 405
229 Jäger, Jb., & Co. Brienz, Ct. Berne.—Wood-carvings. 405
230 Imboden Bros., Ringgenberg, near Interlaken, Ct. Berne.—Wood-carvings. 405
231 Klein, J. F., & Son, Meiringen, Ct. Berne.—Wood-carvings. 405
233 Sterchi, Fritz, Interlaken, Ct. Berne.—Wood-carvings. 405
234 Zumbrunn, Schmoker, & Co., Ringgenberg, Interlaken, Ct. Berne.—Wood-carvings. 405

Painting.
235 Glardon, C. L., Geneva.—"The Morning" (after Greuze); enamel for a watch, of Batolle’s exhibition. (See No. 78, p. 355.)

Engraving and Lithography.
236 Rieter-Biederer, J., Winterthur, Ct. Zurich.—Printed music and engravings. 421
237 Bonnet, Charles, & Co., Geneva.—Types, borderings, ornaments cut in wood, for printers and lithographers. 422
238 Bonfanti, G. A., Basle.—Typographical album, dedicated to the printers of Philadelphia. 422
239 Meyer, Theodor, Schaffhausen.—Wood-cuts. 422

240 Westfahling, J., Winterthur, Ct. Zurich.—Catalogue, Swiss section. 422
241 Oreli, Füssli, & Co., Zurich.—Letterpress plates, chemical engraving, wood engravings reduced, plates for paper money, sample sheets and books. 422
242 Hindermann & Siebenmann, Zurich.—Chromo-lithographs. 424
243 Knüsli, Caspar, Zurich.—Chromo-lithographs. 424

Photography.
244 Charnaux, F., Geneva.—Photographs of the glaciers of Switzerland. 430
245 Ganz, J., Zurich.—Photographs. 430
246 Gut, Jean, & Co., Zurich.—Photographs. 430
247 Linick, J., Winterthur, Ct. Zurich.—Photographs. 430
248 Nicola-Karlen, Emil, Berne.—Swiss photographs. 430
249 Richard, T., Son, Männedorf, Ct. Zurich.—Album of photographs, Swiss costumes, Swiss myths and traditions, etc. 430
250 Simona, Giorgio, Locarno, Ct. Tessin.—Photographs. 430
251 Täschler Bros., St. Fiden, near St. Gallen.—Photographs. 430
252 Zacher, C., Zurich.—Photographs. 430

Machines for Making Watches.
253 Servet, J. Marc, Son, Geneva.—Tools and instruments for watchmakers and jewelers. 535
254 Borel-Petitpierre, L., Couvet, Ct. Neuchâtel.—Tools and instruments for watch manufacturing. 535
255 Grobet, François Louis, Vallorbes, Ct. Vaud.—Tools and instruments for watch manufacturing. 535
256 Keigle, Auguste, Couvet, Ct. Neuchâtel.—Equalizing machine, lathes, tool for forging wheels, deepening tool. 535
257 Leresche-Golay, Jules, & Co., Vaud, Ct. Vaud.—Files, tools, and instruments for watch manufacturing. 535
258 Vautier, S., & Sons, Carouge, near Geneva.—Tools and instruments for watch manufacturing and for jewelers. 535
259 Berlie, Edouard, Geneva.—Tools and gravers. 535

*For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.*
### Educational Books and Appliances, Scientific Instruments.

<table>
<thead>
<tr>
<th>Educational Systems, Methods, and Libraries.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Arens, Antoine, Namur.—School books.</td>
<td>300</td>
</tr>
<tr>
<td>2 Crevecoeur, Henri Stanislas Joseph, Orp-le-Grand (Brabant).—Statistical lists for school teachers.</td>
<td>300</td>
</tr>
<tr>
<td>3 Genoncœaux, Louis, Bruges.—School books.</td>
<td>300</td>
</tr>
<tr>
<td>4 Belgian Government Educational Department.—Type of school furniture approved by the Belgian government.</td>
<td>300</td>
</tr>
<tr>
<td>5 Happel, J., Antwerp.—Adjustable desk, perambulators.</td>
<td>300</td>
</tr>
<tr>
<td>6 Landriën, Bernardin, Mechlin.—School books.</td>
<td>300</td>
</tr>
<tr>
<td>7 Licot, Feuillien, Nivelles (Brabant).—Work on drawing.</td>
<td>300</td>
</tr>
<tr>
<td>8 Lory-Delaet, Pierre, Brussel.—Writing method adopted by the Belgian government.</td>
<td>300</td>
</tr>
<tr>
<td>9 Petry, Adolphe, Mons (Hainaut).—Arithnometer.</td>
<td>300</td>
</tr>
<tr>
<td>10 Stebert, Pierre, Tongres, Limbourg.—Essay on education, etc.</td>
<td>300</td>
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<tr>
<td>11 Van Havermaet, Henry, Brussels.—Furniture used in orphan asylums.</td>
<td>300</td>
</tr>
<tr>
<td>12 Claesen, Ch., Liège.—Works on art.</td>
<td>302</td>
</tr>
<tr>
<td>13 Colinet, Ed., Brussels.—Work on art.</td>
<td>302</td>
</tr>
<tr>
<td>14 Stroesser, Jean-Pierre, Brussel.—Solids represented in profile by metallic wire.</td>
<td>302</td>
</tr>
<tr>
<td>15 Van der Moien, A., &amp; Co., Brussel.—Works on architecture and sculpture.</td>
<td>302</td>
</tr>
<tr>
<td>16 Lebon, Leon, Brussel.—Educational works.</td>
<td>306</td>
</tr>
<tr>
<td>17 Dessain, H., Mechlin, Province of Antwerp.—Prayer, liturgy, and other books.</td>
<td>306</td>
</tr>
<tr>
<td>18 Du Fief, J., Brussel.—School books on geography.</td>
<td>306</td>
</tr>
<tr>
<td>19 Callewaert Bros., Brussel.—School books, Callewaert's dictionaries.</td>
<td>306</td>
</tr>
<tr>
<td>20 De Cuypers, C., &amp; Noblet, A., Liège.—Works on mining, etc.</td>
<td>306</td>
</tr>
<tr>
<td>21 De Koninck, Laurence Wm., Liège.—Works on paleontology.</td>
<td>306</td>
</tr>
<tr>
<td>22 Destexhe, A. M. T. J., Modave, Province of Liège.—Works on instruction.</td>
<td>306</td>
</tr>
<tr>
<td>23 Dujeux, J. B. C., Brussel.—Special collection of patents.</td>
<td>306</td>
</tr>
<tr>
<td>24 Landriën, Bernardin, Mechlin.—School books.</td>
<td>306</td>
</tr>
</tbody>
</table>

| 25 Manceaux, Hector, Mons (Hainaut).—School books. | 306 |
| 25a St. Nicolas, Ch., East Flanders.—School books. | 306 |
| 26 Meus, Jules, Brussels.—Belgian "Industrial Monitor" (newspaper). | 306 |
| 27 Van Holmesbeek, Henry, Brussels.—Works on hygiene. | 306 |

### Institutions and Organizations.

| 28 Educational Union, Brussels.—Works on instruction. | 310 |
| 29 Doings of Popular Evening Parties of Verviers, Verviers.—Publications, etc. | 310 |
| 30 Toekomst Society, Antwerp.—Reports, etc. | 310 |
| 31 Maclen, Joseph van der, Molenbeek St. Jean, near Brussels.—Geographical works. | 310 |
| 32 Namur Artistic Literary Club, Namur.—Annals of the Club. | 311 |
| 33 Entomological Society of the Royal Museum of Natural History of Belgium, Brussels.—Reports, etc. | 311 |
| 34 Limbourg Scientific & Literary Society, Limbourg.—Publications. | 311 |
| 35 Artists' Union, International Club of Fine Arts, Liège.—Statutes, etc. | 311 |
| 36 Morning Star Royal Society, Brussels.—Dramatic, literary, and choral works. | 313 |
| 37 Meerens, Charles, Brussels.—Music and musical works. | 313 |

### Scientifio and Philosophical Instruments and Methods.

| 39 Le Boulangé, Paul Émile, Liège.—Telemeter for the battle-field. | 321 |
| 40 Lingin, Edward, Charleroi.—Centrifugal power regulator. | 321 |
| 41 Majolini, Francis, La Louvière (Hainaut).—Platform scale for railroads. | 320 |
| 42 Carette Dobbels, D., Meulebeke, near Courtrai, West Flanders.—Lightning rod without joints. | 336 |
| 44 Mahillon, C., Brussel.—Wind instruments. | 347 |

### Engineering, Architecture, Maps, etc.

| 47 Tellier, Adolphe Le, Saint Gilles, near Brussels.—Filters. | 330 |
| 51 Malaise, C. H. G. L., Gembloix.—Agricultural chart. | 355 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-45.
Netherlands.

(Education Books and Appliances, Statistics.

2. The Book Trade, Amsterdam.—Books, school books, newspapers, and periodicals.
4. Artisans' School, Rotterdam.—Drawings and designs.
6. Workmen's Artisans' School, Amsterdam.—Drawings.
8. Workmen's Society, Amsterdam.—Drawings by pupils.
9. Deaf & Dumb Institute, Groningen.—Reports, 1790-1875.
10. Blind Institute, Amsterdam.—Means of instruction for the blind, and articles made by pupils.
15. Society for the Promotion of Architecture, Amsterdam.—Works on architecture.
20. Amersfoort, Mrs. H. M., Badhoevedorp.—Oratorio—"God's Ubiquity."
21. Gelder, G. M. van, Schaerbeek.—Piano forte method.
Scientific Instruments, Engineering, Benevolence, Machinery.

23 Roothaan, L., Amsterdam.—Music. 313

24 Harting-Bank, H. J., Utrecht.—Scientific instruments. 320

25 Ministry of Finance, Hague.—Scientific instruments. 320

26 Olland, H., Utrecht.—Meteorological instruments. 320

27 Kerbel, G. H., Amsterdam.—Model of a steam engine. 420

28 Wetteren, M. van, Haarlem.—Magnets. 320

30 Muller, J. A., Amsterdam.—Water gauge. 321

31 Betou, P. J. in de, Delft.—Instrument measuring 10th part of a millimetre. 321

32 Hohwü, A. T., Amsterdam.—Chronometers and astronomical clock work. 373

33 Casseres, A. de, Amsterdam.—Chronometers and astronomical clocks. 373

34 Cuypers, J. F., Hague.—Piano. 327

Engineering, Architecture, Maps, etc.

35 Ministry of the Interior.—Collection of public works of the Netherlands. 330

36 Amsterdam Canal Co., Amsterdam.—Chart of the channel to the North Sea. 330

37 Chambers of Commerce & Industry, Middleburg & Flushing.—Relief chart of harbor. 330

38 Polytechnic School, Delft.—Models of lock gates. 330

39 Morre, G. J., Delft.—Drawings. 330

40 Simon, M., Flushing.—Copper model of lock gates. 330

41 Stang, T., Hague.—Drawings of aqueduct. 330

42 Dutch Railroad Co., Amsterdam.—Model of railroad bridge, and drawings. 332

43 Nierstrasz, N. H., Bols-le-Duc.—Plans and drawings. 332

44 Zimmerman, G. P. H., Gouda.—Chart of Suriname river. 335

Physical, Social, and Moral Condition of Man.

15 Boer, F. N., Rotterdam.—Model of cheap boarding-house. 342

46 Tjeenk Willink, W. E. J. Zwolle.—Drawings and statues of Workmen’s Association. 342

47 Association for Improvement of Workmen’s Buildings, Leuwarden.—Drawings and statues. 347

48 Association for Improvement of Workmen’s Buildings, Hague.—Model of lodgings for workmen. 352

50 Help Yourself Association, Leuwarden.—Statutes, plans, etc. 342

51 Beneficial Association.—Models, drawings, writings, and photographs. 346

52 Gori, M. W. C., Amsterdam.—Work on hospitals. 346

The “Red Cross.”

53 Dutch Association for Assisting Sick and Wounded Soldiers in War Time.—Publications. 346


54 Haverkamp, Begemann E., Helmond.—Gutter bore machines. 551

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

55 Rennes, D. W. van, Utrecht.—Sewing machine. 531

Motors, Power Generators, etc.

56 Prakke, J. E. & H., Eibergen.—Leather straps; belting. 553

57 Naeff, G. & M., Lochem.—Leather straps; belting. 553

Hydraulic and Pneumatic Apparatus.

58 Rennes, D. W. van, Utrecht.—Machine for moving liquids by heat. 560

59 Rietschoten, van, & Hovewens, Rotterdam.—Model of engine for deepening rivers, etc. 553

60 Bikkers & Son, Rotterdam.—Fire extinguishers. 564

61 Burger, H., Deventer.—Velocipedes. 571

62 Heshuisen, W. F., Sandpoort.—Railroad switch. 572

63 Bens, A., Deventer.—Coffee and bean mills. 589

For classes of exhibits, indicated by numbers at end of entries, see Classificati n, pp 27-45.
SWEDEN.

(North of Nave, Columns 6 to 11.)

Educational Publications and Appliances.

Educational Systems, Methods, and Libraries.

1 Abrahamson, Aug., Nääs, Floda.—Work by pupils of Nääs School of Home Industry for Boys and Girls. 300
2 Alard, A. F., Simtuna.—Musical staff table. 300
2a Anderson, N. J., Stockholm.—Animals, plants, and minerals. 300
3 Bagge, G. B., Paris, France.—Geographical maps. 300
4 Berggren, A. N., Stockholm.—Method of penmanship. 300
4a Brunell, J. E., Stockholm.—Penholders. 300
5 Cervin, C. G., Hesselby, Stockholm.—Model of a school-house. 300
6 Glömsta Manufactury, Huddinge.—Universal school form. 300
7 Royal Swedish Commission, Stockholm.
   a A primary school house, with accessories of furniture, books, maps, and apparatus for instruction. (In the Park, Building No. 107.) 300
   b Newspapers at present published in Sweden. 306
8 Erdman, Edward, Stockholm.—Geographical diagrams. 300
8a Lewenhaupt, Count C. M., Clacs-torp.—Toys, split shavings for mats, etc. 300
9 Lindblad, M. A., Stockholm.—Dried plants and cryptogamic types. 300
10 Winslow, A. P., Göteborg.—Herbarium for schools. 300
11 Nordlund, K., Gefle.—Apparatus for instruction in arithmetic. 300
11a Technical Elementary Schools (collective exhibit).—Work of pupils. 300
11b Hennings, R. T., Orebro.—Methods and means of instruction. 300
11c Svensson, A., Stockholm.—Stuffed mammals, birds, and fishes. 300
11d Wiman & Co., Stockholm.—School stoves. 300
11e Zanders, H., Nowkoping.—Drawings of gymnastic apparatus. 300
14 Fries, Th. M., Stockholm.—Spitzbergen herbarium. 301
15 Ramsay, Ebba, Mrs., Göteborg.—Drawings of Spitzbergen plants. 301
16 Windru, Sven, Stockholm.—Scandinavian herbarium. 301
16a Vrana National High School, Vrana.—Samples of pupils' work. 301
17 Alnarp Agricultural Institute, Alnarp.—Maps and drawings of the farm buildings of the agricultural high school, photographs of its domestic animals, and a collection of plants grown on the farm of the school; works by pupils. 302
19 Royal War Department, Stockholm.—Works and drawings by pupils at the military school of Carlberg and military high school of Marieberg. 302
26 Stauf, P. O., Stockholm.—Agricultural and sylvicultural text books. 302
27 Wulff, H. A., Applerum, Kalmar.—Scheme of the agricultural school, drawings of farm buildings and implements, with specimens of soil and agricultural products. 302
28 Berg, O. E., Manilla, Stockholm.—Combined apparatus for speaking and hearing, for half deaf and dumb; symbolical vocabulary, used for the instruction of deaf and dumb. 303
29 Holm, F. J. W., Stockholm.—Model of the gymastic hall at the institute for deaf and dumb of Manilla, in Stockholm. 304
30 Working Home for the Blind Stockholm.—Basket work by blind pupils. 303
31 Public Institute for the Deaf, Dumb, & Blind, Stockholm.—Pupils' works. 303
32 Olsson, Magnus (blind, deaf, & dumb), Malung, Lima.—Willow furn. 303
33 Klemmings Antiquarian Stock Co., Stockholm.—Books printed in Sweden in the 16th, 17th, and 18th centuries, with accounts of the earliest Swedish settlements in America. 306
33a Brunius, A. W., Stockholm.—Books. 306
33b Royal Statistical Central Bureau, Stockholm.—Statistical diagrams. 306
33c Sidenbladh, Elis, Stockholm.—Statistical accounts of Sweden. 306
34 Central Printing Stock Co., Stockholm.—Typographical productions. 306
35 Gumaelius Arvid, Orebro.—The newspaper "Allehanda för Folket." 306
36 Key, Axel, Stockholm.—Anatomical treatise, periodical papers upon medicine and popular science. 306
38 Key, A. & Retius G., Stockholm.—Studies in anatomy; periodical devoted to popular science. 306

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Scientific Instruments, Engineering Designs.

Institutions and Organizations.

38 Hammer’s Museum, Stockholm.—Photographs, catalogues, etc. 312
39 Royal Economic Society, Lulea.—Lapplanders’ costumes and utensils. 312
40 Schlyter, G. R., Stockholm.—Roman costumes. 312
41 Nordensköld, A. E., Stockholm.—Meteorite from Greenland. 312

Scientific and Philosophical Instruments and Methods.

41 Royal Agricultural Society of the Lan of Goteborg & Bohus.—Apparatus for deep-sea soundings and marine evaporimeters. 320
42 Gundberg, J. W. L., Stockholm.—Copper vessels for preserving zoological specimens; zoological sieves. 320
43 Leja, Joseph, Stockholm.—Thermometer. 320
44 Lindahl, Jos., Lund.—Apparatus for deep-sea soundings and dredgings. 320
45 Ljungström, J. P., Stockholm.—Geodetic and surveying instruments. 320
46 Rose, J. L., Upsala.—Magnet and needle-compasses for mines. 320
47 Theorell, A. G., & Sörensen, P., Stockholm.—Meteorograph. 320
48 Wiberg, Martin, Stockholm.
   a "Bull-dog apparatus" for deep-sea soundings. 320
   b Logarithmetical tables, calculated and printed by a counting machine; controlling apparatus for railway trains. 321
49 Brehmer, E. F. A., Stockholm.—Railway ticket registering apparatus, paging machine, etc. 321
50 Petterson, C. J., Carlshamn.—Calculating machine. 321
51 Linderoth, G. W., Stockholm.—Clocks. 323
52 Unge, V. T., Stockholm.—Apparatus for measuring distances for military purposes. 323

53 For classes of exhibits, indexed by numbers at end of entries, see Classification, pp. 27-45.

54 Örter, Baron C. G. von, Stockholm.—Signal lantern. 324
55 Kuntze & Co., Stockholm.—Air telegraphs. 326
61 Ahlberg & Ohlsson, Stockholm.—Wind instrument of metal. 327
63 Lundholm, C. A. V., Stockholm.—School organs and harmoniums. 327
64 Malmjö, J. G., Göteborg.—Pianos. 327

Engineering, Architecture, Maps, etc.

66 Norrman, C. G. V., Stockholm.—Model of a pontoon bridge. 333
67 Bagge, G. P., Paris, France.—Geographical maps. 335
68 Erdmann, Edward, Stockholm.—Geological maps and models. 335
69 Royal Swedish Staff General, Stockholm.—Topographical maps. 335
69a Nordensköld, A. E., Stockholm.—Maps. 335
69b Roth, M., Stockholm.—Geographical maps. 335
69c Sahibom, W., Stockholm.—Maps. 335
73 Economic Survey of Sweden, Stockholm.—Economical and agronomical maps. 335
74 Geological Survey of Sweden, Stockholm.—Geological maps, collections of minerals, rocks, and soils. 335

Physical, Social, and Moral Condition of Man.

74a Zander, G., Stockholm.—Apparatus for mechanical gymnastics. 340
75 Royal Swedish Commission, Stockholm.—Collection of current coins and bank notes in Sweden. 344
75a Lindhen, H. A. W., Stockholm.—Letter box. 345

Other educational exhibits from Sweden are installed in the Swedish School House, No. 107, and are enumerated on page 350.
Educational Books and Appliances, Scientific Instruments, Statistics.

Educational Systems, Methods, and Libraries.
1 Bergen Common School Board, Bergen.—Collection of materials for a free school. 300
2 Sandberg, Andreas, Christiania.—Models of handwriting. 300
3 Bøeck, W., & Daniësken, D. C., Christiania and Bergen.—Treatises on skin diseases and elephantiasis. 360
4 Bentzen, B. M., Christiania.—Books and other specimens of printing. 366
5 Norwegian Association of Tourists, Christiania.—Books, maps, photographs, etc. 306
6 Jensen, H. J., Christiania.—"The Illustrated News," and other illustrated works. 366

Scientific and Philosophical Instruments and Methods.
7 Wedel-Jarlsberg, Ferd., Commodore of the Norwegian Navy, Christiania.
   a Patent control compasses, log machine. 320
   b System of night signals. 326
8 Petersson, A. J., Christiania.—Calculating machine. 321
9 Mostue, Thv., & Co., Christiania.—Scales. 322
13 Aarestrup, J., Bergen.—Piano. 327

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

14 Brantzeg, P., Christiania.—Pianos. 327

Engineering, Architecture, Charts, Maps, and Graphic Representations.
16 The Director of the Public Roads of Norway, Christiania.—Maps, drawings, books. 330
18 Geographical Institute of Norway, Director of, Christiania.—Maps and topographical sections. 335
20 Collett, Robert, Assistant of the Zoological Museum, Christiania.—Zoo-geographical map of Norway, containing a complete list of the vertebrate animals of the country. 335
21 Schubeler, F. C., Professor of Botany at the University of Christiania.
   a Botanico-geographical map of Norway. 335
   b Plants of Norway. 701
21a Pettersen, Karl, Tromsø.—Geological map with descriptions. 335

Physical, Social, and Moral Condition of Man.
22 Statistical Bureau, Christiania.
   —Collection of official statistical publications relating to Norway; collection of cartographical representations. 345
23 Hagen, J., Christiania.—Leather and skins. 659

(North of Nave, Columns 4 to 7.)
ITALY.

(North of Nave, Columns 1 to 5.)


Educational Systems, Methods, and Libraries.

1 Angelini, Prof. Rodolfo, Rome.—Specimens of penmanship. 306
2 Mainieri, Carlo, Milan.—Geographical map in relief. 306
3 Ben, Michelangelo, Verona.—Mathematical maps. 306
4 Villa, Cav. Prof. Ignazio, Milan.—Geographical maps. 306
5 Palizzolo Gravina, Baron Vincent, Palermo.—Scientific books. 306
6 Filopanti, Dr. Prof. Quirico, Bologna.—Book on philosophy. 306
7 D’Italo, Enrico F. T., Milan.—Map of the world in the form of a globe, and objects for the study of geography and other sciences. 306
8 Giordano, Prof. Scipione, Turin.—Materia medica. 306
9 Perelli, Prof. Luigi, Milan.—Album, with specimens of stenography. 306
10 Vigano, Francesco, Milan.—Scientific books. 306
11 Claus, Cav. Prof. Nicolo, Milan.—Didactic and linguistic treatises. 302
12 Volante, Alessandro, Turin.—Pamphlet on mechanics. 302
13 Strazza, Giannina, widow Lucca, Milan.—Collection of music. 302
14 Tito di G., Ricordi, Milan.—Collection of music. 302
15 Bratti, Seiattilli, & Co., Florence.—Collection of music. 302
16 Crotta, Giannina, Milan.—Album of music. 302
17 C. Cam. Theophilus, Florence.—School books. 305
18 Brigola, Gaetano, Milan.—Scientific and miscellaneous books. 305
19 Maino, Antonio, Fiacenza.—Books and maps. 306
20 Morandi, Feliesta, Milan.—Educational books. 306
21 Maltese, Dr. Felice, Vittorio, Sicily.—Book on philosophy. 306
22 Guida, Prof. Francesco, Naples.—Book on night signals. 306
23 Beccari, Gualberta Alaide, Bologna.—Newspaper, "La Donna." 306
24 Barra, Prof. Luigi, Ottajano, Naples.—Didactic book. 306
25 Gargiulo, Francesco, Naples.—Descriptive book. 306
26 Gravina, Domenico, Palermo.—Illustrated books. 306

Institutions and Organizations.

27 Director of the Anatomical & Pathological Museum of Florence.—Microscopic, normal, and pathological anatomical preparations. 311
28 Scaravignia, Torquato, Gualdo Tadino, Umbria.—Albums and pictures. 312

Scientific and Philosophical Instruments and Methods.

29 Sollima, Giacomo, Messina.—Mill scales. 322
29* Gasparini, Giacomo, Rome.—Meter for measuring grain. 322
30 Villa, Cav. Prof. Ignazio, Milan.—Universal clock. 323
32 Gennari, Cav. Dr. Enrico, Milan.—Optical instruments. 324
33 Ponti, Carlo, Venice.—Camaziale and megalithoscope (optical instruments). 324
34 Figtatner, Enrico, Milan.—Electric batteries. 325
35 Gerossa, Edoardo & Emilio, Milan.—Telegraphic Instrument. 326
36 De Lorenzi, Cav. G. Battata, Venice.—Violins, Stradivari style. 377
37 Bedini, Giuseppe & Sons, Venice.—Harmonic strings. 377
38 Venturini, Luigi, Padua.—Harmonic strings. 377
39 Giuliano, Ditta, Naples.—Cylindrical piano. 377

Engineering, Architecture, Maps, etc.

40 Linari, Eng. Antonio, Rome.—Plan for a tunnel. 339

Physical, Social, and Moral Condition of Man.

41 Acquadro, Paolo, Turin.—Postal box. 345
42 Aurineta, Cav. Marco Aurelio, Naples.—New system of d’infection. 346

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
BRAZIL.

(North of Nave, Columns 58 to 61.)


Educational Systems, Methods, and Libraries.

1 Municipal School Boards, Rio de Janeiro.—Text books, specimens of writing, drawing, and needle work. 306
2 Santa Cândida School for Girls, Rio de Janeiro.—Specimens of penmanship. 306
3 Faculty of Medicine, Rio de Janeiro.—Text books, and theses on medical and chirurgical subjects. 306
4 Naval School, Rio de Janeiro.—Educational books, specimens of drawings, models, etc., made by the cadets; maps, charts, etc. 306
5 Commercial Institute, Rio de Janeiro.—Specimens of drawing, writing, and book-keeping. 306
6 Academy of Fine Arts, Rio de Janeiro.—Specimens of drawing and pupils' work. 306
7 Public Instruction Board, Rio de Janeiro.—Educational books, specimens of writing and needle work. 306
8 Arts & Trades Lyceum, Rio de Janeiro.—Drawing and pupils' works. 306
9 Artistical Institute, Rio de Janeiro.—Chromo-lithographic engravings, printed books, maps and charts, specimens of book-binding. 306
10 Military Archives, Rio de Janeiro.—Maps and charts. 306
11 Faculty of Medicine, S. Salvador da Bóhia.—Collection of theses on medical subjects. 306
12 Institute for Deaf & Dumb, Rio de Janeiro.—Educational books, specimens of drawing and dactylological printing; shoes made by pupils. 306
13 Imperial Institute for Blind Boys & Girls, Rio de Janeiro.—Apparatus used in teaching; books, geometrical figures, musical compositions; specimens of needle work. 306
14 Home Department, Rio de Janeiro.—Educational reports, laws, regulations, statistics, and catalogues. 304
15 Gavea, Coronel J. M., & Pas de Barros, San Paulo.—Newspapers. 306
16 Leuzinger & Sons.—Specimens of printing. 306
18 National Printing Office, Rio de Janeiro.—Various typographical objects. 306

19 Commission-General for the National Exhibitions, Rio de Janeiro.—Collection of Brazilian newspapers. 3-6
20 Silva, Pessanha da, Rio de Janeiro.—Brazilian medical annals. 3-6
23 Roxo, Monteiro, & Lemos, Rio de Janeiro.—"Direito Mercantil." 3-6
24 Possolo, E. Germack, Rio de Janeiro.—Books. 3-6
25 Alves, S. José, Rio de Janeiro.—Books. 3-6
26 d'Azavedo, J. G., Rio de Janeiro.—Books. 3-6

Institutions and Organizations.

27 Leuzinger & Sons, Rio de Janeiro.—Collection of articles for museums. 312
28 Brant, J. Ferreira d'A., Minas Geraes.—Collection of insects. 312
29 Napoleao, Narciso & Arthur, Rio de Janeiro.—Music printing and engraving. 313
30 Santos, & Quintino dos, Rio de Janeiro.—Musical compositions. 313
31 Silva, Francisco Manuel da, Rio de Janeiro.—Musical compositions. 313
32 d’Araujo, Gomes, Rio de Janeiro.—Musical compositions. 313
33 Lago, Emilio do, Rio de Janeiro.—Musical compositions. 313
34 Goyano, J. J., Rio de Janeiro.—Musical compositions. 313
35 Silva Callado, J. A. da, Rio de Janeiro.—Musical compositions. 313
36 Amat, José, Rio de Janeiro.—Musical compositions. 313
37 Menezes, Cardoso de, Rio de Janeiro.—Musical compositions. 313
38 Campos, A., Rio de Janeiro.—Musical compositions. 313
39 Ribas, Edward, Rio de Janeiro.—Musical compositions. 313

Scientific and Philosophical Instruments and Methods.

40 Army Arsenal of Rio Grande do Sul.—Metal meridian. 320
41 Saldanha, Luiz de, Brazilian Navy.—Nautical repeating compass. 320
42 Pinheiro, A. Pereira, Brazilian Navy.—Sandigraph or automatic deep-sea sounding apparatus. 320
42 Garrid.—Apothecaries' scale. 322

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Musical Instruments, Engineering Designs, Coins.

43 General Commission from Rio de Janeiro.—Piano; large guitar (viola), and small guitars (machetes). 337

44 Lins, Lamenha, Sancta Candida.—Guitars 337

45 Couceiro, J. do Santos, Rio de Janeiro.—Violin and bow. 337

46 General Commission for Brazil.—Piano. 337

Engineering, Architecture, Charts, Maps, and Graphic Representations.

47 The Board of Directors of the "Pedro II. Dock Works" Co.—Drawings showing the "Pedro II. Dock Works" at Rio de Janeiro, and samples of the wood employed in the works, submarine constructions, wharves, and warehouses. 339

48 Reboucas, André & Castro, Borja, Rio de Janeiro.—Photographs of custom-house dock works, plans containing details of work, etc. 339

49 Public Works Office, Rio de Janeiro.—Project to improve the harbors of Brazil, by Sir John Hawkshaw. 339

50 Liaia, E., Rio de Janeiro.—Surveys and profiles of the rivers Das Velhas and San Francisco, with reports. 339

51 Hydrographic Department, Rio de Janeiro.
   a Surveys of the Amazonas river for 2240 miles. 334
   b Charts of the coast and harbors of Brazil. 334

52 Speir, W., Province of San Paulo.—Drawings of the railroad from Santos to Jundiahy, San Paulo. 332

53 Fox, Engineer, Province of San Paulo.—Plans and drawings. 332

54 Public Works Office, Rio de Janeiro.
   a Drawings, showing the bridges of the Pedro II. railway. 332

55 Penna, Ferreira, S. Pedro du Sul.—Plans, estimates, and reports on the projected railway from Porto Alegre to Uraguayana. 334

56 Loyd, Engineer, Rio de Janeiro.—Project of a railway to the Province of Mato Grosso, with plans, estimates, etc. 332

57 Bulhoes, Engineer, Rio de Janeiro.—Railway plans, illustrations, estimates, etc. 332

58 Coutinho, Silva, Rio de Janeiro.—Project to lengthen the railway line to the Province of Pernambuco, with plans, etc. 332

59 Garceix, Prof.—Geological map of the province of Minas-Geraes. 335

60 Commission-General for the National Exhibitions.—Maps of the Province of San Paulo; elements for the organization of a physical chart of Brazil, by Homen de Mello. 335

61 Mendes, C., Rio de Janeiro.—Atlas of the Brazilian empire. 335

62 Rohan, General de Beurrepaires, Rio de Janeiro.—General chart of the Brazilian empire. 335

Physical, Social, and Moral Conditions of Man.

63 National Mint, Rio de Janeiro.—Collection of medals stamped by the mint; collection of Brazilian coins. 344

64 Suplicy, J. F., Province of Paraná.—Collection of medals obtained by galvanic method, galvanic-plastic pile. 344

(For Naval Engineering, see Machinery Hall.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45
ARGENTINE REPUBLIC.

(South of Nave, Columns 2 to 5.)

Books, Maps, Statistics.

<table>
<thead>
<tr>
<th>Educational Systems, Methods, and Libraries.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Gonzalez, Meliton, Province of Entre-Rios.—Map of the province.</td>
<td>300</td>
</tr>
<tr>
<td>2 Chapeaurouge, C. de, Province of Santa Fe.—Map of the province.</td>
<td>300</td>
</tr>
<tr>
<td>3 Grousae, Paul, Province of Tucumen.—Map of the province.</td>
<td>300</td>
</tr>
<tr>
<td>4 Monguillot, E., Province of Buenos Ayres.—Sheet music.</td>
<td>302</td>
</tr>
<tr>
<td>5 Scapatura, A., Province of Buenos Ayres.—Sheet music.</td>
<td>302</td>
</tr>
<tr>
<td>6 Vorge, Faustino, Province of Buenos Ayres.—Statistical register of the province.</td>
<td>305</td>
</tr>
<tr>
<td>7 Rosselli, Peter, Province of Buenos Ayres.—Periodical—&quot;Correo Argentino.&quot;</td>
<td>306</td>
</tr>
<tr>
<td>8 Bridma, Martin, Province of Buenos Ayres.—Books of typographical samples.</td>
<td>306</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

9 Costa, Angel F., Province of Buenos Ayres.—Work on finance. 306
10 Navarro, Samuel, Province of Buenos Ayres.—Work on immigration. 306
11 Navarro, Mardogueo, Province of Buenos Ayres.—Statistics of the epidemic of 1871. 306
12 Zuiny, Antonio, Province of Buenos Ayres.—Books. 306
13 Espineyro, Mariano T., Province of Buenos Ayres.—"The Judicial Periodical." 306
14 Chucco, Manuel C., Province of Buenos Ayres.—Books. 306
15 Ledesmo, Justiniano A., Province of Buenos Ayres.—Books. 306
16 Minister of the Interior.—"Memoirs of the Governor of Chaco." 306
17 Gelderen, A. van, Province of Buenos Ayres.—Encyclopedia. 306
18 Argentine Rural Society.—Annals of the Society; official bulletin of the National Exhibition of Córdoba. 306

SPAIN.

[The exhibit of Spain in the Department of Education and Science is installed in the Spanish Pavilion, and catalogued in Part III., pages 132 to 141.]
### PORTUGAL.

(South of South Avenue, Columns 13 to 17.)


<table>
<thead>
<tr>
<th>Educational Systems, Methods, and Libraries.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Brito Araujo, Pedro W. de, Lisbon. —Elementary books.</td>
<td>306</td>
</tr>
<tr>
<td>2 Perry, Gerardo A., Lisbon.—Atlas with statistics of Portugal and colonies.</td>
<td>305</td>
</tr>
<tr>
<td>3 Association for the Encouragement of Manufactures, Lisbon.—A frame with diplomas, statutes and elementary books.</td>
<td>306</td>
</tr>
<tr>
<td>4 Direction of the Public Works of Mondego, Figueira.—&quot;Memoir on the River Mondego;&quot; &quot;Catalogue of Plants in the Forest of Choupal.&quot;</td>
<td>3:6</td>
</tr>
<tr>
<td>5 Ferraz, José L. M., Ega.—Work on pharmacy.</td>
<td>3:6</td>
</tr>
<tr>
<td>6 Infante Dom Luiz Observatory, Lisbon.—Scientific publications.</td>
<td>3:6</td>
</tr>
<tr>
<td>7 Magalhaes &amp; Moniz, Oporto.—Text books and other works.</td>
<td>3:6</td>
</tr>
<tr>
<td>8 Mengo, Francisco da Silva, Oporto.—Books.</td>
<td>3:6</td>
</tr>
<tr>
<td>9 Nepomuceno, Manuel, Oporto.—Books.</td>
<td>3:6</td>
</tr>
<tr>
<td>10 Silvero Augusto Pereira da Aveira. —Bridge model.</td>
<td>335</td>
</tr>
<tr>
<td>11 National Printing Office, Lisbon.—Printed works.</td>
<td>306</td>
</tr>
<tr>
<td>12 Portuguese Civil Engineers' Society, Lisbon.—Copies of the &quot;Revista d'Obrest Publicas e minas.&quot;</td>
<td>3:6</td>
</tr>
<tr>
<td>13 Sarmento, Anselmo Evaristo de Moreira, Oporto.—Copies of the &quot;Actualidade&quot; Journal.</td>
<td>3:6</td>
</tr>
<tr>
<td>14 Department of Finance, Lisbon.—Commercial statistics of Portugal.</td>
<td>3:6</td>
</tr>
<tr>
<td>14a Queiroz, G. J. de, Lisbon.—Commercial statistics of Portugal, graphically arranged.</td>
<td>3:6</td>
</tr>
<tr>
<td>15 Prostes, H., Lisbon.—Bound copies of Portuguese newspapers and journals.</td>
<td>3:6</td>
</tr>
<tr>
<td>16 Costa, Godolphin, Lisbon.—Literary work.</td>
<td>3:6</td>
</tr>
<tr>
<td>17 Chardron, Ernest, Oporto.—Dictionary of the Portuguese language.</td>
<td>3:6</td>
</tr>
<tr>
<td>17a Lalllement Bros., Lisbon.—Typographical works, printing on satin.</td>
<td>3:6</td>
</tr>
</tbody>
</table>

### Institutions and Organizations.

| 18 Industrial Institute of Oporto.—History, organization, and course of studies. | 310 |
| 19 Board of Public Forests, Lisbon.—Maps. | 320 |

<table>
<thead>
<tr>
<th>20 Industrial Institute of Lisbon.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a Levels and planimeter.</td>
<td>3:6</td>
</tr>
<tr>
<td>b Pantometers.</td>
<td>3:6</td>
</tr>
<tr>
<td>c Pendulum.</td>
<td>3:6</td>
</tr>
<tr>
<td>d Topo-photographic camera.</td>
<td>3:6</td>
</tr>
<tr>
<td>21 Infante Dom Luiz Observatory, Lisbon.—Meteorological and magnetic registers.</td>
<td>3:6</td>
</tr>
<tr>
<td>22 Bastos, Antonio Pinto, Lisbon.—Hydrometer.</td>
<td>3:6</td>
</tr>
<tr>
<td>23 Continho, D. Martinho da Franca, Lisbon.—Goniometric, goniographic and telemetric compass, pyramidal compass.</td>
<td>3:6</td>
</tr>
<tr>
<td>24 Pereira, Verissimo Alves.—Hydrometer.</td>
<td>3:6</td>
</tr>
<tr>
<td>25 Oliveira, Justino Gomes de, Villa Nova de Gaia.—Gold watches.</td>
<td>3:6</td>
</tr>
<tr>
<td>26 Motta, Jose Maria, Lisbon.—Electric bells.</td>
<td>3:6</td>
</tr>
<tr>
<td>30 Cabral, Affonso do Valle Coelho, Oporto.—Violin.</td>
<td>3:6</td>
</tr>
<tr>
<td>31 Araiio, Joaquim G., Braga.—Stringed instruments, guitars.</td>
<td>3:6</td>
</tr>
<tr>
<td>32 Ribeiro, Domingos Candido d'Almeida, Oporto.—Violin.</td>
<td>3:6</td>
</tr>
<tr>
<td>33 Pereira, Custudio Cardozo, Oporto.—Musical instruments.</td>
<td>3:6</td>
</tr>
<tr>
<td>34 Sanhudo, Jose Ferreira, Oporto.—Stringed instruments.</td>
<td>3:6</td>
</tr>
</tbody>
</table>

### Engineering, Architecture, Maps, etc.

| 35 Silva, Silverio Augusto Pereira da Aveira. —Bridge model. | 335 |
| 36 Administrative Board of Works for the artificial port of Ponta Delgada.—Plan of artificial port at Ponta Delgada, with description and views of same. | 3:6 |
| 37 Lecrenier, Nicolas Joseph, Lisbon.—Model of rail. | 3:6 |
| 38 Bayao, F. A. P., Lisbon.—Plan of a portable railway. | 3:6 |
| 39 Perry, Gerardo A., Lisbon.—Geographical, physical, and orographical maps of Portugal. | 3:6 |
| 40 Industrial Institute of Oporto, Oporto.—Topographical charts of the river Douro, and of the wine producing district. | 3:6 |
| 41 Geodetical Department, Lisbon.—Geographical, geological, trigonometrical, and hydrographic maps and charts, and other graphic representations, books, atlases, matrices, etc. | 3:6 |
| 42 Infante Dom Luiz Observatory, Lisbon.—Marine charts, etc. | 3:6 |
Physical, Social, and Moral Condition of Man.

Art, Machinery.

Sculpture.

42 General Direction of the Mint & Stamped Paper, Lisbon.—Coins and medals. 414

52 Oporto Commercial Association, Oporto.—Lithography. 423

53 Reis & Monteiro, Oporto.—Lithographs. 423

54 Mendes, Malaquias José, Lisbon.—Impressions from seals. 423

Photography.

55 Infante Dom Luiz Observatory, Lisbon.—Photographs of the sun. 430

56 General Direction of the Mint and Stamped Paper, Lisbon.—Copies from photographs. 430

57 Department of Mines, Lisbon.—Photographs. 430

58 Superintendency of Live Stock of the District of Beja.—Photographs showing races of live stock. 430

59 Guerra, Joaquim Baptista da Silva, Oporto.—Jacquard weaving machine. 510

60 National Printing Office, Lisbon.—Type. 542

61 Continho, Antonio R. da S., Ponta Delgada.—Model of a propeller. 554

62 Cruz, Luiz F. de S., Oporto.—Hydraulic machine. 560

63 Castro, Joao V. az Pacheco, Ponta Delgada.—Stone hand mill. 585

Engraving and Lithography.

51 National Printing Office, Lisbon.—
   a Ornamental engravings, plates, etc. 421
   b Lithographs. 423

52 General Direction of the Mint and Stamped Paper, Lisbon.
   a Copies from engravings. 421
   b Copies from lithographs. 423

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
TURKEY.

(South of Nave, Columns 14 to 17.)


Educational Systems, Methods, and Libraries.

1 School of Medicine, Constantinople. — Books, treatises, etc., on medicine and natural sciences.

2 Herzmaniska de Slupno, Madame, Constantinople. — Turkish sheet music, bound and unbound.

Scientific and Philosophical Instruments and Methods.

3 Kiami Effendi, Koniah, Koniah.— Wooden sextant.

4 Moustapha, Constantinople.— Scale and weights.

5 Sulleman, Constantinople.— Steel-yard.

6 Boch Kirker, Aleppo.— Flute.

7 Casmani, David, Damascus.— Musical instrument.

8 Dimitri, Yanina, Yanina.— Shepherd's flute, etc.

9 Giorgi, Antaki, Aleppo.— Flute.

10 Giorgi, Kara-Keni, Aleppo.— Mandoline, drum, and kettle drum.

11 Giorki Rizzo, Yanina, Yanina.— Guitar.

12 Moustapha Agha, Constantinople.— Flutes and haut-boys.

13 Manoli (shepherd), Lachite, Crete.— Bag pipe.

14 Mehemed Nablius, Damascus.— Kettle drum.

15 Theophani, Nicoforaki, Canea, Crete.— Violin.

16 Théophani, Nicolaki, Canea, Crete.— Shepherd's flute.

Physical, Social, and Moral Condition of Man.

18 Constantinople, Government of.— Turkish gold, silver, and metal coins, commemorative silver medals.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

19 Terraballon, Hadji Agop, Constantinople.— Collection of Greek, Roman, Byzantine, and Arabian coins, in gold, silver, copper, lead, and stone.

Paintings.

20 Ludovic & Vallauri, Constantinople. — Portrait of the late Sultan of Turkey.

21 Ottoman Commission.— Oil paintings.

a Scutari.
b The Bosphorus.
c Turkish lady.
d Landscape.

Engraving and Lithography.

22 Mazloum Aghiah, Constantinople.— Design.

Photography.

23 Granda, Canea, Crete.— Album containing views.

24 Mikahilidés, Adrianople.— Photographic view of Adrianople, the Imperial palace, mosque of Selim, etc.

25 Sebah, Constantinople.— Photographic views of Athens and the interior of the mosque of St. Sophia.

Industrial and Architectural Designs.

26 Constantinople, Government of.— Ottoman architecture.

Ceramic Decorations, Mosaics, etc.

27 Vaisse, Martin, & Co., Constantinople.— Brick and tile.

28 Ana Sebat, Jerusalem.— Tomb and sepulchre of Christ, in mother-of-pearl.

29 Riza Effendi, Constantinople.— Imitation fruits in wax, etc.
RUSSIA.

(South of Nire, Columns 19 to 23.)

Educational Publications and Appliances, Scientific Instruments.

Educational Systems, Methods, and Libraries.

1. Strookoff, St. Petersburg.
   a. School furniture and other educational appliances. 300
   b. Apparatus for mathematical studies. 301

2. Laus, Theodore, Revel.—Practical apparatus for setting arithmetical problems. 300

3. Strembitzki’s Laboratory, St. Petersburg.—Apparatus illustrating different branches of natural philosophy for school and scientific museums. 304

4. Shinhelm, St. Petersburg.—Ethnographical and zoological models. 301

5. Sihieldknecht, St. Petersburg.—Apparatus for mathematical studies. 301

6. St. Petersburg Workshop for Educational Appliances and Games.—Articles adapted for school instruction, gymnastics, and games. 301

7. Reinbot, St. Petersburg.—Technical collections for schools. 301

8. Pik, Jacob, Warsaw. a. Working model of Brahams’ hydrostatic press; model of a steam engine. 301
   b. Mineralogical collection. 301

9. Pedagogic Museum, St. Petersburg.—Collection of educational appliances. 301

10. Lapshenko & Mickhaloff, St. Petersburg.—Collection of educational appliances and apparatus. 301

11. Kressen, St. Petersburg.—Apparatus for physical experiments. 301

12. Kowalski, St. Petersburg.—Apparatus for the study of geography. 301

13. Kochowski, St. Petersburg.—Apparatus illustrating geography. 301

14. Givotovski, St. Petersburg.—Apparatus, illustrating botany. 301

15. Fensoul & Co., St. Petersburg—Text books and appliances for the study of different branches of knowledge. 301

16. Female Workshop of Educational Appliances, St. Petersburg—Ethnographical models. 301

17. Brucher & Bauer, St. Petersburg.—Apparatus for physical experiments. 301

18. Practical Technological Institute, St. Petersburg.—Systematical collection for practical instruction in working metal. 302


20. Strogoff Central School of Technical Drawing, Moscow.—General and ornamental drawings executed by the pupils; text books. 302

21. Krasinski, Dr. Hubert Novo, M. V.---Microscopic preparations of human tissues in sound and pathological state. 302

22. Kotomin, Anthony, St. Petersburg.—Models for teaching comparative anatomy. 302

23. Imperial Technical School, Moscow.—Collection of furniture, apparatus, instruments, and models for technical instruction, specimens of pupils’ work. 302

24. Givotovski, St. Petersburg.—Apparatus for teaching the blind. 303

25. Helsingfors Stereographic Society, Finland.—Treatises and periodicals on stereography. 306


27. Khitroff, Jribit, Government of Perm.—Typographical work. 306

28. Wolf, Morice, St. Petersburg.—Text books, illustrated books, and other editions. 306

29. Unger, Gracian, Warsaw.—“Tygodni illustrowany” (illustrated periodical). 3.6

30. Marks, A. F., St. Petersburg.—“Nieva” (illustrated periodical). 306

31. Jurgenson, Peter, Moscow.—Music, exhibitor’s edition. 306

Scientific and Philosophical Instruments and Methods.

32. Pik, Jacob, Warsaw. a. Double-barreled air pump, Cariniard Larou’s sinec with clockwork. 300
   b. Pyrometer for measuring the linear expansion of various metals; Wallaston’s camera-biudica spectroscope. 304

33. Militski, Joseph, St. Petersburg.—Telemeter instrument for measuring distances without chains or rods. 300

34. Imperial Technical School, Moscow.—Apparatus for drawing parallel lines, and scale for finding the radius of a given arc. 320

35. Jagi, Nicolas, St. Petersburg.—Pulse-pump apparatus adapted for accelerating the filtering process. 320

36. Zevecki, C., St. Petersburg.—Self-registering nautical instruments. 320

37. Zevecki, C., St. Petersburg.—Counting apparatus for multiplication and division. 321

38. Diakoff, George, St. Petersburg.—Arithmometer, new system. 322

39. Alexandroff.—Apparatus for verifying cartridges, exhibitor’s system. 322

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Scientific Instruments, Engineering Designs, Maps.

41 Gootkooski, St. Petersburg.—Mechanical scales for verifying cartridges, exhibitor’s system (photographs). 322
42 Chief Intendancy of War, St. Petersburg.—Method of testing flour, also apparatus for testing the quality and strength of cloth. 322
44 Palenoff, Constantine, Niji Tagil, Government of Perm.—Photometer, specially adapted for thermatics. 324
46 Workshop of the Direction of the Baltic Lighthouses, Revel.—Lamps for lighthouses. 324
47 Workshop for Making and Repairing Nautical Instruments, Yermolin, St. Petersburg.—Fresnel’s lamp for lighthouses; slides for the magic lantern. 324
48 Tabulevitch, T. R. N., St. Petersburg.—Naval signal light. 324
49 Starkoff, Eugene, St. Petersburg.—Albumen paper specially prepared for photography. 324
50 Koolikoff, Nicolas, Moscow.—Russian national musical instruments. 327

Engineering, Architecture, Maps, etc.

51 Municipality of the City of St. Petersburg.—Plans of various town institutions and buildings. 330
52 Municipality of the City of Warsaw.—Cast iron plate for street pavement. 330
53 Paszevny, Charles, Warsaw.—Album containing plans of breweries and distilleries. 331
54 Dinaburg Arsenal.—Sapping instruments, and model of pontoon bridge. 333
55 Blach, John, Warsaw.—Statistical essay on the construction, management, and revenue of Russia; railways and graphic chart. 333

Military Engineering Department, St. Petersburg.—Armor plate, plans, and special editions. 333
57 Antonoff, Philip, St. Petersburg.—Plan in relief of Sebastopol during siege. 335
58 Hydrographical Bureau, St. Petersburg.—Marine charts and coast maps. 335
59 Department of Agricultural & Rural Industry, Statistical Bureau of St. Petersburg.—Statistical maps, showing the soil, climate, produce of corps, and cattle breeding in Russia. 335
60 Vassilieff, John, Pskoff.—Maps of Russia. 335
61 Topographical Bureau of the General Staff, St. Petersburg.—Maps and charts; photo, helio, lithographic works, and electrotype plates. 335
62 Timiriazeff, Demetrius, St. Petersburg.—Statistical atlas. 335
63 Municipality of the City of St. Petersburg.—Oriographic plan of St. Petersburg. 335
64 Kittarg, Modest, St. Petersburg.—Statistical charts. 335
65 Flyin, Alexis, St. Petersburg.—Maps, charts, etc. 335

Physical, Social, and Moral Condition of Man.

66 Anikeyeff, James, Moscow.—Swimming apparatus. 340
67 Kittarg, Modest, Garetooka, Government and District of Moscow.—Disinfecting fluid and powder for dwellings and stables. 342
68 Menard, St. Petersburg.—Appliances for stopping up the chinks of window-frames in cold climates. 342

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
ANNEX TO MAIN BUILDING.

No. 106.—ANNEX TO MAIN BUILDING. (CARRIAGE ANNEX.)

Architect, H. J. SCHWARZMANN.

(SIZE, 346 x 231.)

This structure is built of corrugated iron, wood, and glass; a one-story building, with sky-lights, situated on Avenue of the Republic, immediately north of the Main Building, and east of the Department of Public Comfort.

Chemical Manufacturers, Furniture.

Chemical Manufactures.

<table>
<thead>
<tr>
<th>1 Rogers, Duck &amp; Lewis, Fort Wayne, Ind.—Miller's, elastic surfacing liquid, applied to the bare wood of carriage and car bodies.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Stewart, S. N., Philadelphia, Pa.—Models of relief chair and mattress.</td>
</tr>
<tr>
<td>3 Lawrence, Lewis P., Philadelphia, Pa.—Swing and nursery chair.</td>
</tr>
<tr>
<td>6 Wunderlich, John N., Philadelphia, Pa.—Adjustable table.</td>
</tr>
<tr>
<td>7 Wagner Drug Milling Co., Philadelphia, Pa.—Refrigerators.</td>
</tr>
<tr>
<td>8 Williams &amp; Co., Nashua, N. H.—Soapstone slabs, table tops, and shelves.</td>
</tr>
<tr>
<td>10 Cooey, J. G., Hyde Park, Mass.—Lamp cooking apparatus.</td>
</tr>
<tr>
<td>11 United States Soapstone Furnace Co., Boston, Mass.—Soapstone furnace.</td>
</tr>
<tr>
<td>12 Stuart, D. W., Philadelphia, Pa.—Stove.</td>
</tr>
<tr>
<td>13 Orr, Painter, &amp; Co., Reading, Pa.—Ranges, heaters, stoves.</td>
</tr>
<tr>
<td>15 Spear, James, &amp; Co., Philadelphia, Pa.—Stoves, heaters, ranges, low-down grates, etc.</td>
</tr>
<tr>
<td>17 Reid &amp; Cooper, Elmira, N. Y.—Cooking stove. Direct draft six-hole cooking stoves and ranges, constructed by new application of principles; warranted to give satisfaction in every instance.</td>
</tr>
<tr>
<td>18 Sheeler, Buckwalter, &amp; Co., Royer's Ford, Pa.—Parlor and cooking stoves, ranges, and heaters.</td>
</tr>
<tr>
<td>19 Swett, Quimby, &amp; Perry, Troy, N. Y.—Parlor stove, cooking and heating ranges.</td>
</tr>
<tr>
<td>20 Richardson, Boynton &amp; Co., New York, N. Y.—Furnaces, ranges, heaters, stoves, etc.</td>
</tr>
<tr>
<td>22 Rand, A. W., Philadelphia, Pa.—Heater and range.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
|——Gas stoves and cabinets, petroleum stoves, cooking apparatus, oil lamps and fixtures, gas burners. | 43 McCoy & Roberts, Philadelphia, Pa.—Portable hot-air furnaces. |
| 15 Monitor Oil Stove Co., Cleveland, O.—Cook stove. | 45 Gold’s Heater Co., 47 Cliff street, New York, N. Y.—Heaters. Constructed on the principle of extensive radiating surfaces, which has the effect of reducing the temperature, so as not to injure the quality of the air warmed. Produces same result as outside by steam or hot water, pure and healthful atmosphere. |
| 17 Henis, Chas. F., Philadelphia, Pa.——Steam stove, with grill for stovepipes. | 46 Williams, Charles, & Co., Philadelphia, Pa.—Heaters, ranges, ventilators. |
| 19 Bentley, Jeffrey O., Philadelphia, Pa.— Hollow metallic steam-radiating base-board stove for heating rooms. | 50 Giles, H. G., & Son, Troy, N. Y.—Portable furnace and range, and parlor stove. |
| 19 Langstrath, Thomas, Philadelphia, Pa.—Furnaces. | 51 Myers, George, Philadelphia, Pa.—Bath boilers and tanks. |
| 23 Reynolds, J., & Son, Philadelphia, Pa.—Wood and coal furnaces, cooking range. | 55 Doyle, William, Albany, N. Y.—Stoves, furnaces, and ranges. |
| 25 Morris & Haines, Philadelphia, Pa.—Heaters and range. | 56 Comstock, Castle, & Co., Quincy, Ill.—Heating stoves. |
| 28 Groossius, John, Cincinnati, O.— —Stove for school-houses, etc. | a Hot-air registers, and ventilators. |
| 29 Barry & Lane, New York, N. Y.— Oven range and cast-iron setting. | b Hardware, apple parers, fruit presses. |
| 31 Nixon, George, & Son, Philadelphia, Pa.—Hotel range and boiler. | 59 Johnson, Black, & Co., Erie, Pa.—Stoves, furnaces, and heaters. |
| 33 Gale, D. A. T., Syracuse, N. Y.— Metallic bed bottom. | 61 Hessenbruch, Theophilus, Philadelphia, Pa.—Combination damper and ventilator. |
| 33a Weare Bros. & Co., Cincinnati, O.—Stove. | 62 Michigan Stove Co., Detroit, Mich.—Stoves, hollow ware, stove furniture, etc. Manufacturers of cooking, parlor, and heating stoves, from a mixture of Lake Superior and other first-class brands of iron. Our motto: “Everything made first-class, and to sell at reasonable prices.” |
| 34 Barstow Stove Co., Providence, R. I., New York, N. Y., and Boston, Mass.—Stoves, ranges, furnaces, heaters, hollow ware, etc. Awarded Grand Medal of Merit at Vienna Exposition, 1873. | 63 Lesley, Alex. M., New York, N. Y. a Cooking furnaces. |
| 35 Hopkin, William, jr., Philadelphia, Pa.—Furnace, range, and boiler. | b Refrigerators and coolers. |
| 39 Tuttle & Bailey Manufacturing Co., New York, N. Y.—Hot-air registers, ventilators, ornamental screens for steam ranges, etc. | 65 For classes of exhibits, indicated by numbers at end of entries, see Classification. pp. 27-45. |

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*ANNEX.*

40 Resor, Wm., & Co., Cincinnati, O.—Cooking stoves. 222
41 Caldwell & Mather, Philadelphia, Pa.—Cooking ranges and heating furnace. 222
65 Boyd, David, New York, N. Y.—Flue radiator, flue and diaphragm attachment. 222
66 New Haven Steam-Heating Co., New Haven, Conn.—Radiators and screens for low-pressure steam-heating. 222
67 Miller, William, Cincinnati, O.—Ranges. 222
68 Corey, Jas. H., New York, N. Y.—Culinary boiler and steam and exhaust valve combined. 222
69 Duparquet, L. F., & Huot, New York, N. Y. 222
   a Ranges, broilers. 222
   b Coffee and tea urns, cooking utensils. 224
71 Shepherd, Chas. H., Philadelphia, Pa.—Refuse of cork prepared for kindling fires. 222
72 Belson, R. W., Philadelphia, Pa.—Warm-air furnace. 222
73 Williams & Co., Nashua, N. H.—Stoves, washtrays, sinks, griddles, etc., ofFranclintown soapstone. 222
76 Ferris, Geo. H., New York, N. Y.—Domestic boiler, coffee still. 222
77 Gardner, M. W., Green Island, N. Y.—Combination knobs for stoves, ranges, etc. 222
78 Birkey, John Q., & Co., Philadelphia, Pa.—Gas heaters. 222
80 Masser, H. B., Sunbury, Pa.—Coffee roaster. 222
81 Garrison, W. S., Volga City, Iowa.—Tubular heating stove. This stove will warm from five to twenty rooms without extra fuel. Send for engraving and circular to Tubular Stove Co., Clear Lake, Iowa. 222
82 Magee Furnace Co., Boston, Mass.—Furnace, ranges, parlor stoves, Magee's Standard Hot-air furnace, cased with a patent non-conducting material. Same furnace for sheet iron casing. Same furnace for setting in masonry. The radiators of these furnaces are manufactured of heavy plate iron, and all warranted gas-and-steam-tight. Their durability, economy, and successful operation have been fully demonstrated, and are guaranteed. Three samples of Magee's Standard Portable Ranges, Magee's Standard Brick Range (also exhibited in operation at the New England log cabin). Two samples of Magee's Standard Parlor Stove. Two samples of Standard Portable Low Down Grate. Magee's Standard Hall Stove. Magee's Standard Dining-Room Heater. Magee's Standard Cook Stove. Magee's Advance Cook Stoves. Magee's goods are eminently popular wherever used, and are warranted in every particular by the manufacturers. 222
83 Read, Josiah M., Boston, Mass.—Cooking range, stove dampers, filters, and broilers. 222
83a Croll, Benj. P., 639 Arch street, Philadelphia, Pa.—Rhind's Patent Safety Lamp. Rhind's Patent Kerosene Safety Lamp has been placed upon the market, and the public is invited to test it. Its qualities are: First, it extinguishes itself when overturned; second, it extinguishes itself when dropped from the hand; it cannot be filled when lighted; and can be carried about at pleasure. It is so con-
structed that blowing down the chimney or turning down the wick to extinguish the light is unnecessary. The New York board of underwriters have endorsed and recommended its use. Sample price, $1.25, sent free upon receipt of P. O. order. Merchants supplied at reasonable prices. 222
83b Beam, A. F., Philadelphia, Pa.—Oil tanks and cans. 224
84 Barrows, Savery & Co., Philadelphia, Pa.—Hollow ware, irons, porcelain refrigerator, etc. 224
84a Dunglison, Richard J., Philadelphia, Pa.—Coru grater. 224
85 Farson, E. S., & Co., Philadelphia, Pa.—Refrigerators and coolers. 224
86u Reidel, E. G., & Co., Philadelphia, Pa.—Steamless tin boxes. 224
86 Gravenstine, John, Philadelphia, Pa.—Sideboard, refrigerator, and water-cooler combined. 224
86a Perkins, Eliab, Sterling, Ill. 224
   a Refrigerator. 224
   b Shutter. 227
87 Sogs, C. W., Carbondale, Pa. 224
   a Frypan and vegetable paner and slicer. 225
   b Folding adjustable ironing table and skirtboard. 225
88 Lacy, Walter, Milwaukee, Wis.—Steamless cooking shell. 224
89 Kimball, Wm. S., Philadelphia, Pa.—Refrigerator, filter, and cooler. 224
91 Parker, Chas., Meriden, Conn.—Steamless mill. 224
92 Berney, Alfred, Boston, Mass.—Teakettle, boiler, and steamer; dry, wet, and weighing measure combined; coffee cone. 224
93 Patent Keg Co., Philadelphia, Pa.—Steamless other cans. 224
94 Keller Manufacturing Co., Harrisburg, Pa.—Graduated quart measure. 224
95 Hess, Abram, Philadelphia, Pa.—Cooking apparatus. 224
97 Shepard, Sidney & Co., Buffalo, N. Y.—Japanned and stamped tinware, coal vases, stove boards, ice cream freezers, spice cabinets. 224
98 Stites & Co., Cincinnati, O.—Iron measures, buckets, and paint pails. 224
99 Broch, Isidor, Philadelphia, Pa.—Water filter. 224
100 Acquackanauck Manufacturing Co., Passaic, N. J.—House furnishing woodenware; stepladders, hat racks, knifeboards, etc. 224
101 Rohrer, Jeremiah, Lancaster, Pa.—Refrigerator and water cooler combined. 224
101a Beach, E. R., New York, N. Y.—Match sale base for lamps. 224
103 Ford, F. G., Philadelphia, Pa.—F finish and ash pails and sieves combined; toys. 224
105 Polhemus, J. H., New York, N. Y.—Refrigerating cupboard, upright and chest refrigerator. 224
106 Newark Tea Tray Co., Newark, N. J.—Tea trays, children's trays, stove plans, dressers, and brushes. 224
107 Dowst, Frank, Manchester, N. H.—Refrigerator. 224

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
ANNEX.

Household Utensils.


110 Olmsted, S., jr., Galesburg, Ill.—Stiffener, collardener, and strainer combined.


112 Consolidated Fruit Jar Co., New Brunswick, N. J.—Fruit in Mason's glass jars. Manufacturers of Mason's fruit jars, oilers, can screws, and sheet metal wares.


113 Scheider, J., & Co., Portland, Conn.—Stamped and japanned ware; house furnishing goods.

114 Cull, Henry, Philadelphia, Pa.—Combination sink and dish cupboard and toilet stand; kitchen and dining room furniture.

115 Missouri Valley Novelty Works, St. Joseph, Mo.—Combination kitchen safe. A money saving, labor saving, household convenience. With this safe a person need not move one step in making bread, cakes, or pastry, for all the necessary machinery and ingredients are centered within reach.

116 Simes & Tate, Philadelphia, Pa.—Water filter.

117 Randle, Wm. H., Baltimore, Md.—Water coolers and refrigerators.

120 Shaw, Charles A., 110 Tremont street, Boston, Mass.—Spice box.


124 Union Manufacturing Co., Toledo, O.—Washboards, churns, lavo hose carts, kitchen woodenware.

125 Vignal, Carl, New York, N. Y.—Ice cream refrigerator.

127 Schaum, John P., Lancaster, Pa.—Copper kettles and copper ware.

128 St. Louis Stamping Co., St. Louis, Mo.—Granite iron cooking and household utensils.

130 Bollenbacher, Geo. W., Bloomington, Ind.—Kneading table, with flour and meal chest combined.


a Soldering casket.

b Portable shower bath.

133 McDonald, T. E., New Brunswick, N. J.—Washing machine and wringer.

134 Moore, Henry, & Son, Philadelphia, Pa.—Washing machine.

134a Caldwell, W. M., North East, Pa.—Combination brush and rollers for washboard.

135 Dugdale, Jas. K., White Waters, Ind.—Clothes wringers and washers, garden cultivators.

135a Gilbert, A. C., Philadelphia, Pa.—Ironing board.


137 Chalfant Manufacturing Co., 509 North street, Philadelphia, Pa.—Proprietor and manufacturers of Mrs. Potts' patent cold-handle sad irons, polishing, laundry, and tailors' irons.

138 Van, Aremas B., & Cheney, Henry O., Hopkinton, Mass.—Washer and wringer combined.


140 Applegate, Robert O., Philadelphia, Pa.—Ironing table.

141 Duncan, W. A., Syracuse, N. Y.—Washing machine.

142 Worden, A. E., Smyrna, Del.—Washing machine.

143 Colby Wringer Co., Waterbury, Vt.—Clothes wringer, little washer.

144 Bless & Drake, Newark, N. J.—Self-heating smoothing irons, tailors' geese, sad, laundry, and polishing irons.

145 Calver, Dr. G. W. H., Columbus, N. J.—Household ironing machine, heated by gas, or cook stove. Patent for sale.


149 Jennings, A. W., Bedford, O.—Clothes washers.

150 Gove, John C., Cleveland, O.—Fruit and provision preserving house, washing machine, adjustable index writer.


154 Lamb, Geo. D., New Haven, Conn.—Little washer, iron holder.


157 Myers, A. G., New York, N. Y.—Water closets and plumbers' material.

157a Eisenmann, E., New York, N. Y.—Back and head support for the bath tub.

158 Blessing, C. A., 44 North Fifth street, Philadelphia, Pa., dealer in bath tubs, copper boilers, and plumbers' copper and cabinet ware in general.—Bath tubs, washstand, bidet.

158a Shelmore & Sherman, Philadelphia, Pa.—Washstand.


159a Pease, Charles A., Boston, Mass.—Washstand.


161 Carrigan, Peter, Philadelphia, Pa.—Tinned and nickel-plated copper bath tubs, bidet, footbath, pantry and bar sinks, drainer, and liquor cooler.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
ANNEX.

Parts of Buildings, Hardware, etc.

162 Weaver & Pennock, Philadelphia, Pa.—Marble lavatory. 226
162a Landis, S. M., Philadelphia, Pa. — Turkish bath. 226
163 Vinton, C., Hartford, Conn.—Babies' bathtub, sitz bath. 226
164 Bacharach, M., New York, N. Y.—Street urinal. 226
165 Travis, Jos. L., Philadelphia, Pa.—Water closets, brass and plated work for plumbers and steam fitters. 226
166 Steeger, Henry, New York, N. Y.— Copper boilers, bathtubs, etc. 226
166a Barth, Gottlieb M., Philadelphia, Pa.— Improvement in window frames. 227
166b Ballentine, G. H., Philadelphia, Pa.—Cottage. 227
166: Ross, William J., West Boylston, Mass.—House building improvements, etc. 227
166a Perry, Jos. R., Wilkesbarre, Pa.— Wooden house. 227
166b Patterson, J. E., & Co., Pittston, Pa.— Doors, shutters, newel posts, etc. 227
166c Winans, Geo. G., Scranton, Pa.— Wainscoting. 227
166d Wilson, Jas. G., New York, N. Y.— Rolling wood shutters and venetian blinds. 227
166e Wight, Spencer A., Philadelphia, Pa.— Dust trap for ventilating bulk windows. 227
166f Comstock, C. C., Grand Rapids, Mich.—Doors, blinds, mouldings, etc. 227
166g Wilt, A., & Son, Philadelphia, Pa.—Sash, blinds, doors, mouldings, etc. 227
166h Huginin Manufacturing Co., New York, N. Y.—Automatic window supports. 227
166i Bradford, H., Philadelphia, Pa.— Window fastener. This is the only window fastener that locks automatically at any point, by side pressure, without adjustment of the frame. For sale by H. Bradford, room 26, Merchants' Exchange, corner Third and Walnut streets, Philadelphia. 227
166j Champion Fence Co., Kenton, O.— Iron fencing. 227
166k Manly, M. M., & Son, Philadelphia, Pa.— Iron railing, wirework, etc. 227
166l Clark & Co., New York, N. Y.— Brass and iron store fronts and self-coiling shutters. 227
166m Lake Champlain Manufacturing Co., Ticonderoga, N. Y.—Doors, etc. 227
166n Ford, W. A., Greensburg, Ill.— Window fastener. 227
166o Hayes, Geo. S., New York, N. Y.— Roofing. 227
166p Dayton, G. E., New York, N. Y.— Iron gutters, sashes, etc. 227
166q Crowell, S., Philadelphia, Pa.— Iron fence. 227
166r Hough & Co., Indianapolis, Ind.— Cast iron griffins. 227
166s Darby, E., & Son, Philadelphia, Pa.—Wire work. 227
166t Lynex, Richard, Philadelphia, Pa.—Wire work. 227
166u New York Slate Roofing Co. (limited), New York, New York. — Paints and roofing materials. 227
166v Garry Iron Roofing Co., Cleveland, O.—Roofing, window shutters, etc. 227
166w Augustine & Stuart, Philadelphia, Pa.—Metallic roofing and spouting. 227
166x Delts' Roofing Co., Cincinnati, O.—Roofing. 227
166z Fairbanks, A. G., Manchester, N. H.—Soapstone roofing. 227
167 Kensett, Jas. W., New York, N. Y.—Fireproof appliance for the security of buildings. 227
167a Swift, Charles N., New York, N. Y.—Adjustable ventilators. 227
167b Bates, J. C., Philadelphia, Pa.—Ventilating apparatus. 227
167c Bracher, T. W., New York, N. Y.—Ventilators. 227
167d Wallace, S. J., Keokuk, Ia.—Fire-proof floors and roofs. 227
167e Penn Roofing Co., Philadelphia, Pa.—Roofing felt, etc. 227
167f Humboldt Iron Works, New York, N. Y.—Illuminating tiles. 227

Clothing, Jewelry, and Ornaments; Traveling Equipments.

167g Watts, Ethelber, Philadelphia, Pa.—Portable bath trunk. 233

Medicine, Surgery, Prosthesis.

167h Crandall, Chas. J., New York, N. Y.—Crutches. 226

Hardware, Edge Tools, Cutlery, and Metallic Products.

167i Wickersham & Bro., Philadelphia, Pa.—Brass and gold pipe, etc. 233
167j Eckel, Herman, Cincinnati, O.—Enameded iron hollow ware. 233
167k Musgrove & Son, New York, N. Y.—Fancy articles for tin wedding presents, tin, japanned and copper ware. 233
167l Lalance & Grosjean Manufacturing Co., New York, N. Y.—Granite ware, etc. 233
168 Rowland, William, & Harvey, Philadelphia, Pa.—Carriage, locomotive, and car springs; tire, sheet, cast, machinery, and blister steel. Re-rolled Norway iron, rolled and slit Norway nail rods. 233
168a Mott, J. L., Iron Works, New York, N. Y.—Plumbers' cast iron ware, plain, galvanized, and enameded. 233
169 Burwell, William, & Bro., Philadelphia, Pa.—Carriage mountings in silver, oreide, and gold plated. 284
169a Anderson, W. W., Philadelphia, Pa.—Models for carriage shackle. 233

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
ANNEX. 379

Hardware, Parts of Carriages.

171 Hoopes, Bro., & Darlington, West Chester, Pa., & at 27 James street, London-Acre, London, England.—Vehicle wheels of hickory and oak, fine quality and workmanship, thoroughly seasoned. Particular attention given to special styles for builders of private coaches; also Elman patent wheels with wood hub and iron flanges, spokes secured in hub by wedges, and warranted not to become loose in service. Wheel material and shafts of all kinds to order.

172 Topliff & Ely; Elyria, O.—Tubular bow, shaft, and pole sockets for carriages; side-spring equalizers.

173 Kent, D. H., & Co., Wilmington, Del.—Iron hardware and coach material.


175 Dann, Bros., & Co., New Haven, Conn.—Carriage woodwork.

176 Shields, Thomas, Philadelphia, Pa.—Carriage bolts and clips, nuts, washers, etc.


178 Metal Stamping Co., New York, N. Y.—Carriage curtain loops and buckles, knob fasteners, etc.


180 Dexter Spring Co., Hultin, Pa.—Vehicle springs.

181 Seidler, Fred., Mechanicsburg, Pa.—Spokes, felloes, hubs, shafts, poles, bows, wheels.


183 McKnight & Rohrer, Charlestown, W. Va.—Carriage rims; axle, pick, sledge, hammer, and hatchet handles.

184 Advena & Heald, Philadelphia, Pa.—Carriage and wagon axles; seat boxes.

185 Shields, Wm., Philadelphia, Pa.—Carriage bolts.

186 Cowles, C., & Co., New Haven, Conn.—Carriage trimmings and hardware.

187 New Haven Wheel Co., New Haven, Conn.—Wheels for vehicles. All the usual styles and qualities of patented wheels. Original manufacturers of the celebrated "Sarven" patent wheel.

188 Davis, John G., & Son, Philadelphia, Pa.—Spokes, hubs, rings, wheels, and plow handles.

189 Sandusky Wheel Co., Sandusky, O.—Carriage woodwork.

190 Woolworth, James, Sandusky, O.—Tool handles.

191 Smith, H. D., & Co., Plantsville, Conn.—Carriage and coachmakers' forged hardware.

192 Urnston, John, Rahway, N. J.—Hubs.

193 Crane, Samuel O., Newark, N. J.—Carriage wheels.

194 Jones, Phineas, & Co., Newark, N. J.—Coach and carriage wheels, spokes, hubs, rims, etc.

195 Kilburn, Isaac B., Newark, N. J.—Bent carriage woodwork and materials.


197 Sears, Anson, Newark, N. J.—Carriage specialties. Whip sockets adapted to all kinds of carriages, with improved fasteners; style, finish, and durability The "Centennial" top props for carriages, perfectly; any joint will fit; no rattle, and no nuts lost.

198 Union County Manufacturing Co., Elizabeth, N. J.—Wheels and wheel stock.

199 Skelly, Thomas, Philadelphia, Pa.—Carriage bolts, axle clips, nuts, etc.

200 Lockwood, C. N., & Co., Newark, N. J.—Carriage lamps and plated carriage ware.

201 Silas, Rogers, & Co., Stanfordville, N. Y.—Carriage and truck axles.

202 Springer, Morley, & Gause, Wilmington, Del.—Coach and carriage wheels, hubs, spokes, and felloes.

203 Baker & Co., Waller, O.—Wheels, hubs, spokes, felloes, gearing, wood in rough, etc.

204 Sippel, Chr., Newark, N. J.—Fancy turning for carriage trimmings.

205 Rubber Step Manufacturing Co., Boston, Mass.—Carriage steps, etc.

206 Dalzell, D., & Sons, South Egremont, Mass.—Carriage axles, axle boxes.

207 Seward, M., & Son, New Haven, Conn.—Carriage hardware.


209 Olds, N. G., & Sons, Fort Wayne, Ind.—Wheels, hubs, buggy seats, and plow handles.

210 Leippe, Jacob A., Anchor Bending Works, Lancaster, Pa.—Shafts and rims.

211 Wrigglesworth, W. J., Darlington, Wis.—Wheels for carriages, buggies, wagons, etc.

212 Logansport Manufacturing Co., Logansport, Ind.—Wagon and carriage spokes, bent felloes, shafts, and soles.

213 Cunningham, Ports, & Co., Postoria, Ohio.—Spokes, felloes, neck yokes, whiffletrees, pick and hammer handles, etc.

214 Strahorn, Pierson, & Co., Toughkenamon, Pa.—Carriage wheels.

215 Lebzelter, Philip, Lancaster, Pa.—Spokes, felloes, shafts.


Wooden and Basket Ware, Carriages.

216 Woodburn Sarven Wheel Co., Indianapolis, Ind.—Sarven and common wood hub wheels. Manufacturers of the celebrated "Sarven Patent Wheel," used for all kinds of vehicles; also, common wood hub wheels. Send for our Price List.

217 Frohock, Wm. Thompson, Philadelphia, Pa.—Suspension steel buggy wheels, nickel-plated spokes, etc.

218 Hayden & Smith, Auburn, N. Y.—Saddlery, and carriage hardware; finished forgings for carriages; slot fifth wheels, Saunders' patent shaft shuckles, patent iron-clad hames, Scotch hames, Concord hames, Kinne's patent trace buckles; all wrought, guaranteed, Brad- doon bits.


219a Welsh & Lea, Philadelphia, Pa.—Carriage and tire bolts, nuts, axle clips, etc.

Fabrics of Vegetable, Animal, or Mineral Materials.

220 Gould, C. H., Philadelphia, Pa.—Rubber steps, etc.


220d Meinecke, Adolph, Milwaukee, Wis.—Ladies' baskets and willow ware.

220e French Paper Ware Co.,Spring- field, N. J.—Pails, tubs, etc.

220f Tower, Wm. F., & Bro., Hinsdale, Mass.—Ash baskets, for use in mills.


220i Eberhardt, F., Philadelphia, Pa.—Baskets, cradles, workstands, etc.

220j Zinn, Chas., & Co., New York, N. Y.—Baskets, willow ware, etc.

220k Crane Bros., Westfield, Mass.—Paper baskets, buckets, cans, etc.

220l Hapgood & Smith, Athol, Mass.—Match sticks.

Carriages, Vehicles, and Accessories.


223 McLear & Kendall, Wilmington, Del.—Phaetons, rockaway, family, park, and seaside carriages.


225 Jacobs, S. W., & Son, Philadelphia, Pa.—Pleasure carriages.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.
Carriages, Cars.

| 250 | Renick, Curtis, & Co., Greencastle, Ind.—Combined carriage and buggy; combined carriage and buggy bodies. |
| 251 | Wright, W. H., & Co., Wilmington, Del.—Double jump seat carriage. |
| 252 | Mellinger Jump Seat Co., Harrisburg, Pa.—Jump-seat carriages. |
| 253 | Hall, James, & Son, Boston, Mass.—Berlin coach; top and shifting top buggies. |
| 254 | Enders, J., & Co., Louisville, Ky.—Top buggy with side bar attachment. |
| 255 | Sargent & Ham, Boston, Mass.—Extension top park phaeton. |
| 256 | Scovil, O. S., & Co., Coldwater, Mich.—Box buggy and track sulkies. |
| 257 | McDermott, John, & Bros., Washington, D. C.—Shifting top buggy. |
| 258 | Green, John, Wilmington, Del.—Jump seat and doctors' rockaways. |
| 259 | McLean, Alfred, West Chester, Pa.—Shifting seat and shifting top buggy. |
| 260 | Gilman, F. C., Montpelier, Vt.—Track sulky, open wagon. |
| 261 | Rodgers, S. C., Philadelphia, Pa.—Shifting top, side bar wagon; one-man wagon. |
| 262 | Behlen, Charles, Cincinnati, O. |
| 263 | Tonsend, Chas: T., New Haven, Conn.—Phaeton, road wagon, and willow shell bodies. |
| 265 | Killam, H., & Co., New Haven, Conn.—Pleasure carriages. |
| 266 | Manville, B., & Co., New Haven, Conn.—Rockaways, cabriole, Tcart. |
| 268 | Grube, Chas., New York, N. Y.—Park phaeton, top buggy. |
| 269 | Goold, James, & Co., Albany, N. Y. |
| 270 | Stone, Frank P., Chicago, Ill.—Porter buggy. |
| 271 | Pray Bros., Boston, Mass.—Goddard buggy, track sulky. |
| 275 | Durham & Wooster, New Haven, Conn.—Landaulet coupé, London phaeton. |
| 277 | St. James, C., Pittsfield, Mass.—Single carriage, thigh and pole. |
| 278 | Jones, Phineas, & Co., Newark, N. J.—Track sulky. |
| 280 | New Haven Folding Chair Co., New Haven, Conn.—Child's carriage. |
| 282 | Dare, C. W. F., New York, N. Y.—Child's carriage. |
| 284 | Oppenheimer, Solomon, Newark, N. Y.—Improvement in children's carriages. |
| 285 | Yost, T. A., Philadelphia, Pa.—Children's carriages and velocipedes. |
| 286 | Wentworth, Chas. H., Eddystone, Pa.—Child's folding carriage. |
| 287 | Richardson, McKe & Co., Boston, Mass.—Child's carriage. |
| 288 | Montpelier Manufacturing Co., Montpelier, Vt.—Children's carriages. |
| 290 | McIntire, J. Frank, Boston, Mass.—Children's carriages. |
| 291 | Cole & Ballard, Newark, N. J.—Baby carriages, velocipede, sled, and wagon. |
| 292 | Newgeon & Shelton Carriage Co., Birmingham, Conn.—Children's carriages. |
| 293 | Steinbach, Geo. P., Baltimore, Md.—Children's convertible sleeping coaches and walking and nursery chair and vehicle. |
| 296 | McIntire, Samuel, New York, N. Y.—Baby carriages. |
| 297 | Crandall, J. A., Brooklyn, N. Y.—Children's carriage and cradle combined, play goods, etc. |
| 298 | Youle, William, Norwalk, Conn.—Hearses. |
| 299 | Paris Hill Manufacturing Co., Paris Hill, Me.—Children's carriages and sleds. |
| 300 | Hunt, Wm., Camden, N. J.—Passenger vehicles. |
| 301 | Pickering, Thos. R., Portland, Conn.—Velocipede. |
| 302 | Smith, John, & Son, South Gray, Me.—Sleigh. |
| 303 | Mayer, John W., Rondout, N. Y.—Albany cutter. |
| 304 | Smith, Hugh, Gray, Me.—Double and single sleighs. |
| 305 | Wagner, Geo. W., Roxborough, Pa.—Sleighs. |
| 307 | Dann Bros. & Co., New Haven, Conn.—Carriage wood work, bodies, seat backs, gearings, bows, shafts, etc. |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
Scientific Instruments, Railway Cars and Appliances.

301 Pennsylvania Working Home for Blind Men, Philadelphia, Pa.—Harness. 296
301a Phillips, Samuel R., Philadelphia, Pa.—Four-in-hand harness on wooden horses. 296
301b White Manufacturing Co., Bridgeport, Conn.—Carriage trimmings and lamps. 296
303 Baldwin, Jos., & Co., Newark, N. J.—Saddlery hardware, hand forged and malleable; bits. 296
304 Hayden & Smith, Auburn, N. Y.—Hames and trimmings for harness. 296

Institutions and Organizations.
304a Barry, Peter, New York, N. Y.—The arms of the Revolutionary patriots. 312

Scientific and Philosophical Instruments and Methods.
304b Keller Manufacturing Co., Harrisburg, Pa.—Graduated measure. 322
304c Fournier, Stanislas, New Orleans, La.—Tell-tale clock and starter. 323

Physical, Social, and Moral Condition of Man.
304d Curtis, Albert W., Williamsport, Pa.—Centennial swing. 340

Motors and Apparatus for the Generation and Transmission of Power.
304e Miller, Joseph A., Providence, R. I.—Models for locomotive boilers. 550

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.
304f Miller, A. R., & Son, Attica, N. Y.—Automatic carriage jack. 563
304g Miller, Joseph A., Providence, R. I.—Hose carriage. 564

Railway Plant, Rolling Stock, and Apparatus.
305 Jackson & Sharp Co., Wilmington, Del.—Ordinary and narrow gauge passenger cars. 571
306 Harlan & Hollingsworth Co., Wilmington, Del.—Parlor car, narrow gauge passenger car. 571
306a Clark, Geo. P., Boston, Mass.—Combined locomotive, baggage, and passenger car. 571
307 Haase, John A., Philadelphia, Pa.—Model freight car, hose shield, floor and door clamps, ratchet drills. 571
308 Pullman’s Palace Car Co., Chicago, Ill.—Drawing-room car, hotel car. 571
311 Byden, James, Philadelphia, Pa.—Car model, showing improvement in bumper springs, platform and draw heads. 571

312 Ustick, Stephen, Philadelphia, Pa.—Car model, showing improved coupling and journal lubricators. 571
313 Stephenson, John, & Co., New York, N. Y.—One and two horse street cars. 571
314 Towle Manufacturing Co., New York, N. Y.—Bell punches and fare registers. 571
314a Crosby & Hecker, Rondout, N. Y.—Car coupler. 574
314b Russell, H. G., Lincoln, Ill.—Car coupler. 572
314c World’s Champion Car Coupler Co., Tiffin, O.—Car coupler. 572

315 Darling, Samuel, Providence, R. I.—Improved ventilating car window. Manufacturer of a great variety of new patent inkstands, on new principles, being so arranged that the writer can regulate, with great accuracy, the quantity of ink to be taken upon the pen. They are made in styles and at prices to suit all classes of writers. One (non-spilling) is especially adapted for home use. Pen-cleaners, on a new principle, an indispensable article. A new glass for church windows, which will keep out the sun, and let in more light than any before produced. A standard medicine-dropper, by which medicine can be dropped with facility in drops of the exact standard size. 573
315a Hindman, Thos., Pittsburg, Pa.—Whiffletree and shaft-coupling. 573
315b Blaisdell, Geo. P., North Easton, Mass.—Self-lubricating carriage axles. 573
315c Locke, John, Philadelphia, Pa.—Hubs for wheels. 573
315d Hunter, G. W., Philadelphia, Pa.—Railroad tie lifter. 573
317 Morgan, Richard Price, Jr., Bloomington, Ill.—Elevated railway for cities, adopted by the Rapid Transit Commission of New York, Oct. 4, 1875. This structure is designed to sustain a double track steam railway, over the centre of streets, at such height as not to interfere with their ordinary traffic. The transverse supports that carry the longitudinal trusses, which directly uphold the tracks, spring from the sidewalks, opposite each other, near the curb, meeting over the centre of the street, forming an effective pointed gothic arch. 577
317a Crozier, H. P., Brooklyn, N. Y.—Horse car starter. (Outside). 577
318 Jones, J. M., & Co., West Troy, N. Y.—Street and excursion street cars. 577
319 Williams, R. L., Middle Granville, N. Y.—Self-coupler for cars. 577
320 Schopp, Phil. J., Louisville, Ky.—Pneumatic screw ventilator. 577
321 Crocker, L. O., East Braintree, Mass.—Conductors’ railway ticket punches. 577
322 Stewart, S. N., Philadelphia, Pa.—Model of an ice boat. 594

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.
ANNEX.

Vehicles, Harness.

GREAT BRITAIN.

323 McNaught & Smith, London.—
Landau, barouche, coupé, and brougham.
324 Peters & Sons, London.—
Park and road drags, landau, broughams, phaetons, and Whitechapel cart.
325 Hooper & Co., London.—Four-in-hand drags, phaetons, barouche, brougham, and landau.
326 Thorn, C., Norwich.—
Phaetons, brougham, gig, charabanc, shooting cart, landau, and wagonette.
327 Roberts, John, Manchester.—
Pony phaeton.
328 Mulliner, Henry, Leamington.—
Brougham, Whitechapel cart, landau, and dog-cart phaeton.
329 Windover, C. S., London.—
Brougham, phaetons, and landau.
330 Thompson, Chas., London.—
Child’s perambulator.
330a Haynes & Jeffries, Coventry.—
Bicycles.
330b Roberts, C. D., Coventry.—
Bicycles.

NEW SOUTH WALES.

331 Robertson, John, Sydney.—
Concord buggy with canoe front; wood work and iron work entirely of New South Wales material.

CANADA.

332 Legarie, J. B., Quebec.—
Cariole.
333 Ashley, Chas., Foxboro’.—
Phaetons.
334 Knox & Wrothwell, Goderich.—
Buggy.
335 De Wolfe, J. M., Halifax.—
Phaetons.
336 Ledoux, B., Montreal.

a Landauet.

b Double sleigh.

337 Kew, Wm., & Son, Beamsville.

a Top buggy.

b Sleigh.

338 Wood & Lyons, Brantford.

a Huggies.

b Cutter.

339 Conboy, Daniel, Uxbridge.—
Adjustable-back sleigh.

GERMANY.

340 Dick & Kirschten, Offenbach-on-Main.—
Axles, springs, fifth wheels, etc.

AUSTRIA.

341 Armbruster, S., Vienna.

a Landau.

b Harnesses and saddlery.

ITALY.

342 Locati, Alessandro, Torino.—
Street cabs.

RUSSIA.

343 Schmidt, Edward, St. Petersburg.

a Spring tester.

344 Nellis, Charles, St. Petersburg.

b Victoria.

345 Wemick, Joseph, Warsaw.

b Droisky.

346 Arbatsky, Nicholas, Moscow.

a Trotting wagon.

b Sledge, with robe.

347 Zimmerman, Roman, Moscow.

a Saddlery and harnesses.

348 Elevin, Michael, Moscow.

b Harness.

349 Brandstetler, Frederick, Warsaw.

b Harnesses.

350 Shishkin, Stephen, Moscow.

b Harnesses.

351 Koorikoff, P., St. Petersburg.

b Harnesses.

For classes of exhibus, indicated by numbers at end of entries, see Classification, pp. 27-45.
INDEX OF EXHIBITORS, COMMISSIONERS, ETC.

DEPARTMENTS I., II., III.

A.

Aalborg Chemical Works, Soda, 223; Artificial manure, 224.
Aalborg Syrup & Spirit Factory, Liquor, 224.
Aarestrup, J., Piano, 261.
Aargau, Ass'n of the Canton of, Map, 354.
Aargau, Building Direction of, Works, 355.
Aargau Reformatory, Reports, 357.
Abad Bros., Cloth, 273.
Abadi, J., Pralou, 87.
Abadji, Molaghia, Divan stuff, 294.
Abas Ousta, P., Vest, etc., 320.
Abass Agha, Horeshores, 97.
Abazar, Ketour, Ebony crutches, 325.
Abbas, Silk, 298.
Abbey, C., & Sons, Foil, 136.
Abbott, Downing, & Co., Coaches, 381.
Abbott, H. L., Judge, Gr., XVI., 17.
Abbott, J. E., Paveont, 54.
Abdi Agha, Dishes, 292; Oats, 377.
Abdi Azada Ali Bey, Embroidery, 302.
Abdi Bey, Chrome, 97.
Abdi Effendi, Carpet, 297.
Abdoullah, A., Morocco, 310.
Abdoullah Keire, Z., Calico, 294.
Abdoullah, Almonds, 317.
Abdoullah Arouniye, Clogs, 301.
Abdoullah Bey, Antimony, 97.
Abdoullah Chili, Cushion cover, 304.
Abdoullah Effendi, Carpet, 297.
Abdoullah, L., Leather, 311.
Abdoullah Oghou, Hassan, Shawl, 296.
Abdoullah, L., Essence, 297.
Abdoullahaman, Aman, Whip, 305.
Abdoullahraman Effendi, Gull nufs, 306.
Abdoullahraman, M. O., Dinner sets, 293.
Abdoullahraman, I., Jacket, 301; Boots, 301; Sunum berries, 304; Peas, 307; Wax, 312.
Abdul Hahat, Towels, 294.
Abdul Hamad, Foulard, 298.
Abdul Kader, Cloth, 295.
Abdul Kader Ousta, Jacket, 300.
Abdul Keri, Boots, 391.
Abdul Medjidal, Skin, 310.
Abeglen-Perrin, Charlets, 338.
Abelo y Boada, P., Alabaster, 89.
Abendroth Bros., Stoves, 375.
Aberdare Mine, Coal, 67.
Abernethy, A. S., Alternate, 9.
Abhun, Boots, 289. 295; Woodenware, 109.
Abhun Oghou Avediz, Boots, 301.
Abil, Saucers, 292; Jewelry, 302; Cover, 303.
Snuff, 359.
Abir Yane Cotton, 294; Silk, 298.
Aboriginal Mission Station, Hopen, 163.
Abplanalp, J., Wood carvings, 358.
Abrahams Bros., Books, 221.
Abrahamsen, A., Pupils' work, 362.
Abre e Lima, J., Paint, 153; Work, 288.
Academy of Fine Arts, Work, 366.
Acadica Catherine Gold Mining Co., Ore, 65.
Accarisi, G., Jewelry, 234.
Acacho y Varquez de Araujo, E., Galena, 88.
Accent y Menendez, B., Ore, 89; Stone, 91.
Acero, J., & Sons, Hats, 276.
Achmet Agha, Skin, 311.
Achon, J., Prints, 277.
Ackerly, James, Dogtooth spar, 71.
Ackermann, T., Books, 347.
Acosta de Quirolo, Josefa, Crystal rock, 83.
Acquadro, Paolo, Postal box, 365.
Adams & Co., Glassware, 188; Silks, 150.
Adams, Dan, Hat rack and chairs, 109.
Adams, J., Wheat, 163.
Adams, J., Ore, 47.
Adams, R., Hinges, 159.
Adams, R. T., Filters, 163.
Adams, W., Books, etc., 338.
Adams White Lead Co., White lead, 103.
Adams, W. R. M., Bolt, 149.
Adana, Government of, Galena, 96; Gall nufs, 306; 310; Skins, 311.
Adams, J. B., & Sons, Tools, 153.
Addy, M., Judge, Group I., 15.
Adelaide Museum, Birds, 167.
Adelsvård, Baron Th., Ore, 78; Copper, 79.
Adjustable Folding Chair Co., Chair, 109.
Adler, Geo., Cardboard work, 205.
Adler, R., Musical instruments, 349.
Adler, W., Jewelry, 318.
Adlischweil Silk Goods Factory, Silks, 212.
Admiralty, Lords of, the Model, 174.
Admiralty Tyora Works, Boiler plates, 98.
Adjret, A., Carpets, 297.
Adriannople, Gov't of, Ores, 96; Nuts, 306.
Advena & Heald, Axles, 379.
Adver, M., Carpet, 297.
Advisory Board, Bricks, 188; Yarn, 189.
Aebi & Landry, Watches, 354.
Aes & Aebuck, Sugars, 253.
Aghaba, K., Lentsils, 309.
Aghop, Erzeroum, Fox furs, 304.
Aghop, Hodja, Cord, 293; Ribbons, 298; Bonnet, 304.
Aghop, Miss, Lace, 302.
Aghop, S., Calicoes, 204.
Agosti, Agnes, Embroideries, 234.
Agosti Bros., Olive oil, 312.
Agostina Della Setta, A., Olive oil, 231.
Agugado, A., Shirting, 280.
Agricultural and Prov'l Colony, Statutes, 353.
Agricultural and Rural Industry, Department of, Maps, 373.
Agriculture and Commerce, Dep't of, Prizes, 344.
Agriculture, Industry, and Commerce, Board of, Coal, 89.
Agriculture, Provincial Board of, Ores, 88.
Aguirre, J. C. de Costa, Bookstand, 253.
Aguo, A, Handkerchief, 277.
Aguo, 66, Soap, 271.
INDEX.

Alofuzzoff & Alexandroff, Linen fabrics, 316. 
Alonso, Casimiro, Iron ore, 88. 
Alonso Cortes, Parchment, Salt, 91. 
Alic, A., Soap, 255. 
Alisina, J., Velvets, 275. 
Altemus & Co., Scrap books, 131. 
Altenberd, T., Instruments, 390. 
Althans, E. F., Judge, Group I, 15. 
Althof, Bergmann, & Co., Toys, 129. 
Altho, Association of, Model, 350. 
Alvear Ortiz Bros., Books, 275. 
Alvergnat Bros., Instruments, 344. 
Alves, Antonio, jr., Pruning knives, 289. 
Alves Cunha, J. M., Ceramics, 264. 
Amado Salazar, Enrique, Galena, 88. 
Amassia, Government of, Fabrics, 296; Pouch, 303; Nuts, 317; Cotton, 314. 
Amat, G., Matting, 273. 
Amat, J., Music, 366. 
Amazon, Department of the, Silk, 263; Coffee, 264. 
Amazonas, Province of, Wreath, 254. 
Amberg, Wm. A., File, 134. 
Amblet & Price, Oil, 212. 
Ambrosiussen, O. P., Model, 224. 
Ambroster, John, Pressed brick work, 107. 
Andelang, C., Paste, 267. 
America Hosiery Co., Underwear, 125. 
American Arms Co., Shotguns, 133. 
American Bible Society, Bibles, 375. 
American Bridge Co., Model, 250. 
American Bronze Powder Manufactury, 105. 
American Calcium Light Co., 115. 
American Crockery Co., Tableware, etc., 103. 
American District Telegraph Co., Boxes, 233. 
American Kaolin Co., Kaolin, 54; Brick, 107. 
American Lead Pencil Co., Lead pencils, 130. 
American Lever Wringer Co., 377. 
American Linen Co., Printing cloths, 118. 
American Linen Thread Co., Thread, 119. 
American Mechanical Toy Co., Toys, 128. 
American Missionary As'n, Maps, 321, 335. 
American Moulded Collar Co., Collars, 125. 
American Optical Co., Spectacles, 331. 
American Print Works, Calicoes, 119. 
American Printing House for the Blind, Books, etc., 312. 
American Reflector Co., Reflectors, 114. 
American Screw Co., Screws, 141. 
American Shade Roller Co., Shades, 114. 
American Sheath & Boiler Plate Iron, 35, 117. 
American Stiff Refrigeration, Rods, 140. 
American Sunday School Union, Books, 257. 
American Suspender Co., Suspending, 125. 
American Tract Society, Book binding, 132; Books, 237. 
American Watch Co., Watches, 320. 
American Wire & Screw Nail Co., Nails, 112. 
Amersfoort, Mrs. H. M., Oriental, 360. 
Ames, A., jr., Judge, Gr. XIV, 17. 
Amidour, T. H., Son, Hats, 126. 
Amiornati, D., Chas. Pianos, etc., 233. 
Amores, M., Cloth, 72. 
Amstrong, H., Skins, 311. 
Amstberg, Adolph, Door knobs, 206. 
Amstel-Laffen, J., Planimeters, 354. 
Amsterdam Canal Co., Chart, 361. 
Ana Bini, T., Wax, 312. 
Ana, Madame, Case, 95; Lace, 299. 
Ana Micó, Widow of Ferrandis, Mineral waters, 92. 
Ana Sabat, Pearl work, 371. 
Ana, Vania, Cotton, 268. 
Anaghrosti, Dascalo Paolo, Oils, 291. 
Anagnostis, Fabric, 298. 
Anagnostis, P., Wool, 314. 
Anaf, Community of Heirs of, Salt, 270. 
Anastach, K., Skin, 316. 
Anastasio, Giuseppe, Cigars, 214. 
Anastassi, Shirting, 298. 
Anastassi, A., Cocoons, 314. 
Anastasi, H., Chemise, 300. 
Anastassides, C., Soaps, 292. 
Ancestor Knitting Co., Fancy goods, 189. 
Anchuelo, Q., Iron, 53. 
Andalgala, Sub-Commission of, Soapstone, 64; Artificial flowers, 250. 
Andangala, Comm. of, Salt, 255; Harness, 260. 
Anderson, David, & Son, Roofing, 149. 
Anderson, J., Pins, wire cloth, 266. 
Anderson, J. A., Judge, Gr. XXI, 18. 
Anderson, John, Judge, Gr. XXI, 18. 
Anderson, M., Implements, 329. 
Anderson & Martin, Wheels, 171. 
Anderson, N. J., Mliners, etc., 362. 
Anderson, T., Clay, 73. 
Andrade, W. W., Models, 327. 
Andersen, J. J., Glass, Gr. V, 16. 
Andés & Son, Varnish, 209. 
Andin Chako, N., Brandy, 313. 
Andon, C., Morocco, 310; Cotton, 314. 
Andon, Mitchen, Wooden casks, 305. 
Andover A., Silk, 297. 
Andonaki, Wax, 312. 
Andonaki, K., Amethyst, 302. 
Andover Iron Co., Iron, 55. 
Andre, A. R. L., Binomium cool, 82. 
Andrade, J., Baskets, 254. 
Andrade, J. F. de, Colored clay, 82. 
Andradi, A. A. de, Instruments, 289. 
Andre, J., Musical publications, 347. 
André, L. A. F., Coals, 184. 
Andrews Brothers, Pig iron, 56. 
Andrews, Henry, & Co., Coatings, 149. 
Andrews & Hitchcock, Coal, 51. 
Andria, T., Skins, 310. 
Andrian, Heirs of, Silk, 275. 
Andris, Lambert, & Co., Glass, 213. 
Anzoergolin Mills, Sheeting, 116. 
Andujar, Potassa of, Pots, 272. 
Angas, G. H., Photographs, 167. 
Angas, J. H., Wool, 163. 
Angell, Candido R., Straw, 275. 
Angell, Prof. of, Penmanship, 365. 
Angelicci, G., Shoes, 234. 
Anglada & Co., Carbonate of zinc, 87. 
Anglin, J., Annals, 326. 
Anglo Australian Guano Co., Guano, 183. 
Angelo & Dubreuil, Instruments, 345. 
Angstrom, C. A., Judge, Gr. XXIX, 18. 
Anguel, J., Cocoons, 314. 
Angulo, Manufactura, Locks, 304. 
Anhalt & Angelo, Cotton goods, 253. 
Anikeyeff, J., Apparatus, 373. 
Aniline Mfg. Co., Chemicals, 301. 
Ankarusen Works, Iron, 79. 
Annawan Manufactory, Printing cloths, 118. 
Anon, Flowers, 174. 
Anselmi & Marassi, Oils, 232.
INDEX.

393.

Blake, W. P., Alternate, 9.
Blakemore & Sherman, Washstand, 377.
Blanche Furnace, Goods, 38, Iron, 57.
Blanchet, A. P., Plan, 345.
Blanchet Bros. & Kleber, Paper, 196.
Blank, Carlos Frederico, Ore, 94.
Blanc, G., Rule, 326.
Blanc, W., & Son, Limbs, 135.
Blanco, B., Saddlebag, 274.
Blanco, E., Trimmings, 376.
Blanco, Prudencio, Calamine, 57.
Blankenbergh, Goods, 187.
Blandin & Cie, 351.
Blanchet, 351.
Blanche, 351.
Blakemore, 378.
Bloch, 351.
Bliss, 351.
Bliss, 351.
Blind, 375.
Blin, 387.
Blessing, 399.
Blelock, 323.
Bloodgood, 340.
Blodget, 293.
Blot, 293.
Blot, 305.
Blosch, 229.
Bochner, 223.
Boada, 264.
Bluthner, 270.
Blumer, 323.
Boiven, 328.
Boissiere, 335.
Boland, 364.
Boker, 359.
Boivin, 359.
Boissiere, 335.
Bollad, 365.
Bolter, 323.
Bolten, & Co., 327.
Boisen, Adolf, Asphaltum, 89.
Bojad, X., Cotton fabrics, 293; Silk, 298.
Bojad, C., & Co., 305.
Bohari & Yellow Earth Co., Earth, 81.
Bolen & Byrne, Waters, 55.

Bolle, L. A. Son, Absinthe, 214.
Bollenbacher, G. W., Table, 377.
Bolzani & Fussell, Chairs, 209.
Bolzani, Jean, Son, Chairs, 197.
Bomches, F., Designs, 351.
Bomdorff, Oscar von, Maps, 347.
Bon Pasteur, College work, 342.
Bon Regina, Laces, 234.
Bonacina, C., Varnishes, etc., 232.
Bonafede, L., Tiles, 315.
Bonapaha, Edmundo, Galena, 89.
Bon Decur, Leather, & Pipes, paper, 198.
Bonhillo Bros., Iron, 77.
Bone, Casuccino, Olive oil, 231.
Bone & Sons, Cloths, 274.
Bone, A. A., Album, 358.
Bonhomme, Uncle & Nepew, Doors, 195.
Bonilla, R., Cloth, 275.
Boneo, E. P., Zinc goods, 235.
Bonnet, Charles, & Co., Types, 358.
Bonnet & Co., Silk, 196.
Bontemps, B., Birds, 193, 345.
Bonzano, H., Lusitania, 92.
Book Trade, Amsterdam, Books, 365.
Boolak, Mechanical Inst. of, Books, 237.
Boon, B., Miniature field artillery, 134.
Boonin, Silk, 317.
Boor, S. & Sons, 270.
Boorum & Pease, Books, 123.
Boos, & Bro. Furs, 193.
Boot Manufactory, Luxembourg, Boots, 249.
Booth, G., Wrench, 197.
Booth, J., & Son, Tools, 137.
Booth, W., Painting on glass, 188.
Boothby, C. W., Drawings, 321.
Boot Cotton Mills, Cotton goods, 117.
Borbridge, S. & H., Trunks, 189; Harness, 197.
Bordel, J., Tables, etc., 253.
Borden, William W., Fossils, 49.
Border City Mills, Printing cloths, 118.
Bordwick & Co., Cod-liver oil, 229.
Borcham, J. H., Spices, 180.
Borde, Petitpierre, L., Tools, 358.
Boerel, Luigi, late Tomasso, Acids, 231.
Borg, O. E., Apparatus, 362.
Borges, J. A., Earthenware, 284.
Borgo della Cina, Cross mats, 284.
Borosco, Sea, Woolen Manufactory of, 233.
Borissoff, S., & Sons, Printed calico, 316.
Borm, L., Dress suit, 125.
Borning, Leather letters, 200.
Borodin, M., Silk, wool, 317.
Borosas Soler, A., Cloth, 274.
Borrás, E., Shaws, 273.
Borregan de, Blanco, Mineral water, 91.
Borsig, A., Iron, 77.
Borst & Rogenkamp, Stones, 77.
Bortfeld, C., Hats, 204.
Borthen, J., Cod-liver oil, 229.
Bordwick, A. Y., Vases, 160.
Bortolotti, P., Perfumery, 232.
Bosisto, J., Chemical preparations, 160.
Bosler, Marcus, Limestone, 52; Building stones, 54.
Boswell, A., Slide rest, 137.
Boscia, A., Pad, 137.
Bossett, Jewelry, 197.
Bosei, E., Gloves, 234.
Boisset, E. V., Locks, 214.
Boston Comfort Corset Co., Corset, 125.
Boston Manufacturing Co., Cotton goods, 147.
Boston Musical Instrument Manufactory, 334.
Boston Oldwick Glass Co., Glassware, 168.
Botanic Gardens, Melbourne, Director of, 162.
Boswell, B., Samovars, 316.
INDEX.

Browne, Augusto Pereira, Stone, 94.
Brown, J., Works, 266.
Birié & Sierra, Ore, 89.
British, A. J., Instruments, 331.
Britton, R. J., Judge, Gr. X., 17.
Brook Brook Co., Canners, 125.
Broad, E., Axes, 135.
Broadhead, G. C., Judge, Gr. I., 15.
Brock, P. J., Mirrors, 193.
Broc, P. T., 144.
Broch, I., Water filter, 376.
Brochi, J., Cans, 272.
Broek, J., Wool, 183.
Broekhaus, F. A., Sheets, 347.
Brockleman, Biscuit, 180.
Brockley & Co., Piano, 342.
Brodin, jr., Aerostatic articles, 198.
Brodrith, W. A., Wool, 159.
Brodure, M., Wooden work, 216.
Bromley, John, & Sons, Carpets, 122.
Bröndum, A., Liquor, 221.
Bromfort Bros., Wood Boxes, 216.
Bronze Foundry, Shot, 278.
Brook, J., & Bros., Cotton, 148.
Brooke, E. & G., Ores, 50; Iron, 53; Nails, 149.
Brock, E. G., & Bros., 193.
Brookes & Crookes, Knives, 152.
Brooklyn White Lead Co., White lead, 104.
Brooks, D., Cables, 331.
Brooks & Dupuy, Cotton, 131.
Brooks, H. W., & Co., Parfumery, 145; Stoppers, 137.
Brooks, Mrs. G., Dollies, 171.
Brooks, W. B., & Son, Coal, 52.
Brooks Side, Hosiery Clothes, 125.
Brot, L., Mirrors, 154.
Broussa, Government of, Opium, 304.
Brouse, Government of, Silk, 297.
Broussé, J., & Son, Nails, 260.
Brewer Bros., Inkstands, 130.
Brown, A., Gypsum, 73.
Brown, A. H., Sugar, 183.
Brown & Friss, Dining-room furniture, 110.
Brown Bros., Bookbinding, 183.
Brown & Cleggart, Dresses, 159.
Brown & Co., Ores, 47; Blooms, 56.
Brown, D. S., & Sons, Ringings, 119.
Brown, E. F., Stone, 53.
Brown, Emma, Hats, 126.
Brown, Frederick, Japanese ginger, 102.
Brown, G. W., Table, 250.
Brown, J., Pyrohnes, 71.
Brown, John S., & Sons, Sheetings, yarns, 149.
Brown & Owen, Iron work, 143.
Brown, R. H., Coal, 71.
Brown, R. T., Judge, Gr. IV., 16.
Brown, Robert B., & Co., Castor oil, 103.
Brown, S., Castings, 159.
Brown, T., & Co., Wool, 159.
Brown, Westhead, T. C. Moore, & Co., Tiles, 146.
Browne & Buskewell, Harp, 334.
Browne, H. Justin, Flanens, 344.
Browne, J., Chart, 341.
Browne, J., Sandstone, 64.
Browne, W. H., Vases, 203.
Brownfield, Wm., & Son, Earthware, 146.
Brownhills Pottery Co., Terra cotta, 146.
Browning & Brothers, Chemicals, 102.
Browning, George, Minerals, 223.
Bruce, J., Judge, Gr. XXIII., 18.
Brucher & Banier, Apparatus, 372.
Bruckner, A., Plants, & Co., Chemicals, 201.
Brufiel, K., Cotton, 294.
Brugada, L. de, & Boucherville, E. de, Ramie, 175.
Brugsch, W., Porcelain, 226.
Brusach, E., Judge, Gr. XX., 18.
Brun, A., Wines, 164.
Brun, C. de, Linen duck, 285.
Bruna, E., Ashes, 255.
Brunell, J. E., Reed, 276; Penholders, 362.
Brunet, J. S., Marble monument, 72.
Brunet, P., Bronze, 194.
Brunfant, Jules de, Glassware, 207.
Brunius, A. W., Books, 362.
Brunn, Dr., Cast, 351.
Brunner, A., Bed covers, 212.
Brunner, Ad. & Fr., Sketches, 356.
Brunner, Mond, & Co., Soda, 144.
Brunning, O., Piano, 345.
Brunnschweiler & Son, Inks, 212.
Brunnschweiler, Traugott, Casimir, 212.
Brunswick, J. M., & Wilke Co., Billiard tables, 118.
Brun, Bloor, Martin, & Co., China, 108.
Brusa, G., Album, 234.
Bruswitz, Fr., Glassware, 225.
Brussek, Gymnastic, & Statutes, 360.
Brunon, C. T., Photographs, 170.
Bruyneel, Lace, 217.
Brzewitz, F., Glass, 226.
Bruzetti, G., Shoes, 234.
Bryan, J., Co., 371.
Bryant & May, Safety matches, 145.
Bryzgaloff, Jugs, 316.
Bukasso, L., Boots and shoes, 257.
Bub & Co., Wooden cloths, 142.
Buchanan, J., Fish books, 152.
Buchanan Mineral Co., Cement, 72; Paint, 157.
Buchsbaum, Max, Ornaments, 208.
Buchtel College, Ornaments, 326.
Buck Bros., Chairs, 137.
Buck, C., Tools, 137.
Buck, T. S., & Co., Rubber type forms, 150.
Buckeye Furnace Co., Iron ores, 48; Iron, 58.
Buckeye Iron Co., Iron ores, 48; Iron, 58.
Buckingham Mining Co., Lime, 74.
Buckley, E., Wheat, 163.
Buckley, J. E. & G. F., Shawls, 150.
Buckley, Joseph, & Co., Shawls, 150.
Buckman, Iron, & Locks, 162; Annunciators, 321.
Budan, J., Gloves, 283.
Buen Deseo Mining Society, Ores, 83.
Buena Vista Furnace, Ores, 41; Iron, 59.
Bueno, R., Earthware, 272.
Buenos Ayres Benevolent Soc'y, Mat, 256.
Buenos Ayres Prov. Com'n, Fabrics, 257.
Herbs, spurs, 259.
Buenos Ayres Water Works Com'n, Shells, 84.
Busco Ferrando, J., Sandals, 276.
Buffalo Decorating Co., Leaves, 128.
Buffalo Furnace, Ores, 49; Iron, 59.
Buffet & Moya, Hats, 257.
Bulfinch, L., Counterpanes, 265.
Buhl, Emile, Hair regenerator, 212.
Building Direction, Canton Aargau, Plans, 357.
Bulson, J., Mats, 280.
Bunion, V., Vases, 283.
Bujalance, Corporation of, Mantas, 275.
Jacket, 276; Ginlets, 279.
Bulacan, Provincial Board of, Knives, 262.
Bulhoes, Vans, 367.
Bultamo Tin Smelting Co., Tin, 67.
Bull & West, Cuprous pyrites, 88.
Bullivant, T., Window, 148.
Bullock, Chas., China ware, 178.
Bullock, Dentists, Drugs, chemicals, 178.
Bullock, G. & J. M., Warp, 128; Doecskins, 120.
Caba Oglou Mehemed, Calico, 294.
Caballero, E., Graphite, 83.
Caballi, C., Embroidery, 258.
Caballo, G., Wines, 264.
Cabeza, A., Hammers, 279.
Cabezas Sarabia, J., Leath., 275.
Cable, Bayard, & Co., Clothes rack, 188; Razor strop, 190; Halter clasps, 131.
Cabo, J. de Villa, Strings, 269.
Cabo Mondego Mining Industrial Co., Glass work.
Cabot Manufacturing Co., Cotton goods, 117.
Cabra, Corporation of, Marbles, 90.
Cabra del Santo Cristo, Whitestones, 91.
Cabral, A. do V., Violin, 166.
Cabral, Frederico da, Violin, 166.
Cabral, J. T., Tidies, 258.
Cabral y Melo, Jose Maria, Crystal rock, 83.
Cabrera, N., Horse medicine, 253.
Cadelino, A., Lead, 281.
Cadeliño, P., Head-dress, 281.
Cadi Kazi Agha, Sumac berries, 206.
Cadir, S., Sheets, 295.
Cadiz, Jose, Gypsum ornaments, 261.
Cadiz, Jose, Artificial marble, 85.
Caesar, L., Polished stones, 204.
Caetani, Vicente, Marble, 84.
Cafba, W., Bureau, 132.
Cafk Mahmoon, Boots, 301.
Cafk Mehmeda, Shoes, 301.
Cafkedaki, J., Wines, 313.
Caffrey, C. S., Sulky, 360.
Caglioni, J., Table cloths, 234.
Cagieres, Frank, Antique vase, 52.
Cahy, Baron of, Bridges, etc., 254.
Caille, Miss Fanny, Fatence, 193.
Caine, J. T., Utah, 14.
Caimao, Antonio, Tobacco, 268.
Calaca, A., Fabric, 281.
Calamari, P., Soaps, 232.
Calatorao, Corp. of, Black marble, 90.
Calcined Bone Manufacturing Co., Bone, 315.
Caldara, S., Cloths, 233.
Calderara & Bankmann, Perfumery, 297.
Calderon, Pedro, Vegetable clay, 85.
Calderon Reuvelta, F., Mineral water, 92.
Caldecott & Mather, Ranges, 375.
Caldecott & Tod, Building stone, 54.
Calcedonia Free Stone Co., Sandstone, 72.
Calderon New Amalgamated Co., Quartz, 166.
Calender, Vaucel, & Co., Pianos, 332.
Calibeta, Maria Pereira da, Wooden caps, 258.
California Distilling Co., Oils, etc., 166.
Caligari, A., Divers, 156.
Calones, J., Vessels, 345.
Calise, T., Hats, 234.
Calix, J., Oil, 315.
Calle Bernardo, M. de In, Salt, 270.
Callewaert Bros., Books, 259.
Calmam, L., Literature, 344.
Calmann, C., Book, 256.
Calvados Stone Co., Sandstone, 72.
Calver, G. W., Hinges, 277.
Calvert, F. C., & Co., Carbolic soaps, 144.
Camacho, J., Music, 262.
Camara, Antonio da, Nails, 259.
Camara, F. T., Gold dust, 82.
Camari, J. E. P., Hats, 253.
Camara, J. Ebwank da, Stones, 82.
Camara, M. da, Table cloth, 285; Cotton lace, 288.
Cambras Norte, Prov. Com. of, Ores, 93.
Cambria Furnace, Iron ores, 48; Iron, 80.
Cambria Iron Co., Drawings, 335.
Cambria Iron & Steel Co., Ores, 47; Iron, 55.
Canden Woolen Mills, Dress goods, 121.
Cameron, A., Alternate, 9.
Cameron, Hon. D., Wool, 183.
Cameron, Wm., & Son, Embroidering, 125.
Cameta, City Council of, Hats, 253.
Camino, Jose, Ores, 88.
Camnall, Chas., & Co., Iron arm plate, 66.
Camp, J. H., Photographs, 356.
Camps perro Board of Public Works, Calcareous stones, 90.
Campbell, C. J., Coal, 71.
Campbell, D. H., Wool, 159.
Campbell, F., New York, 13.
Campbell & Fowler, Springs, 191.
Campbell, G., Shutters, 103.
Campbell, Hugh, & Son, Granite, 61.
Campbell, J., Books, 342.
Campbell, L., Commissioner and Sec'y, 9.
Campbell O. H., Tailoring, 161.
Campbell, S. S., Samples of wool, 332.
Camfield, Samb., Extracts, etc., 101.
Campbell & Turton, Sugars, 251.
Campbell, Wm., Window curtains, 109.
Campeche, State Gov. of, Sails, 265; Woods, 267; Cauchochou, 268; Cotton, 259.
Camo Grande, Woolen fabrics, 286.
Campos de Mata, Mrs. J., Cushion, 266.
Cavaletti, A., Album, 234.
Calango, José Baptista Valhe, Spun silk, 287.
Cavaldi, Direction of, Equipment, 276.
Cavallone, Dir. of, Mounting, 279.
Cavallin, Juan, Galena, 87.
Cavaquinhin, J. A., Earthen water vessel, 284.
Cavendish Mining Co., Ore, 94.
Cavellier y Ferré, J., Serges, etc., 273.
Caveron & Button, Hinges, 190.
Cawood, S., Table cloth, 161; Cotton, 171.
Cayol, Mrs. T., Flowers, 181.
Cazas Abdoulahah, Belts, 299.
Cazaz, Ahmed, Belt, 299.
Cazas, D., Silk, 297.
Cazas, D. L., Hosiery, 300.
Cazas Said, Belts, 299; Garters, 303.
Cazas, T., Thread, 293; Silk goods, 297, 305.
Cazaubon, D., Pumps, 200.
Cazi, A., Cotton, 314.
Cazin & Noyon, Laces, 107.
Cedar Hollow Lime Co., Lime, etc., 54.
Celedonia, Díaz de la Vega, Perfumes, 261.
Celentano Akivita, Brushes, 128.
Celluloid Novelty Co., Jewelry, 126.
Cenami, Count Bartolomeo, Olive oil, 231.
Central Centennial Commission of the American Society of Civil Engineers, Drawings, 334.
Central Rolling Chair Co., Chairs, 111.
Central Safe Deposit Co., Safe, 336.
Centeno, L., Teeth, 279.
Central Furniture, Governor, 49; Iron, 58, 59.
Central Drug Store, Mineral water, 97; Resin, 307; Synops, 313.
Central Union of Arts, Alliums, 344.
Cerezanian Society, Soda, 91.
Cereucolo, Gonzalo, Galena, 87.
Cerna, D., Music, 266.
Cesarino, Francisco, A. V., Jewelry, 288.
Cerveny, V. F., Instruments, 351.
Cervera & Co., Tiles and bricks, 256.
Cervera, Luis, Lime, 92.
Cervin, C. G., Model, 362.
Cesar, José Maria, Model, 267.
Cesena Sulphur Co., Sulphur, 81.
Cevay llorens, E., Sandals, 276.
Chabas, Abani, Belt, 393.
Chaban Hadij, Wooden cups, 395.
Chabas Hussein, 299.
Chaban Oglou, Carpet, 297; Skin, 310.
Chabin, H., Stained windows, 194.
Chace Mills, Printing cloths, 115.
Chaco, Commission of, Embroidery, 258.
Chacun, M. Teeth, 266.
Chadwick, J. T., Massachusetts, 12.
Chaigneau, Julie, Newspapers, 261.
Chak-ko-sha Co., Jars, 244; Service, 245; Embroidery, 246; Bronzes, 248; Box, 249.
Chakir, Agha, Olive oil, 291; Carpets, 296.
Chakir, Elé, Soap, 291.
Chakir, T., Carpets, 296.
Chambert de Commerce, Reims, Fabrics, 195.
Chamber of Commerce & Arts, Sienna, Marable, 81; Olive oil, 231.
Chamberlin, Whitmore, & Co., Stationery, 139.
Chambers & Co., Glass, 127.
Chambers, T. F., Black varnish, 145.
Chamdelon, O., Carpet, 296.
Chameroy & Co., Pipes, 200; Scales, 344.
Chamotte, Mahatia, Oil, 291.
Champion Fence Co., 140, 298.
Champion Spouting Spring, Waters, 55.
Champroy, J. B., Foulards, 196.
Cham, B., Cotton goods, 293.
DEPT.'S I., II., III.—MAIN BUILDING.

Coilings, Earthenware, 224.
Conable, O., Co., Wire brushes, 191.
Colony, Leather Manuf., Soles, 224.
Colonnade Co., Enameled ware, 190.
Coffin, F., Water colors, 170.
Coomes, J. F., Delivered, 13.
Cominetti Bros., Gun barrels, 235.
Commission General, Brazil, Ores, 81; Per-

Conley, E., Judge, Gr. XXIII., 17.
Conn & Dupont, Musical instruments, 334.
Connecticut Educational Dept. of, 325.
Conner, Thos., & Sons, Cords, 191.
Connor, J., Oats, 163.
Conner, Mrs., Quilt, 150.
Conover, A. V., Florida, 12.
Conover, J. A., & Son, Horses, 381.
Conquis, M., Earthenware, 284.
Conrad Bros., Shirts, 124.
Conrad, Wm. C., Cane, 129.
Condit Bros., 171.
Conradi, Sons of J. B., Soap, 371.
Consolidated Fruit Jar Co., Jars, 377.
Constantia Society, Sulphate of soda, 91.
Constant, E., Iron, 30; Bolts, etc., 218.
Constanti Giorki, Fabrics, 296.
Constanti, Miss S., Socks, 300.
Consistinopole, Adm'n of Mines, Ore, 97.
Constantinople, Government of, Cottons, 294.
Woollens, 295; Silks, 298; Caps, 301; Kifles, 304; Saddles, 305; Morocco, 311; Coins, 372.
Conti, E., & Sons, Soaps, 232.
Conti, J., Cottens, 273; Woolens, 274.
Continental Man't Co., Inks, etc., 303.
Continental Mills, Soap, 195.
Conto, Antonio Guilerme, Jewelry, 288.
Contucci, Eustachio, Olive oil, 231.
Contui, Isaac, Charcoal, 93.
Convers, John A., Gypsum, 71.
Cook, Wm., Laundry soap, 103.
Cook, Caleb, Oil, 104.
Cook, J., Ores, 47.
Cook, J. F., Missouri, 13.
Cook, James Nelson, Cutting, 155.
Cook Bros., Pins, 131.
Cook & Co., Salt, 283.
Cooke, G. K., & Co., Stamps, 130.
Cooke, G. T., Mantle, 221.
Coon & Van Volkenburgh, Collars, 125.
Cooper, C. W., Finance, 11.
Cooper & Co., Inks, 145.
Cooper, Henry Prouse, Clothing, 123.
Cooper, Howell & Co., Ores, 49; Iron, 56.
Cooper & Holt, Furniture, 147.
Cooper, J. L., Alternate, 9.
Cooper, J. W., & Bro., Cabinet ware, 110.
Cooper, Robert, Washing crystals, 167.
Cooper Union Evening School of Science & Art, Drawings, 322.
Co-operative Iron & Steel Works, Iron, 57.
Cook, Wm., Oil, Co., Cozoongk, 166.
Cope, C. W., Judge, Gr. XXVII., 19.
Copeland, Geo., Cordage, 91.
Copeland & McLaren, Clay, 73.
Copenhagen Leather Manuf., Soles, 224.
Englemann, W., Books, 347.
English, Ch., Blackboard, 342.
English Heirs of Juan Carlos, Galena, 88.
Engström, Joh., Razors, 227.
Entomological & Agrarian Society of Acireale, Essences, 232.
E paramount Alarm Co., Embroidery, 258.
Enrique, Clasen, & Co., Cigars, 262.
Ensenada, Justice of Peace, Sarsaparilla, 259.
Entcbo, H. S., Kitchen utensils, 221.
Enzymological Society, Reports, etc., 359.
Eng, H., Range, 190.
Epstein, J., Paper, 318.
Frassier, Laces, 197.
Erickens & Co., Cotton and mixed goods, 203.
Erickens', J., Sons, Cloth, 203.
Erlenz, Max, & Co., Mixed fabrics, 203.
Erlenz & Reuter, Mixed fabrics, 203.
Erman, F., Diagrams, 362; Maps, etc., 363.
Erdman-Schmidt, J. D., Plates, 221.
Erech, B., Light, 97.
Eretzmann, H., Hosier, 204.
Errezena, Government of, Bark, 306.
Ersgain, Diarbeikir, Copper ore, 97.
Erihard, Maps, 345.
Erihard, Sons, Jewelry, 204.
Erkens, C., Iron, 79; Guns, 227.
Elastic Fust Co., Trusses, 135.
Elderts, T. E., Arrowroot, 291.
Elder, W. & N. G., Wool, 165.
Eldon, Mrs. J., Orange tree, 173.
Eldridge, G. M., Stove damper, 114.
Elementary Education Society, 344.
Elevin, M., Harness, 363.
Elia, Madame, Lace, 302, 152.
Elfing, C. E., Apparatus, 226.
Elkers, A. E., Seats, 194; Chairs, 199.
Elia, Hatti, Satins, 298.
Elia, J., Napkins, 290.
Ellett, G., & Ferreira Castello, J. H., Ores, 94.
Ellett, George, Ores, 94.
Elkington, Stephen B., Alternate, 9; New Mexico, 13.
Elkins, W. L., Olis, 103.
Elkinton & Co., Plate, 148.
El Labrador Fertilizers, Iron, 262.
Elbo Göteborg Match Factory, Matches, 225.
Ell, L., Seats, 233.
Elliot, J. W., Stoves, 188.
Elliot, J. W., Steam machine, 188.
Ellis, C. J., Judge, Gr. IX., 16.
Ellis, Knapp, & Co., Umbrellas, 128.
Ellis Manufacturing Co., Supporters, 125.
Ellis, Theo. G., Engineering exhibit, 335.
Ellis, Madame, Lace, 302.
Ellstätter & Urbino, Gloves, 204.
Emlira Nobles' Mfg. Co., Tools, 137.
Hordi, Louis, Glassware, 84.
El Porvenir Mining Society, Tin, 92.
Elrick, C. G., Combs, 151.
Elson, J., Regulators, 330.
Elvati, Y., Vest, 309.
Elvídaro Mining Society, Coal, 89.
Emaré, Gov. of, Saarbrucken, 303.
Emaus Iron Co., Iron ore, 40; Flux, etc., 57.
Emerald Hill, Borough of, Photographs, 162.
Emerson Piano Co., Piano, 332.
Empire, C. E., Judge, Gr. X., 18.
Emery, Chas. E., Drawings, 335.
Emilianoiff & Rochefort, Silks, 317.
Emil, A., Wheat, 308.
Emine, Madame, Handkerchief, 303.
Emine, Tissue, 208; Shirt, 300.
Emine, K., Skirt, 294.
Emma, Queen, Hats, 250; Implements, 251.
Emmauclante, Francesco, Cream of tartar, 231.
Empey, M., Judge, Gr. X., 17.
Empire China Works, Porcelain, etc., 107.
Empire City Watch Co., Watches, 330.
Emesly, R., Lime and limestone, 72.
Emizia, I. N., Commons, 293.
Encarnacion Company, Iron, 86.
Faderich, H., Wheat, 180.
Endo Umi, Ltd., Umbrellas, 213.
Engelbrecht, C., Skates, 223.
Engelhorn, I., Books, 347.
Engelmuller, F., Gloves, 208.
Engert & Rolfe, Felts, 148.
Engineers, School of, Minerals, 86.
Espaja, Corp. of, Marbles, 90.
Espant, W. B., Cigars, 172.
Español, M., Iron, 86.
Espineyro, M. T., Periodical, 368.
Eptfia, Isidoro, Books, 267.
Esseid Effendi, Wheat, 308.
Essen, Baron H. H. von, Woodwork, 226.
Esser, W., Cotton and mixed goods, 203.
Estate of the Khedive, Samples, 238.
Estaten, Cristobal, Brimstone, 89.
Esterbrook Steel Pen Co., Pens, 130.
Estates & Lauria, Books, 362.
estes, F. R., Hat, 281.
estez, M. B., Slates, 90.
DEPT.'S Sand Maps, 215. 
Ferrer, F., Souza & Leaf, 95. 
Ferrer & Battle, Chemical preparations, 270. 
Ferrer, E., Flowers, 259. 
Ferrer, Ignace, 268. 
Ferrer & Roca, Paper, 278. 
Ferrer & Son, Paper, 277. 
Ferrer, V., Medicinal herbs, 259. 
Ferré y Vidal, J., Cretons, etc., 273. 
Fetzer, 341.4. 
Ferr, T. Tables, 353. 
Ferrino, C., Nitrate, 231; Sand paper, 235. 
Ferris, G., Domestic boiler, 376. 
Ferrrough, M., Slippers, 301. 
Ferslew, C., & Co., Register for cars, lithographs, 224. 
Ferssoz, A., Wheat, 308. 
Fersstel, H. von, Designs, 351. 
Pesses, P., Clocks, 349. 
Fet, M., Pipe stems, 303. 
Fetou, A., Beans, 300. 
Feu, P., Medals, 279. 
Feu, P., & Sons, Buttons, crosses, 277. 
Feussner, E., Chemicals, 101. 
Feuigehecie, Gov. of, Skin, 311; Cotton, 313. 
Fevistes & Ponte, Part of coach, 273. 
Feurheerd, F. D., & Cruickshank, W., Ores, 94. 
Feust & Rice, Cabinet ware, 112; Toys, 128. 
Fevilk, E., Woolen yarn, 296. 
Fezli Oghi Samy, Soaps, 201. 
Fialho & Bro., Mineral waters, 95. 
Fialkowsky Bros. & Twerry, Writing paper, 495. 
Fialont, Mrs., Tapes, 344. 
Fiddeman, H. B., Delaware, 12. 
Field, A., & Sons, Buttons, 128; Nails, 142. 
Field & Aydon Patmoting Co., Iron, 74. 
Field, F. K., Blue stone, 52; Tiles, 107. 
Field-Haviland, Ch., China, 193, 194. 
Field, J. C. & J., Candles, 144; Lights, 148. 
Field, J. C. & J. F., Gloves, 126. 
Field, W. W., Wisconsin, 14. 
Fierz, Henri, Cotton goods, 212. 
Fifield, J. B. M., Magic bed sofa, 111. 
Fifigater, Enrico, Botteries, 365. 
Figsoredo, J., Pharmacies, 285. 
Figsoredo & bouts, etc., 253. 
Figsoredo, D. J., Argil, 82. 
Figueria, Ignacio Galea, 88; Lead, 92. 
Filimonnoff, A., Caps, 317. 
Filipponi, A., Anuic, Book, 265. 
Finance, Ministry of, Instruments, 361. 
Finch, Pryan, & Co., Marble, 52. 
Finger, Hare, & Co., Annunciator, 331. 
Fink, H., Cinchona, 266. 
Fink, M., Skin, 34. 
Finkfulness, W., Teeth, 319. 
Finland, Adm'n of Mines, Reports, 99. 
Finlayson, T. A., Asphalt, 134. 
Finnean, J. H., Building stone, 54. 
Finnean, M., Bluestone, 52, 54. 
Violet, L., Pipes, 103. 
Fireland Historical Society, Pottery, 328. 
Fireproof Building Co., Bricks, etc., 54. 
Fiske, F. O., Books, 343. 
First Ordinary Civil Social Union, 352. 
Fisch Bros., Embroideries, 213. 
Fischer, August, Wines, 164. 
Fischer & Co., Tables, 250. 
Fischer & Co., Hats, 213. 
Fischer, J. G., Toys, 295. 
Fischer, Samuel, China, 207. 
Fischer & Schmitt, Chemicals, 201. 
Fischer, T., Maps, 347. 
Fisher, V., Fish, 52. 
Fishblatt, Lewis, Furs, 129. 
Fisher & Bird, Mantels, 52, 115. 
Fisher, Concrete, 172. 
Fisher, H., Swing, 114. 
Fisher, Leather, 172. 
Fisher, T. S., Shirts, 189; Yarar, 189. 
Fisher, W., Tripoli, 73. 
Fiske, & Co., Coal, 194. 
Fitch, E. A., Coal, 52. 
Fitts, C., & Son, Oil, 166; Glue, 163. 
Fix, A. J., Nails, etc., 218. 
Fitts, John, C., Carving, 224. 
Flagstone Creek, Coal, 67. 
Flamant, Mrs. C., Snuff, flour, 184. 
Flattich, W. & W. F., Models, 351. 
Flauraud & Son, Laces, 197. 
Flechos, J., 124. 
Fleischel, E., Judge, Gr. XXIV., 18. 
Fleischer, E., Books, 347. 
Fleisher, S. B. & M., Alpaca brads, 123. 
Fleming, F. N. & J., Minerals, 47. 
Fleming & Talbot, Instruments, 331. 
Fleming, Carl, Maps, 347. 
Fletcher, H. L., Arkansas, 11. 
Fletcher, R., & Son, Papers, 152. 
Flinsch Type Foundry, Printing, 347. 
Flin Mills, Printing cloths, 118. 
Flor Carenou & Tur, Liquorice, 271. 
Florand, J., Shirts, 317. 
Floudeaux, E., Vigna, 178. 
Florell Co., Mirrors, 193; Glass, 215. 
Florance, Agrarian Committee of, Oil, 232. 
Florce, Director of the Anatomical & Pathological Museum of, Preparations, 356. 
Florock Co., Mirrors, 117; Brushes, 142. 
Florance Sewing Machine Co., Skates, 139: 
Stoves, 375. 
Florien, J., Scales, 351. 
Flores, S., Saya fabric, 281. 
Flick, J., Wood carvings, 358. 
Fluminense Agricultural Inst., Hats, 254. 
Flyin, A., Maps, 373. 
Focke & Son, Pins, 345. 
Poclal, 315. 
Foering, Geo. W., Ochres, 104. 
Foerster & Kraentier, Tools, 137. 
Fogt, Pictures, 318. 
Foley, James, Magnetite, 71. 
Foley, John, Gold pens, 130. 
Foliios, Jose, Soap, 291. 
Follett, O. S., Chemicals, 102. 
Folga, M. J., Quicksilver ores, 86. 
Folsom, A., Coal, 100. 
Fuminsky, B., Boots, 317. 
Fundo, J. B., Locksmiths' work, 218. 
Fusco, Manuel da Notta, Sergeis, 287. 
Forsberg, Donald, Velvet, 196. 
Fontaine, J., Windows, 218. 
Fontana Brothers, Flagstones, 81. 
Fontein, R., Tiles, 220. 
Fondes, V., Medicinal herbs, 259. 
Fonfing, S. E., Clay, 85. 
Fonvey Bros., Silk goods, 217. 
Fonzo, Domenico, Cream of tartar, 231. 
Foote, A., Ores, 67. 
Foote, H., Minerals, 47. 
Forbes, R. W., Gum, 156. 
Force, W. F., Implements, 328. 
Ford Bros., Plth hats, 161. 
Ford, F. O., Books, 376. 
Ford, O. D., Stone, 53. 
Ford, W. A., Fastener, 378. 
Ford Works Co., Maize, 152. 
Forehand & Wadsworth, Fire arms, 133. 
Forests & Streams, Dept' of, Plans, 356. 
Forge & Rolling Mill Co., Iron, 77. 
Formiga, District of, Argil, 82. 
Formiguera, G., Syrups, 270. 
Fornara, G. Co., Vine, 81. 
Fornari, A. G. B., Paper, 234. 
Fornasari, R., & Facino, H., Cement, 84. 
Forner Sales, Domingo, Flower water, 270. 
FORRELL, A., Silk, 317. 

INDEX.

Forster, S. R., & Son, Tacks, 100.
Forstby, S., & Sons, Leather, 138.
Forstby, Rabb, Red granite monument, 72.
Fort, E., Silver work, 234.
Fortenbach & Son, Cases, 390.
Fortin Bros., Felts, 195, 260, 345.
Fourny Bros., Oil, 270.
Foruch, A., Jewelry, 197.
Forzano & James, New York, 272.
Foster, J., Wyoming, 14.
Foster Coal Co., Coal, 51.
Foster, J. A., Limbs, 130.
Foster, W. A., Clay, 73.
Foster, Wilbur F., Model, 335.
Foubert, A., Dyers, 193.
Foucaud, Mime, Vce, Slippers, 178.
Fouchet, Sr., & Jr., & Hulme, Cloth, 195.
Fouet, Mrs., Underwear, 196.
 Fountain, John G. B., Iron ore, 64.
Fraga, R., Judge, Gt. XXVIII., 19.
Fournier, Dondel, & Co., Bronze, 199.
Fournier, J., Cream of tartar, 192.
Fournier, S., Clock, 382.
Fourtale Man"g Co., Cottons, 116.
Foulk, Long, Furniture, 24.
Fowler, Charles E., Plans, 234.
Fowler Fly Fan Co., Fan, 129.
Fox, Plans, etc., 267.
Fox, H. M., Fine Lace, 10.
Fox, H. C., & Sons, Glassware, 108.
Fox, Henry, & Co., Cassinieres, 123.
Fox & Harmon, Skirt-supporting corset, 125.
Frankel, W., Designs, 351.
Fraga, J., Cloak, 164.
Fraganaro, Jose M., Lead, 83.
Fraleys, F., Sec'y & Treas. Board Finance, 11.
Fraleys, G. W., & Co., Coach, 381.
Fraclie, H., Michigan, 13.
Frame, P., Delaware, 12.
Fransezk, T., Paper, 359.
Francati & Santamaria, Brooches, 151; Jew.
delry, 234.
Francis, James, Wyoming, 14.
Frances Bros., Tull, 137.
Francis, C., Wines, 164.
Francis & Co., Cement, 61.
Francis & Loutrel, Loks, 159; Manifold writ.
ers, 131.
Francis, T., & Co., Nails, 153.
Franck Bros., Woolen stuff, 217.
Franco, P. A., Pharmacies, 283.
Frank, J., Bronze ware, 210.
Frank, Louis, Silk, 122.
Franke, Carl, Chemists' fixtures, 207.
Frankfield, Louis, & Co., Chromographs, 335.
Frankl, L. A., Models, plans, 312.
Franklin Coal Company, Coal, 52.
Franking Co., Cottons, 118.
Franklin, Mrs. E. P., Stencils, 138.
Franklin, W. B., Judge, Gt. XXVI., 19.
Franzheim, G. W., West Virginia, 14.
Franzi Bros., Silk, 233.
Frauda, J., Boots, 227.
Fraser, J. W., Oil, 71.
Fraterna Association of Weavers & Correla-
tive Trades, Yarns, 255.
Frazer Lubricator, Axle grease, 103.
Freibitsch, S., & Son, Silk articles, 208.
Friedsborn Rope Manufactory, 290.
Free, A., Wheat, 185.
Free, Geo., Wheat, 180.
Free School for Apprentices, Report, 353.
Freeman, L. R., Ornaments, 309.
Freij, O., Essences, 252.
Freeslak, F., Harness, 254.
Freitas, Albano Jose, Minera das waters, 95.
Freitas, F. G. de, Writing paper, 289.
Freitas, T. Teixeira de, Lane, 82.
Freixa, S., Silk, 275.
Freixas & Sons, Gaiters, 276.
Frezio, Viscount de, Ore, 94.
Frenais, Arnaud, Forks, 194.
Frenay Bros., Hats, 217.
French, C., Australian longicides, 163.
French & Co., Black crepe, 130.
French, Julia E., Cabinet, 112.
French, O. C., U. S. Commissioner, 9.
French Orphan Asylum, Report, 357.
French Paper Ware Co., Pails, 385.
Frenkel, J. K., & Son, Paper, 318.
Fresdes de la Chante, Books, 342.
Fresse, A., Gloves, 29.
Fresson, W., Drugs, 175.
Frezon, Sr., & Le Cocq, Cloth, 195.
Fricke, A., Perfumery, 1-6.
Friedeck Reformatory Home, Work, 357.
Friedman & Laniering, Razors, 139.
Friedmann, A. M., 312.
Friedrichshalf Springs, Bitter water, 75.
Fries of the Country, Society of, Cloth, 275.
Fries, Herman, & Co., Chemicals, etc., 103.
Fried, Hermann, Books, 347.
Fries, Th. M., Herbarium, 362.
Fries, C., Statuary, 1-7.
Friesen, A. W., Chemicals, 225.
Frisch & Murphy, Salt, 171.
Frisch, Ferdinand, Periames, 207.
Frisch, J., Laces, 229.
Fritz, J., Terra-cotta, 1-6.
Fritz, John, Plane, 2, 15.
Fritsch, Schimmel, & Co., Oils, etc., 103.
Fritsche, G., Books, 347.
Fritsche & Zacharias, Lithographs, 347.
Fritzon, A. F., Silk, 233.
Froc, R., Altars, 19.
Frohock, W., Spokes, 382.
Frolich, F. H., & Son, Paper hangings, 230.
Frolich & Son, Apaitic ores, 8.
Fromage, Lucien, & Co., Brace, etc., 196;
Elastic fabrics, 200.
Froment-Meurice, Goldsmith's ware, 199.
Fromherz, J., Links, 1-4.
Frost, G., & Co., Alsets, 125.
Frost & Handl, Thermostat, 332.
Fry's Bookbinders' Stamp and Tool Manufac-
tory, Stamps and tools, 137.
Fryar & Strachan, Paper, 180.
Fuchs, A., Wines, 164.
Fuchs, D., Instruments, 351.
Fuchs, E., Polished stones, 204.
Fuchs, G. L., & Sons, Metal, 211.
Fuchs, J. B., Penmanship, 351.
Fuent Heridos, Corporation of, Marble, 90.
Fuentes de Ebro, Corp. of, Altabaster, 90.
Fuentes, M., Cloth, 71.
Fuentes, Miss L., Embroidery, 265.
Fuentes & Ponte, Vases, 272; Sandals, 277.
Fuentes & Sons, Bilster, 270.
Fuji-Kawa, G., Cloth, 246.
Fujiwara, H., Trays, 245.
Fukami, Svinomim coushel, Porcelain, 249.
Fukiara, S., Enamal, 244; Plates, 249.
Fukuda, K., Pictures, 247.
Fukuma, Janma Picture, 248.
Fulldosa & Co., Cards, 278.
Fulmer, A., Ale, 164.
Fullon, C. A., Gypsum, 73.
Fulton Furnace, Iron ores, 48; Iron, 58.
Futuba, S., Toys, 279.
Funke, Leopold, Knife, 139.
Furnas, R. W., Alternate, 9.
Furse Bros. & Co., Earb, 81.
Fusierian, O., Lithographs, 347.
DEPT.'S Locks, Leather

Haicha Agha, Carpet, 296
Haidar, M., Garment, 306
Haido, Garment, 300
Halley, J., Idaho, 12
Hainaut Glass Mfg. Co., Plate glass, 216
Haines Bros., Pianos, 121
Haines, J. W., Alternate, 9
Hake, Mrs. von, Ladies' underwear, 204
Hakim Bros., Silks, 298; Garments, 300
Hakim, Frank, New York, 294
Hakim Hadji Bros., Silk, 297
Haktar, Mehemed, Wax, 312
Haldeman Paper Co., Paper, 131
Halderman, L., & Son, Stone, 53
Hald, B. & Co., Belts, 390
Hale, B. S., & Co., Fish lines, 117; Wire, 332
Hale, I. P., West Virginia, 14
Hale, Kilburn, & Co., Folding bed, etc., 112
Hale & Parshall, Oils, 106
Halderman, J. B., Studio, 200
Halkier, P. A., Timber, 224
Halls, A., & Sons, Bricks, 107
Hall, Elton, & Co., Spoons, 113
Hall, F. R., Nevada, 13
Hall, O., Oils, 57; Machines, 188
Hall, J., & Son, Coach, 381
Hall, P. W., Holders, 130; Locks, 141
Hall, Wm., Coal, 71
Hall, We & Lock Co., Safes, 112; Locks, 141
Hallet, Davis, & Co., Pianos, 332
Halling, A., Knives, 227
Halm, Bellows, & Cutler, Furniture, 111
Halon, Alphonse, Marble, 72
Hallsey, W. J., Books, 13
Hamadaken, Local Government, Paper, 247
Hambleton, J., & Son, Toilet articles, 106; Decorated porcelain plates, 108
Hammer Furnace, G., Pig iron, 58
Hamelin, A., Silks, 196
Hamerli, J., Gloves, 209; Leather trusses, 210
Hamid Moustapha, Boots, 211
Hamie & Booth, Silks, 122
Hamilton, G. A., Judge, Gr. XVI., 17
Hamilton, Homer, Stone, 54
Hamilton Mfg. Co., Tickings, 119
Hamilton, F. R., Alabama, 11
Hamilton, P. Hunt, Chains, 127
Hamilton Woolen Co., Prints, etc., 119, 121
Hamlin, E., Violins, 332
Hammer's Museum, Catalogues, 353
Hammond, W., Tissus, 68
Hamppomas, Car, 296
Hampton, C. F., Augers, 157
Hampton, Cutter, & Sons, Clays, 54; Fire brick, 107
Hampton, Normal & Agricultural Inst., 322
Hana Meti, Calico, 294
Hance Bros. & White, Extracts, etc., 101; Drug mill, 155
Hance, R. A., Fluid extracts, 101
Hanck, J. H. H., Ore, 65
Hancock, E. C., Louisiana, 12
Hand, J. C., & Co., Comundum, 52
Handy & Boland, Trusses, 136
Haneborg, A. O., Wood pulp, 230
Hanford, Theodore, Gold strata, 63
Hauggard, Springs, 344
Hanging Rock Iron Region, Ores, 49; Iron, 55, 59; Map, 335
Hanus Solivo, J., Cambrics, 212
Hanke, Reinhold, Pottery, 205
Hannibal & St. Joseph Railroad, Minerals, 48
Hans, L., Prints, etc., 347
Hans, Octave, & Co., Glass, 215
Hansson, C., & Co., Extract, 293
Hansen, R. M., Tachygraph, 224
Hansen, T. R. von, Photographs, 351
Hanson, C. B., Furniture, 223
Hanson, Carl, & Co., Pasteboard, 223
Hanson, G. A., Maryland, 12
Hanssen, F., Cod-liver oil, 297
Hanke, B., Hardware, 319
Happgood & Smith, Match sticks, 380
DEPT. I, II., III.—MAIN BUILDING.

Heidegger, W., & Co., Jewelry, 204.
Heidegger, W., & Co., Cloth, 212.
Heinisch's, R., Sons, Shears, 139.
Heinitz & Seekelson, Fancy papers, 205.
Heinrichshütte, Iron ore, 75.
Heintzmann & Co., Glasses, 342.
Heisinger, L., Instruments, 349.
Heister & Gans, Umbrellas, 128.
Hekizan, T., Vases, 215.
Helene, Miss B., Coat, 300.
Helene, Fabrique, 38.
Héliéni, Madame, Laces, 302.
Heliéni, P., Hosier, 330.
Helguero, Genaro S., Sulphur, 263.
Hellandrand, Christianoff, Razors, 225.
Helledand & Steinberg, Cotton, etc., 203.
Heller & Brightley, Instruments, 329.
Heller & Merz, Ultramarine, 104.
Heller's Sons, Buttons, 209.
Hemmings, F. & W., Cocoaanut, sea weed, 158.
Hemptinne, 19.
Hemeny, Madame, Cap, 302.
Heminway, M., & Sons Silk Co., Thread, 123.
Hemmings, F. & W., Cocoonat, sea weed, 158.
Cotton, 17.
Hemple, J. C., Rubber diaper, 124.
Hempline, A. de, Son, Plan, 215.
Hems, H., Statue, 147.
Henderson & Co., Durham axminster, 150.
Henderson & Partners, 156.
Henderson, J. P., Ornaments, 328.
Henderson, James, Iron, 56.
Henelly, J., Ale, 164.
Henis, Charles F., Elbow, 375.
Henke Bros., Canes, 377.
Hennes, A., Method, 347.
Henninger, W. C., Sons, 252.
Hennings, R. T., Miss, 362.
Henneny, Books, 343.
Henny, C. O., glue, 220.
Henny & Moullet, Absinthe, 214.
Hennich, C., 244.
Henrichsen, H., Sewing machine, 224.
Henricksen, J. H., Cod-liver oil, 229.
Henry, A., Kilres, 152.
Henry, Capt, Ann, 67.
Henry, D. F., Meter, 331.
Henry, J., Judge, Gr. XXV., 19.
Henry, Lepaque, Lenses, 345.
Henry, T. C., Kansas, 12.
Henry & Balfour, Wool, 159.
Henry, E., Wool, 165.
Hepworth, B., & Sons, Wrappers, 150.
Hess, V., de, Mantas, 227.
Heras, Elena de las, Dress, 277.
Herbelot & Devaux, Laces, 197.
Herbert, Franz Paul, White lead, 207.
Herczinski, W., Harness, 320.
Herzingers, Augs, 220.
Herder, L., & Son, Shears, 139.
Heredia, Sons of M. A., Iron, 92.
Heritas Aid Society, Reports, 357.
Herman & Pfister, Hygrometers, 354.
Hermann, Bernhard, Eichhorn, 347.
Herrmann, L., Materials for perfumery, 193.
Hermann, W., Paintings, 170.
Hermannson, Count C. F., von, Ores, 78; 
iron, 39.
Herman. E., Treatise on ambulances, 218.
Hermes, W., Drawings, 349.
Herminghaus & Co., Cloth, 203.
Hermos, J., Geography, 266.
Hernandez, D., Cases, 277.
Hernandez, Mrs. A., Shirts, 265.
Hernandez Osa, J., Cloth, 274.
Hernandez, Secundino, Iron ore, 89.
Herr, J. C., Ores, 47.
Herreborg, Otto, Fruit, 224.
Herrera, Alfonzo, Fibres, 269.
Herrera, M., Cochinchine, 235.
Herrera, Nicolas, Slate, 84.
Herrig & Co., Bank vaults, etc., 112.
Herring, Rudolph, Plans, 334.
Herringer, J., Polished stones, 204.
Herrmann, G., Judge, Gr. VIII., 16.
Hertel, F., Wood goods, 203.
Hertel, C., & Son, Jewelry, 204.
Hertl, Henry, Boots, 197.
Hertz, L., Paper hangings, 205.
Hertig, Cloak, 215.
Herne, F., Woolen stuff, 217.
Herzainska de Slupno, Madame, Music, 371.
Heshuisen, W. F., Railway switch, 361.
Hess, A., Cooking apparatus, 376.
Hess, Gebr., Colored shirts, 213.
Hess, Math., Toys, 205.
Hesse, George W., Terra-cotta vases, 223.
Hesselbain, S., Embroideries, 204.
Hessenbruch, T., Damper, 375.
Hessich, J., Jeweler, Cutlery, 206.
Hessich & Weerich, Furniture, 316; Jewelry, 318.
Hethfeld & Jackson, Carriages, 380.
Hetler, J. C., Glass, 147.
Hetaout, Oil, 113.
Hetsch, Chr., Designs, 224.
Hetzler, Carl, & Sons, Silk ribbon, 255.
Hewitt, Ed., 156.
Hefurlin, G. U., & Co., Clothing, 256.
Heuse, E., Gun barrels, 218.
Heustis, R. B., Building sandstones, 72.
Hefvera. Antonio M., Antiquities, 263.
Hewitt, S. Finance, 10.
Hewitt, T. G., Oil, 158.
Hewitt, W., Swing, 114; Gun, 152.
Hewston, G. Judges, Gr. X., 17.
Heyd, Theodora, Grindstones, 82.
Heydenreich, B. G. P., Starch, 170.
Heydit, F., Polished stones, 204.
Heymans & Co., Alexanders, 150; Laces, 151.
Heymann, C., Books, 347.
Heymann, P. W., Butter, 224.
Heywood, Brothers, & Co., Chairs, 112.
Heywood, C. L., & Bruce, J. M., Lamp, 114.
Hildreth, Alexander, 24.
Hickman, Miss M., & Sons, 140.
Hickman, Mrs. M. A., Ink, 145.
Hickman, James S., Saline water, 74.
Hickory Coal Co., Coal, 51.
Hicks, Geo. C. & Co., Terra-cotta pipe, 107.
Hicks, James Joseph, Instruments, 339.
Hidalgo, State Government of Arguls, 86; 
Fibres, 265; Woods, 267; Cereals, 268; 
Cotton, 269.
Hidalgo de Berjano, Eduardo, Salt, 279.
Hieke, A., Buttons, 209.
Hieronymus, W., Cornices, 148.
Hietel Bros., Lever, 330.
Higgin, Thomas, & Co., Salt, 144.
Hildebrand & Wolf, Locks, 140.
Hiltich, G. & J. B., Silks, 140.
Hildreth, Milo, & Co., Jewelry, 129.
Hilgard, J. E., Judge, Gr. XXV., 19.
Hill, Albert, Selenite, 72.
Hill, C. P., Photograph, 342.
Hill, F., Foldable, 111.
Hill, H. H., Ornaments, 329.
Hill, J. R., & Co., Harness, 381.
Hill, J., Clock, 330.
Hill, M., Dye, 82.
Hill, Walter, Bark, 179; Tobacco, 180.
Hoelscher, H. D., Co., Silk goods, 208.
Horne, J., Native woods, 178.
Hornet, A., Laces, 209.
Hornig, E. J. R., Models, 351.
Hornig, Julius, Model, 355.
Horsford, E. N., Judge, Gr. X, 17.
Horstmann, Wm. H., & Sons, Yarns, 120; Upholstery, etc., 123; Military goods, 124.
Hosang Foundation School, Regulations, 357.
Hosea, L. M., Ornaments, 329.
Hosford, H., Old-fashioned, 12.
Hoskins, W. H., Envelopes, 130.
Hosoda, Z., Silk, 246.
Hotchkiss, L. B., Essential oils, 166.
Hotchkiss’s Sons, Shears, 138.
Hotham, Town Council of, Photographs, 162.
Hotta, Z., Bamboo, 247; Tray, 249.
Houtz, J. W., Judge, 2.
Houtz, J., Jr., Harmonicas, 349.
Hough & Co., Cast-iron griffins, 378.
Houghton, W. D., etc., 52.
Houle, Government of, Lents, 309.
Houpin, E., Merinoes, 195.
Houman, Govt. of, Seed, 307; Sesame, 308.
Hourrau, S., Tobacco, 181.
Houry, T., Furniture, 212.
House & Davidson, Doors, 115.
House of Correction, Boots, 287.
Hover, H. F., Wardrobe, 111.
Hover, J. E., E., etc., 104.
Hover, E. F., Silks, 122.
Hover, W., Dolls, 318.
Howard Furnace, Ores, 48; Iron, 58.
Howard, J., Cocoons, 165.
Howard, Jno., etc., 64.
Howard, R., & Son, Yarns, 120.
Howard & Sons, Furniture, 147.
Howe, E. C., Florida, 12.
Howell & Bourke, Paper hangings, 133.
Howell & Bros., Paper, 133.
Howell, C. M., Marble monuments, 52.
Howell, J. S., Tweezers, 137.
Howells, Anthony, Coal, 52.
Howells, Cave Association, Limestone and lime, 54.
Howley, James, Sandstones, 72.
Howry, J., China, 193.
Hoyem, Andr., Iron ore, 89.
Hoyer, A., Plywood, 208.
Hoyt, E. W., & Co., Cologne, 106.
Hoyt, H., Books, 326.
Hoyt, J. W., Judge, Gr. XXVIII, 19.
Hoyt, Jesse, Coal, 71.
Hub, F., Books, 317.
Hub Publishing Co., Drawings, 381.
Huber, Allen, Mirrors, 188.
Huber Bros., Organ, 359.
Huber, Jacques, School books, 354.
Hübner, B., Chemicals, 201.
Hübner, N., Boots, 317.
Huckel Sons, J., Hatter’s articles, 208.
Huddell & Seitzinger, Coal, 51.
Hudson Bay Co., Furs, 189.
Hudson Bros., Sashes, 157; Timber, 158.
Hudson, James, Coal, 71.
Hudson, R., New Xmas, 13.
Hudson, S., Buckles, 154.
Hue & Co., Crystals, 193.
Huellin & Son, Extract, 271; Baskets, 273; Hat, 274.
Huelva, Mining Engineers of, Copper, 92.
Hüfer, H., Worsted for weaving, 203.
Huffman, Wm., Building stones, 54.
Hugenberger, U., Hosiery, 213.
Hugh, J. B., Drugs, 174.
Hughes, J. C., Kentucky, 12.
Hughes, Thos., & Co., Hosier, 125.
Huguenin, A., & Son, Chronometers, 355.
Hu Kwang, China, 241.
Hull, H. J., Ore, 68.
Hull, W., Judge, Gr. VIII, 16.
Humbert, Ernest, Watches, 355.
Humbert, H., Hats, 153.
Humbert & Heylandt, Jewelry, 204.
Humboldt Iron Works, Tiles, 378.
Hume, E. B., Wool, 159.
Hume, W. C., Ores, 67.
Hummel, A., Clock, 339.
Humser, E. H., Illuminations, 110.
Hunderstund & Prices, Engravings, etc., 348.
Hunnewell Furnace, Ores, 49; Iron, 59.
Hunt, K. R., Judge, Gr. XXVI, 19.
Hunt, T. S., Judge, Gr. I., 15.
Hunt, W., Vehicles, 381.
Hunter, G. W., Tie Lift, 382.
Hunter, James, Monument, 61.
Hurd Coal & Iron Co., Coal, 51.
Hurdal Biri, Glassware, 229.
Huret, N., Carriage, 200.
Hugburt Paper Co., Paper, 131.
Hurlay, Tomás, Granite, 84; Herbs, 259.
Hürlimann, J. F., Swiss honey, 214.
Huron Iron Co., Iron, 58.
Hurst, E. J., Stone, 53.
Hurst, J., Coal, 68.
Hurtado, H., Lead, 266.
Hussein, Planes, 305; Maize, 328.
Hussein Agha, Carpet, 296; Cane, 303; Cotton, 313.
Hussein Chaban, Z., Jackets, etc., 300.
Hussar, Dédé, Honey, 312.
Hussein Effendi, Opium, 304; Hides, 311.
Hussein, Gaat, Prunes, 312.
Hussein, Hadji, Pipes, 303; Hair, 314.
Hussein, O., Pitcher, Nets, 303.
Hussein, Saret, Soap, 261.
Hussein, C. G., & Co., Kettles, 140.
Hussey & Howe Mining Co., Ores, 47.
Hussey, Wells, & Co., Tools, 55.
Huting & Co. of Mines, 188.
Hutchings, E. W., & Son, Sideboard, 111.
Hutchinson, A. A., & Bros., Coke, 51.
Hutchinson, John C., Gloves, 126.
Hutchinson, John, & Co., Soda ash, 144.
Hutchins & Bros., Drugs and mats, 122.
Hutinett, D., Cards, 199.
Hveisel, G., School maps, 223.
Hyde, G., and Sons, 300.
Hydrographic Department, Surveys, 367.
Hydrographic Office, Publications, 261.
Hydrographical Bureau, Maps, 371.
Hyman Bros., Fibre, 251.

I.

Jaruschka, J. B., Buttons, 209.
Jbach, R., Son & Piano, 250.
Ibañez, P., Lime, 84.
Ibañez Palenciano, F., Poplins, 275.
Ibarra & Co., Iron, 92.
Ibarra José María de, Iron pyrites, 88.
Ibarra del Eibar, Iron, 277.
Ibarra, M., Hats, 276.
Ibrahim, Cotton, 203.
Ibrahim Acha, Cotton, 293; Suit, 299.
Ibrahim Effendi, Carpets, 296.
Ibrahim Effendi, Hats, 314.
Iwahashi, K., Household ware, 245.
Iwai, Z., Fans, 246.
Izu-Kura, K., Watch guards, 246.

J.
Jaap, John, Essence, 145.
Jacard, Eugene, Engraved plate, 213.
Jack, J., Wheat, 163.
Jackfish Lake Gold Mining Co., Quartz, 70.
Jackson, C., Clay, 472.
Jackson Co., Cotto goods, 117.
Jackson Furnace, Ores, 48; Iron, 38.
Jackson, Samuel C., Silverware, 127.
Jackson & Sharp Co., Cars, 362.
Jackson, Wm. H., & Co., Grates, 130.
Jaconini, Raffi, & Giobbe, Jewels, 234.
Jacobs, C., Idaho, 12.
Jacobs, S. W., & Son, Carriages, 380.
Jacoby, Strouse, & Co., Corset clamps, 124.
Jacobsen's, O., Mech. Works, Mangle, 229.
Jacobsen & Anderson, Gloves, 226.
Jacoby, Theo., Hats, 126.
Jacot Bros., Chromolites, 235.
Jacquand, Father & Son, Glue, etc., 192.
Jacquemin, Costumes, 196, 343.
Jaecheh, G., Tobacco, 158.
Jager, G., Harmonicas, 349.
Jager, J., Harmonicas, 349.
Jager, Jh., & Co., Wood carvings, 358.
Jahn, S., Apparatus, 472.
James, J. O., Finance, 10.
James, Samuel, Color stand, 130.
Jameson, W. W., Wool, 337.
Jamme, A., Thread, 217.
James & Sons' Materials, 130.
Janin, Magnets, 345.
Jansen, Bobek, & Hertz, Satins, 272.
Jansen, J. W., Clothes, 203.
Janson, J. H. & Co., Soda water, 95.
Jarves & Hooper, Chromo, 55.
Jawel, A., Olive oil, 236.
Jaubert, Audras, & Co., Silks, 156.
Jaudin & Duval, Foulards, 156.
Jean, E. de, Iron and tools, 218.
Jeanon-Ferry, Stock, 157.
Jeanquet, Chs., Watch springs, 355.
Jeanvisson, Lewis, & Son, Gloves, 126.
Jantau & Co., Wheels, 199.
Jefferson Furnace Co., Ores, 48; Pig iron, 58.
Jeffrey & Co., Decorations, 152.
Jeffrey's, C. Mirrors, 147; Cases, 152.
Jemmapes Forge, Foundry, & Rolling Mill Co., Tramway rails, 37.
Jenkinson, A., Glass, 147.
Eennings, A. W., Washers, 377.
Eennings Bros., Paper, 143.
Eennings, G., Pipes, 146; Lavoratories, 148.
Eennings, P. A., Rugs, 157; Platinus, 158.
Eennings, T., Calcined magnesia, 144.
Eennings, Wm., Utah, 14.
Eennys, J., Bass, 154.
Eensen, H., Books, 264.
Eernberg, S., Latches, 227.
Jersey City Crucible Mfg. Co., Crucibles, 54.
Servis, John B., Engineering drawings, 325.
Jessop, Wm. & Son, Steel, etc., 62.
Eessup & Moore, Paper, 131.
Jesus, M. V. de, Pharmacies, 283.
Euch, Caspar, Plans, 356.
Eilevfe, A., Frames, 316.
Eiewett, John, & Sons, Oil, lead, 103.
Eignoroff, Furniture, 216.

Jami Joyen, Fans, 247.
Jimenez de Garcia, A., Pitchers, 272.
Jirnle, John, Treatise, 267; Wood, 268.
Joachimsthal, Metallurgy and Mining Administration, Meteoric specimens, 76.
Joao, A., Ceramics, 284.
Jo-Ami Heishiro, Fans, 247.
Jollett, F., Chemicals, 201.
Johann, A. F., Chemicals, 201.
Johnson & Carlander, Calicoes, 226.
Johnson, H. W., Roofing, 112; Tacks, 142.
Johnson, Black, & Co., Stoves, 375.
Johnson Bros., Varnishes, 145.
Johnson, C. J., Galena, 71.
Johnson, Chas. Ence, & Co., Inks, 105.
Johnson & Co., Terra-cotta, 145.
Johnson, F. Twines, 116.
Johnson, E. S., Toothpicks, 127; Pens, 130.
Johnson, Edmund, Catalogues, 339.
Johnson, F. C., Alternate, 9.
Johnson, Henry M., Kalsilustrate, 105.
Johnson, J., Drawings, 334.
Johnson, J. M., Implements, 229.
Johnson, J. M., & Sons, Tablets, 338.
Johnson, R., Chromolites, 255.
Johnson, Jabez, & Filides, Fabrics, 148.
Johnson & Lund, Teeth, 126.
Johnson, W. Tools, 137.
Johnson, E. S., Cornices, 113.
Johnson, H. J., Painting, 161.
Johnson, J., Sugar, 180.
Johnson, T., 164.
Johnson, Bros., Ore, 63; Umbre, 155.
Johnson, J., Drawings, 342.
Johnson, O'Shannessy, & Co., Photographs, 19.
Joint Stock Association for Mining, & Lead & Zinc Manufacture, Ores, 75; Iron, 75.
Joint Stock Co. for Telegraph Supplies, 349.
Joint Stock Playing Card Mfg., Cards, 205.
Jolliet College, College work, 242.
Jolivet, L., Wax tapes, 192; Candles, 194.
Jolivens, H., Matchets, 229.
Joly, H. G., Judge, Gr., IV, 16.
Jones, F., Ashes, 255.
Jones, W. W., Cotton, 251.
Jones, W., & Co., Wheels, 379; Sulky, 381.
Jonge, Pryce, Shawls, 150.
Jones, T. R., & Co., Copper ore, 70.
Joan, S. J. de, Snuff, 170.
Jordan, C., Cod-liver oil, 205.
Jordán, J., & Sons, Cloth, 274.
Jordana & Morera, Apparel, 282.
Jorge de la Peña, Peat, 270.
Jorn, E., Sauces, 164.
Joseph, V., Oil for burns, 192.
Joslin, Palmer, & William, Jewelry, 199.
Joslyn, J. N. L., Roofing, 73.
Joseph, J., Judge, Group I., 15.
Joseph, H., Judge, Group II., 15.
Jouvain, X., & Son, Gloves, 197.
Jouveau, A., Cocoa, 218.
Jover, Francisco, Building stone, 89.
Juarez, T., Hemp, 266.
Judd, Hubert L., Hardware, 141.
Kirby, Beard, & Co., Pins, 151.
Kirchhoff’s, C. F., Sons, Refrigerators, 208.
Kirchner, Wines, 180.
Kirchner Bros., Strings, 351.
Kirio, Buttons, 32.
Kitai, Pot, Kowasla, Ink, 244; Porcelain, 242; Silk, 246; Brushes, paper, 247; Music, 248; Bronze, 249.
Kirkman, J., Doeskins, 120.
Kirkor, Fencers, 305.
Kirkor, T., Instruc., 292.
Kirkor, Avakir, Mulberry paste, 312.
Kirkor Effendi, Alcohol, 313.
Kirkor, M., Fabrics, 298.
Kirkor, T., Earthenware cup, 292.
Kirkord, Wool, 294; IV. 16.
Kirsch, M., Garnet articles, 209.
Kisban, Madame, Cotton, 293; Holder, 303.
Kissel, Pipe, 197.
Ketcham, E., & Co., Tin, 327.
Ketchum, E., Shale, 71.
Ketterer, B., Sons, Clocks, 349.
Keuffel & Esser, Instruments, 249.
Kern, Alex. Pittcher, 208.
Kew, W., & Son, Buggy, etc., 332.
Key, A., & Retzius, G., Periodical, 362.
Key, Alex., Treatise, 302.
Keyes, W. S., Judge, Gr. 1., 15.
Keyless, Keys, 305; Locks, 142.
Keynes, J., Wool, 168.
Keys, J., Coal, 51.
Keystone Bridge Co., Iron columns, 56.
Keyton, Print, Glassware, 108.
Keystone Furniture Co., Ores, 49; Iron, 58.
Keysteone Hardware Mfg. Co., Hardware, 141.
Khalil, Agha, Wool, 314.
Khrapmanoff, M., Stationery, 315.
Khitroff, J., Book, 372.
Khrenoff, F., Frame, 316.
Khamilidi, S., Sextant, 317.
Koch, J., Wool, 168.
Koch, J., Shale, 71.
Koch, J., Co., Bridge, 318.
Koch, J., Sons, Buggy, 319.
Koch, J., Sons, Carriages, 320.
Koch, J. L., Bedstead, 111.
Kolden Bros., Glass, 147.
Koler, John, Flans, 241.
Kimbach, J., Alternate, 9.
Kimball, W. S., Refrigerator, 376.
Kimbel & Cabus, Decorations, 110.
Kimbel, M., Furniture, 200.
Kimpton, Thomas, Sound communic., 339.
Kimura, G., Crapes, 246.
Kimura, H., Tableware, 245; Tablets, 247.
Kindergarten, Reports, 253.
King, Alexander, & Co., Rum, 172.
King Bros., Gas retorts, 146.
King & Brown, Boots and shoes, 189.
King, J., & Son, Tools, 137.
King, P. G., Ores, fossil, 64; Wool, 159.
Kinkaid, Carpenter, Mills, 116.
King, T. H., Stones, 53.
King, William, Cloths, 149.
Kinkez-Sobel, Vases, 244.
Kinross & Co., Cordage, 155.
Kinsey, E. W., Massachusetts, 12.
Kipling’s, R., Sons, Jewelry, 237.
Kirschwasser Company, Liquor, 214.
Kishi Seppo, Picture, 240.
Lichtenfelder, Seats, 104; Tools, 199.
Licot, F., Book, 359.
Lie, P. A., Silver work, 230.
Liemard, F., Plan of Paris, 346.
Ligeri, M., Stearine, 265.
Light & Ernst, Pianos, 334.
Ligory, E., Ores; Copper, 97; Sulphate, 251.
Lihue Plantation, Sugars, 257.
Likly, McDonald, & Rockett, Gun case, 159.
Lilley, M., & Co., Masonic goods, 142.
Lillo, P., Towels, 350.
Hill, R., & Loeverstien, Steps, 319.
Lima, Botanical Garden of, Plants, 264.
Lima, C., Plaited straw, 284; Straw hats, 287.
Linares, F., Girths, 254.
Linares, G. A., Pharmacies, 283.
Lima, Municipal School of, Photographs, 263.
Limbourg Scientific & Literary Society, 359.
Lindberg, Lannerville, Files, 199.
Lindsay & Co., Capsules, 192.
Limonius & Co., Machine, 199.
Linnaeus, Clemente, Iron ore, 87.
Linne, Corp. of, Building stones, 97.
Linck, J., Photographs, 358.
Lincoln, Bennett, & Co., Hats, 151.
Lincoln Furnace, Iron ores, 48; Iron, 58.
Lindahl, J., Apparatus, 363.
Lindahl, J., Matches, 225.
Lindberg, Lars, Iron ores, 78.
Lindblad, M. A., Types, 362.
Linde, F., Cosmetics, 315.
Lindemann, Carl, 206.
Lindemann, G. & Co., Potash, 204.
Linden Steam Mills, Velvet, 203.
Lindenauber, O., Chemicals, 201.
Linderman, G. B., Coal, 51.
Lindereith, G., Cleaning, 363.
Lindhen, H. A. W., Letter box, 363.
Lindley, G. W., Wool, 183.
Lindley, Robert C., Stones, 61.
Lindsay & Anderson, Terra-cotta, 146.
Lindsey & Matkinson, Binding, 132; Books, 328.
Lindsay, J. A., Gold ores, etc., 70.
Lines, Mrs., Lace, 174.
Linquist, F., Books, 359.
Lins, Lemenha, Guitars, 267.
Lintelo, A., Clocks, marble slabs, 216.
Lintichicum, A. V., Arkansas, 11.
Lintichicum, W. O., Judge, Gr. X., 17.
Linvile, J. H., Bridges, 344.
Lion & Gahard, Barometers, 344.
Lipman, Hyman L., Machines, 130.
Lippitt, H., Rhode Island, 14.
Lippitt Woolen Co., Cassimores, 121.
Lipscombe, F., Seeds, 182.
List, A., Board of Public Forests, Oils, 283; Maps, 369.
Lisbon Central Jail, Mats, 284; Brushes, 289.
Lisbon, Dept. of Public Works of, Candles, 285; Earthenware, 231; Cottons, 255.
Lisbon, House of Correction of, Mats, 284.
Lisbon Spinning & Weaving Co., Yarns, 285.
Lithgow Valley Iron & Coal Co., Iron, 64.
Litoff, K., Costumes, 318.
Littledyke, Napkins, Silk, 297.
Little, A. R., Finance, 10.
Little, E. W., U. S. Commissioner, 9.
Little, T. W., & Co., Cloth, 149.
Littleton Saranac Buck Glove Co., Gloves, 126.
Livers Alkali Works Co., Soda, 144.
Liverpool Spun Oakum Co., Oakum, 153.
Lacer, A., Cloth, 274.
Lamas, G. de, Balsam, 280.
Llanos de Pedro, J., Cloth, 275.
Llanos, J. R. de, Poncho, 256.
Llanos Moreno, S., Cloth, 275.
Llanos Nuñez, P., Cloth, 275.
Llanos Valle, S., Cloth, 275.
Lledó y Gomez, Cipriano, Gypsum, 90.
Llevat & Son, A., Mosaic, 272.
Ligé & de Planell, Iron ore, 87.
Llortriu, M., Flour, 279.
Llopís & Son, Cloth, 274.
Lloyd Bros., Fixtures, 113.
Lloyd, E., Maps, 321.
Lloyd, H. C., Magnetite, 70.
Lloyd, Supplice, & Waulum, Machines, 155; Locks, 138.
Lobao & Ferreira, Jewelry, 288.
Lobato, J., Book, 267.
Lob, E., 253.
Lobmeyer, I. & L., Glass articles, 207.
Lobo, Tristan, Chalk clay, 85.
Local Com., Cape Good Hope, Costumes, 169, 170.
Locki, A., Cabs, 383.
Locati, Cav. A., Carriages, 235.
Loccher Bros., Embroideries, 213.
Locche, J., Hubs, 382.
Lockwood, A. B., Judge, Gr. VIII., 16.
Lockwood, Brooks & Co., Inks, 104; Telegraph, 331.
Lockwood, C. N. & Co., Lamps, 379.
Lockwood, G. F., Carl, Books, 326.
Lockwood, W. P., Model of gold nugget, 70.
Loder, A., Wool, 159.
Lodholz, F., Jewelry, 204.
Lodi, G. B., Gloves, 234.
Locher, G., Stationery, 221.
Loeff, B., Books, 349.
Loeflund, E., Chemicals, 201.
Locra, Frenometry, 267.
Loesch, Z., Work box, 253.
Loewen, H. T., Imitation leather goods, 203.
Lövenskiöld, Salomon, Ores, 78; Iron, 79.
Logan Furnace Co., Ores, 49; Iron, 58.
Logan, E. V., Idaho, 12.
Lohmann & Steding, Steel, 75.
Lohner & Co., G., Carriges, 211.
Lohse, G., Chemicals, 201.
Loiseau, A., Son, Toys, 198; Apparatus, 345.
Loix, F., Paper, 278.
Lohnstein, Emilio, Galena, 88.
Lomas, Adam, & Son, Flannels, 189.
Lombard, Thos. C., Galena, 47.
Loomis, C., H., Glass, 220.
Londley, Building sandstone, etc., 72.
Longaker, H. D., Anatomical specimens, 135.
Longmire, T., Flea, 164.
Lonsite, J., 201.
Lönseth, Fred., Millstones, 80.
Lontue, Department of, Wood, 262.
Loomee, B., Connecticut, Cloth, 11.
Loonen, F., Brushes, 196, 200.
Lonnes, History, 343.
Loop, de Halden, & Co., Glass, 215.
Lopatin, P., Calico, 78.
Loper & Doughton, Naval stores, 103.
Loper de Cedes, Tomas, Guano, 279.
Loper do Campo, A., Sieves, 284.
Lopez, F., Kings, 958.
Loper, Martinus Oegy, 84.
Lopez, F. J., Saltpetre, 252; Cloth, etc., 253.
Lopez, J., Metting, 273.
Lopez, José M., Mineral water, 91; Iron, 92.
Maas en Zonen, A. E., Nets; 220.
Maass, T. Wigs; 318.
Mabb, Todd; & Bard, Toothpicks; 128; Pens; 130.
Mabille, A. Books; 169.
Mabille, Valere, Manufactured iron; 77.
MacAndrews & Co., Liquorice; 571.
Macarthur, Sir W., Woods; 135.
Macaulay, Ullisc, Earth; 87.
MacDonald, J. L., Wool; 159.
MacDowell, N., Minerals; 53.
Machado, Julio Rodrigues, Braids; 287.
Machado, M. P., Straw fabrics; 284.
Machado, R., Hats; 257.
Machen, W., B. Kentucky; 12.
Macon & Co., Tin bar; 92.
Macao & Co., D., Tin ore; 88.
Maciel, D., Submarine water; 82.
Macintosh, J. Doors; 147.
Mack, E., Chemicals; 204.
Mackay, A., Maize; 150.
Mackay, Angus, Books; 179.
Mackay, John, Varnishes; 145; Food; 153.
Mackenzie, Sugar; 189.
Mackown, Bowler, Ellis, & Co., Drugs; 102.
Mackey, T., Wool; 175.
Macklay, A. Manufacturing books; 190.
Mackinnon, J. C., Iron ores; 71.
Mackintosh & Oakes, Kaulin; 64.
Madero, Erilo, A., String; 90.
Madina, Mr., Cigars; 181.
Madrazo & Co., Tobacco; 265.
Madsen, J. van der, Books; 359.
Maes, G., Fabrics; 105.
Maffei, P., Cards; 276.
Magra, M. G., Ceramics; 284.
Magilhães, A. M., Barbosa de, Laces; 265.
Magilhães, F. T. S., Argil, colored clay; 82.
Magilhães, Francisco T., Linen fabric; 266.
Magilhães, H., Grammar; 266.
Magarey, T., & Co., Flour; 167.
Mager, senior, Wire; 239.
Mague Furnace Co., Furnaces, etc.; 376.
Magblé, Government of, Iron; 69.
Magnette Iron Co., Ores; 47; Iron; 56.
Magnus, G., & Co., Billiard balls; 205.
Mager, Stationery; 108.
Mahler, Stationery; 108.
Mahmoud Agha, Boots; 301; Honey; 312.
Mahmoud Agha, Flanneletts; 299.
Mahmoud Cozzi, Tissue; 305.
Mahmoud Deguzi, H., Coverlets; 299.
Mahmoud, E., Fabric; 293.
Mahmoud, Hadji, Cloths; 194; Boots; 301.
Mahmoud Kahali, Decanter; 395.
Mahmoud, M., Hair; 314.
Dept.'s I, II, III.—Main Building.

Mahmoud, T., Cap, 301.
Mahmouda, H., Felts, 295.
Mahn, L. H., Base balls, 129.
Mahoning Valley Cent. Assn., Ores, 49; Iron, 45.
Mahony, Tobacco, 180.
Mahony, Martin, & Bros., Tweeds, 149.
Mala, Ferreira, & Co., Pharmacies, 252.
Mannum, Wool, 314.
Maine, Education, Dept. of, 323.
Maine Red Granite Co., Granite, 53.
Maine Slate Co., Roofing slate, 52.
Mainieri, Carlo, Geographical map, 365.
Maietti, F., Carruthers, 75.
Mains Manufacturing Co., Lamps, 115; Dice box, 128; Tester, 330.
Maiquez y Tomas, L., Fabrics, 275.
Mais & Reed, Iron chairs, 111.
Mairlot & Heuse, Gun barrels, 218.
Maison, Rustique, Books, 343.
Maitlen, F., & Co., Clocks, 344.
Maitrise, St. Pierre, Scholars’ work, 342.
Maize & Schwartz, Uniforms, 123.
Majlhaes & Moniz, Books, 369.
Majersky, T., & Stockelsky, M., Coal, 98.
Majeri, S., Glass, 308.
Majira, Mrs. G., Paintings, 267.
Majolini, F., Scale, 359.
Major, Dr., Nutmegs, 172.
Makboul, Towels, 299.
Malil, C., G. H. L., Chart, 359.
Malcolm, R., Harness, 191.
Malcolm & Stevenson, Fruit extracts, 105.
Malhada Mining Co., Copper ore, 94.
Mali, Henry W. T., Fabrics, 195.
Mallah Ahmed, M., Fabrics, 298.
Mallet, J. W., Judge, Gr. III, 15.
Malagide, M., Tester.
Mallory, R., U. S. Commissionier, 9.
Malmstjö, J. G., Pianos, 363.
Malone, Duny, California, 11.
Maltby, Curtiss, & Co., Nail puller, 137.
Mallette, Toys, 198.
Malvehy, B., Silk, 275.
Mame, A., & Son, Book, 343.
Manapola, C., Carpet, 296.
Manceaux, H., Books, 190.
Manchester Mills, Prints, 119; Fabrics, 121.
Mandené, Diarbekir, Ore, 96.
Manderson, C. F., Nebraska, 13.
Maneva, Go, Enment of, Flax seed, 310.
Mangi, A., Cloths, 70.
Manhattan Brass Co., Brass, 59.
Manhattan Piano Forte Co., Pianos, 333.
Manik, H., Skin, 311.
Manila Economical Society, Arms, 282.
Manila, Provincial Board of, Hats, 281.
Manilha, F. dos S., Stones, 95; Slates, 289.
Manly, M. M., & Son, Rails, 139; Railing, 378.
Mann, Wm., Blank books, 131.
Manol Veledidinko, Basket, 303.
Manoli Boyadzaki, Barley, 308.
Manoli Caleri, P., Tobacco, 309.
Manoli, L., Pipe, 371.

Manoli Musé, Vinegar, 313.
Manoli Prizi, Brandy, 313.
Manoli Toraki, Miss C., Crochet, 301.
Manouk, Plate, 292; Chain, 302.
Manouk, V., Tobacco, 310.
Mansfield Shire Council, Marble, 65.
Mansilla, Manuel, Quartz, 83.
Mansour, H., Cotton, 293; Sponges, 330.
Mansuy- dotin, J., Enamels, 194.
Manuso & Assero, M., Boots, 276.
Mantilla, C., Counterpane, 256; Shawls, 258.
Manillia, F., Embroidery, 258.
Manual de la Vega, Wire bust, 265.
Manualino, F., Carruthers, 75.
Manuel, C., Lessons, 266.
Manuel, J. de L., & F., Velvet, 287.
Manufactory of Arms, Cartridges, 278.
Manufactory of Side Arms, Arms, 278.
Manuville, J. J., Matches, 188.
Manville, B., & Co., Rockaways, 381.
Manville Co., Cotton goods, 117.
Marcos, Josefa, Embroideries, 263.
Manzano, J., Charcoal, 93.
Maorad, Henito, Manganes, 89.
Mapleton, C., Wines, 164.
Maribella, District of, Stottte, 91.
Marich, Government of, Mineral waters, 97.
Maris, H. H., Brandy, 171.
Mariala, J., Pitcher, 284.
Maranha, Prov. of, Pharmacies, 252; Cups, 254.
Maravedo, S., Military manu muteing, 267.
Markus, Augustine de, Essential oil, 215.
Marbee, Plans, etc., 346.
Marble, Jerome, & Co., Indigo blue, 105.
Marca, S., Soap, 271.
Marcel, J. L., Bricks, 284.
Marchand, I., Furniture, 104.
Marchand, L. L., Bronzes, 194, 199.
Marchesini, P., Hats, 234.
Marchini, C., Straw works, 235.
Marco, Spoons, 305.
Mardelli, O., Cotton, 313.
Marfa, Cayetano, Cotton, 276.
Marga, Eugene, Chimney piece, 194.
Margiulli-Valenti, G., Medicines, 235.
Margardio, M. d’O., Bottle, matting, 284.
Maria, Joaquim, Tree, 288.
Maria José, Toothpick, 258.
Maria & Silvia, F., & Conquiles, Hats, 287.
Marie, François, Arrowroot, 176.
Marie, G., Woolen coverlet, 296.
Marie, Gauze, 299.
Marie, Madame, Ribbon, 295; Carpet, 296; Purses, 303.
Mariel, H. de, Book, 243.
Marietta, Pittsburg, & Cleveland Railway, Minerals, etc., 49.
Marin, J., Judge, Gr. XXVIII, 11, 10.
Marin, M., Water, 91; Essentials, 270.
Maring, W., Plan, 356.
Marin Fabrico & Glass Mfy, 284.
Marin, Maria, P., Olive oil, 322.
Marion Blind Co., Window shades, 115.
Merionga, Counterpane, 298.
Maripa, Golopo, Cloth, 295.
Mark, Rails, 312.
Mark, C. L., Brandy, 313.
Markham, A., Pyrolusite, 71.
Markora, S., Cheese, 310.
Markowsits & Scheid, Trinkets, 259.
Marks, Arrowroot, 205.
Marks, A. A., Limbs, 135.
Marks, A. F., Periodical, 272.
Marks, T., & McKellar Bros, Silver ores, 70.
Maring & Co., Woolens, 149.
McPherson, A., Fibres, 180.
McPherson, T., Corn sacks, 161.
McMarric, J., etc., 72.
McQueen, William, Coal, 71.
McVicar, George, Amethyst, 71.
McCown, J., G., Salt, 173.
Mechanics' Institute, Philadelphia, 70.
Mechanics' Mills, Printing cloths, 118.
Mechanics' School of Arts, Wax seal, 340.
Mechlin Savings Bank, Report, 500.
Mr. R., Calico, 22.
Medicine, Faculty of, Thebes, 366.
Medina, Government of, Crystals, 66; Kena, 292; Plants, 234; Basket, 305; Dates, 397; Wheat, 308; Honey, 312.
Medina, Luis R., Whetstones, 83.
Medinaceli, Duchess, Sal gema, 270.
Medinaceli, Duke of, Ferruginous water, 91.
Mee, C., & Sons, Iron bronzes, 141.
Mee, N. C., Alternato, 9.
Meersens, C., Music, 359.
Meus, J., Newspaper, 359.
Mee, Charles, Drawings, 334.
Mee, Daniel, Chairs, 141.
Mee, Geo., Linen, 72.
Mee, J., Basket, 305.
Mee, J., Knit Goods, 189.
Mee & Roberts, Ranges, 375.
Mee, W. B., U. S. Commissioner, 9.
Mee, Knit Goods, 165.
Mee & Roberts, Ranges, 375.
Mee, J., Basket, 305.
Mee, Knit Goods, 189.
Mee, J., Basket, 305.
Mee, Knit Goods, 189.
Mee & Roberts, Ranges, 375.
Mee, J., Basket, 305.
Mee, Knit Goods, 189.
Mee & Roberts, Ranges, 375.
Mee, J., Basket, 305.
Mee, Knit Goods, 189.
Mee, J., Basket, 305.
Mee, Knit Goods, 189.
Mee & Roberts, Ranges, 375.
Mee, J., Basket, 305.
Mee, Knit Goods, 189.
Motta, J. M., Bells, 359.
Mouter, L., Meteorological cigars, 218.
Mottl Sons, M., Men's clothing, 208.
Mottura, I. O., Pasteboard, 234.
Moulton, R., Work box, 169.
Mountianid Kirsor, Traveling bag, 304.
Mounouk Otolu, Fabric, 299.
Mount Bischoff Tin Mining Co., Tin, 68.
Mount & Co., Glassware, 165.
Mount Marley Co., Brick, 179.
Mount Marley Tin Mining Co., Tin, 67.
Mount Perry Copper Mining Co., Copper, 67.
Mount Savage Furnace, Ores, 49; Iron, 58.
Mount Vernon Co., Ducking, etc., 177.
Mount Vernon Furnace, Ores, 59; Pig iron, 56.
Mountain Engineers, Madrid, Kopes, 273.
Mountain Engineers, Corps of, Oil, 271.
Moura, J. C. de, Cussettes, 253.
Mourad Agha, Fabrics, 298.
Mourad Kasson, Carpet, 296.
Mourad Oglou Ali, Scammamy, 304.
Mourazedé, Aleppo, Rice, 308.
Moures & Co., Wks., 237.
Mouret, Globe, 343.
Mourouk, O., Towels, 297.
Mourouk Oglou Ohanis, Gauzes, 298.
Moury, Bey, Madder, 292.
Mousa Agha, Skin, 299.
Mousa Chaouch O., Shirt, gauzes, 299.
Mousa Oglou Veli, Rye, 3-39.
Mousa, P., Cotton, 313.
Mousse Kapsal, Woolen, 295.
Moussin Effendi, Cerise, 329; Wax, 312.
Moussin Oglou Seid, barley, 308.
Moustapha, Salt, 291; Holders, 303; Cocks, 305; Coffee, 313; Scale, 371.
Moustapha, Athens, Clip, 299; Vest, 390; Box, 313; Peas, 308; Barley, 309; Raisins, 312; Flutes, 371.
Moustapha, Ahmed Oglou, Pitch, 306.
Moustapha Ahmoud, H., Skins, 311.
Moustapha Ahmoud, T., Glazed' bags, 374.
Moustapha, Bandjedk, Seed, 397.
Moustapha Bey, Sheeting, 293; Napkins, 301.
Moustapha Effendi, Chalk, 39; Brazier, 293; Silk, wheat, 297; Organize, 298; Madder, 360; Leather, 310; Moustapha, Hadji, Iron stone, 96; Iron, 97; Slippers, 301; Opium, 304; Gum, 306; Scammamy, 309; Skins, 311; Wool, 314.
Moustapha, A., Patches, 312.
Moustapha, Miss, Trouseau, 299.
Moustapha, Mosul, Pistol cases, 304; Saddle cloths, 305.
Moustapha, Nevrekop, Casks, 305.
Moustapha Oglou, Purse, 303.
Moustapha, Omer, Halter, 395; Leather, 310.
Moustapha Ousta, Cane, 303.
Moustapha, S., Coverlet, 296.
Moustapha, T., Wool, 295.
Moyer, Edward, Cord, 125.
Mozjokhoin's, T., Sons, Silk, 317.
Mozincillo, C., Fan, 277.
Mt. Union College, Implements, 328.
Mück, W., Bridge, 293.
Mucury, Colony of, Precious stones, 82.
Mueller, J. M., Stone, 53.
Mühlbachcr, Carriages, 200.
Mühr, H., Sons, Kings, 126.
Muir, R., Sugar, 296.
Muirhead, R., Cigars, 158.
Mujica, E., Guano, 255.
Muldcr, L., Periodicals, 380.
Mullan, C. da la Elguera, Hair flowers, 299.
Millender, F., Cans, 305.
Miller, C. A., Gutstring, 349.
Miller, C. E., Books, 348.
Miller, H., Woolens, birds, 293.
Miller, Herrman, Glass articles, 207.
Muller, J. A., Gauge, 361.
Muller, Johs., Playing cards, 213.
Muller, L., Artificial eyes, 205.
Muller, L., Meteorological cigars, 218.
Muller, P. A. E., Honey, 224.
Muller's, Nicholas, Sons, Stationery, 130.
Muller's Sons, N., Thermometers, 329.
Mulesim Abdoulah, Pyrites, 96.
Mulesim Oulaah, Sediment, 96.
Mulesim Tireboli, Pyrites, 96.
Munday, G., Impurities, 198.
Muneaki, K., Coffee sets, 245.
Munger, John W., Soap, 103.
Munpa Verdena, Marble, 92.
Municipal School Boards, Books, 376.
Municipality of Chaux-de-Fonds, Plans, 356.
Munire, Loe, 296.
Muniz, Ramon, Paintings, 263.
Murphy, A., Maizas, 288.
Munn & Co., Skin, 299.
Mundry, Cape, 296.
Munznig, Conrad, Felt, 212.
Murakami, T., Canes, 247.
Murat & Co., Jewellery, 197.
Murcia, Province of, Corps of Mining Engineers, Marble, stone, 90; Waters, 92.
Murcia, Prov. Dep. of, Delft, 227; Esparto work, 273; Shawls, 275; Sandals, 276.
Murdoch, J., New York, 15.
Murphy, M., Books, 266.
Muricy, J. C. de S., Tiles, 252.
Muricy, J. C. de Silva, Coal, etc., 82.
Murga, N., Salt, 255.
Murd, A., Inks, 255.
Muro, Frailon, Oils, 83.
Murphy, A. A., Stools, 188.
Murphy, E., Centre flowers, 162.
Murphy, P., Missouri, 13.
Murphy, W., Sons, Blank books, 327.
Murray, A., Jams, 167.
Murray, Andrew, Illustrations, 338.
Murray, Edmund W., Phosphate of lime, 74.
Murray, J., Wool, 168.
Murray, Wm., California, 11.
Murtaza, Hadji, Box, 305.
Murtazi, H., Secretary, 292.
Murtro y Turelio, Widow of A., Cloaks, 274.
Muscialia, L., Pitch glasses, 160.
Muscum of Artillery, Gun, 278.
Muscum of Fine Arts, Porcelain, 315.
Muscum, South Kensington, Objects, 339.
Musgrove & Son, Tin, 376.
Musker, T., Goldsmith, 269.
Muspratt Bros. & Huntley, Soda crystals, 144.
Muspratt, James, & Sons, Soda, 144.
Musca Soliman, Peroné, 305.
Muslime, Madame, Cloth, 254.
Musson, G., Toilet Goods, Liquorice, 231.
Mutual Aid Society, Statutes, 357.
Mutual Benefit Asso., Reports, 360.
Muzet & Co., Hair work, 298.
Myagawa, F., Fans, 278.
Myburgh, N., Wheat, 170.
Myers, A. G., Plumber's materials, 377.
Myers, A. J., Ores, 50.
Myers, G., Rings, 375.
Myers, Uhl & Co., Marble, 53.
Myring, J., Barley, 163; Malt, 164.
Mytleine, Government of, Graphite, 97.
O'Shaunessy, P. A., Timbers, 179.
Osman Agha, Carpets, 296; Leather, 310.
Osman Bin Mohamed, Emery, 97; Prunes, 312.
Osman Effendi, Lace, 310; Girt, 305.
Osman H., Belt, 306.
Osman Hadji, Raisins, 312.
Osmena, Rita, & Co., Harness, 282.
Osorio, Fernando, Pistols, 278.
Osterberg, C.G., Furniture, 226.
Osternack, M., Iron works, 78, 79.
Osterneck, Chas., Virgin lime, 82.
Ostersetzer Bros., Screens, 206; Lace, 210.
Ostman, Luis, Cordage, 264.
Ota, M., Furniture.
Otmandi, Carlos, Shells, 85.
Otis Company, Denims, 117; Hosiery, 125.
Otis Iron & Steel Co., Steel, 56.
Ott, B., Co., Jewelry, 204.
Ott & Brewer, Porcelain, etc., 107.
Ott, Gehhard, Toys, 2-5.
Ottaviani Bros., Essences, 232.
Ottawa Iron & Steel Co., Iron ore, 71.
Ottenheimer, J. M., & Sons, Corsets, 204.
Otter, Baron C. G. von, Lantern, 363.
Otterbus, Jewelry, 197.
Otto, F. G., & Sons, Instruments, 136.
Otto, J. W., Pianos.
Ottoman Commission, Paintings, 371.
Oudjon Christo, Songhum, 309.
Oule, Government of, Carpets, 296.
Oxlouch, M., Boots, 301.
Oumria, H., Wool, 296.
Ounedji, O., Duck, 203.
Ousta Ahmed, Coverlet, 296.
Ousta Bouchou, Hose, 299.
Ousta, H., Vases, 332.
Ousta, Jacob, Vase, 293.
Ousta Mehenni, Hemp, 295; Woolens, 296.
Ousta Mehenni Tournous, Harness, 305.
Ousta, T., Pots, 292.
Ousta Yano, Hose, 299.
Oustour, Canes, 303.
Oustour, P., Silk, 297.
Ovask, Lantern, 293.
Ovata, D. & E., Wines, 262.
Over Agha, Nuts, 3-7; Raisins, 312.
Oviedo, Mining District of, Ores, 89.
Oviedo, P., Books, 266.
Ovrev, Mrs., Artificial flowers, 292.
Owen Paper Co., message 266.
Oxford Iron Co., Drawings, 335.
Oxford Woolen Mills, Woolen goods, 189.
Oyama, K., Limestone, 244.
Oyarzabal, J., Ice cream apparatus, 273.

P.
Pabst, Chas., Sofa bed, 109.
Pabst, Danl., Walnut sideboard, 111.
Pabst, G. J., Toys, 205.
Pacchiini, E., Olive oil, 232.
Pace, E. M., Rugs, 279.
Pacheo, F. J., Linen fabrics, 285; Flannels, 286.
Pacheo, Francisco Gomez, Nails, 286.
Pacheo, J. V., Counterpanes, 285; Wool fabrics, 286.
Pachistizzi, V., Maize, 309.
Pacific Mills, Calicoes, 179; Alpacas, 12
Pace, E. M., Rugs, 279.
Packer, Asa, Alternate, 9.
Padalina, Francesco N., Calfamine, 87; Lead, 270.
Paddilla, J., Tinture, 271.
Paacl Bros., Belt, 348.
Page, Kidder, & Fletcher, Coal tar, 103.
Page, S., Wool, 183.
Pages & Co., Linen, 273.
Paget, F. A., Judge, Gr. XXII., 18.

Pagliaccetti, R., Statues, 232.
Pagliaro, A. M., Glatelins, 235.
Pagliaro, D., Medicines, 235.
Paine H., Belt, Woodwork, 379.
Paine's Furniture Mnf., Furniture, 112.
Paiva, Manuel J. de, Boots, 287.
Paiuax, Antonio Aug. da, Jr., Clothing, 287.
Pajares, J., Earthenware, 272.
Palladino, E., Wines, 287.
Palcio, P., Woolen fabrics, 257.
Pallasé, Madame, Gown, 299.
Pale, T. Ch., Cloths, 316.
Palenoff, C., Photometer, 375.
Paliouris, Gravures, Baron V., Books, 365.
Pallares, Count of, Sabots, 276.
Palmcrantz, Mitrailruse, 227.
Palmer, Elias, Glass lustre, 297.
Palmer, B. F., Artificial limbs, 126.
Palmer & Kendall, Nuts, 126.
Palmer Mills, Dress goods, 117.
Palmer, Samuel, Index, 338.
Palmer, Theophilus, Rocking chair, 110.
Palmer, W. F., Tools, 128.
Palmer & Williams, Corsets, 125.
Palme's Son, F. E., Glassware, 207.
Palomar & Co., Paper, 266.
Palomka, Government of, Iron nippers, 305.
Palz, E., Taghblatt, 348.
Pampanga, Prov. Board of, Tapestry, 261.
Pampin, C., Cloth, 258.
Pandia, J., Lace, 284.
Pandalux, Government of, Coal, 97.
Panayote, Petron, Oil of flowers, 291.
Pando, Acha y Garcia, Frame, 179.
Pandojlo, Maria, Wines, 264.
Pangina, C., Lenses, 296.
Panier, E., Instruments, 198, 344.
Pano Mamatti, Silt, 191; Gall nuts, 306; Cotton, 713.
Pano Mamatti, Wool, 314.
Pamocha, Y., Belt, 30; Leather, 310.
Panscin, Y., Silk shirt, 297.
Pantrentapeut Estate, Lace bark, 172.
Papo B elt Co., Belt, 231.
Papa Giorki, & Co., 96.
Paparathos, B. J., Blocks, 284.
Papaz, Avociz, Copper, 292.
Papaz Ogolu, Wine, 131.
Papaz, Oglou Bros., Oil, 292.
Papaz, M., Co., Counterpanes, 294.
Papazopoula, Amietta, Cloth, 91.
Pape Bros. & Kugemann, Moulinigs, 113.
Pape & Chemical Manufactory, Plaster, dressing materials, 205.
Papini, L., Truss, 315.
Pappazaki, Dimitri, Argilloous tall, 97.
Pappazaki, Nicola, Lignite, 96.
Para, Province of, Oils, 252.
Parabert, Basket, 204.
Paradelzer, W., Models, 392.
Paraiso Factory, Whisky, 269.
Parana, Benevolent Society of, Spun cotton, 306; Crochet work, 2-3.
Parvaz, J., Commission, 84; Tiles, 216; Berro waters, 219.
Parana, Province of, Ores, 81; Gold veins, 82.
Parana, Province of, Soaps, 252; Yarns, 253.
Parapara Iron & Coal Co., Ore, 63.
Parde Montero, R., Sulphurous water, 91.
Parf enary & Lemaire, Chimney pieces, 194.
Paris, City of Models, 344; Reports, 345; 346.
Parise, A., Sons, Lock, 235.
Park Bros., Book Steel, 51.
Parker, C., Coffee mills, 367.
Parker, Chas., Shot guns, etc., 134.
Parker & Whipple Co., Attachment, 141.
Pennsylvania Lead Co., Lead, 59.
Pennsylvania Marble Co., Tiles, 53.
Penneccio & Bichler, Fuel, 61.
Pennaudo, Mrs., & Sisters, Flowers, 266.
Pensimio, Laces, 301.
Penton, Thos., Engine, 188.
Perry, David \\
Perry, David \\
Perry, David \\
Perry, David \\
Perry, David \\
Peron, Jose Contreras, Romances, 267.
Perper, Geo., Plasterers’ models, 162.
Perrett, W., Medical Doctor,袅袅.
Perrelli Mfg. Co., Sheetings, etc., 117.
Perachipolani, W., etc., 348.
Pepper, Hunter, 213.
Pennsylvania Mfg. DEPT.’S F., 205.
Pequinot, K., Cover, 301.
Perafta Gavigola, F., Carbonic water, 91.
Peralta, Mrs. A., Music, 566.
Pérand, V., Machines, 192.
Percy, John, Horse shoes, 121.
Perdigué, D. F. Z., Pharmaceuticals, 252.
Perdiguéro, G., Mantas, 275.
Pereda, Blas, Cotton, 59.
Pereda, Antonio de la Velha, Silk, 286.
Perereira Bros., Silk, 287.
Perereira, C. C., Instruments, 369.
Perereira, Luiz Maria, Boots, 287.
Perereira, V. A., Hydrometer, 369.
Perereira, Isaac, Coal, 89.
Peretti, Prof. Luis, 265.
Perello Papa, Brandy, 313.
Perellepkin, J., Silk, 317; Umbrellas, 318.
Perés, J. M. de Mottos, Soaps, 283; Linen fabric, 285; Woolen fabrics, 286.
Peretti, Santiago, Stone, etc., 84.
Peres, A. G., Tonic, 255.
Peres, Fernando, Ore, 89.
Peres, E. Juan, Almanacs, 267.
Peres, Francisco, Calamin, 269.
Peres, Hernandez, Dictionary, 267.
Peres, Juan Jose, Whisky, 262.
Peres, Luisa, Mineral water, 85.
Peres, M., Printing, 263; Chalk, 277.
Peres, Romero, Varnish, 271.
Peres & Son, Cloth, 274.
Peres, Sons of J., Cloth, 274.
Peres Villamil, J., Soaps, 271.
Peres Cariani, precious stones, etc., 319.
Peres Cariani, G., Mineral waters, 91.
Perichon, F., Embroidery, 258.
Peric, F., Judge, Gr. XXI., 18.
Perine, A. M., & Son, Oven, 148.
Perks, Samuel, Extrad, 145.
Perrum Gun Foundry, Crucibles, 315.
Permanent Commission of Mutual Relief Association, Reports, 356.
Pernambuco, Prov. of, Iron, 82; Matches, 255.
Perna & Baxeda, Textiles, 273.
Perreaux, Velocipede, 200.
Perreaux, L. G. Model, 193; Instruments, 344.
Perreault, A., Chromo-Film, 355.
Perret, E. F., Judge, Gr. XXV., 19.
Perret’s, D., Sons, Watches, 352.
Perrin Brothers, Gloves, 197.
Perrin, W., & J., Malt, 164.
Perrot, A., Melodeon, 190.
Perrot, Henry, Bronzes, 193, 199.
Perry, Davis, & Co., Gratings, 162.
Perry, G. A., Atlas, etc., 396.
Perry, J. R., Organs, 333; House, 378.
Perry, M., Pyrites, 67.
Perry, Miss C., Embroidery, 265.
Perry, Mrs., Necklaces, 169.
Pottier & Stymus Mfg. Co., Bedstead, etc., 111.
Potts, Robert, Educational books, 338.
Poucha, J., & Sons, Cigars, 264.
Pound, T. C., Wisconsin, 14.
Pouder, M., Fountain, 190.
Pousscleug, R. P., Decorations, 193; Bronzes, 199.
Poven, Partraloeon, History, 262.
Powell & Bishop, Dinner services, 147.
Powell, E., Wines, 159.
Power, J. L., Mississippi, 13.
Power, T. C., Montana, 13.
Poors, D., & Sons, Oil cloths, 119.
Powders & Weightman, Chemicals, 101.
Powhattan Mills, Muslins, 116.
Powie, F., Leaf tobacco, 170.
Poydeard, St., Silk, 106.
Pozoblanco, Corporation of, Flannels, 275.
Pozoritta, Chief Mountain & Mining Administration, Pyroslag, 19.
Pozuto & Canto, F., Apparatus, 278.
Practical Technological Inst., Collection, 372.
Prado, M., Towel, 280.
Pradelouengo Province, Flannels, 274.
Prachter Bros. & Co., Corkware, 2.6.
Prahan, Town Council of, Photographs, 162.
Prakke, J. E. & H., Beltling, 361.
Pratt, A., Dyed wool, 255.
Prats, Willow & Sons, 162.
Pratt, C., Clay, 73; Pottery, 188.
Pratt, Chas., & Co., Petroleum, 103.
Pratt, D. G., Ivory goods, 127.
Pratt, J. T., & Co., 137.
Pratt, Mrs., Brushes, 250.
Pratt, Read, & Co., Combs, 332.
Pravortoff, G., Umbrellas, 318.
Pray Bros., Baggy, 381.
Prentice, J., Instruments, 329.
Preparatory School, Wax, 268; Botany, 269.
Presbyterian Board of Publication, Books, 326.
Prescott, G. S., Utah, 14.
President of the Women’s Catholic Association, Church ornaments, 277.
Preston, J. E., Texas, 14.
Preston & Merrill, Yeast, 102; Boxes, 143.
Prereta, Pedro, Extract of coffee, 262.
Prévézé, Government of, Dishes, 293; Carpet, 296; Cedars, 307.
Price & Browne, Wool, 168.
Price, J. C., & Bros., Bottles, 146.
Price, Jennings, Kentucky, 12.
Price’s Patent Candle Co., Candles, 144.
Priest, W., Wool, 171.
Prieto, F., Fabric, 281.
Prime, F., Jr., Judge, Gr. L., 15.
Prince, Franklin, & Bullock, E. L., Model, 60.
Prindle, F. C., Drawings, 335.
Prindle, G. H., Muffs, 124.
Prins, M., Carpets, 260.
Prison, Director of, Rugs, 220.
Private Blind Asylum, Statutes, 254.
Probst, Gottfr., Toys, 205.
Prchoska, F., Pomades, 207.
Proprietors Queensland Journals, Papers, 179.
Prosser, W. F., Alternate, 9.
Prostes, H., Journals, 360.
Providence College, Wools, 342.
Providence Forge Co., Iron wheels, 77.
Providence Franklin Society, Minerals, 47.
Providence Gas Burner Co., Stoves, 114.
Providence Tool Co., Rifles, etc., 134.

Provincial Commission, Stalactites, 87; Calcined bone, 270; Basket, 277; Paper, 278.
Provincial Convent, Cloth, 276.
Pruckner, D., Toys, 205.
Prugar, E., Soap, 286.
Proux, Pierre, Chemicals, 104.
Priboram & Co., Adrianople red, 207.
Public Comfort, Dept. of, Stationery, 336.
Public Education, Dept. of, Books, 344.
Public Institute for the Deaf, Dumb, and Blind, Pupils’ work, 362.
Public Instruction Board, Books, 266.
Public Instruction, Ministry of, Maps, etc., 277.
Public Welfare, Society for Promoting the, Reports, 357.
Public Works, Dept. of, Sketch, 267; Yarns, 286; Shoes, 288; Hardware, 289; Plans, 345, 357.
Public Works Office, Drawings, 367.
Publishers, Printers’, & Stationers’ Club, 344.
Pucci, Noncedent Ales, Olive oil, 231.
Puebla, City of, Silks, 265.
Puebla, State Government of, Woods, 267; Sugar, skins, 268.
Puerta, Gabriel de la, Emetic tartar, 270.
Puerto, J., Medicine, 255.
Puig, Felipe, Salt, 91.
Puja, Town of, Towels, 263; Cigars, 264.
Pujol, L., Hair feathers, 265.
Pujol, Nicanor, Iron ore, 83.
Pullman’s Palace Car Co., Model, 327; Car, 262.
Pulita, Mineral Water Dir., Water, 76.
Pulvermacher Galvanic Co., Batteries, 331.
Pulvermacher, I. L., Instruments, 153.
Purdy, J., Guns, 152.
Pusey, Jones, & Co., Iron work, 59.
Pusey, P., Minnesota, 13.
Putnam, G. P., & Sons, Books, 266.

Q.
Quaker City Organ Co., Organs, 333.
Quebec Advisory Board, Lime, 72.
Quebrahulla Company, Minerals, 86.
Queensland, Commissioners for, Views, 179.
Queensland, Govt. of, Ores, 67; Saddlery, 179.
Queensland Smelting & Assaying Co., Tin, 67.
Queirel, W., Dep’t Solution, 255.
Queiroz, G. J. de, Statistics, 269.
Queiroz, José de Sequeira Pinto, Raw silk, 256.
Quesada & Garcia, Soap, 271.
Quesnal, Sheriff, Lime, 72.
Quiamson, L., Fabrics, 262.
Quick, H. C., Wines, 168.
Quigley, Albert, Wool, 327.
Quigley, W. E., Horseshoes, 141.
Quije, J., Cotton goods, 265.
Quinn, H. S., Mats, 161.
Quinn, P. T., New Jersey, 13.
Quint, S. H., & Son, Stencils, 137.
Quintana, Juan de, Sand, 277.

R.
Raccoon Furnace, Ores, 49.
Radieri Bros., Flannel, 233.
Radiguet, Toys, 198; Mirrors, 345.
Raff, G., Rum, 180.
Rosewood Mine, Coal, 67.
Rosier, J., Boots and shoes, 161.
Rudolf, J., Hats, Gr. XXIII, 18.
Rosipiglos, Prince Clemente, Olive oil, 231.
Rosquellas, J., Medicines, 255.
Ross, A., Petroleum, 63; Odometer, 342.
Ross, John L., Cotton goods, 117.
Ross, K. D., Wines, 168.
Ross, W. J., Building, 378.
Ross, L., Periodical, 368.
Rosselli, Del Turro, Olive oil, 231.
Rossi, A., Idaho, 12.
Rossi, L. C., Soaps, 232.
Rossi, T., Wheat, 163.
Rossi, L., Cav. & Deses, 235.
Rossi & Stock Co., Porcelain, 225.
Rotali, F., Olive oil, 232.
Roth, F., Gloves, 209.
Roth, J., Jewelry, 204.
Roth, M., Maps, 36.
Roth, Win., Judge, Gr. XX, 18.
Rothenbach, Gas works, 336.
Rothschild, Bros. & Gutman, Shirts, 125.
Rothschild, J., Books, 344.
Rouault, Ch., 192,
Rouche, Skins, 311.
Rouleaux du Gage, M., Judge, Gr. XI, 17.
Roure, B., Son, Materials for perfumery, 193.
Rous, E., Inkstand, 188.
Roussel, E.,Fabrics, 195.
Roussio, T., Ochre, 292.
 Routledge, Wm., Coal, 71.
Roux, Charles, Jr., Soaps, 192.
Roux, L., Heaters, 236.
Rowand, J. R., Apparatus, 136.
Rowland, B., & Co., Shovels, 137.
Rowland, Joseph, Jot, 105; Pad, 130.
Rowland, W. & H., Springs, 328.
Rowlands & Lewis, Tonics, 65.
Rowley, Wilson, & Co., Coal, etc., 63.
Rowney, George, & Co., Varnishes, 145.
Rowse, W., Carpet, Carpets, 122.
Roxo, Monteiro, & Lemos, Book, 366.
Roxo, Viuva de A., Hats, 287.
Roy, & Co., Mechanical chair, 188.
Royal Agricultural Society, Apparatus, 363.
Royal Carpet Manufactury, Hanging, 220.
Royal Economical Society, Yeast, Costumes, 362.
Royal Porcelain Manufactury, Bas-relief, 223.
Royal Porcelain Works, Porcelain, 202.
Royal Prussian & Ducal Brunswick Smelting Works, Ores, 75; Chemicals, 201.
Royal Salt Works, Salt, etc., 201.
Royal School of Art Needlework, 147.
Royal Society of Tasmania, Tables, 182.
Royal Staff, Denmark, The, Maps, 224.
Royal Swedish Commission, Figures, 228.
Royal Swedish Staff General, Maps, 363.
Royal War Office, Sweden, Arms, etc., 227.
Royo, Remegio, Wines, 268.
Rubaton, Ges. & Co., Carbonate of soda, 182.
Rubidge, C., Wool, 171.
Rubio Perez, Juan, Serpentine, 90; Syrups, 278.
Rubolti, C., Meter, 341.
Rubinaga, J. G., Wheat, 156.
Rudder, E. W., Linens, 127; Fibre, 159.
Rudolph & Walter, Butter, 336.
Rudy, C., Book, 344.
Ruh, Mrs. S., Furniture polish, 104.
Rue, T., Stencils, 138.
Rueda, Manuel, Iron, 89.
Ruedas y Pedraza, Soap, 271.
Ruffer & Co., Sheet zinc, 75; Chemicals, 201.
Rufioso, F., Hats, 278.
Rufus, F., Wilh., Account books, 205.
Rui & Tolon, White metal, 92.
Ruis & Co., Paper, 278.
Ruis, D., Book, 292.
Ruiu, Vincent F., Sandals, 276.
Rul, Miguel, Photographs, 269.
Rull, Miguel, Minerals, 86.
Rumi, G., Hats, 274.
Rumel, C. F., Leather goods, 129.
Rump, Chas., Leather goods, 129.
Runcorn Soap & Alkali Co., Soda, 144.
Rundell, Joseph B., Maps, 339.
Ruperto, Revolvers, 133.
Rusch, P. O., Furniture, 225.
Rush & Co., Oils, 103.
Rusk, T., H., Swing, 214.
Rusquet, Juan, Claret, 265.
Rusell, Grand Manan, Copper glance, 70.
Rusell, H. G., Car coupler, 382.
Rusell, J., Sleights, 381.
Rusell, J., Curry Co., Knives, 139.
Rusell, S., Clay, 73.
Rusell, T., Wool, 165.
Rusnell, W. W., Gold in quartz, 70.
Russell, J., Inkstand, 188.
Russian American India Rubber Co., 320.
Russian Navigation & Trade Co., Coal, 98.
Russo, C., Olive oil, 232.
Rusud, A., Heaters, Spanish fans, 230.
Rustem Effendi, Judge, Gr. IV., 16.
Rutherford, A., Wool, 165.
Rutland Marble Co., Marble, 53.
Rutledge, 165.
Ruyter, C. de, Carriages, 218.
Rycree, E. de, Brushes and pens, 218.
Ryder Bros., Maize, 158; Cotton, 159.
Ryker, W. Carpet, Terry, 152, Taps, 153.
Ryffel & Co., Silks, 212.
Ryn, J. H. van, Wines, 170.
Rzitha, F., Designs, 351.

S.

S. Joos de' El Rei Commission, Plaster, 82.
Saal, F. O., Model of larynx, 266.
Saavedra Ramirez, Alejo, Magnesia, 91.
Sabacheira, Parochial Board of, Limestone, 95.
Sabate, Brunet, Instruments, 92.
Sabato Bros., Beltng, 277.
Sabin, J., & Sons, Dictionary, 327.
Sabis, B., Foot rule, 342.
Sabro, I. C., Bitters, 224.
Sabur, G., Fancy articles, 254.
Sachse, F., & Son, Dress shirts, 123.
Sacken, Boetticher, Schmidt, & Ooss, Millinery, 320.
Sacquelen, F., Samples of stone, 77.
Sacré, L., Lace, 217.
Sado, J., Linens and towels, 273.
Saenz Martinez, J. B., Canes, 271.
Safarana, J., Canes, 252.
Safford, J. M., Tennessee, 14; Judge, Gr. I, 15.
Safonoff, S. A., Toys, 320.
Saffran Bolu, Morocco, 310.
Sagamore Mills, Printing cloths, 118.
Sagarmitas, G. Clay, 272.
Sage, F., Show cases, 147.
Sagoudjika, L., Gauze, 298.
Sahak Ousta, Woolen, 295.
Sahalim, Bachac, Honey, 312.
Sahibon, W., Maps, 363.
Said Effendi, Carpets, 296.
INDEX.

Sleigh, W., Judge, Gr. VI., 16.
Skeilhington, S., Whip lashes, 191.
Skelley, T., Bolts, 379.
Skelton, Tooke, & Co., Shirts, 189.
Skorniakoff, E., Wood, 300.
Skrivän, J., & Son, Hats, 209.
Skultana Stock Co., Copper, 73.
Slade Mills, Printing cloths, 132.
Slater, J., Judge, Gr. XVIII., 18.
Slater Cotton Co., Cotton goods, 116.
Slater & Perry, Boots and shoes, 189.
Slater, W. S., Cotton goods, 115.
Sloan, W. B., Ornaments, 328.
Sloter, Geo., & Co., Almanac, 179.
Smart, Dr., Gold, 68.
Smart, W., Oven, 133.
Snedley, Samuel L., Drawings, 335.
Smet, E. de, & Co., Thread, 216.
Smiley, T. J. L., California, 11.
Smirnoff, N., Felt, 317.
Smith, A. E., Axes, 379.
Smith, J. & Sons, Carpet Co., Carpet, 122.
Smith, Borthwick, Chronometers, 339.
Smith Bros., Engraving, vases, 106.
Smith & Campton, Furniture, 100.
Smith, David, Book, 338.
Smith, E. J., Desk, 112; Envelope, 130.
Smith, Edward, & Co., Varnishes, 105.
Smith & Eggle, Chairs, 140.
Smith, Esteban G., Petroleum, 263.
Smith, F. H., Judge, Gr. XXVII., 19.
Smith, Frederick, & Co., Iron, etc., 54.
Smith, G. J., Lino, 133.
Smith, G. S., Wine, 165.
Smith, Geo., Wheat, 163; Portable organ, 339.
Smith, H., Sleighs, 381.
Smith, H. H., Canadian goods, 189.
Smith, J., Bismuth, 68.
Smith, J. C., Illinois, 12; Minerals, 48.
Smith, J. L., Judge, Gr. III., 15; Maps, 321.
Smith & S., Tools, 153.
Smith & Son, Needles, 151; Sleigh, 321.
Smith, J. T., & Co., Buggies, 381.
Smith, J. W., Needles, 154.
Smith, J. Y., Rhode Island, 14.
Smith, J. Y., Sheeting, 116.
Smith, J. & Sons, Mahogany, 154.
Smith & Kaye, Bricks, 188.
Smith, Marshall L., Mineral paint, 105.
Smith, Mrs. K. T., Lace, 174.
Smith, S. H., Chairs, 143.
Smith & Sayre, Drawings, 335.
Smith & Son, Biscuits, 164.
Smith, W. B., Counter show-case, 109.
Smith, W. M., Ornaments, 143.
Smith, William, Fire arms, 133.
Smith & Wilby, Flannels, cotton, 189.
Smith, Wm., Peat, 71; Knives, 239.
Smith, Wm. Sooy, Engineering exhibits, 333.
Smithers, A. & Co., Soap, 161; Wax, 170.
Smithers, Mrs. G. H., Flowers, 128.
Smith's Homœopathic Pharmacy, Homœopathic preparations, 134.
Smits, C., Model, 360.
Smuts, L. G., Ornaments, 329.
Smuts, Miss G., Articles of flowers, 171.
Smyrna, Government of, Lignite, 96; Salt, 291; Towels, 295, 296, 297; Jalap, 334; Pickle, 296; Almonds, 307; Wheat, 308; Wax, 312; Wool, 314.
Smyth & Co., Stockings, 151.
Smyth & Pennington, Files, 138.
Smyth, R., Brouth, Maps, 65.
DEPT.'S I., II., III.—MAIN BUILDING.

Stroob, A., Gloves, 203.

Stroo, J. E., & Co., Iron, 55, 143.


Straw Hat Stock Co., Braided straw, 234.

Strazzara, Emma, Widow of Luca, Music, 305.

Street, H. M., Mississippi, 311.


Stricklinof, B., Shoes, 317.

Strembitzki, Central school of Technical Drawing, Drawings, etc., 372.

Strohmieier, & Co., Jewelry, 204.

Strom & De Plange, Marble, 53.

Strong, W., Mt. Pleasant, 13.

Strong, W. J., Finance, 10.

Strookoff, Furniture, 372.

Strow, W. C., Crucibles, etc., 54.


Struthers, W., & Sons, Marble, 53.

Stuart, D. W., Stove, 374.

Stuart, Peterson, & Co., Stoves, 375.

Stuart, Seymour C., Quartz, 64.

Stuibacher Bros., 250.

Stunzi, Sulz, & Sons, Silk, 213.

Sturgis Montserrat Co., Essences, 145.

Sturenegger & Rutz, Cravats, 213.

Successful Society, Chakopirita, 87.

Such, George, Clay, 161.

Suchard, H., Chocolate, 214.

Suchy, A., Gloves, 209.

Suesberger, David, Fluid extracts, 105.

Suez Canal Co., Maps, 345.

Suhr, W., Chemicals, 201.

Suiro-riyo, Charts, 248.

Sukiasian, Silk, 297; Coconuts, 314.

Suleiman, Salt, 201; Coffee grinders, 293; Receivers, 300; Files, 305; Steelyards, 371.

Suleiman, Agha, Pipe, 302.

Suleiman, Ichkedra, Pitch, 306.

Suleimaneyah, Government of Bromstone, 96; Beads, 302; Gum, 306; Barley, 208; Silk, 270; Copra, 270; Coconuts, 314.

Sulliman, J., Poor man's filter, 160.

Sulliman, J. D., Nevada, 13.

Sulzer Bros., Workmen's dwellings, 357.

Sumii, Z., Paint, 247.

Sunday, Silk, 246.

Sunday School Union, Books, 338.

Sundstrom, J. O., Ores, 78; Iron, 79; Nails, 228.

Sung Sung Kung, Furniture, 241; Embroideries, 242.

Supplivy, J. F., Pyrites, etc., 82; Chairs, etc., 253; Medals, 367.

Surhammers Iron Co., Iron, 79.

Suhoda & Villalonga, Chloride of soda, 270.

Surgical Clinic, Bandages, 205.

Suriany, A., Silver, 303; Scissors, 305.

Susse Brothers, Bronzes, 194, 199; Stationery, 198.

Sussex, Boot & Shoe Co., Boots and shoes, 189.


Suzuki, Y., Earthenware, 244.

Sutherland, A., Boots and shoes, 189.

Sutherland, G., 157.

Sutherland, J., Indiana, 12.

Sutherland, James, Coal, 71.

Sutro Bros., Braids, 123.

Sutter-Dörrig, R., Embroidery, 213.


Suzuki, Hiuyakuen, Pictures, 249.

Suzuki, M., Buttons, 247; Vase, 249.

Suzuki, Yo, Silks, 246.


Swanberg, C. E., Shoes, 226.

Svensson, A., Stuffed birds, etc., 362.


Swain, E., Sugar, 264.

Swaine & Adeney, Whips, 134.


Swallow & Ariell, Biscuits, 164.

Swannsa Tin Plate Co., Tin plates, 62.

Swasey, J. N., Billiard tables, 111; Chart, 327.

Swiss Iron Masters' Assoc., Minerals, 78.

Swedmark, G., Gloves, 226.


Sweetey, Thomas S., Photographs, 336.

Sweet, J. L., Microscopes, 339.

Swinkels, W., Yarns, 220.

Swiss Alpine Club, Annual reports, 354.

Swiss Confederation, Department of the Interior, Regulations, 356; Statistics, 357.

Swiss Confederation, Department of Railroads and Commerce, Statistics, 356.

Swiss Geodetic Com., Longitude, 354.

Swiss Historical Society, Catalogue, 354.

Swiss locomotive & Machine Works, Photographs, 356.

Swiss Manufacturing Co., Rifles, 213.

Swiss Meteorological Com., Observations, 354.

Swiss National Railway Co., Drawings, 356.

Swiss Northwest Rail Co., Plans, 356.

Swiss Reformatory, Statutes, 357.

Swiss Reformatory Institute, Report, 357.

Swiss Society for the Advancement of Natural Philosophy, Memoirs, 354.

Swiss Society of Architects and Engineers, Plans of roads and railways, 356.

Swiss Society for Instructing the Poor, Report, 357.

Swiss Society for Penitentiary Reform, Plans, 357.

Swiss Society for Promoting the Public Welfare, History, 357.

Swiss Statistical Society, Reports, 354.

Sydney Meat Preserving Co., Meats, 158.

Sykes, H., Annwels, 316.

Sykes, Josephine, & Co., Corsets, 150.

Symonett, Mrs. M., T. Free, 173.


Syrax, M., Wool, 312.

Syracuse Chamber of Commerce, Ropes, 235.

Syria, Government of, Salt, 201.

Syros, Government of, Lignite, 96.

Sytenko, John, Limestone, 38.

Tasfi, John, Brocade, 317.

Szczepansky, F., Boots, 317.

Szefel, T., Boots, 317.

T.

Taba, C., Bitters, 255.

Tabard, Benet, & Co., Silks, 196.

Tabouret & Paccuit, Shirts, 196.

Tabelewich, T. R. N., Light, 373.


Tackabury, J. N., Maps, 347.


Takai, G., Straw, 194.

Tadjiché, M., Opium, 304.

Teschler Bros., Photographs, 358.

Taft, R. C., Alternate, 9.

Takahashi, G., Bencor, 290.


Taglieb, Carl, Watch, 355.

Tahera, H., Carpet, 296.

Tahney, F., Arrowroot, 180.

Talbot, Govt't of, W.T. Co., Coal, 368; Honey, 312.

Tahir, O., Decanters, 292.

Talhenge, G., Grease, 315; Wax, 318.

Tao-Ho-Jo, Vase, 249.

Tahon, F., Plates, 199.

Tailors' Society, Clothing, 106; Dress, 265.

Tainsy, F., Mantelpieces, 216.

Taiyan, T., Tea sets, 245.
Travis, J. L., Brass, 378.
Trayser, Ph., & Co., Organs, 350.
Trayward, V., Scale, 215.
Trecy, J., & Co., Ale, 164.
Trebizond, Government of, Galena, 96.
Treo, P. A., Shells, 173.
Trefoisse & Co., Globes, 192.
Trell, Miguel del, Calamine, 87; Marble, 89; Gypsum, 91.
Trelor, Wm. A., Minerals, 83.
Tremblay, Chas., Conimicut, 54; Barrels, 143.
Tremont & Suffolk Mills, Flannels, 117.
Tremourot, N. J. & Bros., Utenisils, 216.
Trent Brothers, Chicory, 156.
Trentellite, Miss, Pants stuff, 295.
Tretin & Harvey, Plants Bellefroid, & Co., Marble, 90.
Tullathorne & Co., Thread, 149; Findings, 153.
Ullmann, J. F., Laces, 209.
Ullumi Ahmed, Brunstone, 97.
Ultra marine Works, Chemicals, 201.
Unorno, & Apparatus, 393.
Unger, G., Periodicals, 372.
Union County Mfg. Co., Wheels, 379.
Union Furnace, Ores, 49; Iron, 58.
Union Hardware Co., Skates, 138.
Union Iron Co., Ores, 50, Beams, 55; Model, 335.
Union Manuf. Co., Doeskins, 120; Hinges, 125; Wooden ware, 295.
Union Mercantile Co., Cotton goods, 253.
Union Metallic Cartridge Co., Shells, 133.
Union Mining Co., Coal, 51, 71; Bricks, 107.
Union Porcelain Works, Porcelain ware, 108.
Union Pottery & Quartz, 186.
Union Steel Screw Co., Steel, 141.
Union Stone Co., Articles in artificial stone, 56.
Union Wadding Co., Cotton wadding, 117.
United Cutters' Co., Gentlemen's goods, 196.
United Piano Makers, Pianos, 33.
United Railroads of Switzerland, Plans, 356.
United States Bunting Co., Bunting, etc., 120.
United States Cartridge Co., Cartridges, 133.
United States Central Commission, 9.
United States Corrugated Elbow Co., 56.
United States Corset Co., Corsets, 125.
United States Salicylic Acid Works, Acid, 102.
United States Soapstone Furnace Co., Furnace, 371.
United States Soapstone Mfg. Co., Steatite, 55; Gas tips, 115; Pensile, 170.
United States Spring Bed Co., Beds, 111.
United States Steel Shear Co., Shears, 139.
Université Laval, College work, 342.
Ungerer & Company, School, Work, 352.
Upham, Sall C., Extracts and perfumes, 105.
Urbina, M., Hampers, 277.
Urech, E., Embroidery, 213.
Urech, E., Embroidery, 213.
Uria & Pinilla, Stone, 91; Iron, 92.
Urmenate, José Tomás de, Wines, 262.
Ursula & Erasurzi, Copper ores, 85.
Ursmont, J. H., Hunts, 379.
Usher, R., Rhubarb, 153.
Usine Hassan, R., Chandelier, 293.
Uskup, Government of, Aluminous earth, 96; Stockings, 390; Bellows, 303; Wheat and 1865; Cotton, 373.
Usnik, H., Felts, 295.
Uson, A., Pipes, 281.
Usick, S., Car model, 382.
Utica Steam Cotton Mills, Sheetings, 117.
Utschneider & Jannez, Cement, 240.
Utsumi, K., Vises, 245.
Uxbridge Woolen Co., Cassimeres, 120.
Uyemura, S., Lacquered ware, 245.

VARGAS, Elias, Wines, 262.

VARIOUS Provinces, Direction of the Public Works of, Building materials, 95.

VARIOUS Towns, Benevolent Societies of, Min-
eral waters, 91.

VARIOUS Towns, Provincial Commissions of, Argil and clay, 91.

VASALI Borbo, Morocco, 310.

VASCONCELAS, Jacinta P., Raw silk, 286.

VASCONCELAS, Joas da Camara, Raw silk, 266.

VASEL, José F. P., Damask, 287.

VASKAPOLI, A., Sumac, 291.

VASQUEZ, Diego, Quicksilver ore, 88.

VASQUEZ, Guias Francisco, Oxide of tin, 92.

VASQUEZ, Lucrecio, Emeralds, 83.

VASQUEZ y Lopez, M., Peroxide of manganese, 88.

VASSIER, Mrs. V., Laces, 197.

VASSIL Postak, Cloth, 295.

VASSIS, V., Silk cloth, 298.

VASSILIEFF, J., Maps, 277.

VASSILIKI, Madame, Laces, 301.

VATTIER, J., Gauges, 138.

VAYCHER, L., Animal oil, 212.

VAUD, Ant., Public Works, Drawings, 356.

VAUDESOEUR, E., Society for Public Utility, Reports, 357.

VAUGHAN, W. R., Trusses, 135.

VAUTHIERS, M., Clothing, 196.

VAX, S. L., & Sons, 358.

VAELICKA, A., Gloves, 209.

VACCICHTI, C., Green-weed, 233.

VENDENIKOFF & MIKAIILOFF, Costumes, 318.

VEEDERS, F., Cloths, 272.

VEETMAN, J. A., Scafs, 220.

VEGA, Daniel de la Petrifacation, 83.

VEGA Grande, Count of, Oil, 271.

VEGETABLE Coal Co., Tin ingots, 64.

VEGELS, Scarfs, 218.


VELASCO, J., Lead bars, 92.

VELASQUEZ, Mrs. L., Embroidery, 266.

VELAZCO, J. J., Flour, 269.

VELHANOS, Clasing, Religious books, etc., 348.

VELHO, Agostoni F., and others, Ore, 94.

VELINGS & CO., Iron wire, 218.

VELoso, Pascal, Galena, 93.

VELTMAN, J. A., Jr., Scarfs, 220.

VELDY, Broocks, 218.

VENTURI, Luigi, Strings, 365.

VERA Bauton, Maria, Baskets, 280.


VERCHILLI y Marques, F., Sandals, 276.

VERDE-DELISLE Bros., Lace, 217.

VERDE-DELISLE & CO., Lace, 197.

VERDEU, L., Shirts, 276.

VERGNE & CHOSE Bros., Instruments, 199, 200.

VERGNIES, O. de, & Sitters, Lace, 217.

VERHAAR, A. T., Casts, 360.

VERIN, Corporation of, Mineral waters, 92.

VERROCY & VAN HUUSE, Dyos, 220.

VERSAILLES Plantation, Sugar, 175.

VERSÉ-SPELMANS, B., Leather, 218.


VESIN, PRIN, J., Clothing, 196.

VESI, Table, 292; Olive wood, 302; Desk furniture, 304.

VESUVIUS Furnace, Ore, 48; Pig iron, etc., 57.

VETTER, J., Wines, 164.

VIANNO, Antonio Martius, Plated shoes, 287.

VIANNA do Castello, Direction of the Public Works of, Building materials, 94.

VIARD, F., Perfumery, 193.

VICAT, Joseph H., Insect powder, 192.

VICE, J., Calphosphate, 218.

VIDEO, J. C., Cloth, 274.

VICO, V., Olives, 264.

VICTOR NAVARRO, P., Silks, 275.

VICTORIA, Advisory Board of, Indian goods, 342.

VICTORIA, Bank of, Notes, 341.

VICTORIA, Collection of minerals, 65.
INDEX.

Virginia, Commissioners for, Nuggets, 65, Crayons, 160; Silk cocoons, 161; Photographs, 162; Water fowl, 163; Cotton, 164; Fruits, 165; Music, 341.

Victoria, Educational Department of, 341.

Victoria Institute for Deaf or Blind Girls of the Canton of Bern, Report, 358.

Victoria, J. G., Earthenware, 284.

Victoria Ladies' Sericulture Co., Silk, 161.

Victoria, Sub-commission of the Dept. of, Pottery, 256.

Victoria, Surveyor-General of, Photography, 162; Maps, 341.

Victoria Asylum and School for the Blind, 161; P. 341.

Victoria Asylum for Deaf and Dumb, Photographs, 341.

Vidago Mineral Waters Co., Waters, 93.

Vidal, B., Cases, 281.

Vidal, J. M., Linens, 294; Silk, 297; Embroidery, 301; Old fire arms, 304.

Vidal, M. A., Ashes, 235.

Vidal, R., Handkerchief, 277.

Vigil, J., Leggings, 259.

Videla, R., Embroidery, 298.

Vie, Garnier, & Co., Pharmacy, 199.

Viego, I., Blankets, 274.

Vieira, C., Soap, 283.

Vienna, Building Association, Plans, 351.

Vienna, Municipality of, Photographs, 351.


Vignal, C., Refrigerator, 377.

Vigilier, C., Insulator, 331.

Vignon, A., Clocks, 345.

Vigon, Braulio, Coal, 83.

Vigors, F., Native weapons, 169; Skins, 170.

Viguer, Bosses, etc., 254.

Viguer, H., Shoes, 254.

Vila, G., Francisco, Tin ore, 89.

Vila Janez, Francisco, Tin, 92.

Vila & Son, Paper, 277.

Vilaret, Jose, Carbonic water, 91.

Villa, Cav. Prof. Ignazio, Maps, 365.

Villa del Rio, Corporation of, Cloaks, 275.

Villafañe, Tristan, Galena, 83.

Villa Franca, Baron of, Peat, 82.

Villagaljo, Prov. Com. of, Alobar, 90.

Villalba, Gregorio, Jet, 91.

Villalobos Brothers, Sulphate, 87; Lead, 92.

Villalón, E., Hair, 277.

Villalonga y Perez, Antonio, Tripoli, 91.

Villamartin, Corporation of, Japer, 90.

Villamorzo, T., Mats, 285.

Villa Villanen, C., Pigment, 280.

Villanova, Jose Genaro, Earth, 88.

Villar Cagide, Joaquin S. M. de Abades, Steatites, 91.

Villar, J., Pharmacetics, 271.

Villard & Co., Velvet, 256.

Villarmento Board of Public Works, Crystallized gypsum, 90.

Villarol, A., Various publications, 261.

Villastic & Prigott, J., Paper, 278.

Villeasante, F., Hats, 276.

Ville de Spa, Trophy furniture, 77.

Villen, J., Shoes, 276.


Villeroi & Boch, Tiles, 202.

Villiers, A. B. de, Wines, 171.


Villiers, Miss de, Articles of flowers, 171.

Vincenzi, P., Corks, 335.

Vinci, M., Shoes, 234.


Vineyards, Direction of the, Wines, 313.

Vinogradova, Mrs. Down, 317.

Vinton, C., Bath, 378.

Vinton Furnace, Ores, 49; Iron, 58.

Vinuesa, Corporation of, Chamomile, 278.

Viny, J., Salt, 283.


Virgili, Angelo, Olive oil, 231.


Virolet & Durlach, Oil cloths, 119.

Virtue & Yorston, Books, 277.


Vishnoff, J., & Sons, Papier-maché, 318.

Vissoka, Government of, 293; Cases, 303.

Vista Alegre Porcelain Mf., Porcelain, 284.


Vite, Francois, Leather goods, 205.

Vitigudino, Corporation of, Manta, 275.

Vitry Bros., Cutlery, 193.


Vlad & Asproz, R., Flags, 272.

Vo Chon, Vases, 245.

Voeltzkow, G. W., Jr., Picture frames, 202.

Voeltzkow, W., Picture frames, 202.

Vogel, C. W., Books, 348.


Vogel, H., Judge, Gr. XXVII., 19.


Vogel, Sir Julius, Handbook, 156.


Vollander & Son, Glass, 349.

Voisin, V. C., Fancy articles, 198.

Volante, Alessandro, Pamphlet, 363.

Vollart Bros. & Co., Cabinets, 273, 3.

Vollart, B., Furniture, 202.

Von Gruen, George, Assay, 111.

Volonia, Government of, Mineral water, 97; Soap, 291; Linen, 295; Pitch, 306; Maize, 308; Honey, 312; Wool, 314.

Volstedt, P. J., Preserves, 170.

Volta Vível, J., Fabrics, 275.

Volz-Bier, A., Jewelry, 204.

Von Bauer, O., Woolens, 208.

Von Baumhauer, E. H., Judge, Gr. IV., 16.

Von Harrach, Counts, Glass articles, 207.

Von Heyden, F., Chemicals, 201.

Vorster & Grieneberg, Chemicals, 201.

Vorster, R. H., Edge tools, 206.

Vosbien, J. S., Arizona, 11.

Vissi & Co., Manufactury, Yarns, 208.


Vossen Bros., Chemicals, 201.


Vowohi Asphalt Works, Mason blocks, 75.

Voyeikoff, D., Cloth, 317.

Vrana National High School, Work, 362.

Vrau & Co., Thread, 193.

Vrau & Co., Thread, 195.

Vreede-en Hoorn Planting, Sugar, 175.

Vriesendorf, H. M., Oils, 220.

Vte Mondova, Oils, 270.

Vuva Ferreira Campos, & Co., Gallons, 288.

Vulcan Match, Bag, Matches, 225.

Vulcanite Jewelry Co., Jewelry, 127.

Vyre, Robt. H., Beltin, 142.

W.

Wachsmuth, F. E., Pictures, 348.

Wada, Y., Indigo, 244.


Waddington, Wm., Brooms, 261.

Wade, J. M., Ornament on glass, 188.


Wadsworth Coal Co., Coal, 51.

Wagon, R. M., Chairs, 111; Rugs, 122; Fancy articles, 128.

Wage Kite, K., Vases, 244.

Wagenmann, G., Tapers, 207.

Wagner, Giffack & Co., Paints, 104.

Wagner Drug Milling Co., Refrigerators, 374.


Wagner, G. W., Leigh, 381.

Wagner, H., & Debes, C., Maps, etc., 348.

Wagner, W., & Co., 318.

Wagner, R., Plates, 348.

Wagner, R. von, Judge, Gr. III., 15.

Wagner & Starker, Ties, 202.

Wahl, Emil, Jewelry, 59.

Wahlsrom, S. F., Furniture, 225.
Wailehe Plantation, Sugars, 251.
Waimanalo Plantation, Rice, 251.
Wadick, J. G., Coal, 353.
Wakefield Earth Closet Co., 377.
Wakefield Rattan Co., Furniture, 110; Mats, 115, 143.
Walker & Sons, Almanac, 182.
Walker, W., Tents, 195.
Wallcott & Campbell, Shirtings, 116.
Wallheim, R., Gun, 156.
Walen, Joh., Locks, 227.
Wales, W., Photomicrographs, 339.
Walker, W., Soaps, 187.
Walker, R. R., Utah, 14.
Walker, N. U., Sewer pipe, etc., 107.
Walker, K. E., Gun, 156.
Walker, W., Traveling articles, 198.
Wallace, A. C., Canes, 173.
Wallace Bros., Roots, 134.
Wallace & Kiser, Patent, Articles, 127.
Wallace, S. J., Roofs, 378.
Wallenstedt, Fast Cotton Goods Mills, 212.
Wallgren, A. R., Clothing, 226.
Walting, H. T., Maps, 336.
Walls & Co., Sterling, 135.
Walis, Jno. G., Sulphate of antimony, 48;
Ballion, 55.
Wall's, Wm., Sons, Cordage, 142.
Wamsley & Depot Capt., 331.
Walker, Conrad, Straw hats, 213.
Walshaw, Wm., Yarns, 122.
Walter Heywood Chair Co., Chairs, 112.
Walton Bros., Latherns, 114.
Walton, E. S., & Co., Hardware, 140.
Walton, Maison, Bonnets, 126.
Wampanoag Mills, Printing cloths, 118.
Wampum Cement & Lime Co., Cement, 54.
Wamsutta Mills, Shirting, 116.
Wanaamaker & Brownings, 125.
Wanamaker, J., Finance, 11.
Wanamaker, John, & Co., Clothing, 125.
Wander, G., Malt, chops, 214.
Wandy, H., Stone, 73.
Wangaratta, Council of, Photographs, 162.
Wanskauk Co., Kerseys, 120.
War Dept. of Hawaii, Flag, 250.
War, Anthony, & Co., Silk thread, 150.
War & Co., Bear, 147.
War, L. B., Ore, 48; Iron, 57.
War, M. A., Wines, 264.
War, M., & Co., Leather, 151; Cards, 152.
War & Payne, Steel, 62; Tools, 153.
Warden, David, Kaelin, 64.
Warden & Oxnard, Petroleum, 103.
Warldaw, J., Yarns, 189.
Wardle, Dentistry, 136.
Warle, W. L., Dentists, 126.
Were, J. M., Feathers, 104.
Wearford, W., Kentucky, 12.
Waring, G. E., Dr., Judge, Gr. XXII., 18.
Warholmont, Dr., 380.
Warner Bros., Supporters, 125.
Warren, H. W., Mississippi, 13.
Warrenhelp Distillery Co., Whisky, 164.
Warrington Wire Rope Works, Wire ropes, 62.
Warrnambool, Statistics, 341.
Warsaw, Municipality of, Plate, 373.
Warpatrikoff Bros., Insect powder, 210.
Warwick, R. C., Coal, 535.
Warwick, Wm., Books, 189.
Washbourn, W. E., Lead ore, 63.
Washington Mills, Worsted cloths, 121.
Wasikill, Cloth, 294.
Wason & Morton Co., Cars, 382.
Wasson, J., Arizona, 11.
Watanabe, S., Cloth, 245.
Watch-Makers' Union, Watches, 354.
Watcombe Terra-Cotta Co., Statuettes, 145.
Waterbury Brass Co., Brass, 59.
Waterbury Button Co., Buttons, 128.
Waterhouse, Thomas, Hops, 262.
Waterloo Yeast Co., Yeast, 102.
Waterlow, Sir S. H., Judge, Gr. XIII., 17.
Waterman Bros., Petroleum, 71; Coke, 187.
Waters, E., & Son, Barrels, 143.
Waters, H., & Sons, Gins, 328.
Waters, J., Arrowroot, 158.
Waterston, G., & Son, Wax, 152.
Watcaya, G., Tea sets, 245.
Watkins, W. B., Telegraph, 332.
Waterlily, Shirts, 277.
Watson, A., Fleeces, 165.
Watson, Brock, Fancy articles, 127.
Watson Bros., Flour, 158.
Watson, J. C., Judge, Gr. XXV., 19.
Watson & Sons, Furniture, 118.
Watson, J., & Son, Sales, 112.
Watson & Patterson, Hams, 164.
Watson, Richard H., Fotographs, 106.
Watson & Furniture, 147.
Watine, Ch., & Co., Draperies, 195.
Watts, E., Trunk, 375.
Watts & Sons, Chair, 116.
Waumbeek Co., Flannels, 121.
Wauregan Mills, Cotton goods, 116.
Wauters-de-Busscher, Cordials, 219.
Weare, Bros., & Co., Stove, 375.
Weare Bros., Galena, 71.
Weaver, J. B., Cologne, 106.
Weaver, M. H., Scales, 330.
Weaver & Pennock, Lavatory, 378.
Webe, Edward, & Sons, Hair cloth, 150.
Webb, Robert, Stove polish, etc., 54.
Webber, S., Judge, Gr. VIII., 16.
Weber, J. J., Diaries, etc., 348.
Weber, O. & Co., Jewelry, 204.
Webley Bros., Woolen goods, 155.
Webley, P., & Son, Revolvers, 152.
Webster, G., Bible, 342.
Webster Mills, Jute bagging, 118.
Webster, S., Feather tipper, 258.
Wedelberg, F., Compasises, etc., 364.
Weerth, de, & Co., Cloth, 203.
Weetamoe Mills, Printing cloths, 118.
Wegeler, J., Judge, Gr. IV., 16.
Wehrle, Em., & Co., Clocks, 349.
Weich, M. Horsemanship, 353.
Weidmann & Greppo, Silks, 173.
Weigel, T. O., Books, 348.
Weigle, M., Judge, Gr. IX., 16.
Weigert & Co., Furniture finishes, 203.
Weigt, T., Hats, 327.
Weincrack, Ignaz, Perfumery, 207.
Weintrob, Paul, Olive wood, 127.
Weir, S. F., Judge, Gr. XXVII., 19.
Weishaupt, C. M., & Sons, Jewelry, 204.
Weisflieg, Instruments, 349.
Wilhelm, A., Reflectors, 114.
Wilhelm, E., Models, 352.
Wilhelm, F., Chemicals, 201.
Wilkins, D. S., Florida, 12.
Wilkin, L., Hats, 317.
Wilkin, Robert, Rye, 156.
Wilkins, M., Oregon, 13.
Wilkins, J. F., Dancing, 174.
Wilkinson Mine, Cinnabar, 67.
Will & Fink, Tools, 138.
Wilton, J. M., Judge, Gr. XIII., 17.
Willemse, P., 103.
Willemsen, P., Cotton goods, etc., 203.
Willett, G., Photographs, 162.
Willett, S. T., Flannels, 189.
Williams, C., & Co., Ranges, 375.
Williams, C. E., Case, 250.
Williams, Chas., Marble work, 52.
Williams & Co., Stoves, etc., 317, 376.
Williams, F. E., Textile fabrics, 150.
Williams, J. B., & Co., Soaps, 103.
Williams, J. E., U. S. Commissioner, 9.
Williams, J. M., & Co., Stamped ware, 188.
Williams, J. S., Indiana, 12.
William of Embree & Melton Co., 52.
Williams, Miles, Varnishes, 145.
Williams, R. L., Car coupler, 382.
Williams, Page, & Co., Lamps, 114.
Williams & Powell, 152.
Williams, D. D., Chemicals, etc., 101.
Wills, Aug., L., Signals, 106; Shell fuse, 133.
Ice creep, 139; Rails, 142; Coupler, 334.
Williams, E. A., Lead pens, 104.
Willmatt, Almanacs, 179.
Wills, E. S., Tool, 138.
Wilson, A., Wool, 199; Cokes, 169.
Wilson, B. & Idaho, 103.
Wilson, B. O. & G., Medicinal herbs, 134.
Wilson, Geo., Bedstead, etc., 112; Wool, 183.
Wilson, Gilmour, & Co., Mantels, 188.
Wilson & Hughes, Stone, 53.
Wilson, J. G., Blinds, 378.
Wilson, J. H., Military goods, 125.
Wilt, H. G., Regalias, 142.
Wile, John, Can., 138; Fire nozzle, 141; Wool, 165; Soaps, 187.
Wilson, Jos. M., Bridge, 334.
Wilson & Miller, Mantels, 52.
Wilson, Sir S., Photographs, 162; Wool, 165.
Wilson, Thomas, Harness, 156.
Wilson, W., Limestone, 61; Fossils, 64.
Wilson, Walker, & Co., Forgings, 56.
Wilt, A. & Son, Sash, 378.
Wilte, C., Judge, Gr. VII., 16.
Wilson, G., C., Lacquering, 378.
Wilson, C., Cotton, Wrought iron spikes, 57.
Winchester Repeating Arms Co., Arms, 133.
Windover, C. S., Brougham, 153; Phaetons, 182.
Winter, C. F., Books, 349.
Wire & Screw Factory, Screws, 206.
Wirmond, E. E., Yellow argil, 82.
Wisconsin, State of, Minerals, 50; Educational exhibits, 372.
Wiskott, C. T., Labels, 205.
Wiss, J., Scissors, 139.
Wissen Mining & Smelting Co., Iron, 75.
Withers, N., J. F., Drawing, 335.
Witherbee, Sherman, & Co., Ore, 47.
Witty, Calvin, Field cannon, 134.
Wobanawa, M., Fans, 247.
Wöhler, E., Jewelry, 204.
Woldemar, W., Wire ware, 202.
Wolf, A., Chromes, 340.
Wolf Brothers & Keech, Oils, 106.
Wolf, M., Text books, 372.
Wolf, S. M., Shoes, 204.
Wolf, C. H., Judge, Gr. VIII., 16.
Wolf, F., Cotton and mixed goods, 203.
Wolf, F., & Son, Chemicals, 201.
Wolf, F. A., & Son, Pharmacy, 205.
Wolf, R. & E., Cloth, 203.
Wolle, A. & C., Glue, 262.
Woller, Fr. E., Cotton hosiery, 204.
Women's Labor, Society for the Encouragement of, etc., 318.
Wong Go, Rice, 251.
Wood Bros., Drain tiles, 107; Wagons, 380.
Wood & Haslam, Yarn and cloths, 122.
Wood & Ivory, Bricks, 145.
Wood & Lyons, Buggies, etc., 383.
Wood, Morrell, & Co., Cassimères, 120.
Wood, N. A., Clavican blind, 188.
Wood, W. D., Wheat, 156.
Wood, Wm., Model, 336.
Wood, Wm., & Co., Cottonades, 118; Suitings, 122; Suits, 306.
Woodburn Sarven Wheel Co., Wheels, 380.
Woodcock, F., Porcelain, 193.
Woodfield, W., & Sons, Needles, 151.
Woodruff, John, & Sons, 130.
Woodruff, Jonah, Silver model, 337.
Woodruff, W. E., Jr., Arkansas, 11.
Woods, Thorwood, Co., White ware, 139.
Woodstock Iron Co., Ores, 50; Iron, 56.
Woodward, W. W., Carving, 110.
Woodward, T. W., Quarry, 105.
Woodworth, J. L., Cotton yarns, 189.
Woolworth, J., Handles, 379.
Woon, R. W., Paddles, 156.
Wooton Desk Co., Desks, 141.
Worcester Corset Co., Corsets, 125.
Working Home for the Blind, Baskets, 362.
Working Men Benevolent Asso., Straw, 234.
Working, H., Clay, 339.
Workmen's Artisans' School, Drawings, 360.
Workmen's Society, Drawings, 360.
Workshop for Making & Repairing Nautical Instruments, Lamps, 373.
Workshop of the Direction of the Baltic Lighthouses, Lamps, 373.
Worsley, T., & Co., Soaps, etc., 106.
Worsted Spinning Yarns, 203.
Wortendyke Mfg. Co., Lamp wicks, 118.
Worthington & Co., Polish marble, 72.
Worthington & Sons, Stone, 53.
Worombo Mfg. Co., Overcoatings, 120.
Wostenholm, C., & Son, Cutlery, 153.
Woulaham Cement Co., Cement, 61.
Woven Wire Mattress Co., Wire cloth, 115.
INDEX.


Wren, W. C., Model, 355.

Wrigglesworth, W. J., Wheels, 372.

Wright, Davenport & Co., Leather, 158.

Wright, E. W., Wine, 168.

Wright & Holdsworth, Soap, 144.

Wright, J. K., & Co., Inks and varnishes, 105.

Wright, J. P., Photographic views, 179.

Wright & Mansfield, Furniture, 147.

Wright, Payne, & Co., Jams, 164.

Wright, R. G. A., Toilet articles, 166.

Wright, R. W., Kansas, 12.

Wyatt, J., Paint, 265.

Wyndham, S., Wright, W. H., & Co., Carriage, 381.

Wyndham, W., Pits and muslins, 123.

Wyngley, Wm., & Co., Soap, 103.

Wu, Gouzes, 242.

Wythe, P. N., Machine Embroidery Estab., 213.

Wyhrer, L., Maps, 346.

Wulf, N., Paint, 315.

Wulf, H. A., Drawings, 362.

Wunderlich, J. N., Table, 274.

Wunsch, A., Chair, 315.

Würthbain, G., Herbarium, 295.

Wurfflein, Wm., Rifles, 134.

Wurm, F., Coconuts, 169.


Wurttemburg Felt Factory, Felt shabracks, 203.

Wurtz, H., Judge, Gr. II., 15.

Wurtz's, T., Successors, Chemicals, 201.

Wuste, F., Colors, 208; Coatings, 211.

Wüthenan, von, Chief Engineer of the Swiss Central Railway, Plans, 356.

Wyeth, John, & Bro., Drugs, etc., 102.

Wyndham, F. B., & Co., Chemicals, 144.

Wyndham, O., Wines, 159.

Wyndham, W., Wines, 159.

Wyoming Historical & Geological Society, Fossils, 47.

*Wyoming Valley Knitting Co., Hosiery, 123.

Wywodzef, Apparatus, 319.

X.

Cabreras Cotton Manufactory, Yarns, 285.

Y.

Tachimiee & Sonosnovski, Gun, 319.

Takovitch, John, Ore, 98.

Tale Lock Manufacturing Co., Locks, etc., 140; Anodes, 331.

Yamakishi, K., Cups, 245.

Yamamoto Kimu, Silk, 246.

Yamamoto, Y., Furniture, 245; Cages, 247; Images, 249.

Yamazaki Tosen, Picture, 249.


Yanaki, A., Coconuts, 314.

Yanaki, Box, 22; Coconuts, 314.

Yanaki, Kalviro, Skin, 310.

Yanaki, Michiho, Carpet, 296.

Yanaki, N., Wine, 313.

Yanaki, W., Basket, 292.


Yan, Suit, 299; Brandy, 313.

Yan, F., Woolens, 299.

Yan, O. A., Tobacco, 310.

Yan, P. A., Brandy, 313.

Yan, P., Olive oil, 291.

Yanina, Govt. of, Hemp, 295; Silk, 297.

Yañiz, Marbles, 99; Oil, 271.

Yarritu, Sons of, Soap, 271.

Yasymadji, M., Pillow, 294.

Yassin, H., Leather, 311.

Yates, Bennett, & Alien, Crockery ware, 108.


Yayas, F., Toys, 277.

Yazacoula, M., Broom, 305.

Ycabalcata & Garcia, Sugar, 268.

Ychrapalaki, H. N., Brandy, 313.

Yehara, T., Silk, 246.

Yehrapaladi, Hadji, Oil, 291.

Yiezaluz, Z., Vases, 245.

Yielsi-Kiyuki, Statistics, 244.

Yekahim, H., Silk, 297.

Yeki-teli-riyo, Post-office map, 248.

Yellowley, J. H., Mississipi, 13.

Yen Ah Tung, Wax, 314.

Yeomans, C. E., Massachusetts, 12.

Yerington, H. M., Nevada, 13.

Yerkes & Plum, Tools, 138.

Yicara, C. P., Sa, Woolen, 253.

Yildiz-Ki, Government of, Erzey, 97.

Yillela, Inks, 292.

Yiotti, E., Pharmacies, 252.

Yildizli, Government of, Pitch, 306.

Yilmaz, Machine, Pulp, 309.

Ylo, Province of, Oil, 264.

Yoffie, Iron, 319.

Yomo Yasuusouke, Bronze, 249.

Yooogo Iron works, Ores, 98.

Yooogo Copper Works, Copper, 98.

Yorgski, Miss, Tapestry, 296.

Yorge, F., Statistics, 368.

Yogrhotadski, Vetich, 309.

York Manufacturing Co., Shirts, etc., 118.

York Street Flax Spinning Co., Sheettings, 145.

Yoshiba, K., Paper, 247.

Yoshida, S., Crapes, 246.

Yoshida, Y., Bowls, 245; Vases, 248.

Yost, T. A., Carriages, 381.

Youle, W., Hearses, 381.

Younas USekup, Spoons, 305.


Young, J. T., Iron, 12.

Young, James Kelly, Potash, 144.

Young, John, Grain, 64.

Young, Ladd, & Co., Perfumes, etc., 105; Atomizers, 108.

Young Men's Christian Association of North America, Map, pictures, 336.

Young Merchants' Union, Report, 358.

Young, Mrs., Moses, 250.

Young & Strange, Guns, 145.

Young, W. A., Sharpeners, 230.

Young, Wm. J., & Sons, Hand stamp, 130; Telescopes, 269.

Young, W. G., Limestone, 72.

Young's, Wm., Sons, Crockery, 107.

Youngstown Rolling Mill Co., Iron, 96.

Yousouf, Jujube, 357.

Yousouf, Seer, 345; Wool, 314.

Yousouf, C., Morocco, 310.

Yousouf, Funki, Cloth, 294.

Yousouf, H., Foulards, 298; Pots, 305.

Yousouf, Mamor, Beans, 309.

Yousouf, Tano, Beans, 309.

Yousouf Blouna, Yarn, 295.

Yoyanjo, Raw silks, 246.

Ypanema Iron Works, Ores, 81; Bar iron, 82.

Yassilovich, J. & M., Soap, 315.


Ytuarte, J., Music, 267.

Yucatan, State Gov. of, Shawls, 265; Woods, 267; Coffee, 268; Fibres, 269.

Yuson, F. Fabric, 214.

Yussep, T., Mastic, 313.

Yussuf Mocha, Poutargue, 304.

Yussuf Sarret, Raisins, 312.

Z.

Zalearl, J., Covers, 220.

Zabala, Ingus, Syrup, 270.

Zabal, Andes, Iron, 89.

Zacher, C., Photographs, 358.

Zacherh, J., Insect powder, 210; Sponges, 211.

Zadar, Covarruca, Wool, 314.

Zaelin & Muller, Silk waste, 212.

Zafemolbi, Government of, Raw silk, 297.

Zaferampolo, Govt. of, Saffron, 306; Prunes, 312.
DEPT.'S I., II., III.—MAIN BUILDING.

Zaferembolo, Inkstand, 304.
Zaferembolo Orphan School, Cloth, 295.
Zaframboix, Govt. of, Cups, 293.
Zaha, M., Shawls, 296.
Zahedji Gotcha, Gloves, 299.
Zaharidji Nocha, Gaiters, 300.
Zahari, Distillery of, Brandy, 313.
Zähner & Schliess, Edgings, 213.
Zaitzevski, Pottery, 315.
Zalaffi, Iron work, 235.
Zapata, M., Soap, 271.
Zamorano, C., Furniture, 277.
Zamora, L., Matches, 266.
Zambrano, F., Instruments, 301.
Zalaffi, Scrap, 347.
Zaitzevski, Dolls, 277.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Silk, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, H., Hat, 313.
Zambrano, Baskets, 265.
Zambrano, Beeswax, 278.
Zama, R., Hat, 313.
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of the

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INTERNATIONAL EXHIBITION.
1876
Official Catalogue.

PART II.
ART GALLERY, ANNEXES, AND OUTDOOR WORKS OF ART.

DEPARTMENT IV.—ART.

REVISED EDITION.

PHILADELPHIA:
Published for the Centennial Catalogue Company
By JOHN R. NAGLE AND COMPANY.
1876.
# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Buildings and Special Exhibits</td>
<td>6</td>
</tr>
<tr>
<td>Subject Index, National Exhibits</td>
<td>8</td>
</tr>
<tr>
<td>The Memorial Hall and Annex</td>
<td>9</td>
</tr>
<tr>
<td>Synopsis of the Classification</td>
<td>12</td>
</tr>
<tr>
<td>Classification of the Department of Art</td>
<td>13</td>
</tr>
<tr>
<td>Catalogue of the Department of Art</td>
<td>17</td>
</tr>
<tr>
<td>Photographic Exhibition Building</td>
<td>137</td>
</tr>
<tr>
<td>Out-Door Works of Art</td>
<td>146</td>
</tr>
<tr>
<td>Index to Exhibitors</td>
<td>151</td>
</tr>
</tbody>
</table>
### Buildings South of the Avenue of the Republic.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Main Exhibition Building,</td>
<td>I.</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>Machinery Hall</td>
<td>III.</td>
<td>9</td>
</tr>
<tr>
<td>3.</td>
<td>Machine Shop</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>4.</td>
<td>American Boiler House</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>5.</td>
<td>Corliss Boiler House</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>6.</td>
<td>British Boiler House</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>7.</td>
<td>Shoe and Leather Exhibition Building,</td>
<td>III.</td>
<td>105</td>
</tr>
<tr>
<td>8.</td>
<td>Office Centennial Board of Finance,</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>9.</td>
<td>Office U. S. Centennial Commission</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>10.</td>
<td>Centennial National Bank</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>11.</td>
<td>Weimer Machine Works</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>12.</td>
<td>Bartholdi Fountain</td>
<td>III.</td>
<td>146</td>
</tr>
<tr>
<td>13.</td>
<td>Catholic Total Abstinence Union Fountain</td>
<td>III.</td>
<td>146</td>
</tr>
<tr>
<td>15.</td>
<td>Gillender &amp; Sons, Glassware Manufacturing</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>16.</td>
<td>Camp of West Point Cadets</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>17.</td>
<td>Iron Pipe</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>18.</td>
<td>Liberty Stove Works</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>19.</td>
<td>Annex, Saw Mill</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>20.</td>
<td>Boiler House</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>21.</td>
<td>Railway Engine House</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>22.</td>
<td>St. Cecilia Organs</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>23.</td>
<td>Automatic Railway</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>24.</td>
<td>Monument—American Soldier</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>25.</td>
<td>Gunpowder Pile-Driven</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>27.</td>
<td>West End Railway Offices</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>28.</td>
<td>Pneumatic Tubes</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>29.</td>
<td>New England Granite Co.'s Exhibit</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>30.</td>
<td>Railroad Crossings</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>31.</td>
<td>State of Nevada Quartz Mill</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>32.</td>
<td>Store House</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>33.</td>
<td>Friction Drum</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>34.</td>
<td>Stokes &amp; Parrish, U.S. Hoisting Machine</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>35.</td>
<td>Chilean Amalgamating Machinery</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>36.</td>
<td>Campbell Printing Press</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>37.</td>
<td>Old Locomotive and Car</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>38.</td>
<td>Car House</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>39.</td>
<td>Police Station</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>40.</td>
<td>Avellir Paint Co.</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>41.</td>
<td>Centennial Catalogue Co.</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>42.</td>
<td>Stokes &amp; Parrish, Boiler House</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>43.</td>
<td>Ehret's Waterproof Roofing</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>44.</td>
<td>Tombstones</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>45.</td>
<td>Terra Cotta Pipe</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>46.</td>
<td>Mineral Annex, 1 and 2</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>47.</td>
<td>Fireproof Ventilated Buildings</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>48.</td>
<td>Swings</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>49.</td>
<td>Ornamental Stone Work</td>
<td>III.</td>
<td>122</td>
</tr>
</tbody>
</table>

### Buildings North of the Avenue of the Republic, and West of Belmont Av.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.</td>
<td>United States Government Building</td>
<td>III.</td>
<td>73</td>
</tr>
<tr>
<td>51½</td>
<td>Bartholdi Electric Light</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>52.</td>
<td>United States Hospital</td>
<td>III.</td>
<td>73</td>
</tr>
<tr>
<td>53½</td>
<td>Howe Monument</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>54.</td>
<td>United States Hospital Tent</td>
<td>III.</td>
<td>73</td>
</tr>
<tr>
<td>55½</td>
<td>Jerusalem Bazaar</td>
<td>III.</td>
<td>122</td>
</tr>
<tr>
<td>56.</td>
<td>United States Laboratory</td>
<td>III.</td>
<td>73</td>
</tr>
<tr>
<td>57½</td>
<td>Office Philadelphia &quot;Times,&quot;</td>
<td>III.</td>
<td>123</td>
</tr>
<tr>
<td>58.</td>
<td>Pennsylvania State Building</td>
<td>III.</td>
<td>123</td>
</tr>
<tr>
<td>59½</td>
<td>Hungarian Wine Pavilion</td>
<td>III.</td>
<td>123</td>
</tr>
<tr>
<td>60.</td>
<td>Ohio State Building</td>
<td>III.</td>
<td>123</td>
</tr>
<tr>
<td>61½</td>
<td>Police Station</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>62.</td>
<td>Indiana State Building</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>63½</td>
<td>Sponge Fishers of Turkey</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>64.</td>
<td>Illinois State Building</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>65½</td>
<td>Bethlehem Bazaar</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>66.</td>
<td>Wisconsin State Building</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>67½</td>
<td>Fog Horn and Bell</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>68.</td>
<td>Michigan State Building</td>
<td>III.</td>
<td>124</td>
</tr>
<tr>
<td>65.</td>
<td>New Hampshire State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>69.</td>
<td>Connecticut State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>70.</td>
<td>Massachusetts State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>71.</td>
<td>Delaware State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>72.</td>
<td>Maryland State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>73.</td>
<td>Arkansas State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>74.</td>
<td>Japanese Dwelling</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>75.</td>
<td>West Virginia State Building</td>
<td>III.</td>
<td>125</td>
</tr>
<tr>
<td>76.</td>
<td>Canadian Log House</td>
<td>IV.</td>
<td>134</td>
</tr>
<tr>
<td>77.</td>
<td>Missouri State Building</td>
<td>III.</td>
<td>130</td>
</tr>
<tr>
<td>78.</td>
<td>British Government Building</td>
<td>III.</td>
<td>130</td>
</tr>
<tr>
<td>79.</td>
<td>British Government Building</td>
<td>III.</td>
<td>130</td>
</tr>
<tr>
<td>80.</td>
<td>British Government Building</td>
<td>III.</td>
<td>130</td>
</tr>
<tr>
<td>81.</td>
<td>New York State Building</td>
<td>III.</td>
<td>130</td>
</tr>
<tr>
<td>82.</td>
<td>Lénard's Relief Plans, Paris,</td>
<td>III.</td>
<td>130</td>
</tr>
<tr>
<td>83.</td>
<td>Jerusalem, Italy, etc., Popcorn Stand</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>84.</td>
<td>Cigar Stand</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>85.</td>
<td>Soda Water Stand</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>86.</td>
<td>Tunisian Café and Bazaar</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>87.</td>
<td>Columbus Monument</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>88.</td>
<td>Drinking Fountains</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>89.</td>
<td>Restaurant &quot;Trois Frères-Provençaux,&quot;</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>90.</td>
<td>Office New York &quot;Tribune,&quot;</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>91.</td>
<td>World's Ticket Office, Cook, Son, Jenkins</td>
<td>III.</td>
<td>131</td>
</tr>
<tr>
<td>92.</td>
<td>Loiseau's Pressed Fuel Company</td>
<td>III.</td>
<td>132</td>
</tr>
<tr>
<td>93.</td>
<td>Spanish Government Buildings</td>
<td>III.</td>
<td>132</td>
</tr>
<tr>
<td>94.</td>
<td>United States Signal Office</td>
<td>III.</td>
<td>141</td>
</tr>
<tr>
<td>95.</td>
<td>Tennessee State Building</td>
<td>III.</td>
<td>141</td>
</tr>
<tr>
<td>96.</td>
<td>Mississippi State Building</td>
<td>III.</td>
<td>142</td>
</tr>
<tr>
<td>97.</td>
<td>George's Hill Restaurant</td>
<td>III.</td>
<td>142</td>
</tr>
<tr>
<td>98.</td>
<td>Bishop Allen Monument</td>
<td>III.</td>
<td>142</td>
</tr>
</tbody>
</table>
**BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.**

[Note.—Descriptions of the buildings will be found at the indicated part and page of the Official Catalogue.]

### Buildings North of the Avenue of the Republic, and West of Belmont Av.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>92.</td>
<td>Office of the Boston &quot;Advertiser&quot; and Boston &quot; Herald,&quot;</td>
</tr>
<tr>
<td>93.</td>
<td>Rowell’s Newspaper Exhibition Building, III. 142</td>
</tr>
<tr>
<td>94.</td>
<td>California State Building, III. 142</td>
</tr>
<tr>
<td>95.</td>
<td>Centennial Fire Patrol, No. 1, III. 142</td>
</tr>
<tr>
<td>96.</td>
<td>Turkish Café, III. 143</td>
</tr>
<tr>
<td>97.</td>
<td>Office Frank Leslie’s Publications, III. 143</td>
</tr>
<tr>
<td>98.</td>
<td>Iowa State Building, III. 143</td>
</tr>
<tr>
<td>99.</td>
<td>Rhode Island State Building, III. 143</td>
</tr>
<tr>
<td>100.</td>
<td>Vermont State Building, III. 143</td>
</tr>
</tbody>
</table>

### Buildings East of Belmont Avenue, and South of Fountain Avenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>101.</td>
<td>Art Gallery, II. 9</td>
</tr>
<tr>
<td>102.</td>
<td>Art Gallery Annex, II. 10</td>
</tr>
<tr>
<td>103.</td>
<td>B’nai B’rith Monument of Religious Liberty, III. 143</td>
</tr>
<tr>
<td>104.</td>
<td>Photographic Art Building, II. 137</td>
</tr>
<tr>
<td>105.</td>
<td>Vienna Bakery and Coffee House, III. 143</td>
</tr>
<tr>
<td>106.</td>
<td>Principal Annex to Main Exhibition Building, I. 374</td>
</tr>
<tr>
<td>107.</td>
<td>Swedish Government Building, III. 144</td>
</tr>
<tr>
<td>108.</td>
<td>Japanese Bazaar, III. 144</td>
</tr>
<tr>
<td>109.</td>
<td>The Judges’ Hall, III. 144</td>
</tr>
<tr>
<td>110.</td>
<td>Centennial Photographic Co., III. 144</td>
</tr>
<tr>
<td>111.</td>
<td>Sheet-metal Pavilion, III. 144</td>
</tr>
<tr>
<td>112.</td>
<td>German Government Building, III. 144</td>
</tr>
<tr>
<td>113.</td>
<td>Railroad Ticket Office, III. 144</td>
</tr>
<tr>
<td>114.</td>
<td>Office United States Centennial Commission, III. 145</td>
</tr>
<tr>
<td>115.</td>
<td>Brazilian Government Building, III. 145</td>
</tr>
<tr>
<td>116.</td>
<td>The Dairy, III. 145</td>
</tr>
<tr>
<td>117.</td>
<td>Restaurant “La Fayette,” III. 145</td>
</tr>
<tr>
<td>118.</td>
<td>House of Public Comfort, III. 145</td>
</tr>
<tr>
<td>119.</td>
<td>Empire Transportation Co., III. 145</td>
</tr>
<tr>
<td>120.</td>
<td>French Government Building, III. 145</td>
</tr>
<tr>
<td>121.</td>
<td>Centennial Fire Patrol, No. 2, III. 145</td>
</tr>
<tr>
<td>122.</td>
<td>Penn’a Educational Building, III. 146</td>
</tr>
<tr>
<td>123.</td>
<td>Telegraph Office, III. 147</td>
</tr>
<tr>
<td>124.</td>
<td>American Fusic Company, III. 147</td>
</tr>
<tr>
<td>125.</td>
<td>Klatnschek, Thomas, &amp; Stewart’s Glass Magazine, III. 147</td>
</tr>
<tr>
<td>126.</td>
<td>Moorish Villa, III. 147</td>
</tr>
<tr>
<td>127.</td>
<td>American Bible Society, III. 147</td>
</tr>
<tr>
<td>128.</td>
<td>Hunter’s Camp, III. 147</td>
</tr>
<tr>
<td>129.</td>
<td>Office Water Department, III. 148</td>
</tr>
<tr>
<td>130.</td>
<td>Soda Water Stands, III. 148</td>
</tr>
</tbody>
</table>

### Part Page

131. Cigar Stands, III. 148
132. Singer’s Sewing Machines, III. 148
133. Centennial Medical Department, III. 148
134. Portugal Government Building, III. 148
135. Bankers’ Building, III. 148
136. French Glass Exhibit, III. 149
137. Kindergarten, III. 149
138. Centennial Police Station, III. 149
139. Philadelphia City Building, III. 149
140. Music Pavilion, III. 149
141. Burial Caskets, III. 149
142. Perforated Metal Building, III. 149
143. Rubber Roofing, III. 149
144. Cuban Acclimatization Office, III. 149
145. Naval Group, III. 149
146. The Dying Lioness, III. 149

### Buildings East of Belmont Avenue, and North of Fountain Avenue.

151. Horticultural Hall, IV. 147
152. Agricultural Hall, IV. 9
153. The Women’s Pavilion, III. 85
154. The Women’s School House, III. 150
155. New Jersey State Building, III. 150
156. Restaurant of the South, III. 150
157. Kansas and Colorado State Building, III. 150
158. New England Farmer’s Home 100 years ago, and Modern Kitchen, III. 150
159. Great American Restaurant, III. 150
160. German Restaurant, III. 151
161. Tea and Coffee Press, III. 151
162. Butter and Cheese Factory, III. 151
163. Soda Water Stand, III. 151
164. Cigar Stand, III. 151
165. Farm Wagon Building, IV. 135
166. Pomological Building, IV. 135
167. Brewers’ Building, IV. 136
168. Model House Apiary, IV. 140
169. Guano Company, III. 151
170. Special Flower Exhibit Building, III. 170
171. Wind Mills, IV. 140
172. Office “Ohio Farmer,” IV. 140
173. Hay Press, III. 152
174. Police Station, III. 152
175. Elevated Railroad, III. 152
176. Boiler House, III. 152
177. Virginia State Building, III. 152
178. Protective Fire Apparatus, III. 152
179. Pop-corn Stands, III. 152
180. J. L. Mott Co. Fountain, III. 152
### SUBJECT INDEX, NATIONAL EXHIBITS.
#### DEPT. IV.—ART.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>21-39</td>
<td>17-54</td>
<td>25, 48</td>
<td>54</td>
<td>32</td>
<td>54</td>
<td>52, 53</td>
<td>57</td>
<td>55</td>
<td>137, 145</td>
<td>146</td>
</tr>
<tr>
<td>Great Britain</td>
<td>60</td>
<td>60</td>
<td>65</td>
<td>67</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>69</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>74-81</td>
<td>72-79</td>
<td>70</td>
<td>79</td>
<td>82</td>
<td>82</td>
<td>74, 76</td>
<td>73</td>
<td>143</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>85, 87</td>
<td>83</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>86</td>
<td>87</td>
<td>86, 143</td>
<td>148</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Austria</td>
<td>90-91</td>
<td>88, 91</td>
<td>90</td>
<td>91</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Switzerland</td>
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</tr>
<tr>
<td>Belgium</td>
<td>93-95</td>
<td>92-99</td>
<td>99</td>
<td>98</td>
<td>98</td>
<td>98</td>
<td>98</td>
<td>97</td>
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</tr>
<tr>
<td>Netherlands</td>
<td>103</td>
<td>100</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Denmark</td>
<td>104</td>
<td></td>
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<tr>
<td>Sweden</td>
<td>105</td>
<td>105</td>
<td>107</td>
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<td></td>
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<tr>
<td>Norway</td>
<td>108</td>
<td>108</td>
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<td></td>
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<tr>
<td>Italy</td>
<td>110-118</td>
<td>111-120</td>
<td></td>
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<tr>
<td>Brazil</td>
<td>121</td>
<td>121</td>
<td>121</td>
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<tr>
<td>Argentine Republic</td>
<td>122</td>
<td>122</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Mexico</td>
<td>124</td>
<td>123</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Spain</td>
<td>125</td>
<td>125, 127</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Russia</td>
<td>135</td>
<td>134</td>
<td>136</td>
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</tbody>
</table>

N. B.—The Art exhibit of the following countries is installed, wholly or in part, in the Main Building and catalogued in Part I., viz.:

- Great Britain
- New South Wales
- Queensland
- Victoria
- South Australia
- New Zealand
- Cape of Good Hope
- France
- Germany
- Austria
- Denmark
- Egypt
- China
- Italy
- Japan
- Hawaii
- Switzerland
- Argentine Republic
- Chili
- Spain
- Portugal
- Russia

The Spanish Government Building contains additional works of art.
The Women's Pavilion contains works of art from the following countries (Official Catalogue, Part III.), viz.:

- United States
- Great Britain
- Canada
- France
- Italy
- Sweden
- Norway
No. 101. ART GALLERY.

Size 365 by 210 feet.

Architect, H. J. SCHWARZMAN.
Contractor, R. J. DOBINS.

Iron work furnished by Edgemoor Iron Co., Pencoyd Rolling Mills, Kittredge Cornice Co.


Glass furnished by Benjamin H. Shoemaker, Ward & Co., and J. M. ALBERTSON.

Memorial Hall, built at a cost of $1,500,000, by the State of Pennsylvania and City of Philadelphia, is placed at the disposal of the Centennial Commission, to be used during the Exhibition as an Art Gallery, after which it is designed to make it the receptacle of an Industrial Art Museum, similar to the South Kensington Museum, at London. The design is modern renaissance, and the structure is fire-proof. It covers an acre and a half, and is 365 feet long, 210 feet wide, and 59 feet high, over a basement 12 feet high. A dome, rising 150 feet above the ground, surmounts the centre, capped by a colossal ball, from which rises the figure of Columbia. The main front of this building looks southward, displaying a main entrance in the centre consisting of three arched doorways, a pavilion on each end, and two arcades connecting the pavilions with the centre. The entrance is 70 feet wide, to which there is a rise of 13 steps. Each of the doorways is 40 feet high and 15 feet wide, opening into a hall. In each pavilion there is a window 12½ feet by 34 feet, eight in all, which will be used for the display of stained glass, glass paintings, etc. The arcades designed to screen the long walls of the galleries each consist of five groined arches, and form promenades looking outward over the grounds and inward over open gardens extending back to the main wall of the building. These garden-plots are each 90 feet by 36 feet, ornamented in the centre with fountains, and intended to display statuary. The rear or north front of the building is of the same general character as the main front, but, in place of the arcade, has a series of arched windows, twelve in number, with the entrance in the centre. Between the pavilions is the grand balcony, a promenade 275 feet long and 45 feet wide, elevated 40 feet above the ground, and overlooking to the northward the grounds of the Park. On each front of the buildings the entrances open into halls, 82 feet long, 60 feet wide, and 53 feet high. These, in turn, open into the centre hall, 83 feet square, the ceiling rising over it 80 feet in height. From the east and west sides of this central hall extend the galleries, each 98 feet long, 48 feet wide, and 35 feet high. These galleries have temporary divisions for the better display of paintings, and, with the central hall, form a grand hall 287 feet long and 83 feet wide, capable of comfortably accommodating 8000 persons. From the galleries
doorways open into two smaller galleries, 89 feet long and 28 feet wide. These open north and south into apartments connecting with the pavilion rooms, and forming two side-galleries 210 feet long. Along the whole length of the north side of the main galleries and central hall extends a corridor 14 feet wide, opening on its north line into a series of rooms, twenty-three in number, designed for studios and smaller exhibition rooms. All the galleries and the central hall are lighted from above; the pavilions and studios from the sides. The pavilions and central hall are designed especially for the exhibition of sculpture. This building gives 75,000 square feet of wall space for painting, and 20,000 square feet of floor space for statues, etc. The skylights throughout are double, the upper being of clear glass and the under of ground-glass.

The erection of the building was begun July 4, 1874, and finished March 1, 1876.

No. 102. ANNEX TO ART GALLERY.

Great as is the space afforded in the Memorial Hall, the applications from American and foreign artists proved so greatly in excess of its capacity as to require the erection of a much more spacious building. This, though only of brick, harmonizes architecturally with the Memorial Hall, and is to be permanent. It stands just in the rear of the original Art Gallery. It affords 60,000 square feet of wall space available for paintings, and contains 30 galleries, each 40 feet square, besides 4 galleries, each 100 feet long by 54 feet wide, and two transverse central corridors, 20 feet wide.
ART GALLERY ANNEX.

AVENUE OF THE REPUBLIC.

MEMORIAL HALL.—Ground Plan.

A. Italy.
B. United States, Gt. Britain, Germany, France, Italy.
C. United States.
D. Great Britain.
E. France.
F. Germany.
G. Austria.
H. Spain and Sweden.
I. France.
J. Germany.
K. United States, Norway.
L. Great Britain.
M. Russia.
N. Italy.
O. Belgium.
P. Great Britain.
Q. Great Britain.
R. Great Britain.
S. Great Britain.
T. Great Britain.
U. Italy.
V. Italy.
W. Italy.
X. United States.
Y. United States.
Z. United States.

ART GALLERY ANNEX.—Ground Plan.

1. Italy.
2. Italy.
3. Italy.
4. Italy.
5. Netherlands.
6. United States.
8. Denmark.
10. Argentine Republic.
11. Mexico.
12. United States.
15. Netherlands.
16. United States.
17. Italy.
18. United States.
19. Italy.
20. United States.
22. United States.
23. Belgium.
24. United States.
25. Spain.
27. Portugal.
28. United States.
29. Portugal.
30. Brazil.
31. Spain.
32. France.
33. Belgium.
34. France.
35. France.
36. France.
37. France.
38. France.
39. Belgium.
40. United States.
41. Belgium.
42. United States.
43. France.
44. United States.
45. France.
**SYNOPSIS OF THE CLASSIFICATION.**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEPARTMENTS</th>
<th>CLASSES</th>
<th>GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. MINING AND METALLURGY</td>
<td></td>
<td>100—109</td>
<td>Minerals, Ores, Stone, Mining Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110—119</td>
<td>Metallurgical Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120—129</td>
<td>Mining Engineering.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200—205</td>
<td>Chemical Manufactures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>206—216</td>
<td>Ceramics, Pottery, Porcelain, Glass, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>217—227</td>
<td>Furniture, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>228—234</td>
<td>Yarns and Woven Goods of Vegetable or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mineral Materials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>235—241</td>
<td>Woven and Felted Goods of Wool, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>242—249</td>
<td>Silk and Silk Fabrics.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>250—257</td>
<td>Clothing, Jewelry, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>258—264</td>
<td>Paper, Blank Books, Stationery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>265—271</td>
<td>Weapons, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>272—279</td>
<td>Medicine, Surgery, Prothesis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>280—284</td>
<td>Hardware, Edge Tools, Cutlery, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Metallic Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>285—291</td>
<td>Fabrics of Vegetable, Animal, or Mineral</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Materials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>292—296</td>
<td>Carriages, Vehicles, and Accessories.</td>
</tr>
<tr>
<td>MAIN BUILDING.</td>
<td></td>
<td>300—309</td>
<td>Educational Systems, Methods, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Libraries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>310—319</td>
<td>Institutions and Organizations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>320—329</td>
<td>Scientific and Philosophical Instruments</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>and Methods.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>330—339</td>
<td>Engineering, Architecture, Maps, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>340—349</td>
<td>Physical, Social, and Moral Condition of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Man.</td>
</tr>
<tr>
<td>III. EDUCATION AND</td>
<td></td>
<td>400—409</td>
<td>Sculpture.</td>
</tr>
<tr>
<td>SCIENCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>410—419</td>
<td>Painting.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>420—429</td>
<td>Engraving and Lithography.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>430—439</td>
<td>Photography.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>440—449</td>
<td>Industrial and Architectural Designs, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>450—459</td>
<td>Ceramic Decorations, Mosaics, etc.</td>
</tr>
<tr>
<td>ART GALLERY.</td>
<td></td>
<td>500—509</td>
<td>Machines, Tools, etc., of Mining, Chemistry,</td>
</tr>
<tr>
<td>IV. ART</td>
<td></td>
<td>510—519</td>
<td>etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>520—529</td>
<td>Machines and Tools for working Metal, Wood,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>and Stone.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>530—539</td>
<td>Machines and Implements of Spinning,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weaving, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>540—549</td>
<td>Machines, etc., used in Sewing, Making</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clothing, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>550—559</td>
<td>Machines for Printing, Making Books, Paper</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Working, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>560—569</td>
<td>Motors, Power Generators, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>570—579</td>
<td>Hydraulic and Pneumatic Apparatus.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>580—589</td>
<td>Railway Plant, Rolling Stock, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>590—599</td>
<td>Machinery used in Preparing Agricultural</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>600—609</td>
<td>Aerial, Pneumatic, and Water Transporta-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>tion.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>610—619</td>
<td>Machinery, and Apparatus, especially</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>adapted to the requirements of the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>620—629</td>
<td>Exhibition.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>630—639</td>
<td>Arboriculture and Forest Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>640—649</td>
<td>Pomology.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>650—659</td>
<td>Agricultural Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>660—669</td>
<td>Land Animals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>665—669</td>
<td>Marine Animals, Fish Culture, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Apparatus.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>670—679</td>
<td>Animal and Vegetable Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>680—689</td>
<td>Textile Substances of Vegetable or</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Animal origin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>690—699</td>
<td>Machines, Implements, and Processes of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Manufacture.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>700—709</td>
<td>Tillage and General Management.</td>
</tr>
<tr>
<td>VI. AGRICULTURE.</td>
<td></td>
<td>710—719</td>
<td>Ornamental Trees, Shrubs, and Flowers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>720—729</td>
<td>Hot Houses, Conservatories, Graperys.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>730—739</td>
<td>Garden Tools, Accessories of Gardening.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Garden Designing, Construction, and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Management.</td>
</tr>
<tr>
<td>AGRICULTURAL</td>
<td></td>
<td>600—609</td>
<td></td>
</tr>
<tr>
<td>BUILDING.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>610—619</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>620—629</td>
<td></td>
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<tr>
<td></td>
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<td>630—639</td>
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<tr>
<td></td>
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<td>640—649</td>
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<td></td>
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<td>650—659</td>
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<td></td>
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<td>660—669</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>665—669</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>670—679</td>
<td></td>
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<td></td>
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<td>680—689</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>690—699</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>700—709</td>
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<tr>
<td></td>
<td></td>
<td>710—719</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>720—729</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>730—739</td>
<td></td>
</tr>
</tbody>
</table>
CLASSIFICATION.

DEPARTMENT IV.—ART.

SCULPTURE.
CLASS 400.—Figures and groups in stone, metal, clay, or plaster.
CLASS 401.—Bas-reliefs, in stone or metal; electrotype copies.
CLASS 402.—Medals, pressed and engraved; electrotypes of medals.
CLASS 403.—Hammered and wrought work—repoussé and rehaussé work, embossed and engraved relief work.
CLASS 404.—Cameos, intaglios, engraved stones, dies, seals, etc.
CLASS 405.—Carvings in wood, ivory, and metal.

PAINTING.
CLASS 410.—Paintings in oil on canvas, panels, etc.
CLASS 411.—Water color pictures; aquarelles, miniatures, etc.
CLASS 412.—Frescoes, cartoons for frescoes, etc.
CLASS 413.—Painting with vitrifiable colors. Pictures on porcelain, enamel, and metal.

ENGRAVING AND LITHOGRAPHY.
CLASS 420.—Drawings with pen, pencil, or crayons.
CLASS 421.—Line engravings from steel, copper, or stone.
CLASS 422.—Wood engravings.
CLASS 423.—Lithographs, zincographs, etc.
CLASS 424.—Chromo-lithographs.

PHOTOGRAPHY.
CLASS 430.—Photographs on paper, metal, glass, wood, fabrics, or enamel surfaces.
CLASS 431.—Prints from photo-relief plates, carbon prints, etc.
CLASS 432.—Photo-lithographs, etc.
CLASS 433.—Photographic apparatus and supplies.

INDUSTRIAL AND ARCHITECTURAL DESIGNS, MODELS, AND DECORATIONS.
CLASS 440.—Industrial designs.
CLASS 441.—Architectural designs; studies and fragments, representations and projects of edifices; restorations from ruins and from documents.
CLASS 442.—Decoration of interiors of buildings.
CLASS 443.—Artistic hardware and trimmings, artistic castings, forged metal work for decoration, etc.

DECORATION WITH CERAMIC AND VITREOUS MATERIALS, MOSAIC AND INLAID WORK.
CLASS 450.—Mosaic and inlaid work in stone.
CLASS 451.—Mosaic and inlaid work in tiles, tessaræ, glass, etc.
CLASS 452.—Inlaid work in wood and metal, parquetry, tables, etc.
CLASS 453.—Stained glass.
CLASS 454.—Miscellaneous objects of art.
INDEX TO ADVERTISEMENTS.

<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burke, Edward and John</td>
<td>64</td>
</tr>
<tr>
<td>Brooke Hall Female Seminary</td>
<td>17</td>
</tr>
<tr>
<td>Brook, Jonas, &amp; Brothers</td>
<td>65</td>
</tr>
<tr>
<td>Blood, Wolfe, &amp; Co.</td>
<td>64</td>
</tr>
<tr>
<td>Drown, W. A., &amp; Co.</td>
<td>17</td>
</tr>
<tr>
<td>French Restaurant</td>
<td>120</td>
</tr>
<tr>
<td>Goode, Thomas, &amp; Co.</td>
<td>64</td>
</tr>
<tr>
<td>Haseltine Galleries</td>
<td>17</td>
</tr>
<tr>
<td>Lippincott, J. B., &amp; Co.</td>
<td>120</td>
</tr>
<tr>
<td>Longacre &amp; Co.</td>
<td>137</td>
</tr>
<tr>
<td>McGee, John G., &amp; Co.</td>
<td>120</td>
</tr>
<tr>
<td>Philadelphia Demokrat</td>
<td>120</td>
</tr>
<tr>
<td>Philadelphia Evening Chronicle</td>
<td>17</td>
</tr>
<tr>
<td>Pennsylvania Rail Road</td>
<td>124</td>
</tr>
<tr>
<td>Radway's, Dr., Medicines</td>
<td>136</td>
</tr>
<tr>
<td>The American Newspaper Union</td>
<td>125</td>
</tr>
<tr>
<td>The Sun Newspaper</td>
<td>121</td>
</tr>
<tr>
<td>Wilkins, Wm., &amp; Co.</td>
<td>120</td>
</tr>
<tr>
<td>West Philadelphia Passenger Railway Company</td>
<td>Second page of cover.</td>
</tr>
</tbody>
</table>
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[Works of Art marked with an asterisk (*) are for sale. Information may be obtained at the Art Bureau, Memorial Hall.]

(Memorial Hall, Central Gallery, West.)

'OIL PAINTINGS.'

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Story, G. H., New York</td>
<td>The Young Student.</td>
<td>David Groesbeck.</td>
</tr>
<tr>
<td>5</td>
<td>La Farge, John, New York</td>
<td>Bishop Berkeley's Rock, Newport.</td>
<td>Artist.</td>
</tr>
<tr>
<td>6</td>
<td>Townsend, Chas. E., New York</td>
<td>*Lion and Lioness.</td>
<td>Artist.</td>
</tr>
<tr>
<td>10</td>
<td>Bunner, A. F., Munich</td>
<td>*Bavarian Landscape.</td>
<td>Artist.</td>
</tr>
<tr>
<td>15</td>
<td>Miller, Charles H., New York</td>
<td>Sunset at Queen's, N. Y.</td>
<td>R. M. Olyphant.</td>
</tr>
<tr>
<td>16</td>
<td>Kentsett, J. F. (deceased), Narragansett Coast</td>
<td>N. Y.</td>
<td>Earle &amp; Sons.</td>
</tr>
<tr>
<td>21</td>
<td>Benson, Eugene, New York</td>
<td>Sirocco, Venice.</td>
<td>H. C. Fahnstock.</td>
</tr>
<tr>
<td>25</td>
<td>Bellows, A. F., New York</td>
<td>*Sunday in Devonshire</td>
<td></td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE</td>
<td>OWNER.</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>29</td>
<td>Conarroe, G. W., Philadelphia</td>
<td>Ethel.</td>
<td>Artist.</td>
</tr>
<tr>
<td>30</td>
<td>Audubon, J. J. (deceased)</td>
<td>Canada Otter.</td>
<td>Edward Harris.</td>
</tr>
<tr>
<td>31</td>
<td>Beeson, Miss E. L., Pittsburgh</td>
<td>*Ophelia.</td>
<td>Artist.</td>
</tr>
<tr>
<td>40</td>
<td>Johnson, David, New York</td>
<td>Scenery on the Housatonic.</td>
<td>Mrs. J. Bullard.</td>
</tr>
<tr>
<td>46</td>
<td>Perry, E. Wood, New York</td>
<td>Young Franklin.</td>
<td>Artist.</td>
</tr>
<tr>
<td>54</td>
<td>Thompson, A., Boston</td>
<td>*View near Honfleur, Normandy.</td>
<td>Artist.</td>
</tr>
<tr>
<td>55</td>
<td>Whittredge, W., New York</td>
<td>A Hundred Years Ago.</td>
<td>R. M. Olyphant.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>OWNER.</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------</td>
<td>-------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>66</td>
<td>Perry, E. Wood, New York</td>
<td>Kept In.</td>
<td>Artist.</td>
</tr>
<tr>
<td>77</td>
<td>Allston, Washington (deceased)</td>
<td>Portrait of himself when young</td>
<td>Mr. Kemble.</td>
</tr>
<tr>
<td>80</td>
<td>Morse, S. F. B. (deceased)</td>
<td>Portrait.</td>
<td>W. J. Hoppin.</td>
</tr>
<tr>
<td>82</td>
<td>Greene, E. D. E., New York</td>
<td>Ideal head.</td>
<td>Harvard University.</td>
</tr>
<tr>
<td>84</td>
<td>Morse, S. F. B. (deceased)</td>
<td>Portrait.</td>
<td>Harvard University.</td>
</tr>
<tr>
<td>87</td>
<td>Stuart, Gilbert (deceased)</td>
<td>Portrait—James Rivington.</td>
<td>N. Appleton.</td>
</tr>
<tr>
<td>89</td>
<td>Newton, Stuart (deceased)</td>
<td>The Importunate Author.</td>
<td>Mr. T. W. Storrows.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST</td>
<td>TITLE</td>
<td>OWNER</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------</td>
<td>--------------------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>97</td>
<td>Hubbard, R. W., New York</td>
<td>Glimpse of the Adirondacks.</td>
<td>R. M. Olyphant</td>
</tr>
<tr>
<td>98</td>
<td>Maynard, G. W., New York</td>
<td>*“1776.”</td>
<td>Artist.</td>
</tr>
<tr>
<td>99</td>
<td>Lawrie, Alex., New York</td>
<td>Autumn in the Hudson Highlands.</td>
<td>Henry Marks.</td>
</tr>
<tr>
<td>100</td>
<td>Johnson, David, New York</td>
<td>Scenery on the Housatonic.</td>
<td>L. A. Lanthier.</td>
</tr>
<tr>
<td>106</td>
<td>Machen, W. H., Toledo</td>
<td>Still Life—game.</td>
<td>Artist.</td>
</tr>
<tr>
<td>107</td>
<td>Granberry, Miss V., New York</td>
<td>*Spring Flowers.</td>
<td>Artist.</td>
</tr>
<tr>
<td>110</td>
<td>Gifford, R. Swain, New York</td>
<td>Boats at Boulah, on the Nile.</td>
<td>Artist.</td>
</tr>
<tr>
<td>111</td>
<td>Brenner, C. C., Louisville</td>
<td>Landscape.</td>
<td>Artist.</td>
</tr>
<tr>
<td>120</td>
<td>De Crano, F. F., Philadelphia</td>
<td>The Celestial Model.</td>
<td>Artist.</td>
</tr>
<tr>
<td>121</td>
<td>Cameron, Miss K., Paris</td>
<td>*Happy as a Queen.</td>
<td>Artist.</td>
</tr>
<tr>
<td>122</td>
<td>Wright, Geo., Philadelphia</td>
<td>*One too Many.</td>
<td>Artist.</td>
</tr>
<tr>
<td>131</td>
<td>Gignoux, R., New York</td>
<td>Spring.</td>
<td>T. Messenger.</td>
</tr>
<tr>
<td>132</td>
<td>Champney, J. W., Boston</td>
<td>“Your Good Health.”</td>
<td>T. Wiggleworth.</td>
</tr>
</tbody>
</table>
### UNITED STATES.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>133</td>
<td>Brown, J. H., Philadelphia</td>
<td>Case of miniatures on ivory.</td>
<td>Artist.</td>
</tr>
<tr>
<td>133a</td>
<td>Cooper, P. F., Philadelphia</td>
<td>*Madonna—on ivory.</td>
<td>Artist.</td>
</tr>
<tr>
<td>137</td>
<td>Morse, S. F. B. (deceased)</td>
<td>Portrait—Major Paulding.</td>
<td>New York City Hall</td>
</tr>
</tbody>
</table>

(Memorial Hall, Gallery C.)

### SCULPTURE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>139</td>
<td>Roberts, Howard, Philadelphia</td>
<td>The First Pose.</td>
<td>Artist.</td>
</tr>
<tr>
<td>140</td>
<td>Bailly, J. W., Philadelphia</td>
<td>*Spring.</td>
<td>Artist.</td>
</tr>
<tr>
<td>141</td>
<td>Connelly, P. F., Florence</td>
<td>*Honor arresting the Triumph of Death.</td>
<td>Artist.</td>
</tr>
<tr>
<td>142</td>
<td>Connelly, P. F., Florence</td>
<td>*Ophelia.</td>
<td>Artist.</td>
</tr>
</tbody>
</table>

### OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>143</td>
<td>Johnson, Eastman, New York</td>
<td>Catching the Bee.</td>
<td>Miss Jones.</td>
</tr>
<tr>
<td>147</td>
<td>Sully, Thomas (deceased)</td>
<td>Portrait—Miss Rosalie Sully.</td>
<td>Mrs. Darley.</td>
</tr>
<tr>
<td>151</td>
<td>Thompson, Harry I., New Haven</td>
<td>Portrait.</td>
<td>Artist.</td>
</tr>
<tr>
<td>152</td>
<td>Waugh, S. B., Philadelphia</td>
<td>General Grant.</td>
<td>Artist.</td>
</tr>
<tr>
<td>154</td>
<td>Page, Wm., New York</td>
<td>Shakspeare, after the Death-Mask.</td>
<td>Artist.</td>
</tr>
<tr>
<td>156</td>
<td>Waterman, M., Boston</td>
<td>*Gulliver in Lilliput.</td>
<td>Artist.</td>
</tr>
<tr>
<td>157</td>
<td>Morell, Mrs. I., Robinson, Paris</td>
<td>*First Battle of the Puritans, won by Miles Standish.</td>
<td>Artist.</td>
</tr>
<tr>
<td>159</td>
<td>Jones, H. Bolton, Baltimore</td>
<td>*The Ferry Inn.</td>
<td>Artist.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>OWNER.</td>
</tr>
<tr>
<td>-----</td>
<td>--------------------------</td>
<td>----------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>162</td>
<td>Thompson, H. I.,</td>
<td>Portrait.</td>
<td>Col. Juan Lewis.</td>
</tr>
<tr>
<td></td>
<td>New Haven,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philadelphia,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td>G. F. Gilman.</td>
</tr>
<tr>
<td>166</td>
<td>Beard, J. H.,</td>
<td>The Attorney and his Clients.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philadelphia,</td>
<td></td>
<td>Mr. Cheny.</td>
</tr>
<tr>
<td>169</td>
<td>Champney, J. W.,</td>
<td>* Don't touch !*</td>
<td>H. E. Nesby.</td>
</tr>
<tr>
<td></td>
<td>Boston,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philadelphia,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>172</td>
<td>Alexander, F.,</td>
<td>Portrait.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boston,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chicago,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Columbia, Pa.,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>175</td>
<td>Rosenthal, T. E.,</td>
<td>Elaine.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Munich,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>Williams, I. L.,</td>
<td>*View near Meriden, Connect.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Philadelphia,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>177</td>
<td>Homer, Winslow,</td>
<td>Snap the Whip.</td>
<td>J. H. Sherwood.</td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td>W. J. Peake.</td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>Hetzel, Geo.,</td>
<td>*Forest Scene in Pennsylvania.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Pittsburg,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. Y., and Hart, J. M.,</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>New York,</td>
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<td>New York,</td>
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<td>New York,</td>
<td></td>
<td>Smith Clift.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Francisco,</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>188</td>
<td>Richards, W. T.,</td>
<td>The Wissahickon.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Philadelphia,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boston,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>191</td>
<td>Clowes, Miss C. M.,</td>
<td>*Cattle at the Brook.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Poughkeepsie,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>192</td>
<td>Kollow, Miss M.,</td>
<td>Early Morning in the Mountains.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td>Anson P. Stokes.</td>
</tr>
<tr>
<td>194</td>
<td>Huntington, D.,</td>
<td>Sowing the Word.</td>
<td>George Whitney.</td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>195</td>
<td>Johnson, Eastman,</td>
<td>The Old Stage-Coach.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
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</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>OWNER.</td>
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<tr>
<td>199</td>
<td>Sully, Thomas (deceased),</td>
<td>Portrait—Mrs. T. Sully.</td>
<td>Miss Sully.</td>
</tr>
<tr>
<td>201</td>
<td>Whittredge, W., New York,</td>
<td>Twilight on the Shawangunk Mountains.</td>
<td>W. B. Smith.</td>
</tr>
<tr>
<td>204</td>
<td>Seligman, Mrs. E., Tarrytown, N.J.</td>
<td>Love and Pride.</td>
<td>Artist.</td>
</tr>
<tr>
<td>210</td>
<td>Cole, Thomas (deceased),</td>
<td>Kenilworth Castle.</td>
<td>J. T. Johnston.</td>
</tr>
<tr>
<td>221</td>
<td>Johnson, David, New York,</td>
<td>Old Man of the Mountain, Franconia Notch, N.H.</td>
<td>George Whitney.</td>
</tr>
<tr>
<td>223</td>
<td>Shattuck, A. D., New York,</td>
<td>Lake Champlain.</td>
<td>Artist.</td>
</tr>
<tr>
<td>229</td>
<td>Leutz, E. (deceased),</td>
<td>The Iconoclast.</td>
<td>C. S. Smith.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>OWNER.</td>
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<td>235</td>
<td>Hunt, William, Boston</td>
<td>Portrait.</td>
<td>Mr. Schlesinger.</td>
</tr>
<tr>
<td>239</td>
<td>Inman, Henry (deceased)</td>
<td>Hackett as Rip Van Winkle.</td>
<td>Miss C. C. Hackett.</td>
</tr>
<tr>
<td>244</td>
<td>Van Elten, K., New York</td>
<td>*Russell Falls, Adirondacks.</td>
<td>Artist.</td>
</tr>
<tr>
<td>245</td>
<td>Johnson, David, New York</td>
<td>*Brook study, Orange Co., N.Y.</td>
<td>Artist.</td>
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<td>247</td>
<td>Millet, F. D., Boston</td>
<td>*Turkish Water-Seller.</td>
<td>Artist.</td>
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<td>248</td>
<td>Heade, M. J., New York</td>
<td>*Off the California Coast.</td>
<td>Artist.</td>
</tr>
<tr>
<td>249</td>
<td>Moran, Peter, Philadelphia</td>
<td>Return of the Herd.</td>
<td>Artist.</td>
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<tr>
<td>254</td>
<td>Hicks, Thos., New York</td>
<td>Portrait—Dr. Gray.</td>
<td>Mrs. B. Knower.</td>
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<td>264</td>
<td>Eakins, Thomas, Philadelphia</td>
<td>Portrait—Dr. Rand.</td>
<td>Dr. Rand.</td>
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<tr>
<td>No.</td>
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<td>Owner</td>
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<tr>
<td>266</td>
<td>Lambdin, G. C., Philadelphia</td>
<td>Roscs.</td>
<td>Artist.</td>
</tr>
<tr>
<td>269</td>
<td>Markham, C. C., New York</td>
<td>My Grandmother (93 years old).</td>
<td>Artist.</td>
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</table>

(Annex, Gallery No. 16.)

**AMERICAN SOCIETY OF PAINTERS IN WATER COLORS, OF NEW YORK.**

<table>
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<th>No.</th>
<th>Artist</th>
<th>Title</th>
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<tbody>
<tr>
<td>274</td>
<td>Fenn, Harry, New York</td>
<td>Old Convent Gate, St. Augustine, Florida.</td>
<td>Joseph Wilde.</td>
</tr>
<tr>
<td>278</td>
<td>Falconer, J. M., Brooklyn</td>
<td>*No. 78, Cross Street, Boston.</td>
<td>Artist.</td>
</tr>
<tr>
<td>283</td>
<td>Colman, Samuel, New York</td>
<td>Mosque of Sidi Hallui, Tlemcen, Algiers.</td>
<td>J. Jacob Astor.</td>
</tr>
<tr>
<td>284</td>
<td>De Goliher, Miss, New York</td>
<td>Purple Iris.</td>
<td>Artist.</td>
</tr>
<tr>
<td>286</td>
<td>Tiffany, Louis C., New York</td>
<td>*Street Scene, Dinan.</td>
<td>Artist.</td>
</tr>
<tr>
<td>289</td>
<td>Tiffany, Louis C., New York</td>
<td>As Good as New. (Swiss scene.)</td>
<td>J. Milbank.</td>
</tr>
<tr>
<td>295</td>
<td>Satterlee, Walter, New York</td>
<td>*One Hundred Years Ago.</td>
<td>Artist.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>OWNER.</td>
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<tr>
<td>300</td>
<td>McDonald, Margaret, New York,</td>
<td>Head of a Shepherd Dog.</td>
<td>Artist.</td>
</tr>
<tr>
<td>303</td>
<td>Colman, Samuel, New York,</td>
<td>Street Scene, Morlaix.</td>
<td>Artist.</td>
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<td>310</td>
<td>Thomas, Mrs., New York,</td>
<td>Phlox and Larkspur.</td>
<td>Artist.</td>
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<td>312</td>
<td>Thomas, Mrs., New York,</td>
<td>Flowering Almond.</td>
<td>Artist.</td>
</tr>
<tr>
<td>314</td>
<td>Colman, Samuel, New York,</td>
<td>Street Scene, Dinan.</td>
<td>Artist.</td>
</tr>
<tr>
<td>320</td>
<td>Colman, Samuel, New York,</td>
<td>Street Scene, Caen.</td>
<td>Mrs. Horace Waters.</td>
</tr>
<tr>
<td>323</td>
<td>Symington, James, New York,</td>
<td>*Dolly's Breakfast.</td>
<td>Artist.</td>
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<tr>
<td>325</td>
<td>McDonald, Margaret, New York,</td>
<td>Primroses.</td>
<td>Townsend Cox.</td>
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<td>327</td>
<td>Smith, F. Hopkinson, New York,</td>
<td>*&quot;In the Darkling Wood.&quot;</td>
<td>Artist.</td>
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<tr>
<td>329</td>
<td>Penn, Harry, New York,</td>
<td>Old Fireplace of the Author of &quot;Home, Sweet Home.&quot;</td>
<td>Samuel Wilde.</td>
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<tr>
<td>No.</td>
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<td>Title</td>
<td>Owner</td>
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<td>344</td>
<td>McDonald, Margaret, New York</td>
<td>Fruit.</td>
<td>J. O. Thurston.</td>
</tr>
<tr>
<td>354</td>
<td>Colman, Samuel, New York</td>
<td>Arch of Constantine, Rome.</td>
<td>Artist.</td>
</tr>
<tr>
<td>357</td>
<td>Bellows, A. F., New York</td>
<td>Study of a Head.</td>
<td>Artist.</td>
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<tr>
<td>361</td>
<td>Falconer, John M., Brooklyn</td>
<td>*No. 15 Chatham Street, New York.</td>
<td>Artist.</td>
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<tr>
<td>365</td>
<td>Perry, E. Wood, Jr., New York</td>
<td>*Quilting.</td>
<td>Artist.</td>
</tr>
<tr>
<td>367</td>
<td>Bridges, Fidelia, Brooklyn</td>
<td>*Corner of a Rye-Field.</td>
<td>Artist.</td>
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<tr>
<td>368</td>
<td>Smith, Henry P., New York</td>
<td>Sultry Morning on Long Island Sound.</td>
<td>Artist.</td>
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<tr>
<td>No.</td>
<td>Artist.</td>
<td>Title.</td>
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<tr>
<td>369</td>
<td>Hill, John W., New York</td>
<td>Study of Quail.</td>
<td>Miss E. Ripley.</td>
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<td>370</td>
<td>Bridges, Fidelia, Brooklyn</td>
<td>*Flock of Snow-Birds.</td>
<td>Artist.</td>
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<td>372</td>
<td>Colman, Samuel, New York</td>
<td>Twilight, Gilead, Maine.</td>
<td>Miss Schuyler.</td>
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<td>373</td>
<td>Burling, Gilbert, New York</td>
<td>Study of a Dead Bird.</td>
<td>F. H. Smith.</td>
</tr>
<tr>
<td>374</td>
<td>Fenn, Henry, New York</td>
<td>Study of Boats.</td>
<td>Samuel Wilde.</td>
</tr>
<tr>
<td>377</td>
<td>Tiffany, Louis C., New York</td>
<td>Street Scene in Cairo, Egypt.</td>
<td>George D. Morgan.</td>
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<tr>
<td>381</td>
<td>Bridges, Fidelia, Brooklyn</td>
<td>Daisies and Clover.</td>
<td>George Whitney.</td>
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<td>382</td>
<td>Darley, F. O. C., New York</td>
<td>Street Scene, Rome.</td>
<td>Artist.</td>
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<tr>
<td>394</td>
<td>Hill, John W., New York</td>
<td>Landscape.</td>
<td>George W. Lane.</td>
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<tr>
<td>397</td>
<td>Colman, Samuel, New York</td>
<td>Rome, looking down the Tiber.</td>
<td>I. T. Williams.</td>
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</table>

*Annex, Gallery No. 6.*

**Oil Paintings.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Artist.</th>
<th>Title.</th>
<th>Owner.</th>
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</thead>
<tbody>
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<td>NO.</td>
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<td>OWNER.</td>
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<td>405</td>
<td>Cropsey, J. F., New York</td>
<td><em>Old Mill.</em></td>
<td>Artist.</td>
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<tr>
<td>409</td>
<td>Thompson, Jerome, New York</td>
<td><em>The Old Oaken Bucket.</em></td>
<td>Jane M. Hodges.</td>
</tr>
<tr>
<td>413</td>
<td>Shattuck, A. D., New York</td>
<td>The White Hills in October.</td>
<td>Artist.</td>
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<tr>
<td>414</td>
<td>Hamilton, H., Buffalo</td>
<td>The Valley of Fountains.</td>
<td>Artist.</td>
</tr>
<tr>
<td>419</td>
<td>Beard, W. H., New York</td>
<td>Lo! the Poor Indian.</td>
<td>Artist.</td>
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<tr>
<td>421</td>
<td>Baldwin, A. H., New York</td>
<td><em>Baptistery of St. Mark’s, Venice.</em></td>
<td>Artist.</td>
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<tr>
<td>422</td>
<td>Johnson, Frost, New York</td>
<td>Good Weight.</td>
<td>G. W. Hollis.</td>
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<tr>
<td>425</td>
<td>MacKnight, Mrs. S. R., New York</td>
<td><em>“When the Cat’s away,”</em> etc.</td>
<td>Artist.</td>
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<td>426</td>
<td>Ogilvie, Clinton, New York</td>
<td>In the Woods.</td>
<td>Artist.</td>
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</tbody>
</table>
NO.  | ARTIST.                        | TITLE.                           | OWNER.                      
-----|--------------------------------|----------------------------------|-----------------------------
437  | Suydam, J. A. (deceased),      | Twilight on the Coast.           | R. M. Olyphant.             
438  | Huntington, D., New York,      | Portrait.                        | Chas. Tracey.               
440  | Church, F. E., New York,       | Chimborazo.                      |                            
4.1  | Hays, W. J. (deceased),        | *Bison at Bay.                   | Mrs. W. J. Hays.            
446  | Coleman, C. C., Rome,          | The Troubadour.                  | Mrs. W. Wilkeson.           

(Annex, Gallery No. 6.)

SCULPTURE.

NO.  | ARTIST.                        | TITLE.                           | OWNER.                      
-----|--------------------------------|----------------------------------|-----------------------------
451  | Griffin, Julia, New York,      | Bust of Rev. Dr. Chapin.         |                            

(Annex, Gallery No. 14.)

OIL PAINTINGS.

NO.  | ARTIST.                        | TITLE.                           | OWNER.                      
-----|--------------------------------|----------------------------------|-----------------------------
454  | Huntington, D., New York,      | Titian and Charles V.            | S. Hawk.                    
455  | Gay, Edward, New York,         | *Late Afternoon near Albany      | Dr. S. L. Close.            
456  | Hicks, Thomas, New York,       | E. Delafeld, M.D.                | New York Society for the    
                                            |                                  | Relief of Widows and Orphans.  
462  | Johnson, Eastman, New York,    | Bo-peep.                         | H. Richmond.                
463  | Colman, Samuel, New York,      | Twilight on the Western Plains.  | Wm. A. Hamilton.            

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UNITED STATES.

NO.  ARTIST.    TITLE.         OWNER.
478  Pease, Alonzo, Utica,   Portrait—Hon. S. Campbell.    Artist.
483  De Haas, M. F. H., New York,   Brig hove to for a Pilot.    Artist.
484  Thom, J. C., New York,   Going to Church, Christmas Eve.    J. M. Burt.
491  Whittredge, W., New York,  Rocky Mountains, from the Platte River.    Century Club.
494  Brooks, S., San Francisco,  California Fish.    A. Bierstadt.
495  Huntington, D., New York,  Lake George.    G. N. Stayner.
497  Weir, R. W., West Point,   Taking the Veil.    A. C. Alden.
### SCULPTURE.

<table>
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<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>504</td>
<td>Ives, C. B., Rome,</td>
<td>Nursing the Infant Bacchus.</td>
<td>Artist.</td>
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(Annex, Gallery No. 14.)

### ARCHITECTURAL DESIGNS.

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<td>505</td>
<td>Cummings &amp; Sears, Boston,</td>
<td>Old South Church.</td>
</tr>
<tr>
<td>507</td>
<td>Howe, F.,</td>
<td>Perspective View of the Latin and English High Schools, proposed for the City of Boston—southwest angle.</td>
</tr>
<tr>
<td>508</td>
<td>Bryant &amp; Rogers, Boston,</td>
<td>City Hall, Providence, R.I.</td>
</tr>
<tr>
<td>509</td>
<td>Mitchell, John A., Boston,</td>
<td>Designs for Library of Congress. (Two drawings.)</td>
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<tr>
<td>510</td>
<td>Bryant &amp; Rogers, Boston,</td>
<td>View of the Connecticut Mutual Life Insurance Company's Building in Hartford, Conn.</td>
</tr>
<tr>
<td>513</td>
<td>Hobbs, J. H., &amp; Son, Philadelphia,</td>
<td>Memorial to General George G. Meade.</td>
</tr>
<tr>
<td>515</td>
<td>Thayer, S. J. F., Boston,</td>
<td>City Hall, Providence, R.I.</td>
</tr>
<tr>
<td>518</td>
<td>Thayer, S., Boston,</td>
<td>Plan of Unitarian Church, South Boston.</td>
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<tr>
<td>519</td>
<td>Moeller, F. G., Nanuet, N.Y.,</td>
<td>Country-seat at Bernardsville, N.J.</td>
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<tr>
<td>520</td>
<td>Thayer, S. J. F., Boston,</td>
<td>Perspective View.</td>
</tr>
<tr>
<td>521</td>
<td>Tilden, George T., Boston,</td>
<td>House for Milton Hill.</td>
</tr>
<tr>
<td>522</td>
<td>Tilden, George T., Boston,</td>
<td>Block of five houses, Longwood, Mass.</td>
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<tr>
<td>523</td>
<td>Levy, Thomas S., Philadelphia,</td>
<td>Residence on Fortieth Street—elevation.</td>
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<td>524</td>
<td>Newcomb, L., &amp; Son, Boston,</td>
<td>Elevation of a country residence.</td>
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<td>525</td>
<td>Putnam, J. P., Boston,</td>
<td>Memorial tablet to the organist of a church.</td>
</tr>
<tr>
<td>526</td>
<td>Tilden, George T., Boston,</td>
<td>Designs for cottages.</td>
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<td>528</td>
<td>Sturgis &amp; Brigham, Boston,</td>
<td>Interior of a church.</td>
</tr>
<tr>
<td>529</td>
<td>Newcomb, L., &amp; Son, Boston,</td>
<td>Design for a corner-lot building.</td>
</tr>
<tr>
<td>530</td>
<td>Bryant &amp; Rogers, Hartford,</td>
<td>State Capitol, Hartford, Connecticut.</td>
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<tr>
<td>531</td>
<td>Sturgis &amp; Brigham, Boston,</td>
<td>Chicago Court-house.</td>
</tr>
<tr>
<td>532</td>
<td>Sturgis &amp; Brigham, Boston,</td>
<td>Design for a church.</td>
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<tr>
<td>533</td>
<td>Sturgis &amp; Brigham, Boston,</td>
<td>Design for a church.</td>
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<td>534</td>
<td>Clark, H. P.,</td>
<td>Restoration of the Tomb of Mausolus.</td>
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<td>535</td>
<td>Sturgis &amp; Brigham, Boston,</td>
<td>Five designs for cottages.</td>
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<td>Putnam, J. P., Boston,</td>
<td>House on Irving Street, Boston.</td>
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<tr>
<td>537</td>
<td>Putnam, J. P., Boston,</td>
<td>House on Marlboro Street, Boston.</td>
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<tr>
<td>538</td>
<td>Ware &amp; Van Brunt, Boston,</td>
<td>Design for a house.</td>
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<tr>
<td>539</td>
<td>Ware &amp; Van Brunt, Boston,</td>
<td>Design for a house.</td>
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<td>540</td>
<td>Ware &amp; Van Brunt, Boston,</td>
<td>Memorial Hall of Harvard College.</td>
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<tr>
<td>541</td>
<td>Ware &amp; Van Brunt, Boston,</td>
<td>Southeast view of Memorial Hall of Harvard College.</td>
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<tr>
<td>542</td>
<td>Ware &amp; Van Brunt, Boston,</td>
<td>Vestibule of Memorial Hall of Harvard College.</td>
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<td>543</td>
<td>Dudley, Henry, New York,</td>
<td>St. John's Church, Waterbury, Connecticut.</td>
</tr>
<tr>
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<tr>
<td>544</td>
<td>Dudley, Henry, New York,</td>
<td>St. Peter's Church, Auburn, N.Y.</td>
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<tr>
<td>545</td>
<td>Earle &amp; Fuller, Boston,</td>
<td>Interior of All Saints’ Church, Worcester, Mass.</td>
</tr>
<tr>
<td>546</td>
<td>Cummings &amp; Sears, Boston,</td>
<td>Shillaber Building, Boston.</td>
</tr>
<tr>
<td>547</td>
<td>Cummings &amp; Sears, Boston,</td>
<td>Porch of Old South Church.</td>
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<tr>
<td>548</td>
<td>Cabot, Edw. C., Boston,</td>
<td>Design of a house.</td>
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<tr>
<td>550</td>
<td>Putnam, J. P., Boston,</td>
<td>Summer residence.</td>
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<td>553</td>
<td>Upjohn, Richard M., New York,</td>
<td>Trinity Church, Princeton.</td>
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<td>555</td>
<td>Upjohn, Richard M., New York,</td>
<td>St. Paul’s Church, Brooklyn.</td>
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<td>557</td>
<td>Upjohn, Richard M., New York,</td>
<td>Central Congregational Church, Boston.</td>
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<td>558</td>
<td>Upjohn, Richard M., New York,</td>
<td>Presbyterian Church, Rye, N.Y.</td>
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<td>Upjohn, Richard M., New York,</td>
<td>Monument.</td>
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<td>561</td>
<td>Upjohn, Richard M., New York,</td>
<td>St. Thomas’s Church, New York.</td>
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<tr>
<td>563</td>
<td>Upjohn, Richard M., New York,</td>
<td>Part of Central Church.</td>
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<td>564</td>
<td>Upjohn, Richard M., New York,</td>
<td>Entrance to Greenwood Cemetery.</td>
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<td>567</td>
<td>Clinton, Charles, New York,</td>
<td>Architectural design.</td>
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<td>Clinton, Charles, New York,</td>
<td>Design of a house.</td>
</tr>
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<td>Upjohn, R. M., New York,</td>
<td>Design of a house.</td>
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<tr>
<td>570</td>
<td>Upjohn, R. M., New York,</td>
<td>House on Fifth Avenue, New York.</td>
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<tr>
<td>571</td>
<td>Clinton, C. W., New York,</td>
<td>House on Fifth Avenue, corner of Fifty-Eighth Street, New York.</td>
</tr>
<tr>
<td>572</td>
<td>Clinton, C. W., New York,</td>
<td>Soldiers’ Memorial at Brookline, Mass.</td>
</tr>
<tr>
<td>573</td>
<td>Longfellow, W. P. P.,</td>
<td>House on Fifth Avenue, New York.</td>
</tr>
<tr>
<td>574</td>
<td>Clinton, C. W., New York,</td>
<td>House on Fifth Avenue, New York.</td>
</tr>
<tr>
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<td>House on Fifth Avenue, New York.</td>
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<td>Architectural design.</td>
</tr>
<tr>
<td>578</td>
<td>Clinton, C. W., New York,</td>
<td>Portico of house on Fifth Avenue, New York.</td>
</tr>
<tr>
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<td>Design for a house.</td>
</tr>
<tr>
<td>580</td>
<td>Clinton, C. W., New York,</td>
<td>Design for Central Park.</td>
</tr>
<tr>
<td>581</td>
<td>Clinton, C. W., New York,</td>
<td>Design for Central Park.</td>
</tr>
<tr>
<td>582</td>
<td>Hunt, R. M., New York,</td>
<td>Entrance to Central Park.</td>
</tr>
<tr>
<td>583</td>
<td>Hunt, R. M., New York,</td>
<td>House at Yonkers, on the Hudson.</td>
</tr>
<tr>
<td>584</td>
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<td>Architectural design.</td>
</tr>
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<td>Design for a house.</td>
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<td>Clinton, C. W., New York,</td>
<td>Design for entrance to Central Park.</td>
</tr>
<tr>
<td>592</td>
<td>Hunt, R. M., New York,</td>
<td>Design for Union Telegraph Office.</td>
</tr>
<tr>
<td>593</td>
<td>Hunt, R. M., New York,</td>
<td>Designs for entrance to Central Park (two drawings).</td>
</tr>
<tr>
<td>594</td>
<td>Hunt, R. M., New York,</td>
<td>Designs for the Lenox Library (four drawings).</td>
</tr>
<tr>
<td>596</td>
<td>Hunt, R. M., New York,</td>
<td>View of Lenox Library.</td>
</tr>
<tr>
<td>597</td>
<td>Hunt, R. M., New York,</td>
<td>Design for Holy Trinity Church.</td>
</tr>
<tr>
<td>598</td>
<td>Hunt, R. M., New York,</td>
<td>Design for an iron building.</td>
</tr>
<tr>
<td>600</td>
<td>Fernbach, Henry, New York,</td>
<td>Temple on Lexington Avenue.</td>
</tr>
</tbody>
</table>
TABLE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARCHITECT.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>602</td>
<td>Fernbach, Henry, New York,</td>
<td>Centre pavilion of the Mutual Life Insurance Company's Building, Philadelphia.</td>
</tr>
<tr>
<td>603</td>
<td>Fernbach, Henry, New York,</td>
<td>Main stairway of Mutual Life Insurance Company's Building, Philadelphia.</td>
</tr>
<tr>
<td>604</td>
<td>Fernbach &amp; Kendall, New York,</td>
<td>German Savings Bank, Fourth Avenue, New York.</td>
</tr>
<tr>
<td>606</td>
<td>Fernbach &amp; Kendall, New York,</td>
<td>Vault, Salem Fields Cemetery.</td>
</tr>
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<td>607</td>
<td>Post, George B., New York,</td>
<td>Library and Lyceum Building, Morristown, New Jersey.</td>
</tr>
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<td>610</td>
<td>Post, George B., New York,</td>
<td>Western Union Telegraph Company.</td>
</tr>
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<td>611</td>
<td>Congdon, H. M., New York,</td>
<td>Church, Worcester, Massachusetts.</td>
</tr>
<tr>
<td>613</td>
<td>Post, George B., New York,</td>
<td>Side elevation of the Savings Bank, Syracuse, N.Y.</td>
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<tr>
<td>616</td>
<td>Post, George B., New York,</td>
<td>New York Hospital, New York.</td>
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<td>617</td>
<td>Post, George B., New York,</td>
<td>Presbyterian Hospital, New York.</td>
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<td>618</td>
<td>Jennings, A. B., New York,</td>
<td>Design for five houses.</td>
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<tr>
<td>619</td>
<td>Jennings, A. B., New York,</td>
<td>Residence, Englewood, N. J.</td>
</tr>
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<td>620</td>
<td>Jennings, A. B., New York,</td>
<td>Swiss cottage.</td>
</tr>
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<td>Gambrill &amp; Richardson, New York,</td>
<td>Buffalo State Asylum for the Insane, Administration Building.</td>
</tr>
<tr>
<td>623</td>
<td>Croff &amp; Camp, Saratoga, New York,</td>
<td>Villa at Montreal, N.Y.</td>
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<td>624</td>
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<td>Villa.</td>
</tr>
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<td>Villa at Hudson, N.Y.</td>
</tr>
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<td>626</td>
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<td>Villa at Saratoga Springs.</td>
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<td>Croff &amp; Camp, Saratoga, New York,</td>
<td>Villa at Rhinebeck, N.Y.</td>
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<td>Design for a grand hotel at Santa Barbara, Cal.</td>
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<td>629</td>
<td>Croff &amp; Camp, Saratoga, New York,</td>
<td>Competitive design for Promenade, etc., Congress Spring Park, Saratoga.</td>
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<td>Michigan House of Correction, Ionia.</td>
</tr>
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<td>Villa at Saratoga Lake.</td>
</tr>
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<td>Villa at Hudson, N.Y.</td>
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<td>634</td>
<td>Haight, Ch. C.,</td>
<td>St. Luke's Cathedral, Portland, Me.</td>
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<td>Savings Bank, Williamsburgh, N.Y.</td>
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<td>Church of St. Bartholomew, New York.</td>
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<td>638</td>
<td>Potter, W. A.,</td>
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<td>Dudley, Henry, New York,</td>
<td>St. Peter's Church, Niagara Falls, N.Y.</td>
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<tr>
<td>640</td>
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<td>641</td>
<td>Congdon, H. M.,</td>
<td>St. Andrew's Church, Harlem, N.Y.</td>
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<tr>
<td>642</td>
<td>Potter, E.,</td>
<td>Harvard Church, Brookline, near Boston Villa.</td>
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<td>643</td>
<td>Potter, W. A.,</td>
<td>Design for a library.</td>
</tr>
<tr>
<td>644</td>
<td>Potter &amp; Robertson,</td>
<td>Hotel at Princeton, N.J.</td>
</tr>
<tr>
<td>645</td>
<td>Potter &amp; Robertson,</td>
<td>Dormitory of Princeton College.</td>
</tr>
<tr>
<td>646</td>
<td>Potter &amp; Robertson,</td>
<td>Princeton College Library.</td>
</tr>
<tr>
<td>648</td>
<td>Potter &amp; Robertson,</td>
<td>Peabody Museum, Yale College.</td>
</tr>
<tr>
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<td>Cady, J. C., New York,</td>
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<td>Potter, Edward,</td>
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<tr>
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<td>New Presbyterian Church, Fifth Avenue.</td>
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<td>Pfeiffer, Carl, New York,</td>
<td>Osco Lodge, West Virginia.</td>
</tr>
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<td>Congdon, H. M.,</td>
<td>Design for a church.</td>
</tr>
<tr>
<td>658</td>
<td>Eppinghousen, C., Terre Haute, Indiana,</td>
<td>Perspective for Indiana State Capitol.</td>
</tr>
<tr>
<td>659</td>
<td>Eppinghousen, C., Terre Haute, Indiana,</td>
<td>Flank elevation for Indiana State Capitol.</td>
</tr>
<tr>
<td>660</td>
<td>Eppinghousen, C., Terre Haute, Indiana,</td>
<td>Market House and City Hall, Terre Haute, Indiana.</td>
</tr>
<tr>
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<td>Eppinghousen, C., Terre Haute, Indiana,</td>
<td>McKean &amp; Minshall's Bank, Terre Haute, Indiana.</td>
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<tr>
<td>662</td>
<td>Kendall, Edward H.,</td>
<td>Competitive drawing for the German Savings Bank.</td>
</tr>
<tr>
<td>663</td>
<td>Eppinghousen, C., Terre Haute, Indiana,</td>
<td>Interior of Indiana State Capitol.</td>
</tr>
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<td>664</td>
<td>Eppinghousen, C., Terre Haute, Indiana,</td>
<td>Court-house in Marshall, Michigan.</td>
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<td>Myers, E. E., Detroit, Michigan,</td>
<td>Church in Forty-Fifth Street, New York.</td>
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<td>Hallet, William T., New York,</td>
<td>First National Bank, Norwich, Conn.</td>
</tr>
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<td>667</td>
<td>Hallet, William T., New York,</td>
<td>Villa near Starnford, Conn.</td>
</tr>
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<td>Villa near Starnford, Conn.</td>
</tr>
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<td>Macy House, Harrison, N.Y.</td>
</tr>
<tr>
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<td>Residence, Hartford, Conn.</td>
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<td>672</td>
<td>Hess, Julius, Detroit,</td>
<td>Insane Asylum, Pontiac, Michigan.</td>
</tr>
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<td>Michigan State Capitol.</td>
</tr>
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<td>Myers, E. E., Detroit,</td>
<td>Model farm-house.</td>
</tr>
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<td>675</td>
<td>Myers, E. E., Detroit,</td>
<td>Lansing High School.</td>
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<td>676</td>
<td>Myers, E. E., Detroit,</td>
<td>Ravensburg Seminary.</td>
</tr>
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<td>Hobbs, I. H., &amp; Son, Philadelphia,</td>
<td>Masonic Hall, New York City.</td>
</tr>
<tr>
<td>680</td>
<td>Howe, Frank M.,</td>
<td>Trinity Church, Boston.</td>
</tr>
<tr>
<td>681</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Competitive design for Town Hall, Brookline, Mass.</td>
</tr>
<tr>
<td>682</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>The Delavan Monument at Sleepy Hollow Cemetery.</td>
</tr>
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<td>683</td>
<td>Moffitt, John M.,</td>
<td>Court-house, Springfield, Mass.</td>
</tr>
<tr>
<td>684</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Trinity Church, Boston—interior view.</td>
</tr>
<tr>
<td>685</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Design of villa.</td>
</tr>
<tr>
<td>687</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Cottage at Newport, R.I.</td>
</tr>
<tr>
<td>688</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Competitive design for State-House, Hartford, Conn.</td>
</tr>
<tr>
<td>689</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Three designs for villas.</td>
</tr>
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<td>690</td>
<td>Holly, H. Hudson, New York,</td>
<td>Design for a villa.</td>
</tr>
<tr>
<td>691</td>
<td>Sims, H. A. &amp; J. P.,</td>
<td>Cottage at Atlantic City.</td>
</tr>
<tr>
<td>692</td>
<td>Sims, James P.,</td>
<td>Design for the Tower of Trinity Church, Boston.</td>
</tr>
<tr>
<td>693</td>
<td>Gambrill &amp; Richardson, New York,</td>
<td>Study for a country church.</td>
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<tr>
<td>695</td>
<td>Sims, H. A.,</td>
<td>Design for a church.</td>
</tr>
<tr>
<td>696</td>
<td>Sims, James P.,</td>
<td>Design for a market.</td>
</tr>
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<td>698</td>
<td>Hatfield, R. G., New York,</td>
<td>Office building, Broad Street, New York.</td>
</tr>
<tr>
<td>702</td>
<td>Earl &amp; Fuller, Boston,</td>
<td>Hall in a cottage in Worcester.</td>
</tr>
<tr>
<td>703</td>
<td>Thayer, S. J. F.,</td>
<td>Architectural design.</td>
</tr>
<tr>
<td>704</td>
<td>Pohl, G. R., Philadelphia,</td>
<td>Design for the proposed Centennial Exhibition Building—front on Elm Avenue.</td>
</tr>
<tr>
<td>705</td>
<td>Pohl, G. R., Philadelphia,</td>
<td>Design for the proposed Centennial Exhibition Building—diagonal perspective.</td>
</tr>
<tr>
<td>706</td>
<td>Pohl, G. R., Philadelphia,</td>
<td>Design for the proposed Centennial Exhibition Building—exterior perspective.</td>
</tr>
<tr>
<td>707</td>
<td>Pohl, G. R., Philadelphia,</td>
<td>Design for the proposed Centennial Exhibition Building—interior view.</td>
</tr>
<tr>
<td>708</td>
<td>Pohl, G. R., Philadelphia,</td>
<td>Design for the proposed Centennial Exhibition Building—end elevation.</td>
</tr>
<tr>
<td>709</td>
<td>Luce, C. S., Boston,</td>
<td>Tomb of Governor Hayden, Haydenville, Mass.</td>
</tr>
<tr>
<td>710</td>
<td>Fairfax, J. S.,</td>
<td>State Capitol of West Virginia.</td>
</tr>
<tr>
<td>711</td>
<td>Fairfax, J. S.,</td>
<td>Premiated design for the International Exhibition, Philadelphia—ground plan.</td>
</tr>
<tr>
<td>712</td>
<td>Fairfax, J. S.,</td>
<td>Premiated design for the International Exhibition, Philadelphia—block plan.</td>
</tr>
<tr>
<td>713</td>
<td>Fairfax, J. S.,</td>
<td>Premiated design for the International Exhibition, Philadelphia—side elevation.</td>
</tr>
<tr>
<td>714</td>
<td>Fairfax, J. S.,</td>
<td>Premiated design for the International Exhibition, Philadelphia—front elevation.</td>
</tr>
<tr>
<td>715</td>
<td>Fairfax, J. S.,</td>
<td>Premiated design for the International Exhibition, Philadelphia—Art Gallery.</td>
</tr>
<tr>
<td>716</td>
<td>Fairfax, J. S.,</td>
<td>Architectural design for a memorial window, Ceilings.</td>
</tr>
<tr>
<td>719</td>
<td>Thayer, S. J. F.,</td>
<td>Design of a villa.</td>
</tr>
<tr>
<td>720</td>
<td>Fairfax, J. S.,</td>
<td>Dining-room decorations.</td>
</tr>
<tr>
<td>723</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Original building with alteration.</td>
</tr>
<tr>
<td>726</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Interior of Judges’ Hall.</td>
</tr>
<tr>
<td>728</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Judges’ Hall.</td>
</tr>
<tr>
<td>729</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Horticultural Hall.</td>
</tr>
<tr>
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<td>Interior of Horticultural Hall.</td>
</tr>
<tr>
<td>732</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Memorial Hall.</td>
</tr>
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<td>733</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Competitive design, Vienna Exhibition.</td>
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<tr>
<td>NO.</td>
<td>ARCHITECT.</td>
<td>TITLE.</td>
</tr>
<tr>
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<td>738</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Memorial Hall.</td>
</tr>
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<td>739</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Memorial Hall.</td>
</tr>
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<td>Interior of Memorial Hall.</td>
</tr>
<tr>
<td>741</td>
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<td>Original building with alteration.</td>
</tr>
<tr>
<td>742</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Original design for the International Exhibition, 1876.</td>
</tr>
<tr>
<td>743</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Judges' Hall.</td>
</tr>
<tr>
<td>744</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Board of Finance Building.</td>
</tr>
<tr>
<td>750</td>
<td>Schwarzmann, H. J., &amp; Kafka, H., Philadelphia,</td>
<td>Dining-room decorations.</td>
</tr>
<tr>
<td>752</td>
<td>Howe, Frank M.,</td>
<td>House in Cambridge.</td>
</tr>
<tr>
<td>753</td>
<td>Fehmer, Carl, Boston,</td>
<td>Howe Building, Boston.</td>
</tr>
<tr>
<td>754</td>
<td>Richards, Henry,</td>
<td>House at Beverly Farms, Mass.</td>
</tr>
<tr>
<td>755</td>
<td>Richards, Henry,</td>
<td>Homeopathic Hospital.</td>
</tr>
<tr>
<td>756</td>
<td>Hartwell, Swasey &amp; Co., Boston,</td>
<td>Design for proposed Central Church, Fall River</td>
</tr>
<tr>
<td>757</td>
<td>Cummings &amp; Sears,</td>
<td>Montgomery Building.</td>
</tr>
<tr>
<td>758</td>
<td>Cabot &amp; Chaundler, Boston,</td>
<td>Soldiers’ monument at Brookline, Mass.</td>
</tr>
<tr>
<td>759</td>
<td>Howe, F. M.,</td>
<td>Proposed City Hall, Providence, R.I.</td>
</tr>
<tr>
<td>760</td>
<td>Whitney, L. W., Boston,</td>
<td>Residence on Fairfield Street, Boston.</td>
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<tr>
<td>761</td>
<td>Whitney, L. W., Boston,</td>
<td>Residence on Boylston Street, Boston.</td>
</tr>
<tr>
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(Annex, Gallery No. 12.)

**LOAN COLLECTION OF OIL PAINTINGS.**

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UNITED STATES. 37
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<td>Schidone</td>
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<td>Dr. George Reuling</td>
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<td>Robert, Leopold (deceased)</td>
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<td>Vernet, Jos. (attributed to)</td>
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<td>Dürer, Albert</td>
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<td>Del Sarto, Andrea</td>
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<td>Moses Striking the Rock</td>
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(Annex, Gallery No. 12.)

SCULPTURE.

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*(Annex, Gallery No. 10.)*

## OIL PAINTINGS

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<td>&quot;Keying up&quot;—The Court Jester.</td>
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<td>Willard, A. M., Cleveland</td>
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(Annex, Gallery No. 10)

**SCULPTURE.**

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(Annex, Gallery No. 28)

**OIL PAINTINGS.**

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<td>Stuart, Gilbert (deceased),</td>
<td>Portrait—Judge Story</td>
<td>Harvard University</td>
</tr>
<tr>
<td>933</td>
<td>Stuart, Gilbert (deceased),</td>
<td>Portrait—Bishop Chevenix</td>
<td>Mrs. H. Greenough</td>
</tr>
<tr>
<td>934</td>
<td>Harding (deceased),</td>
<td>Portrait—Washington Allston</td>
<td>S. Batchelder</td>
</tr>
<tr>
<td>935</td>
<td>Bannister, E. M., Providence,</td>
<td>*Under the Oaks</td>
<td>Artist</td>
</tr>
<tr>
<td>936</td>
<td>Champney, J. W., Boston</td>
<td>“Speak, Sir!”</td>
<td>J. L. De Wolf</td>
</tr>
<tr>
<td>937</td>
<td>Champney, Benjamin, Boston</td>
<td>*Old Willows at Manchester, Mass.</td>
<td>Artist</td>
</tr>
<tr>
<td>938</td>
<td>Darrah, Mrs. S. T., Boston</td>
<td>*Lake Champlain</td>
<td>Artist</td>
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<tr>
<td>939</td>
<td>Allston, Washington (deceased),</td>
<td>Head of a Jew</td>
<td>Boston Athenæum</td>
</tr>
<tr>
<td>940</td>
<td>Stuart, Gilbert (deceased),</td>
<td>Portrait—Mrs. E. C. Cushing</td>
<td>Mrs. L. L. Chickering</td>
</tr>
<tr>
<td>941</td>
<td>Gerry, S. L., Boston</td>
<td>*American Tourists</td>
<td>Miss E. J. Gerry</td>
</tr>
<tr>
<td>942</td>
<td>Petersen, J. E. C., Boston</td>
<td>Collision at Sea</td>
<td>Manufacturers’ Insurance Company</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST</td>
<td>TITLE</td>
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<tr>
<td>948</td>
<td>Kendricks, D. T., Boston</td>
<td>*Foggy Day at the Beach.</td>
<td>Artist</td>
</tr>
<tr>
<td>949</td>
<td>De Blois, F. B., Boston</td>
<td>Licola, Italy.</td>
<td>Artist</td>
</tr>
</tbody>
</table>
| 950  | Le l
d, Henry, Boston | Portrait.                 | H. Thouron     |
| 951  | Way, C. Granville, Paris | An Old Friend.            | Artist         |
| 952  | Martin, Miss L. E., Boston | Flowers (panel).         | Mrs. Martin    |
| 953  | Champney, J. W., Boston | Grandma’s Pet.           | T. Wiggleworth |
| 954  | Martin, Miss L. E., Boston | Flowers (panel).       | Mrs. Martin    |
| 955  | Jarvis, Melicent, Boston | Jeannette in her Studio. | Artist         |
| 956  | Snowe, Francis, Boston | A Cloudy Day.             | G. H. Chickering |
| 957  | Robinson, T., Boston | *An Old Team.            | Artist         |
| 959  | Cobb, Darius, Boston | Portrait.                 | Cyrus Cobb     |
| 960  | Holmes, P. H., Gardiner, Me. | The Adirondacks from Vermont. | Artist |
| 961  | Bacon, Henry, Paris | *The Boston Boys and General Gage, 1775. | Artist |
| 962  | Willard, W., Boston | Portrait—Charles Sumner.  | E. L. Bates    |
| 963  | Wild, H. G., Boston | *Banks of the Nile.      | Artist         |
| 965  | Ulke, Henry, Washington | Portrait—Charles Sumner.  | Artist         |
| 966  | Weber, Carl, Philadelphia | *Morning in the Alleghenies. | Artist |
| 967  | Ulke, Henry, Washington | *Portrait—General Grant. | Artist         |
| 968  | Pierson & Poincy, | Firemen’s Parade in New Orleans, 1871. | W. McNeely |
| 969  | Weber, Carl, Philadelphia | *Reichenbach Falls, Switzerland. | Artist |
| 971  | Fowler, T. T., Philadelphia | Work for the Day is Over. | Artist         |
| 972  | Raupp, Carl | *Approaching Storm.       | Dr. George Reuling |
| 973  | Bierstadt, A., New York | California Spring.        | Artist         |
| 974  | Kaufmann, Theodore, Washington | Influence of Electricity on Human Culture (ten subjects). | Artist |
| 975  | Smith, Miss Mary, Jenkintown, Pa. | Chuck and Chickens. | Artist         |
| 975a | Wilson, Oregon (deceased), | *Woman’s Devotion.      | Dr. W. A. Wilson |
| 976  | Moore, H. H., New York | Almeh, a Dream of the Alhambra. | Artist |
| 978  | Guthers, Carl, St. Louis | Awakening Spring.          | Artist         |
| 979  | Birch, Thomas (deceased), | Perry’s Victory on Lake Erie. | Thomas Birch  |
### DEPT. IV.—ART.

<table>
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<th>NO.</th>
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<tbody>
<tr>
<td>980</td>
<td>Johns, C. M., Pittsburg</td>
<td>&quot;To Tubal-Cain came many a one, And each one prayed For a strong steel blade.&quot;</td>
<td>Artist.</td>
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<tr>
<td>981</td>
<td>Noble, T. S., Cincinnati</td>
<td>The Tramp.</td>
<td>Artist.</td>
</tr>
<tr>
<td>983</td>
<td>Bartlett, Jennie M., Minneapolis</td>
<td>*Callas and Amaryllis (two panels).</td>
<td>Artist.</td>
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</tbody>
</table>

**(Annex, Gallery No. 42.)**

### SCULPTURE.

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<tbody>
<tr>
<td>983a</td>
<td>Calverly, C., N.Y.</td>
<td>Bronze bust of John Brown.</td>
<td>Union League Club.</td>
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</table>

**(Annex, Gallery No. 40.)**

### OIL PAINTINGS.

<table>
<thead>
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<th>NO.</th>
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<tbody>
<tr>
<td>988</td>
<td>Volkman, Chas., Jr., Baltimore</td>
<td>The Passing Shower (near Vichy, France).</td>
<td>Artist.</td>
</tr>
<tr>
<td>990</td>
<td>Coleman, C. C., Rome</td>
<td>Interior of St. Mark's, Venice.</td>
<td>Artist.</td>
</tr>
<tr>
<td>995</td>
<td>Winters, Miss Anna, Philadelphia</td>
<td><em>Daisies.</em></td>
<td>Artist.</td>
</tr>
<tr>
<td>996</td>
<td>Galvan, Mrs. S. M., Philadelphia</td>
<td><em>Roses.</em></td>
<td>Artist.</td>
</tr>
<tr>
<td>997</td>
<td>Wilcox, W. H., Philadelphia</td>
<td>One Hundred Years Ago.</td>
<td>Artist.</td>
</tr>
<tr>
<td>998</td>
<td>Spencer, Mrs. Lily M., Newark, N.J.</td>
<td><em>&quot;Will you have some fruit?&quot;</em></td>
<td>Artist.</td>
</tr>
<tr>
<td>999</td>
<td>Galvan, Mrs. S. M., Philadelphia</td>
<td><em>Roses.</em></td>
<td>Artist.</td>
</tr>
<tr>
<td>1000</td>
<td>Shaw, Annie C., Chicago</td>
<td><em>An Illinois Prairie.</em></td>
<td>Artist.</td>
</tr>
<tr>
<td>1004</td>
<td>Julio, E. B. D., New Orleans</td>
<td>Gathering the Sugar-Cane.</td>
<td>Artist.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>OWNER.</td>
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<tr>
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<td>--------</td>
</tr>
<tr>
<td>1006</td>
<td>Guthers, Carl, St. Louis</td>
<td>&quot;Ecce Homo.&quot;</td>
<td></td>
</tr>
<tr>
<td>1007</td>
<td>Waugh, S. B., Philadelphia</td>
<td>Portrait.</td>
<td></td>
</tr>
<tr>
<td>1008</td>
<td>Wilson, Oregon, (deceased)</td>
<td>Portrait.</td>
<td>Dr. Wilson.</td>
</tr>
<tr>
<td>1009</td>
<td>Kaufmann, Theodore, Washington</td>
<td>Admiral Farragut.</td>
<td></td>
</tr>
<tr>
<td>1010</td>
<td>Rothermel, P. F., Philadelphia</td>
<td>Hypatia, the Neo-Platonic Philosopher, stripped and torn to pieces by the Christian mob of Alexandria.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1012</td>
<td>Coleman, C. C., Venice</td>
<td>Venice.</td>
<td>Mrs. W. Wilkeson.</td>
</tr>
<tr>
<td>1014</td>
<td>Peale, Rembrandt (deceased), Philadelphia</td>
<td>Portrait of the artist.</td>
<td>Mrs. R. Peale.</td>
</tr>
<tr>
<td>1016</td>
<td>Galvan, Mrs. S. M., Philadelphia</td>
<td>*Flowers.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1017</td>
<td>Elkins, H. R., Chicago</td>
<td>Shasta, an extinct volcano of North California.</td>
<td></td>
</tr>
<tr>
<td>1018</td>
<td>Sword, J. B., Philadelphia</td>
<td>Trenton Falls, N.Y.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1019</td>
<td>Hill, Thomas, San Francisco</td>
<td>*Yosemite Valley.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1021</td>
<td>Smith, T. Henry, Philadelphia</td>
<td>Mind and Matter.</td>
<td></td>
</tr>
<tr>
<td>1022</td>
<td>Audubon, J. J. (deceased),</td>
<td>*Covey of Blackcock</td>
<td>Edward Harris.</td>
</tr>
<tr>
<td>1025</td>
<td>Smith, Xanthus, Jenkintown, Pa.</td>
<td>The Kearsarge and Alabama.</td>
<td></td>
</tr>
<tr>
<td>1026</td>
<td>Eberhardt, W., Boston</td>
<td>Portrait—Rear-Admiral Winslow, former Commander of the Kearsarge.</td>
<td>Citizens of Boston, who intend to present it to Memorial Hall.</td>
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</tbody>
</table>

(Annex, Gallery No. 40.)

**SCULPTURE.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
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</thead>
<tbody>
<tr>
<td>1028</td>
<td>Mundhenk, A., Cincinnati</td>
<td>&quot;Auld Lang Syne.&quot;</td>
<td></td>
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<tr>
<td>1029</td>
<td>Kemsy, E., New York</td>
<td>*Panther and Deer.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1032</td>
<td>Swayne, W. M., Philadelphia</td>
<td>*Bust of Salmon P. Chase.</td>
<td>Artist.</td>
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</table>
## DEPT. IV.—ART.

### (Annex, Gallery No. 30.)

#### OIL PAINTINGS.

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<th>NO.</th>
<th>ARTIST</th>
<th>TITLE</th>
<th>OWNER</th>
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</thead>
<tbody>
<tr>
<td>1034</td>
<td>Ropes, Joseph</td>
<td>Tivoli.</td>
<td>Artist</td>
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<tr>
<td>1035</td>
<td>Stewart, J. L.</td>
<td>Marie.</td>
<td>W. S. Stewart.</td>
</tr>
<tr>
<td>1036</td>
<td>Healy, G. P. A.</td>
<td>Portrait.</td>
<td></td>
</tr>
<tr>
<td>1037</td>
<td>Schussele, C.</td>
<td>Zeisberger preaching to the Indians.</td>
<td>J. Jordan.</td>
</tr>
<tr>
<td>1038</td>
<td>Trotter, N. H.</td>
<td><em>Wounded Buffaloes pursued by Prairie Wolves.</em></td>
<td>Artist</td>
</tr>
<tr>
<td>1039</td>
<td>Moran, Thos.,</td>
<td>“Fiercely the red sun descending burned his way along the heavens.”</td>
<td>Artist</td>
</tr>
<tr>
<td>1040</td>
<td>Haseltine, W. S.</td>
<td>Natural Arch at Capri.</td>
<td></td>
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<tr>
<td>1041</td>
<td>Briscoe, F. D.</td>
<td>Wreckers.</td>
<td></td>
</tr>
<tr>
<td>1044</td>
<td>King, Geo. W., Philadelphia.</td>
<td>View in the Tyrol.</td>
<td>Artist</td>
</tr>
<tr>
<td>1046</td>
<td>Harrison, Henry, Jersey City.</td>
<td>Portrait.</td>
<td>Miss Belle Dodd.</td>
</tr>
<tr>
<td>1047</td>
<td>Moran, Thos., Newark, N.J.</td>
<td><em>Valley of the Rio Virgen, Utah.</em></td>
<td>Artist</td>
</tr>
<tr>
<td>1048</td>
<td>Rothermel, P. F., Philadelphia.</td>
<td><em>Christian Martyrs in the Colosseum.</em></td>
<td>Artist</td>
</tr>
<tr>
<td>1049</td>
<td>Moran, Thos., Newark, N.J.</td>
<td><em>Dream of the Orient.</em></td>
<td>Artist</td>
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<tr>
<td>1050</td>
<td>Eakins, Thos., Philadelphia.</td>
<td>Portrait.</td>
<td>Artist</td>
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<tr>
<td>1052</td>
<td>Machen, W. H., Toledo, O.</td>
<td>Still Life—Ruffed Grouse.</td>
<td>Artist</td>
</tr>
<tr>
<td>1053</td>
<td>Craig, Thos. B., Philadelphia.</td>
<td>Indian Summer.</td>
<td>Artist</td>
</tr>
<tr>
<td>1054</td>
<td>Rothermel, P. F., Philadelphia.</td>
<td>The Virtuoso.</td>
<td>Artist</td>
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<tr>
<td>1055</td>
<td>Mayer, F. B., Baltimore.</td>
<td>The Attic Philosopher.</td>
<td>Artist</td>
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<tr>
<td>1056</td>
<td>Coleman, C. C., Rome.</td>
<td>The Troubadour.</td>
<td>Henry Sampson.</td>
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<tr>
<td>1059</td>
<td>Lea, Anna M., Philadelphia.</td>
<td><em>A Patrician Mother.</em></td>
<td>Artist</td>
</tr>
<tr>
<td>1062</td>
<td>Heaton, A. G., Philadelphia.</td>
<td>Washington as Ambassador at Fort Duquesne.</td>
<td></td>
</tr>
<tr>
<td>1063</td>
<td>Kunath, Oscar, Munich.</td>
<td><em>“He won’t bite.”</em></td>
<td>Artist</td>
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<tr>
<td>1064</td>
<td>Kunath, Oscar, Munich.</td>
<td>Portrait.</td>
<td></td>
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<td>TITLE.</td>
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<tr>
<td>1066</td>
<td>Coleman, C. C., Rome</td>
<td>Grand Canal, Venice.</td>
<td>James Bayley.</td>
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<tr>
<td>1067</td>
<td>Waugh, S. B., Philadelphia</td>
<td>Portrait</td>
<td></td>
</tr>
<tr>
<td>1068</td>
<td>Lee, Anna M., Philadelphia</td>
<td>*Genevieve de Brabant.</td>
<td>Artist.</td>
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<tr>
<td>1069</td>
<td>Bonfield, W. V., Philadelphia</td>
<td>Drifting Snow.</td>
<td></td>
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<tr>
<td>1071</td>
<td>John, Joseph, Philadelphia</td>
<td>The Minstrel.</td>
<td></td>
</tr>
<tr>
<td>1072</td>
<td>Moran, Peter, Philadelphia</td>
<td>Settled Rain.</td>
<td></td>
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<tr>
<td>1073</td>
<td>Weir, J. F., New Haven</td>
<td>Portrait</td>
<td></td>
</tr>
<tr>
<td>1074</td>
<td>Peale, Rembrandt (deceased)</td>
<td>Washington; from life.</td>
<td>Chas. P. Herring.</td>
</tr>
<tr>
<td>1077</td>
<td>Smith, Russell, Jenkintown, Pa.,</td>
<td>Mount Vernon in 1836.</td>
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<tr>
<td>1079</td>
<td>Wood, G. B., Jr., Germantown, Pa.,</td>
<td>Freddy Flechtenstein’s Shop.</td>
<td>Artist.</td>
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<tr>
<td>1080</td>
<td>Smith, Russell, Jenkintown, Pa.,</td>
<td>Cave at Chelten Hills.</td>
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<tr>
<td>1081</td>
<td>Pettit, G. W., Philadelphia</td>
<td>Cremation of Julius Caesar.</td>
<td>C. J. Harrah.</td>
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<tr>
<td>1084</td>
<td>Williams, I. L., Philadelphia</td>
<td>*October.</td>
<td>Artist.</td>
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<tr>
<td>1086</td>
<td>Volk, Douglas, Chicago</td>
<td>Vanity.</td>
<td>Artist.</td>
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</table>

**SCULPTURE.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
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<tbody>
<tr>
<td>1087</td>
<td>Rogers, Randolph, Rome</td>
<td>Atala.</td>
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<td>1089</td>
<td>Richards, D., Chicago</td>
<td>Il Penseroso.</td>
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<td>1090</td>
<td>Reniers, P. C., Pittsburg</td>
<td>Bust—Col. T. A. Scott.</td>
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<td>1092</td>
<td>Richards, D., Chicago</td>
<td>Portrait bust.</td>
<td>Mrs. Laird Colyer.</td>
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*(Annex, Gallery No. 44.)*

**OIL PAINTINGS.**

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<tr>
<td>1096</td>
<td>Wertmuller (deceased),</td>
<td>Portrait of Washington; from life.</td>
<td>S. Wagner.</td>
</tr>
<tr>
<td>1097</td>
<td>Smibert, John (deceased),</td>
<td>Portrait—P. Fanuill.</td>
<td>Massachusetts Historical Society,</td>
</tr>
<tr>
<td>1098</td>
<td>Kneller, Sir Godfrey (deceased),</td>
<td>*Portrait—Lord Baltimore; presented to the City of Annapolis by Queen Anne.</td>
<td>Titian R. Peale.</td>
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<tr>
<td>1099</td>
<td>Plantou, Mrs. (deceased),</td>
<td>Triumph of America, or the Treaty of Ghent.</td>
<td>Miss Plantou.</td>
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<tr>
<td>1100</td>
<td>Truman, E. (deceased),</td>
<td>Portrait—Thos. Hutchinson.</td>
<td>Massachusetts Historical Society,</td>
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<tr>
<td>1101</td>
<td>Sargent, Henry (deceased),</td>
<td>Portrait—General B. Lincoln.</td>
<td>Massachusetts Historical Society,</td>
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<tr>
<td>1102</td>
<td>(Unknown.)</td>
<td>Portrait—Alexander Hamilton.</td>
<td>E. Newland.</td>
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<tr>
<td>1103</td>
<td>Tenney, U. D., New Haven, Conn.,</td>
<td>Portrait—General Stark.</td>
<td>City of Manchester, N.H.</td>
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*(Annex, Gallery No. 44)*

<table>
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<th>NO.</th>
<th>ARTIST.</th>
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<th>OWNER.</th>
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<tbody>
<tr>
<td>1104</td>
<td>Herrick, H. W., Manchester, N. H.,</td>
<td>Grave of General Stark (water color).</td>
<td>City of Manchester, N.H.</td>
</tr>
<tr>
<td>1106</td>
<td>Herrick, H. W., Manchester, N. H.,</td>
<td>General Stark's Last Charge at Bennington (water color).</td>
<td>City of Manchester, N.H.</td>
</tr>
<tr>
<td>1107</td>
<td>Herrick, H. W., Manchester, N. H.,</td>
<td>General Stark as Trapper, captured by the Indians (water color).</td>
<td>City of Manchester, N.H.</td>
</tr>
<tr>
<td>1108</td>
<td>Herrick, H. W., Manchester, N. H.,</td>
<td>General Stark at Trenton (water color).</td>
<td>City of Manchester, N.H.</td>
</tr>
<tr>
<td>1109</td>
<td>McMurtrie, Miss L. G., Boston,</td>
<td>Geraniums (water color).</td>
<td>H. McMurtrie.</td>
</tr>
<tr>
<td>1112</td>
<td>Bartlett, G. H., Boston,</td>
<td>Oak leaf (drawing).</td>
<td>Artist.</td>
</tr>
<tr>
<td>1114</td>
<td>Bliss, Lucia S., Boston,</td>
<td>*Campanula.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1115</td>
<td>Bliss, Lucia S., Boston,</td>
<td>Double Poppies.</td>
<td>Artist.</td>
</tr>
<tr>
<td>1117</td>
<td>Bliss, Lucia S., Boston,</td>
<td>*Fringed Gentian and Golden Rod.</td>
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<td>1119</td>
<td>McMurtrie, Miss L. G., Boston,</td>
<td>Rhododendrons.</td>
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<td>1120</td>
<td>Robbins, Ella, Boston,</td>
<td>*Vase of Flowers.</td>
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<td>1126</td>
<td>Steinhaus, William, New York,</td>
<td>Vienna Exhibition. (Two drawings.)</td>
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<td>1127</td>
<td>Brückner, Henry,</td>
<td>Commemorative Allegory (etching).</td>
<td>Henry Schile.</td>
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<td>1128</td>
<td>Steinhaus, William, New York,</td>
<td>Wm. C. Bryant (pen drawing).</td>
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<td></td>
<td>Bartlett, G. H.,</td>
<td>Details from Andernach Church Door.</td>
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<td></td>
<td>New Haven,</td>
<td>Arabesque design.</td>
<td>Ion Perdicioiris.</td>
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<td>Galindo, R. E.,</td>
<td>Stork Tower in Reutlingen (water color).</td>
<td>Mrs. A. Hyatt.</td>
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<td>1132</td>
<td>Hyatt, Mrs. Delta,</td>
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<td>Wood, G. B.,</td>
<td>Puddingstone Boulders, Brookline,</td>
<td>Mrs. S. Cabot.</td>
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<td>Cabot, E. C., Boston,</td>
<td>Oak leaves (water color).</td>
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<td>1137</td>
<td>Sterling, Mrs. C. H.,</td>
<td>Baker's Road (water color).</td>
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<td></td>
<td>Catlin, George</td>
<td>tions of Indian Life.</td>
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<td></td>
<td>(deceased)</td>
<td>*Declaration of Independence (pen-</td>
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<td></td>
<td>Peacon, W. V., New</td>
<td>manship).</td>
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<td>York,</td>
<td>Fall of Carthage (crayon).</td>
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<td></td>
<td>York,</td>
<td>*Soliloquy of Friar Pacificus, Golden</td>
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<td>lyn, New York,</td>
<td>Old New York.</td>
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<td>Philadelphia,</td>
<td>Daniel in the Lions' Den (water</td>
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<td>1145</td>
<td>Eakins, Thomas,</td>
<td>The Power behind the Throne</td>
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<td>Philadelphia,</td>
<td>(water color).</td>
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<td>1149</td>
<td>Eakins, Thomas,</td>
<td>Thomas Jefferson—water color</td>
<td>T. J. Miles.</td>
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<td></td>
<td>Philadelphia,</td>
<td>sketch from life, in the first year</td>
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<td>Field, R. (deceased),</td>
<td>Hartwick, Hermann, New York,</td>
<td>American Cedar Forest</td>
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<td>de—water color.</td>
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<td>De Rose, A. L.,</td>
<td>Portrait—D. Crockett; with Auto-</td>
<td>John Durand.</td>
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<td>Miller, E. F.,</td>
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<td>Columbus, O.,</td>
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<td>Darrah, Mrs. S. T.,</td>
<td>*After the Storm (water color).</td>
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<td>Adams, Miss E.,</td>
<td>Study of a Head (water color).</td>
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### OIL PAINTINGS

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<tr>
<td>1163</td>
<td>Peale, C. Wilson</td>
<td>Portrait—Mrs. General Cropper.</td>
<td>J. Cropper</td>
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<td>West, Benjamin</td>
<td>Portrait—Stephen Carmick, Signer of the Non-Importation Act</td>
<td>Louis Carmick</td>
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<td>1165</td>
<td>Vanderlyn, J.</td>
<td>Portrait—General Armstrong.</td>
<td>William Astor</td>
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<td>Dunlap, William</td>
<td>Portrait—Thomas Eddy.</td>
<td>New York Hospital</td>
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<td>Morse, S. B. F.</td>
<td>Portrait—General Lafayette.</td>
<td>City Hall, New York</td>
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<td>1168</td>
<td>Sully, Thomas</td>
<td>Portrait—Commodore Decatur.</td>
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<td>Jarvis, J. W.</td>
<td>Portrait—Commodore Macdonough</td>
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<td>Waldo (deceased)</td>
<td>Portrait—General Jackson.</td>
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<td>Jarvis, J. W.</td>
<td>Portrait—Commodore Perry.</td>
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### SCULPTURE

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<td>Broome, Isaac</td>
<td>Base-Ball Players (Parian).</td>
<td>Ott &amp; Brewer</td>
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<td>1173</td>
<td>Park, R. H., Florence</td>
<td>*Birdie (bust).</td>
<td>Artist</td>
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<td>1174</td>
<td>Park, R. H., Florence</td>
<td>*Summer.</td>
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<td>1175</td>
<td>Park, R. H., Florence</td>
<td>*Purity.</td>
<td>Artist</td>
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<td>1176</td>
<td>Park, R. H., Florence</td>
<td>*First Boots.</td>
<td>Artist</td>
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<td>1177</td>
<td>Park, R. H., Florence</td>
<td>*Gardener's Daughter.</td>
<td>Artist</td>
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<td>1178</td>
<td>Park, R. H., Florence</td>
<td>*First Sorrow.</td>
<td>Artist</td>
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<td>1179</td>
<td>Park, R. H., Florence</td>
<td>*Sunshine.</td>
<td>Artist</td>
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<td>1180</td>
<td>Park, R. H., Florence</td>
<td>*Sappho (statuette).</td>
<td>Artist</td>
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<td>1181</td>
<td>Park, R. H., Florence</td>
<td>*Good-Morning.</td>
<td>Artist</td>
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<td>1182</td>
<td>Park, R. H., Florence</td>
<td>*Sappho (bust).</td>
<td>Artist</td>
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<td>1183</td>
<td>Park, R. H., Florence</td>
<td>*Rosebud.</td>
<td>Artist</td>
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<td>1183a</td>
<td>Rush (deceased),</td>
<td>Bust of Washington (clay model from life).</td>
<td>Alfred Young</td>
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<td>1183b</td>
<td>McDonald, W.</td>
<td>Bust of Washington.</td>
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<tr>
<td>1183c</td>
<td>Este, Mary God-</td>
<td>Iolanthe, King René's blind daughter.</td>
<td>Artist</td>
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<td>dard, Cincinnati,</td>
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<td>1183d</td>
<td>Henning, H.D.A.,</td>
<td>Happy Days in the Valley of Nysa.</td>
<td>Artist</td>
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<td>Baltimore,</td>
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<td>1183e</td>
<td>Jacquier, Eli, C</td>
<td>*Bust of Shakspeare.</td>
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<td>1184</td>
<td>Story, W. W.</td>
<td>*Medea.</td>
<td>Rome</td>
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<td>1185</td>
<td>Foley, Miss M.</td>
<td>*Jeremiah.</td>
<td>Rome</td>
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*(Annex, Gallery No. 44.)*

(Memorial Hall, Grand Central Hall, Gallery B.)
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<td>1190</td>
<td>Connelly, P. F., Florence,</td>
<td>Thetis thinking how she may regain the birthright of her son Achilles.</td>
<td>New York Museum.</td>
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<td>1204</td>
<td>Handley, M., Rome,</td>
<td>America Honoring her Fallen Brave.</td>
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<td>1205</td>
<td>Stone, Horatio, Dr. (deceased),</td>
<td>Bronze vase.</td>
<td>J. C. Hoadley.</td>
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<td>1207</td>
<td>Handley, M., Rome,</td>
<td>*Spring Crowning herself with Flowers.</td>
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<td>1210</td>
<td>Haseltine, J. H., Rome,</td>
<td>Duke of Leuchtenberg (equestrian statuette).</td>
<td>G. H. Schneider</td>
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<td>1213</td>
<td>Palmer, E. D., Albany,</td>
<td>Bronze statue of Robert Livingston.</td>
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<td>1214</td>
<td>Stone, Horatio, Dr. (deceased),</td>
<td>Two bronze vases.</td>
<td>J. C. Hoadley.</td>
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<td>1215</td>
<td>Baily, J. A., Philadelphia,</td>
<td>Equestrian statue of Antonio Guzman Blanco, President of Venezuela.</td>
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<td>1219</td>
<td>Mills, Theodore A., Eve.</td>
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<td>1221</td>
<td>Smith, R. C.</td>
<td>Bust of President J. M. Sturtevant, of Illinois College.</td>
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<td>1223</td>
<td>Rogers, Randyolph, Rome, Nydia, the Blind Girl of Pompei.</td>
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<td>1226</td>
<td>Harnisch, A. E., Philadelphia, Bust of William J. Mullen.</td>
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<td>1227</td>
<td>Connelly, P. F., Florence, St. Martin Dividing his Cloak.</td>
<td>Art.</td>
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<td>1227</td>
<td>Fettweis, C. L., Jr., Cincinnati, *Cast Away.</td>
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(Memorial Hall, Grand Central Hall, Gallery B.)

**OIL PAINTINGS.**

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<tr>
<td>1228</td>
<td>Stuart, Gilbert, The original portrait, from life, of Washington, painted in 1796. The only picture from life by Stuart, except the unfinished portrait in the Boston Athenæum.</td>
<td>J. Delaware Lewis.</td>
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(Memorial Hall, Grand Central Hall, Gallery B.)

**ARCHITECTURAL MOSAICS.**

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<td>1229</td>
<td>Leonardi, Valewska, Rubicondi, Italy, Memorial Altar.</td>
<td>Ordered for St. Clement's Church, Philadelphia.</td>
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(Memorial Hall, Gallery K.)

**SCULPTURE.**

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<td>1230</td>
<td>Calverley, Bas-relief likeness of Peter Cooper.</td>
<td>Artist.</td>
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<td>1231</td>
<td>Lewis, Miss Edmonia, *Death of Cleopatra.</td>
<td>Artist.</td>
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<td>1233</td>
<td>Fillans, Miss W., Medallion portrait.</td>
<td>Artist.</td>
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<td>1234</td>
<td>Foley, Miss M., Rome, Two medallions of Mary and William Howitt.</td>
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<td>1239</td>
<td>Graef, Jos., New York, Model of a monument to Dr. Wales.</td>
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<td>1242</td>
<td>Harnisch, A. E., Philadelphia, Sketch for a monument to the Prisoner's Friend.</td>
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<td>Foley, Miss M., Rome, Medallion—Mrs. T. B. Read.</td>
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<td>Kappler, Tobias, New Haven, Conn.,</td>
<td>Medallion—Professor Agassiz.</td>
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<td>Benton, J. Dean, Philadelphia,</td>
<td>Metal model of Independence Hall.</td>
<td>E. C. Knight.</td>
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**STAINED GLASS.**

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<td>1250b</td>
<td>Slack, S., &amp; Co., Glass Stainers, Orange, N.J.,</td>
<td>Specimens of figure subjects and arabesque designs. This firm has on exhibition in Memorial Hall some fine specimens of their work in antique and rolled cathedral glass, an article used extensively by them in the production of their principal work, such as figure, symbolic, heraldic, and decorated windows, for both ecclesiastical and domestic purposes.</td>
</tr>
<tr>
<td>1250c</td>
<td>West, Samuel, Boston,</td>
<td>Specimens of figure subjects and arabesque designs.</td>
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(West Arcade, on Façade of Memorial Hall.)

**SCULPTURE.**

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<td>1252</td>
<td>Eyre, M. Dickerson, Florence,</td>
<td>*Rebecca.</td>
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<tr>
<td>1254</td>
<td>Eyre, M. Dickerson, Florence,</td>
<td>*Ruth.</td>
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<tr>
<td>1255</td>
<td>Eyre, M. Dickerson, Florence,</td>
<td>*Juno.</td>
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(East Arcade, on Façade of Memorial Hall.)

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<td>Eyre, M. Dickerson, Florence,</td>
<td>*Psyche.</td>
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<td>Eyre, M. Dickerson, Florence,</td>
<td>*Dust of Michael Angelo.</td>
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<td>1259</td>
<td>Eyre, M. Dickerson, Florence,</td>
<td>*Vulcan.</td>
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<td>1260</td>
<td>Eyre, M. Dickerson, Florence,</td>
<td>*Dust of Dante.</td>
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<td>Eyre, M. Dickerson, Florence,</td>
<td>*Autumn.</td>
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<td>Eyre, M. Dickerson, Florence,</td>
<td>*Spring.</td>
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<td>1263</td>
<td>Eyre, M. Dickerson, Florence,</td>
<td>*Hebe.</td>
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### DRAWINGS, ETCHINGS, ETC.

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<td>1264</td>
<td>Darley, F. O. C.,</td>
<td>Puritans Barricading their Houses against the Indians (crayon).</td>
<td>Artist.</td>
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<td>Claymont, Del.,</td>
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<td>Martin, Mrs. L.E.,</td>
<td>*Flowers (porcelain painting).</td>
<td>Artist.</td>
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<td>Reich, Jos.,</td>
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<td>Alexander, Miss F.,</td>
<td>A Prayer.</td>
<td>G. W. Wales.</td>
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<td></td>
<td>Boston,</td>
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<tr>
<td>1273</td>
<td>Moran, Thomas,</td>
<td>*Death of Kwasin.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Newark, N. J.,</td>
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<td>Newark, N. J.,</td>
<td></td>
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</tr>
<tr>
<td>1276</td>
<td>Moran, Thomas,</td>
<td>*Death of Tawpak.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Newark, N. J.,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1277</td>
<td>Darley, F. O. C.,</td>
<td>A Merciful Man is Merciful to his Beast.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Claymont, Del.,</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Philadelphia,</td>
<td></td>
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</tr>
<tr>
<td>1279</td>
<td>Stokcs, John,</td>
<td>Dead Blue Jay.</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>New York,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1281</td>
<td>Fabronius, D. C.,</td>
<td>Portrait of a baby (crayon).</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Boston,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1283</td>
<td>Reed, J. C.,</td>
<td>Portrait of a lady (crayon).</td>
<td>Artist.</td>
</tr>
<tr>
<td>1284</td>
<td>Ellis, J. C.,</td>
<td>Portrait of a little girl (crayon).</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Boston,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1287</td>
<td>Swain,</td>
<td>Portrait of child (crayon).</td>
<td>Artist.</td>
</tr>
</tbody>
</table>

### OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1288</td>
<td>Schwörer, A., Munich,</td>
<td>*A Surprise.</td>
<td>Stroefer &amp; Kirchner.</td>
</tr>
<tr>
<td>1289</td>
<td>Wagner, A., Munich,</td>
<td>*Chariot-Race.</td>
<td>Stroefer &amp; Kirchner.</td>
</tr>
<tr>
<td>1291</td>
<td>Kayser, E., Munich,</td>
<td>*The Convalescent.</td>
<td>Stroefer &amp; Kirchner.</td>
</tr>
<tr>
<td>1292</td>
<td>Epp, R., Munich,</td>
<td>*The Young Mother.</td>
<td>Stroefer &amp; Kirchner.</td>
</tr>
</tbody>
</table>
UNITED STATES.
### DEPT. IV.—ART.

**Memorial Hall, Second Story, Room No. 2.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>EXHIBITOR</th>
<th>SUBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1326</td>
<td>Hopson, Wm., Everett, Mass.,</td>
<td>Painted imitations of woods, and two table-tops, imitations of inlaid marbles.</td>
</tr>
<tr>
<td>1327</td>
<td>McGregor, G. S., Cleveland, O.,</td>
<td>Specimens of oak, walnut, and rosewood graining.</td>
</tr>
<tr>
<td>1329</td>
<td>Gruger, Pearson E., Lancaster, Pa.,</td>
<td>Monumental engraving on marble.</td>
</tr>
<tr>
<td>1330</td>
<td>Foerster, Edmund, &amp; Co., New York,</td>
<td>Breakwater at Calais, and other specimens of chromo-lithography.</td>
</tr>
<tr>
<td>1331</td>
<td>Colton, Zahm, &amp; Roberts, New York,</td>
<td>Beatrice Cenci, and other specimens of chromo-lithography.</td>
</tr>
<tr>
<td>1331a</td>
<td>Hollerbach &amp; Dieffenbach, New York,</td>
<td>Frames and specimens of mouldings.</td>
</tr>
<tr>
<td>1332</td>
<td>Frickenhaus, Otto, New York,</td>
<td>Designs for crochet and embroidery.</td>
</tr>
<tr>
<td>1333</td>
<td>Beeler, J. C., New York,</td>
<td>Ornamental painting on glass.</td>
</tr>
<tr>
<td>1334</td>
<td>Beeler, J. C., New York,</td>
<td>Pastel drawing of an Indian's head.</td>
</tr>
<tr>
<td>1335</td>
<td>Hoefel, Ferd., St. Louis,</td>
<td>Flowers—painting on glass.</td>
</tr>
</tbody>
</table>

**Memorial Hall, Second Story, Room No. 3.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>EXHIBITOR</th>
<th>SUBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1337</td>
<td>Demorest, W. J., New York,</td>
<td>Old Oaken Bucket, and other specimens of chromo-lithography, and one frame of wood engravings engraved by Redman &amp; Kenney.</td>
</tr>
<tr>
<td>1340</td>
<td>Hunter, Thos., Philadelphia,</td>
<td>Tegner’s Drapa, and other specimens of chromo-lithography.</td>
</tr>
<tr>
<td>1341</td>
<td>Hoover, Jos., Philadelphia, Pa.,</td>
<td>The Changed Cross, and other specimens of chromo-lithography, with two of the original oil paintings. Chromos and oil paintings framed. Publisher of fine chromos, wholesale lowest rates. Office and salesroom, 1129 Chestnut Street; factory, south-west corner of Thirteenth and Buttonwood Streets.</td>
</tr>
</tbody>
</table>

**Memorial Hall, Second Story, Room No. 4.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>EXHIBITOR</th>
<th>SUBJECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1344</td>
<td>Vandusen, R., Weedsport, New York,</td>
<td>Four frames of lithographs (animals).</td>
</tr>
<tr>
<td>1345</td>
<td>Dwyer, Edward, Philadelphia,</td>
<td>Painting and inlaid mother-of-pearl on glass—Moonlight.</td>
</tr>
<tr>
<td>1347</td>
<td>Palm, Chas., &amp; Co., New York,</td>
<td>Specimens of C. Schuessler’s patent transfer ornaments on glass.</td>
</tr>
<tr>
<td>1350</td>
<td>Meyer, James, Jr., New York,</td>
<td>Pennmanship and pen drawings.</td>
</tr>
<tr>
<td>1351</td>
<td>Barlow, Joel H., Hudson City, N.J.,</td>
<td>Pennmanship and pen drawing.</td>
</tr>
<tr>
<td>1352</td>
<td>Brückner, H., New York,</td>
<td>Roger Williams’s Reception by the Indians (drawing).</td>
</tr>
<tr>
<td>1353</td>
<td>Brückner, H., New York,</td>
<td>Discovery of the Hudson River (drawing).</td>
</tr>
<tr>
<td>1355</td>
<td>Schmidt, Geo. S., Saratoga, N.Y.,</td>
<td>Silhouettes.</td>
</tr>
<tr>
<td>1356</td>
<td>North, Miss R. M., Philadelphia,</td>
<td>Bouquet drawn on silk.</td>
</tr>
<tr>
<td>NO.</td>
<td>EXHIBITOR.</td>
<td>SUBJECT.</td>
</tr>
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<td>-----</td>
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</tr>
<tr>
<td>1357</td>
<td>Frost, Philadelphia,</td>
<td>Sketches.</td>
</tr>
<tr>
<td>1359</td>
<td>Smith, G. B., Jersey City,</td>
<td>Shield composed of army badges worn in the late war.</td>
</tr>
<tr>
<td>1360</td>
<td>Pierce's Business College, 39 South Tenth Street, Philadelphia, Pa., Thomas May Pierce, M.A., Principal and Proprietor, Rev. John Thompson, Business Manager, residence 2002 Brandywine Street,</td>
<td>Specimens of penmanship and pen drawing. Brief description of the objects on exhibition in Pennsylvania Educational Hall.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I. Penmanship.—(a.) Seven (7) sets of resolutions engrossed by order of the Philadelphia Board of Public Education at different times during the past five years, and borrowed from the owners for the purpose of showing the high order of talent employed by the College. (b.) The improvement in writing of fourteen hundred (1400) pupils of the College, showing the success of the penman as a teacher. (c.) A &quot;reward of merit&quot; engrossed by the penman, the like of which is given once a month to the pupil who makes the most improvement in writing during the month. (d.) A large piece of &quot;Specimens of Spencerian Penmanship,&quot; and a set of resolutions, complimentary of the Principal, written by the penman, and a &quot;deceiving picture&quot; made with pen, brush, and pencil by the professor of drawing, each illustrating the power and ability of the executor. (e.) A piece of ornamental penmanship with a bouquet in the centre drawn with the pen, which with the drawings in the work done for the Board of Education, show the penman's skill in pen-drawing. II. Book-keeping.—(a.) A case of samples of Merchandise used by the pupils of the College in the transaction of business among themselves in the Actual Business Department, thus furnishing each pupil with an original and independent set of transactions for his books. (b.) Samples of College Currency used in the payment of bills, together with copies of the various business papers used by the students. III. Course of instruction.—(a.) A small piece of lettering naming the subjects taught. (b.) A Diploma setting forth the subjects of examination for graduation. IV. Objects of the Institution and Classes who patronize it.—A large piece of penmanship setting forth the same in detail. Particular merit which the Exhibitor claims for his Exhibit.—I. The highest order of talent in the penman in all the departments of work done with the pen. II. Superior plans for the improvement of the writing of pupils, in addition to the excellence of the teacher. III. Ingenious and successful plans for teaching Book-keeping and imparting a sound, practical, and economical preparation of young men for business life.</td>
</tr>
</tbody>
</table>

(Memorial Hall, Second Story, Room No. 5.)

1361 Centennial Commission, Competitive designs of the Centennial Buildings.

(Annex, Gallery No. 1.)

STAINED GLASS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>EXHIBITOR.</th>
<th>SUBJECT.</th>
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</thead>
<tbody>
<tr>
<td>1365</td>
<td>Mittermaier, Max, Brooklyn,</td>
<td>Christ amid the Doctors.</td>
</tr>
<tr>
<td>1366</td>
<td>West, Samuel, Boston,</td>
<td>Saint Paul.</td>
</tr>
</tbody>
</table>
### ENGRAVINGS AND LITHOGRAPHS.

*(Annex, Gallery No. 18.)*

<table>
<thead>
<tr>
<th>NO.</th>
<th>EXHIBITOR.</th>
<th>SUBJECT.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1368</td>
<td>Nichols, H. H., Washington,</td>
<td>Frame of surgical engravings on wood; frame of zoological engravings on wood.</td>
</tr>
<tr>
<td>1369</td>
<td>Mayer, Charles, Jersey City,</td>
<td>Frame of engravings on wood.</td>
</tr>
<tr>
<td>1370</td>
<td>Harley, J. S., New York,</td>
<td>Nine frames of engravings on wood (pictorial).</td>
</tr>
<tr>
<td>1371</td>
<td>Smart, T. L. &amp; R. M., New York,</td>
<td>Frame of engravings on wood (mechanical).</td>
</tr>
<tr>
<td>1372</td>
<td>Muller, R. A., Brooklyn,</td>
<td>Frame of engravings on wood (pictorial).</td>
</tr>
<tr>
<td>1373</td>
<td>Redman &amp; Kenney, New York,</td>
<td>Specimens of engravings on wood.</td>
</tr>
<tr>
<td>1374</td>
<td>Faas, Frederick, Philadelphia,</td>
<td>Specimens of engravings on wood.</td>
</tr>
<tr>
<td>1375</td>
<td>Scattergood &amp; Hammar, Phila-delphia,</td>
<td>Engravings on wood (machinery).</td>
</tr>
<tr>
<td>1376</td>
<td>Breuker &amp; Kessler, Philadel-phia,</td>
<td>Commercial lithographic engraving.</td>
</tr>
<tr>
<td>1377</td>
<td>Leonhardt, Theodore, &amp; Son, Philadelphia,</td>
<td>Commercial lithographic engraving.</td>
</tr>
<tr>
<td>1378</td>
<td>Gay, George, Philadelphia,</td>
<td>Decorated china and glass.</td>
</tr>
<tr>
<td>1379</td>
<td>Steele Bros., Philadelphia,</td>
<td>American decorated china and engraved glass.</td>
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</tbody>
</table>

*(Annex, Gallery No. 20.)*

<table>
<thead>
<tr>
<th>NO.</th>
<th>EXHIBITOR.</th>
<th>SUBJECT.</th>
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</thead>
<tbody>
<tr>
<td>1381</td>
<td>Bien, Julius, 16 and 18 Park Place, New York,</td>
<td>Lithographic and photo-lithographic Illustrations, maps, charts, and scientific engravings and drawings. Publisher of Walker's Statistical Atlas of the United States, and Album of the International Exhibition.</td>
</tr>
<tr>
<td>1382</td>
<td>Lauderbach, James W., Phila-delphia,</td>
<td>Four frames of engravings on wood, and illustrated books.</td>
</tr>
<tr>
<td>1383</td>
<td>Thompson, J. C., Providence,</td>
<td>Two frames of engravings on wood.</td>
</tr>
<tr>
<td>1384</td>
<td>Lehman &amp; Bolton, Philadel-phia,</td>
<td>Commercial lithographic engraving.</td>
</tr>
<tr>
<td>1386</td>
<td>Haas, Augustus, New York,</td>
<td>Electrotype reproductions of medals and bas reliefs.</td>
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</tbody>
</table>

*(Annex, Gallery No. 22.)*

<table>
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<tr>
<th>NO.</th>
<th>EXHIBITOR.</th>
<th>SUBJECT.</th>
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</thead>
<tbody>
<tr>
<td>1387</td>
<td>Sartain, John, Philadelphia,</td>
<td>Engravings on steel: The Iron-Worker; Christ Rejected; American Inventors; County Election; Zelisberger preaching to the Indians; two portraits.</td>
</tr>
<tr>
<td>1388</td>
<td>Sartain, Samuel, Philadelphia,</td>
<td>Engravings on steel: One of the Chosen; Evangeline; Clear the Track; two frames of portraits.</td>
</tr>
<tr>
<td>1389</td>
<td>Hollyer, Samuel, Guttenberg, N.Y.,</td>
<td>Engravings on steel: Flaw in the Title; Charles Dickens; frame of portraits.</td>
</tr>
<tr>
<td>1390</td>
<td>Perine, George E., New York,</td>
<td>Engravings on steel: Mother of the Lord; Better Land; Star-Spangled Banner; seventeen frames of portraits and book illustrations. Picture engraving on steel executed in all its branches. Portraits a specialty. Fine work in all styles at reasonable prices.</td>
</tr>
<tr>
<td>1391</td>
<td>McRae, J. C., New York,</td>
<td>Engravings on steel: The Day we Celebrate; First in Peace; Raising of the Liberty-Pole.</td>
</tr>
<tr>
<td>1393</td>
<td>Pease, J. Ives, Canaan, Conn.,</td>
<td>Engraving on steel: Old 76 and Young 48; frame of bank-note vignettes.</td>
</tr>
</tbody>
</table>
**UNITED STATES.**

**EXHIBITOR.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>Kelly, Thomas, New York,</th>
<th>Subject.</th>
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</thead>
<tbody>
<tr>
<td>1396</td>
<td>Two English engravings, after American artists: Rock of Ages; Mercy's Dream.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Durand, A. B., New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1397</td>
<td>Engravings on steel: Musidora; Ariadne; Declaration of Independence; frame of portraits.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Volkmar, Charles, Baltimore,</th>
<th>Subject.</th>
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</thead>
<tbody>
<tr>
<td>1398</td>
<td>Etchings on copper; two frames of landscapes.</td>
<td></td>
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</table>

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<thead>
<tr>
<th>NO.</th>
<th>Brown, G. L., Boston,</th>
<th>Subject.</th>
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<tbody>
<tr>
<td>1399</td>
<td>Etchings on copper; frame of landscapes.</td>
<td></td>
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</table>

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<thead>
<tr>
<th>NO.</th>
<th>Moran, Peter, Philadelphia,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1400</td>
<td>Etchings on copper; five frames of animal subjects.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Ferris, S. J., Philadelphia,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1401</td>
<td>Etchings on glass and copper; two portraits of Fortuny.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Hollyer, Samuel, Guttenberg, N.Y.,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1402</td>
<td>Engraving on steel: Autumnn.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Andrews, Joseph (deceased),</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1403</td>
<td>Engraving on steel: Landing of the Pilgrims.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Gugler, H., Washington,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1404</td>
<td>*Engraving on steel: portrait of Washington, Owned by G. D. Patten, Jr.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Whitechurch, R. (deceased),</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1405</td>
<td>Engraving on steel: Capture of the Serapis.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Lang, George S., Philadelphia,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1406</td>
<td>Engravings on copper: Landing of Columbus; Washington crossing the Delaware.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Marshall, W. E., New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1407</td>
<td>Three engravings on steel: one of Washington, two of Lincoln.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Knoedler, M., &amp; Co., New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1408</td>
<td>English engravings after American artists: Return of the Mayflower: The Two Farewells; Out All Night; Niagara Falls; Woodland Vows; Too Near the War-Path.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Lewis, Miss Edmonia, Rome,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1409</td>
<td>*Asleep (group in marble); Hiawatha's Marriage; Old Arrow Maker and his Daughter (group in marble); terra-cotta busts of Longfellow, Sumner, and John Brown.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Rogers, John, New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1410</td>
<td>Twenty-nine groups of plaster statuary for house and lawn.</td>
<td></td>
</tr>
</tbody>
</table>

**(Annex, Gallery No. 24.)**

<table>
<thead>
<tr>
<th>NO.</th>
<th>National Bank Note Company, New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1411</td>
<td>Specimens of bank-note engraving.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>American Bank Note Company, New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1412</td>
<td>Specimens of bank-note engraving.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Continental Bank Note Company, New York,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1413</td>
<td>Specimens of bank-note engraving.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Heath &amp; McKendrick, Philadelphia,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1414</td>
<td>Plaster figures and ornaments, and Scagliola pedestals.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Rulon, S. A., Philadelphia,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1415</td>
<td>*Ancient Hindoo idol.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Faser, C., Philadelphia,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1416</td>
<td>Architectural gilt frame.</td>
<td></td>
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<table>
<thead>
<tr>
<th>NO.</th>
<th>Spalding, H. M., Philadelphia,</th>
<th>Subject.</th>
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</thead>
<tbody>
<tr>
<td>1417</td>
<td>Household art.</td>
<td></td>
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<table>
<thead>
<tr>
<th>NO.</th>
<th>Pope, A., Jr., Boston,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1418</td>
<td>*Painted wood carving—Game.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Fick, Frederick, Philadelphia,</th>
<th>Subject.</th>
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<tbody>
<tr>
<td>1419</td>
<td>Marble monumental bas-relief.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>French, Wm. H., Philadelphia,</th>
<th>Subject.</th>
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<tbody>
<tr>
<td>1420</td>
<td>Plaster ornaments for interior decoration.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Fisher, Mrs. J Francis, Florence,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1421</td>
<td>Mosaic table.</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Snowdon, T. W.,</th>
<th>Subject.</th>
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<tbody>
<tr>
<td>1422</td>
<td>Wood carvings of chamois.</td>
<td></td>
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</table>

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<thead>
<tr>
<th>NO.</th>
<th>Wiesehahn, F.W.H., St. Louis,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1423</td>
<td>Pennmanship and pen drawings.</td>
<td></td>
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</table>

<table>
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<tr>
<th>NO.</th>
<th>Giddings, Thomas, Williamsport, Pa.,</th>
<th>Subject.</th>
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</thead>
<tbody>
<tr>
<td>1424</td>
<td>Centennial frame carved by hand.</td>
<td></td>
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</table>

**SCULPTURE.**

**(Memorial Hall, Gallery N.)**

<table>
<thead>
<tr>
<th>NO.</th>
<th>Worthington Sons, North Amherst, Ohio,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1425</td>
<td>Sandstone pedestal, from their quarries; presented to Memorial Hall.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO.</th>
<th>Sheldon &amp; Slason, West Rutland, Vt.,</th>
<th>Subject.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1426</td>
<td>Marble pedestal, from their quarries; presented to Memorial Hall.</td>
<td></td>
</tr>
</tbody>
</table>
GREAT BRITAIN.

(Memorial Hall, Galleries B, D, P, Q, R, S, T, Z.)

[The initials appended to the names of artists in the following pages signify as follows: P.R.A., President, R.A., Academician, A.R.A., Associate, and A.E., Associate Engraver of the Royal Academy of Arts, England; P.R.S.A., President, R.S.A., Member of the Royal Scottish Academy.

When not otherwise stated, the artist is also the contributor.]

SCULPTURE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Bailey, Edward Hodges, R.A. (deceased),</td>
<td>Bust of Flaxman. Lent by the Royal Academy, London.</td>
</tr>
<tr>
<td>3a</td>
<td>Bell, John, London,</td>
<td>Colossal group of &quot;America,&quot; from the original marble at the Albert Memorial, reproduced in terra-cotta by Messrs. H. Doulton &amp; Co.</td>
</tr>
<tr>
<td>4</td>
<td>Chantrey, Sir Francis Legatt, R.A. (deceased),</td>
<td>Bust of the late Benjamin West, P.R.A. Lent by the Royal Academy, London.</td>
</tr>
<tr>
<td>5a</td>
<td>Doulton, Henry, &amp; Co.,</td>
<td>Terra-cotta reproduction of colossal group &quot;America.&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. 2. Marie Antoinette on her Way to Execution, 16th October, 1793.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No. 3. &quot;It is Finished.&quot;</td>
</tr>
<tr>
<td>8</td>
<td>Joy, A. Bruce, London,</td>
<td>Bust of a girl.</td>
</tr>
<tr>
<td>9</td>
<td>Joy, A. Bruce, London,</td>
<td>Bust of Napoleon III.</td>
</tr>
<tr>
<td>10</td>
<td>Joy, A. Bruce, London,</td>
<td>Medallions.</td>
</tr>
<tr>
<td>12</td>
<td>Doolin, Walter, Dublin,</td>
<td>Two Celtic crosses, carved after the ancient Irish crosses in limestone. Exhibited in the grounds.</td>
</tr>
</tbody>
</table>

OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Anthony, Mark, Hampstead,</td>
<td>Sunset after a Storm. Lent by Thomas Winter, Esq.</td>
</tr>
<tr>
<td>7</td>
<td>Barry, James, R.A. (deceased),</td>
<td>The Temptation in Paradise. Lent by the Society of Arts, London.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST</td>
<td>TITLE</td>
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<tr>
<td>10</td>
<td>Buckner, R., London,</td>
<td>After the Battle. Lent by H. W. F. Bolckow, Esq., M.P.</td>
</tr>
<tr>
<td>15</td>
<td>Cameron, Hugh, R.S.A., London,</td>
<td>Little Sunshine.</td>
</tr>
<tr>
<td>18</td>
<td>Clark, J., London,</td>
<td>Lake scene—Sunset.</td>
</tr>
<tr>
<td>29</td>
<td>Creswick, Thomas, R.A. (deceased),</td>
<td>Ligny. Lent by W. Howe, Esq.</td>
</tr>
<tr>
<td>31</td>
<td>Crowe, Eyre, London,</td>
<td>Goldsmith's Mourners. (See J. Forster's &quot;Life of Oliver Goldsmith.&quot;)</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
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</tr>
<tr>
<td>52</td>
<td>Gilbert, Sir John, A.R.A., Blackheath</td>
<td>The First Prince of Wales. Lent by Edwin Lawrence, Esq.</td>
</tr>
<tr>
<td>55</td>
<td>Girardot, E. G., London</td>
<td>Herr Carl Deichmann, violinist and composer.</td>
</tr>
<tr>
<td>56</td>
<td>Goodall, Frederick, R.A., Harrow Weald</td>
<td>Cairo Fruit-Girl. Lent by Messrs. Pilgeram &amp; Lefèvre.</td>
</tr>
<tr>
<td>57</td>
<td>Graham, Peter, London</td>
<td>On the Way to the Cattle Tryst. Lent by Thomas Jessop, Esq., J.P.</td>
</tr>
<tr>
<td>58</td>
<td>Graham, Peter, London</td>
<td>Wind. Lent by A. Brogden, Esq., M.P.</td>
</tr>
<tr>
<td>59</td>
<td>Grant, Sir Francis, P.R.A., London</td>
<td>The late Viscount Hardinge, Governor-General of India, returning from the Battle of Ferozeshah. The background represents the captured camp and village of Ferozeshah. Lent by Viscount Hardinge.</td>
</tr>
<tr>
<td>60</td>
<td>Grant, Sir Francis, P.R.A., London</td>
<td>Portrait of Mrs. Markham.</td>
</tr>
<tr>
<td>61</td>
<td>Grant, Sir Francis, P.R.A., London</td>
<td>Portrait of Earl Russell, K.G. Lent by Earl Russell, K.G.</td>
</tr>
<tr>
<td>63</td>
<td>Hayter, Sir George</td>
<td>Portrait of Her Majesty in Coronation Robes. Lent by Her Majesty the Queen.</td>
</tr>
<tr>
<td>64</td>
<td>Herdman, R., R.S.A., Edinburgh</td>
<td>Portrait of Thomas Carlyle (replica).</td>
</tr>
<tr>
<td>65</td>
<td>Hering, G. E., London</td>
<td>A Rift in the Gloom, Glen Sannox. Lent by John Pender, Esq., M.P.</td>
</tr>
<tr>
<td>66</td>
<td>Hicks, G. E., London</td>
<td>Will he do it?</td>
</tr>
<tr>
<td>70</td>
<td>Holl, F., London</td>
<td>“The Lord gave, the Lord hath taken away; blessed be the name of the Lord.” Lent by F. C. Prowse, Esq.</td>
</tr>
<tr>
<td>72</td>
<td>Hook, James Clarke, R.A., Farnham</td>
<td>From under the Sea. Lent by C. P. Matthews, Esq.</td>
</tr>
<tr>
<td>77</td>
<td>Hunt, Holman, London</td>
<td>Portrait of the artist.</td>
</tr>
<tr>
<td>82</td>
<td>Jopling, Mrs. Louise, London</td>
<td>The Five Sisters of York.</td>
</tr>
<tr>
<td>84</td>
<td>Knight, C. P., Clifton, Bristol</td>
<td>Newport Bay, Pembrokehire.</td>
</tr>
<tr>
<td>85</td>
<td>Lance, George (deceased)</td>
<td>The Unwelcome Guest. Lent by G. E. Lance, Esq.</td>
</tr>
<tr>
<td>No.</td>
<td>Artist.</td>
<td>Title.</td>
</tr>
<tr>
<td>-----</td>
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<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>91</td>
<td>Laurence, S., London,</td>
<td>Portrait of Robert Browning, the poet.</td>
</tr>
<tr>
<td>92</td>
<td>Lawrence, Sir Thomas, P.R.A. (deceased),</td>
<td>Portrait of the first Lord Ashburton. Lent by Lady Louisa Ashburton.</td>
</tr>
<tr>
<td>93</td>
<td>Lawrence, Sir Thomas, P.R.A. (deceased),</td>
<td>The Three First Partners of the Baring House, viz., Sir Francis Baring,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>brother, John Baring, and his son-in-law, Charles Wall. Lent by Lord</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Northbrook.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sultry Eve. A Game of Knucklebones.</td>
</tr>
<tr>
<td>106</td>
<td>Maclaren, W., Capri, near Naples,</td>
<td>Out in the Cold. Lent by Captain Hill.</td>
</tr>
<tr>
<td>111</td>
<td>MacWhirter, J., London,</td>
<td>Wind on the Wolds. Lent by Fred'k Leighton, Esq., R.A.</td>
</tr>
<tr>
<td>114</td>
<td>Mason, George, A.R.A. (deceased),</td>
<td>Storm coming on at Sunset—Coast of North Wales. Lent by E. Dollans, Esq</td>
</tr>
<tr>
<td>118</td>
<td>Mulready, William, R.A. (deceased),</td>
<td>The Marriage of the Young Prince Richard, Duke of York, second son of</td>
</tr>
<tr>
<td>119</td>
<td>Mutrie, Miss A. F., London,</td>
<td>King Edward the Fourth, with Anne, daughter of the Duke of Norfolk,</td>
</tr>
<tr>
<td>120</td>
<td>Mutrie, Miss M. D., London,</td>
<td>May 15th, 1478. Lent by Her Majesty the Queen.</td>
</tr>
<tr>
<td>124</td>
<td>Opie, John, R.A. (deceased),</td>
<td></td>
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<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
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<tr>
<td>130</td>
<td>Paton, W. H., R.S.A., Edin-</td>
<td>A Dell without a Name. Lent by Alex. S. Ste-</td>
</tr>
<tr>
<td>132</td>
<td>Perugini, Charles Edward, Lon-</td>
<td>Portrait of Mrs. C. E. Perugini, younger daughter of the late Charles Dickens, Esq.</td>
</tr>
<tr>
<td>147</td>
<td>Redgrave, Richard, R.A., Lon-</td>
<td>The Alarm of an Invasion.</td>
</tr>
<tr>
<td>148</td>
<td>Reynolds, Sir Joshua, P.R.A. (deceased),</td>
<td>Portrait of the artist. Lent by the Royal Academy, London.</td>
</tr>
<tr>
<td>149</td>
<td>Richmond, W. B., London,</td>
<td>Prometheus Bound.</td>
</tr>
<tr>
<td>150</td>
<td>Rigaud, John Francis, R.A. (de-</td>
<td>Samson and Delilah. Lent by the Royal Academy, London.</td>
</tr>
<tr>
<td>151</td>
<td>Rivière, B., London,</td>
<td>Circe and the Companions of Ulysses. Lent by J. K. Cross, Esq., M.P.</td>
</tr>
<tr>
<td>154</td>
<td>Sant, James, R.A., London,</td>
<td>&quot;Sometimes with most intensity gazing, I seem to see thought folded over thought.&quot; Lent by Mrs. Lancaster.</td>
</tr>
<tr>
<td>159</td>
<td>Starr, Miss Louisa,</td>
<td>Imogen. Lent by H. C. Howells, Esq., of New York.</td>
</tr>
<tr>
<td>163</td>
<td>Stuart, Gilbert (deceased),</td>
<td>Portrait of Washington. Lent by J. Delaware Lewis, Esq.</td>
</tr>
</tbody>
</table>
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### GREAT BRITAIN.

#### ARTIST.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>167</td>
<td>Topham, F. W. W., London,</td>
<td>The Fall of Rienzi, the last Roman Tribune. Lent by the Corporation of Liverpool.</td>
</tr>
<tr>
<td>171</td>
<td>Walton, F., Dorking,</td>
<td>Crossways Farm, near Dorking. “One of the olden time.”</td>
</tr>
<tr>
<td>175</td>
<td>Ward, Mrs. Henrietta, London,</td>
<td>A Scene from the Childhood of the Old Pretender.</td>
</tr>
<tr>
<td>176</td>
<td>Ward, James, R.A. (deceased),</td>
<td>An Arab Horse. Lent by Charles J. Freake, Esq.</td>
</tr>
</tbody>
</table>

#### WATER COLOR PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
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<tbody>
<tr>
<td>5</td>
<td>Callow, W., London,</td>
<td>Menagio on the Lake of Como.</td>
</tr>
<tr>
<td>6</td>
<td>Cattermole, George (deceased),</td>
<td>The Death of Duncan. Lent by George Giles, Esq.</td>
</tr>
<tr>
<td>7</td>
<td>Cox, David, Jr., London,</td>
<td>Donne Castle. Lent by F. A. Argles, Esq.</td>
</tr>
<tr>
<td>8</td>
<td>Cox, David, Jr., London,</td>
<td>Mountain Solitude. Lent by Captain Baldwin.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
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</tr>
<tr>
<td>14</td>
<td>Gilbert, Sir John, A.R.A., Blackheath Road,</td>
<td>Visit of King Francis the First of France, the Queen of Navarre, Madam d'Estampes, and the Cardinal of Lorraine to the Workshop of Benvenuto Cellini.</td>
</tr>
<tr>
<td>20</td>
<td>Haghe, Louis, London,</td>
<td>His Holiness Pope Pius IX. administering the communion to the gentlemen of his household, and to persons of distinction, in the Sistine Chapel, in the Vatican. Lent by R. M. Knowles, Esq.</td>
</tr>
<tr>
<td>30</td>
<td>Linton, J. D.,</td>
<td>Washing the Beggars' Feet on Maundy-Thursday. Lent by A. Dunbar, Esq.</td>
</tr>
<tr>
<td>31</td>
<td>May, W., London,</td>
<td>Homeward Bound. Lent by E. J. Reed, Esq., C.B., M.P.</td>
</tr>
<tr>
<td>33</td>
<td>Montalba, Miss Clara, London,</td>
<td>Blessing a Tomb, Westminster.</td>
</tr>
<tr>
<td>34</td>
<td>Naftel, P. J., London,</td>
<td>Isle of Skye.</td>
</tr>
<tr>
<td>36</td>
<td>Newton, A. P., London,</td>
<td>Left by the Tide.</td>
</tr>
<tr>
<td>39</td>
<td>Severn, A., London,</td>
<td>Old Chelsea before the Thames Embankment. Lent by Alfred Tylor, Esq., F.G.S.</td>
</tr>
<tr>
<td>41</td>
<td>Smallfield, F., London,</td>
<td>Genoese Flower-Girl.</td>
</tr>
<tr>
<td>42</td>
<td>Stillman, Mrs. M., London,</td>
<td>Sir Tristram and Queen Yseult.</td>
</tr>
</tbody>
</table>
GREAT BRITAIN.

ARTIST.  
Barlow, Brandard,  
ARTIST.  
Lent  
TITLE.  
Edwards, Brandard,  
Outlines  
Barlow,  

NO.  
52  
53  
54  

Topham, F. W., London,  
Willis, H. B., London,  
Willis, H. B., London,  

Listening to her Lover's Letter.  
Lent by R. M. Knowles, Esq.  
A Group of Highland Cattle in Glen Nevis, Western Highlands, Scotland.  
Lent by H. R. H. the Princess Louise (Marchioness of Lorne).  
A Group of Cattle on the Banks of the Hamble, in Hampshire.  
Lent by Mrs. George Moore.  

DRAWINGS WITH PEN, PENCIL, OR CRAYONS.  
ARTIST.  
Leech, John (deceased),  
TITLE.  
Outlines in pencil.  
Lent by Miss C. E. Leech, London.  

ENGRAVINGS.  
ARTIST.  
No.  
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Barlow, T. O., A.R.A., London,  
Barlow, T. O., A.R.A., London,  
Barlow, T. O., A.R.A., London,  
Barlow, T. O., A.R.A., London,  
Brandard, E. P., Barnsbury,  
Brandard, E. P., Barnsbury,  
Cope, C. W., R.A., London,  
Edwards, Edwin, London,  
Edwards, Edwin, London,  
Edwards, Edwin, London,  
Edwards, Edwin, London,  
Etching Club,  
Evershed, Arthur, London,  
Evershed, Arthur, London,  
Haden, F. S., London,  
Haden, F. S., London,  
Heseltine, J. P., London,  
Jeens, C. H., London,  
Leighton, J., F.S.A., London,  
Leighton, J., F.S.A., London,  
Lewis, Charles G., London,  
Lewis, Charles G., London,  
Lewis, Charles G., London,  
Lewis, Charles G., London,  
Lewis, Charles G., London,  
Lewis, Charles G., London,  
Parkes, R. B., Hornsey,  
Phillips, L. B., London,  
Phillips, L. B., London,  
Phillips, L. B., London,  
Quick, W. M. R., London,  
Redgrave, Richard R.A., London,  
Redgrave, Richard R.A., London,  
Ridgway, W., London,  
Ridgway, W., London,  
Ridgway, W., London,  

Prayer (after J. Phillip, R.A.).  
Faith (after J. Phillip, R.A.).  
Dolores (after J. Phillip, R.A.).  
Sir James Paget, Bart. (after J. E. Millais, R.A.).  
Men-of-War off Plymouth—Rough Weather (after H. Dawson).  
"The Life School of the Royal Academy."  
Proofs of a work on "Old Inns";—Title-page, "Crown and Castle, Oxford;" back, "Scole Inn."  
Proofs of a work on "Old Inns,"  
Martlesham Lion Inn and Sign.  
Scole Inn. The Sun, Feering.  
Half Moon, Bury. Rose and Crown, Sudbury.  
Etchings by members. Lent by Samuel Redgrave, Esq.  
Dry Points.  
Etchings.  
Breaking up of the Agamemnon.  
Brancombe, Devon. Gainsborough Lane, Ipswich.  
Parents of Christ seeking Him (after E. Armitage, R.A.).  
Proofs of wood engravings, various (after drawings by artist).  
Etchings printed from relief.  
The Horse Fair (after Rosa Bonheur).  
Highland Cattle—Early Morn (after Rosa Bonheur).  
Bouricairos crossing the Pyrenees (after Rosa Bonheur).  
Daniel in the Lions' Den (after B. Rivière).  
Mrs. Abington as Miss Prue (after Sir J. Reynolds, P.R.A.).  
The Rathhaus, Cologne.  
The Canongate Tolbooth, Edinburgh.  
John Knox's House, Edinburgh.  
Specimens of engravings on wood.  
Help at Hand.  
Rustic Courtship.  
The Light of the World (after Holman Hunt).  
A Triumphal Procession (after T. Géraud).
<table>
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<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>35</td>
<td>Saddler, J., London,</td>
<td>St. Michael's Mount, Cornwall (after Birket Foster).</td>
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<td>37</td>
<td>Saddler, J., London,</td>
<td>Going to the Christening (after A. Bellowes).</td>
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<td>Sharpe, C. W., Maidenhead,</td>
<td>Play scene in Hamlet (after D. Maclise, R.A.).</td>
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<td>41</td>
<td>Sharpe, C. W., Maidenhead,</td>
<td>Here Nelson fell (after D. Maclise).</td>
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<td>Slocombe, C. P., Islington,</td>
<td>King Arthur's Castle, Tintagel, Cornwall.</td>
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<td>Slocombe, C. P., Islington,</td>
<td>Stonehenge.</td>
</tr>
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<td>44</td>
<td>Slocombe, C. P., Islington,</td>
<td>Beach at Rottingdean, Sussex—chalk cliffs and boulders.</td>
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<td>Stacpoole, F., London,</td>
<td>Ought and Carry One (after Miss A. Havers).</td>
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<td>Swain, Joseph, London,</td>
<td>Pictures from &quot;Punch.&quot;</td>
</tr>
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<td>Tayler, Frederick, London,</td>
<td>Illustrations to the &quot;Deserted Village&quot; of Oliver Goldsmith.</td>
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<td>The &quot;Songs of Shakespeare.&quot;</td>
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<td>Thomas, Percy, London,</td>
<td>Miss Isabel Bateman.</td>
</tr>
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<td>Tomkins, Charles A., London,</td>
<td>Jochebed, mother of Moses (after Fred'k Goodall, R.A.).</td>
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<td>Uhlrich, H. S., Chislehurst,</td>
<td>Three sets of wood engravings, portraits.</td>
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<td>Willmore, A., London,</td>
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<tr>
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<td>Cresswell, W. N.,</td>
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</tr>
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<td>Day, F.,</td>
<td>Landscape.</td>
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<td>In the Eastern Townships.</td>
</tr>
<tr>
<td>8</td>
<td>Verner, F. A.,</td>
<td>*Hudson Bay Officials leaving Brule Portage, on Rainy Lake (early morning).</td>
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<td>9</td>
<td>Kreighoff</td>
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</tr>
<tr>
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<td>Cresswell, W. N.,</td>
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</tr>
<tr>
<td>12</td>
<td>Jacobi</td>
<td>Morning Mist on the Ottawa.</td>
</tr>
<tr>
<td>13</td>
<td>Forbes, J. C.,</td>
<td>Foundering of the Hibernia in Mid-Ocean.</td>
</tr>
<tr>
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<td>Forbes, J. C.,</td>
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</tr>
<tr>
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<td>Hancock, H.,</td>
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</tr>
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<td>17</td>
<td>Jacobi</td>
<td>Mountains on the Ottawa.</td>
</tr>
<tr>
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<td>A Whisky Ring.</td>
</tr>
<tr>
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</tr>
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</tr>
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<td>Cresswell, W. N.,</td>
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</tr>
<tr>
<td>30</td>
<td>Baigent, R.,</td>
<td>*Dead Canary.</td>
</tr>
<tr>
<td>32</td>
<td>Matthews, M.,</td>
<td>Lane in Oxfordshire.</td>
</tr>
<tr>
<td>34</td>
<td>Millard, C. S.,</td>
<td>Rest.</td>
</tr>
<tr>
<td>36</td>
<td>O'Brien,</td>
<td>Crossing the Ice.</td>
</tr>
<tr>
<td>37</td>
<td>Fowler, D.,</td>
<td>Lilacs.</td>
</tr>
<tr>
<td>39</td>
<td>O'Brien,</td>
<td>Pele Islands.</td>
</tr>
<tr>
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<td>Stapel-y-Mall.</td>
</tr>
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<td>O'Brien,</td>
<td>Ottawa.</td>
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<td>47</td>
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</tr>
<tr>
<td>50</td>
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</tr>
<tr>
<td>51</td>
<td>Fowler, D.,</td>
<td>Partridges.</td>
</tr>
<tr>
<td>52</td>
<td>Way,</td>
<td>Old Saw-mill.</td>
</tr>
<tr>
<td>53</td>
<td>Edson,</td>
<td>A Trout Brook.</td>
</tr>
<tr>
<td>56</td>
<td>Fowler, D.,</td>
<td>Castle of Ischia.</td>
</tr>
<tr>
<td>57</td>
<td>Way,</td>
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</tr>
<tr>
<td>58</td>
<td>Way,</td>
<td>Morning after the Fishing.</td>
</tr>
<tr>
<td>59</td>
<td>Jacobi,</td>
<td>Sunset.</td>
</tr>
<tr>
<td>61</td>
<td>Fowler, D.,</td>
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</tr>
<tr>
<td>62</td>
<td>Fowler, D.,</td>
<td>Pigeons.</td>
</tr>
<tr>
<td>63</td>
<td>Edson,</td>
<td>Trespassers.</td>
</tr>
<tr>
<td>64</td>
<td>Edson,</td>
<td>Reapers.</td>
</tr>
<tr>
<td>65</td>
<td>Matthews, M.,</td>
<td>Twilight.</td>
</tr>
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<td>68</td>
<td>Millard,</td>
<td>Dolwydellian Castle, Wales.</td>
</tr>
<tr>
<td>69</td>
<td>Fowler, D.,</td>
<td>Flowers.</td>
</tr>
<tr>
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<td>Millard,</td>
<td>North Wales.</td>
</tr>
<tr>
<td>72</td>
<td>Jacobi,</td>
<td>Sketch.</td>
</tr>
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<td>73</td>
<td>Martin, T. M.,</td>
<td>Beech.</td>
</tr>
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<td>74</td>
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</tr>
<tr>
<td>75</td>
<td>Jacobi,</td>
<td>Sunset.</td>
</tr>
<tr>
<td>76</td>
<td>Fowler,</td>
<td>Grebes.</td>
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<td>77</td>
<td>Weston, I.,</td>
<td>Snowbird and Pigeon.</td>
</tr>
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<td>Fowler, D.,</td>
<td>Syringa.</td>
</tr>
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<td>Matthews, M.,</td>
<td>At Fairfield, Oxfordshire, England.</td>
</tr>
<tr>
<td>83</td>
<td>Millard,</td>
<td>Welsh Mountain Scene.</td>
</tr>
<tr>
<td>85</td>
<td>Weston, I.,</td>
<td>Study in the Woods.</td>
</tr>
<tr>
<td>86</td>
<td>Jacobi,</td>
<td>Outlet of Gull Lake.</td>
</tr>
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<td>88b</td>
<td>Vandyck,</td>
<td>Portrait of Owen Abbott, who was deputed by the English House of Commons to bring King George I. to the throne.</td>
</tr>
<tr>
<td>90</td>
<td>Sandham, H.,</td>
<td>Mic-Mac Encampment on the Lower St. Lawrence.</td>
</tr>
<tr>
<td>93</td>
<td>Jacobi,</td>
<td>The Montmorenci River.</td>
</tr>
<tr>
<td>95</td>
<td>Way, C. I.,</td>
<td>On the Androscoggin.</td>
</tr>
<tr>
<td>96</td>
<td>Jacobi,</td>
<td>Sha-wan-eg-fan Falls.</td>
</tr>
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<td>Weston, I.,</td>
<td>*Fruit.</td>
</tr>
<tr>
<td>99</td>
<td>Bertrand, E.,</td>
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<tr>
<td>100</td>
<td>Edson,</td>
<td>Burnham Beeches.</td>
</tr>
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<td>Martin, T. M.,</td>
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<td>104</td>
<td>Vogt, A.,</td>
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</tr>
<tr>
<td>105</td>
<td>Fraser, J. A.,</td>
<td>A Gleam of Morning Sunlight.</td>
</tr>
<tr>
<td>107</td>
<td>Martin, T. M.,</td>
<td>Indian Summer, Georgian Bay.</td>
</tr>
<tr>
<td>114</td>
<td>Sharpe, C.,</td>
<td>The Captive.</td>
</tr>
<tr>
<td>116</td>
<td>Sandham, H.,</td>
<td>Old Fort Chambley, Richelieu River.</td>
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<td>Fraser, W. L.,</td>
<td>*Clouding on Mount Elephants.</td>
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<td>120</td>
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<td>A Pool in the Woods.</td>
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<tr>
<td>121</td>
<td>Jacobi,</td>
<td>Falls of St. Anne.</td>
</tr>
<tr>
<td>123</td>
<td>Martin, T. M.,</td>
<td>*“This Side up with Care.”</td>
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<td>124</td>
<td>Bridgman &amp; Foster,</td>
<td>Portrait.</td>
</tr>
<tr>
<td>125</td>
<td>Schreiber, Mrs.,</td>
<td>Goat and Lamb.</td>
</tr>
<tr>
<td>128</td>
<td>Martin, T. M.,</td>
<td>Fruit.</td>
</tr>
<tr>
<td>130</td>
<td>Hancock,</td>
<td>Autumn in Canada.</td>
</tr>
<tr>
<td>133</td>
<td>Dayt Forshaw,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>134</td>
<td>Forbes, J. C.,</td>
<td>Portrait of D. Forbes, Esq. [eral.</td>
</tr>
<tr>
<td>135</td>
<td>Bridgman &amp; Foster,</td>
<td>Ex-Governor Jewell, Postmaster-General.</td>
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<tr>
<td>137</td>
<td>Forbes, J. C.,</td>
<td>His Excellency the Earl of Dufferin, Governor-General of Canada.</td>
</tr>
<tr>
<td>140</td>
<td>Martin, T. M.,</td>
<td>Summer Noon.</td>
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<td>141</td>
<td>Day, F.,</td>
<td>River scene.</td>
</tr>
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<td>142</td>
<td>Day, F.,</td>
<td>River scene.</td>
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<tr>
<td>143</td>
<td>Hancock, H.,</td>
<td>*Lake Inckbracke.</td>
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<td>144</td>
<td>Lely, Sir Peter,</td>
<td>Portrait of Lady Molyneux.</td>
</tr>
<tr>
<td>146</td>
<td>Fraser, I. A.,</td>
<td>Oat Harvest in Lower Canada.</td>
</tr>
<tr>
<td>147</td>
<td>Schreiber, Mrs.,</td>
<td>Olivia.</td>
</tr>
</tbody>
</table>

What Olivia really felt gave me some uneasiness. In this struggle between prudence and passion, her vivacity quite forsook her, and every opportunity for solitude was sought.
FRANCE.

(Memorial Hall, Central Gallery East, North Side.)

<table>
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<th>NO.</th>
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<tr>
<td>1</td>
<td>Muraton, Mrs. E., Paris,</td>
<td>Monkey amidst the Fruit.</td>
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<td>Blanc, C. L., Paris,</td>
<td>Floral Offerings to the Holy Mother, Naples.</td>
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<td>Veron, A. R., Paris,</td>
<td>Storm—Entrance to the Harbor of Boulogne.</td>
</tr>
<tr>
<td>9</td>
<td>Coninck, P. de, Paris,</td>
<td>Italian Shepherd-Girl.</td>
</tr>
<tr>
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<td>Ségé, A., Paris,</td>
<td>Coast Scene.</td>
</tr>
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<td>17</td>
<td>Castiglione, G., Paris,</td>
<td>Visiting the Uncle Cardinal.</td>
</tr>
<tr>
<td>18</td>
<td>Lorlet, L., Quillins,</td>
<td>View on Mont Blanc.</td>
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<td>Michel, Ernest B., Montpellier,</td>
<td>Decameron.</td>
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<td>Hanoteau, H., Paris,</td>
<td>Feeding the Hens.</td>
</tr>
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<td>Legat, Léon, Paris,</td>
<td>Landscape with figures.</td>
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<td>Curzon, P. A. C., Paris,</td>
<td>Ruth and Boaz.</td>
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<td>Benouville, A., Paris,</td>
<td>Suburbs of Palestrina, Italy.</td>
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<td>Market-Street in Constantine</td>
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<td>31</td>
<td>Masson, Miss A., Paris,</td>
<td>Still Life.</td>
</tr>
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<td>32</td>
<td>Brunet-Houard, P. A., Fontainebleau,</td>
<td>Dog and Monkey, Circus.</td>
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<td>Ullmann, B., Paris,</td>
<td>Dancing Gipsy Girl (Spain).</td>
</tr>
<tr>
<td>35</td>
<td>Lebel, Edmond, Paris,</td>
<td>Italian Shepherd-Girl.</td>
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<td>38</td>
<td>Maignan, Albert, Paris,</td>
<td>Hélène at the Fountain.</td>
</tr>
<tr>
<td>40</td>
<td>Gide, T., Paris,</td>
<td>Studying.</td>
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</table>

(Memorial Hall, Gallery E.)

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
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<tbody>
<tr>
<td>42</td>
<td>Pallière, J. L., Paris,</td>
<td>Visiting the Confessor.</td>
</tr>
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GOBELIN TAPESTRIES.

<table>
<thead>
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</thead>
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<tr>
<td>44</td>
<td>Schenck, A. F., Ecouen,</td>
<td>Sheep in a Snow-Storm.</td>
</tr>
<tr>
<td>45</td>
<td>Saintin, Jules Emile, Paris,</td>
<td>Child and an Apple.</td>
</tr>
<tr>
<td>46</td>
<td>Notermann, Zach., Paris,</td>
<td>Before the Court.</td>
</tr>
<tr>
<td>47</td>
<td>Castiglione, G., Paris,</td>
<td>The Warrants (Haddon Hall Castle).</td>
</tr>
<tr>
<td>49</td>
<td>Schenck, A. F., Ecouen,</td>
<td>Sheep on the Heath.</td>
</tr>
<tr>
<td>51</td>
<td>Plassan, A. E., Passy,</td>
<td>In Front of the Looking-Glass.</td>
</tr>
<tr>
<td>52</td>
<td>Viger, H. J. L., Paris,</td>
<td>Remember the Poor.</td>
</tr>
</tbody>
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OIL PAINTINGS.

<table>
<thead>
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<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
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<tbody>
<tr>
<td>54</td>
<td>The Gobelin Manufactory in Paris, Beauvais, and Gobelin,</td>
<td>Collection of nine tapestries.</td>
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<table>
<thead>
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<th>TITLE.</th>
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<tbody>
<tr>
<td>Chaillou, N., Lagny-le-Sec,</td>
<td>The Watermelon.</td>
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<tr>
<td>Landelle, Ch., Paris,</td>
<td>A Fellah Woman (Egypt).</td>
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<tr>
<td>Renié, Jean Emile, Passy,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>Colmann, M., Paris,</td>
<td>A Court Scene.</td>
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<tr>
<td>Perrault, L., Paris,</td>
<td>Repose.</td>
</tr>
<tr>
<td>Muraton, Mrs. E., Paris,</td>
<td>An Antique Room.</td>
</tr>
<tr>
<td>Brunet-Houard, P. A., Fontainebleau,</td>
<td>Interior of a Menagerie.</td>
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<tr>
<td>Renié, Jean Emile, Passy,</td>
<td>Winter Landscape.</td>
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<td>Charton, T., Paris,</td>
<td>Angelica and Roger.</td>
</tr>
<tr>
<td>Luminais, E. V., Paris,</td>
<td>Savages and Cattle.</td>
</tr>
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<td>Prion, Louis, Paris,</td>
<td>School for Young Satyrs.</td>
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<td>Rizpah protecting the Bodies of her Sons from the Birds of Prey (II. Samuel xxii. 10).</td>
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<td>Rudaux, E., Caudebec-les-Elbeuf,</td>
<td>Interruption.</td>
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<td>Leleux, Mrs. Emilie, Paris,</td>
<td>The Doctors' Consultation.</td>
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<td>Salabert, F., Paris,</td>
<td>View on Lake d'Annecy.</td>
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<td>Ballot, Mrs. A., Paris,</td>
<td>Meditation.</td>
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<td>Rivey, A., Paris,</td>
<td>Young Venetian Girl.</td>
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<td>Butcher in Trastevere (Italy).</td>
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<td>Chevrier, J., Place de Beaune, Saone,</td>
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<td>Dubos, Miss A., Paris</td>
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<td>Luminais, E. V., Paris</td>
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<td>Courdouan, V., Toulon</td>
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<td>Benouville, A., Paris</td>
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<td>Pabst, C. Alf., Paris</td>
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<td>Rosier, A., Paris</td>
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<td>102</td>
<td>Chevrier, I., Place de Beaune, Saone</td>
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<td>103</td>
<td>Saintin, Jules Emile, Paris</td>
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<td>105</td>
<td>Villebesseyx, G., Paris</td>
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**SCULPTURE AND PORCELAIN.**

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<tr>
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<tr>
<td>108a</td>
<td>Sèvres Porcelain Manufactory</td>
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<td>Sèvres Porcelain Manufactory</td>
<td>Vase.</td>
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<td>111</td>
<td>Cordier, Ch., Paris</td>
<td>Arabian Woman (marble and bronze statue).</td>
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<td>Sèvres Porcelain Manufactory</td>
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<td>113a</td>
<td>Sèvres Porcelain Manufactory</td>
<td>The Young Vine-Grower (bronze).</td>
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<td>114</td>
<td>Bartholdi, A., Paris</td>
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<td>Sèvres Porcelain Manufactory</td>
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<td>Félon, Joseph</td>
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(Memorial Hall, Gallery Z.)

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<td>Ballavoine, J. F., Paris</td>
<td>The Bouquet.</td>
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<td>Chevrier, J., Place de Beaune, Saone</td>
<td>Rats in a Gothic Hall.</td>
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<td>122</td>
<td>Coroenné, H., Paris</td>
<td>Salutation.</td>
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<td>Baeuc, J. A., Paris</td>
<td>Interior of a Sheep-Cote.</td>
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<td>124</td>
<td>Montfallet, A., Paris</td>
<td>The Juggler (time of Louis XIII.).</td>
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<td>Lepesqueur, H., Paris</td>
<td>The Beautiful Innkeeper.</td>
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<td>Salles-Wagner, Mrs. A., Nimes,</td>
<td>Holy Mother and Child.</td>
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<td>131</td>
<td>Chagot, E., Paris</td>
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<td>Delobbe, F. A., Paris</td>
<td>Going Home from the Fields.</td>
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<td>Fery, Miss V., Paris</td>
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<td>Daubigny, Karl, Paris</td>
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<td>Dameron, E., Paris</td>
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<td>Accard, E., Paris</td>
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<td>Petit, Eugène, Paris</td>
<td>Spring Flowers.</td>
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<td>Trouillebert, P. D., Paris</td>
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<td>Blum, Maurice, Paris</td>
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<td>Lays, J. P., Lyons</td>
<td>Basket with Fruit.</td>
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<td>Dumaresque, A., Paris</td>
<td>Declaration of Independence, United States of America, 4th July, 1776.</td>
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<td>Guillon, A., Paris</td>
<td>After the Rain.</td>
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<td>Chaillou, N., Lagny-le-Sec</td>
<td>Public Assistance in Paris.</td>
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<td>Chevrier, J., Place de Beaune, Saone,</td>
<td>Mouse in an Antique Room.</td>
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<td>Morin, Léonard, Paris</td>
<td>Flower-Market at the Madeleine.</td>
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<td>151</td>
<td>Nicholas, Miss M., Paris</td>
<td>The Alphabet.</td>
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<td>152</td>
<td>Houard-Brunet, P. A., Fontainebleau,</td>
<td>The Horse Fair.</td>
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**SCULPTURE.**

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<td>153</td>
<td>Perrey, N. A., Paris</td>
<td>A Young Shepherd (marble).</td>
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<td>154</td>
<td>Vasselot, A. de, Paris</td>
<td>Portrait of M. Auzoux (bronze).</td>
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<td>155</td>
<td>Devaux, F. A., Rouen</td>
<td>Louis Bouilhet (marble).</td>
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<td>Muraton, A., Paris</td>
<td>A Monk.</td>
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<td>Revel, C., Paris</td>
<td>The Miser.</td>
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<td>Beliard, E., Paris</td>
<td>Banks of the River Oise (Winter).</td>
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<td>Oudinot, A., Paris</td>
<td>Low Tide at Villeuve.</td>
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<td>Notermann, Z., Paris</td>
<td>Auction Sale.</td>
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<td>162</td>
<td>Duverger, T. E., Ecouen</td>
<td>The School.</td>
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<td>Montfaillet, A., Paris</td>
<td>Summer Amusements near Versailles.</td>
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<td>Hirsch, A., Paris</td>
<td>The Model.</td>
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<td>Collette, A., Paris</td>
<td>A French Peasant Girl.</td>
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<td>Munier, E., Paris</td>
<td>Refreshment.</td>
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<td>Leleux, Armand, Paris</td>
<td>At the Fountain.</td>
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<td>Selim, Mrs. H., Paris</td>
<td>Divine Love.</td>
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(Memorial Hall, Gallery I.)

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<td>Gide, T., Paris</td>
<td>An After-Dinner Nap.</td>
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<td>Yvon, A., Paris</td>
<td>Napoleon the First.</td>
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<td>Duverger, Th. E., Ecouen</td>
<td>End of the Harvest.</td>
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<td>Bruelle, Gaston, Paris</td>
<td>Fishing-Boats.</td>
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<td>Cabuzel, A. H., Paris</td>
<td>A Visit to the Louvre.</td>
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<td>Daubigny, K. P., Paris</td>
<td>Valley of Pourville (Normandy).</td>
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<td>Busson, Ch., Montoire</td>
<td>Before the Rain.</td>
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<td>Hillemacker, Ernest, Paris</td>
<td>Napoleon I., with Goethe and Wieland.</td>
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<td>Curzon, A. de, Paris</td>
<td>View at Fort Napoleon.</td>
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<td>Brissot de Warville, Saturnin, Compiègne,</td>
<td>Sheep-Pen.</td>
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<td>Dumaresque, A., Paris</td>
<td>Surrender of Yorktown.</td>
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<td>Legat, L., Paris</td>
<td>An Old Water-Mill.</td>
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<td>Veron, A. R., Paris</td>
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<td>Richner, L. P. R., Paris</td>
<td>Reminiscence of Rainey.</td>
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<td>Clément, H., Paris</td>
<td>A Fellah Girl (Egypt).</td>
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<td>Vuagnat, F., Paris</td>
<td>Landscape with Cattle.</td>
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<td>189</td>
<td>Deshayes, Ch., Paris</td>
<td>In the Forest.</td>
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<td>Jacomin, H., Paris</td>
<td>Check-mate.</td>
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<td>Bellange, Eug., Paris</td>
<td>Evening after the Battle.</td>
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### SCULPTURE AND PORCELAIN.

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<td>Rapin, A., Paris</td>
<td>Morning—Valley of Bonnevoux.</td>
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<td>194</td>
<td>Kienlin, Jules, Paris</td>
<td>The Party.</td>
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<td>Bar, Alexandre de, Paris</td>
<td>View at Boulak.</td>
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<td>Lebel, E., Paris</td>
<td>View in Italy.</td>
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<td>Berthelemy, E., Paris</td>
<td>Fishing-Boats going to Sea.</td>
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<td>Feyen-Perrin, F. N. A., Paris</td>
<td>The Lesson in Anatomy.</td>
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<td>Renié, Jean Emile, passy</td>
<td>Interior of the Bas-Breux.</td>
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<td>Baron, Stephane, Paris</td>
<td>Faust and Margaret.</td>
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<td>Lesrel, A. A., Paris</td>
<td>The Halberd-Seller.</td>
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<td>Willenich, M., Paris</td>
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<td>Cetner, A. de, Paris</td>
<td>Salambo.</td>
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<td>Vase.</td>
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<td>205</td>
<td>Sévres Porcelain Manufactory</td>
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<td>206</td>
<td>Vasselot, A. de, Paris</td>
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<td>Vase.</td>
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<td>213</td>
<td>Itasse, A., Paris</td>
<td>Playing Cupid (marble).</td>
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<td>Itasse, A., Paris</td>
<td>John Crying (marble).</td>
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<td>Itasse, A., Paris</td>
<td>Boy and Snail (marble).</td>
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<td>Itasse, A., Paris</td>
<td>Sleeping Cupid (marble).</td>
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<td>Itasse, A., Paris</td>
<td>Christmas Gifts (marble).</td>
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<td>Itasse, A., Paris</td>
<td>Cupid Ready (marble).</td>
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<td>The Last Hour (marble).</td>
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<td>Itasse, A., Paris</td>
<td>Day and Night (marble).</td>
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<td>Lanson, E., Paris</td>
<td>Bust (marble).</td>
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<td>Gautherin, J., Paris</td>
<td>Two Good Friends.</td>
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<td>225</td>
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<td>Partridges (bronze).</td>
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<td>226</td>
<td>Loison, P., Paris</td>
<td>The Young Convalescent (marble).</td>
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<td>228</td>
<td>Itasse, A., Paris</td>
<td>Boy and Bird (marble).</td>
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<td>230</td>
<td>Galineau, J. A. de, stockholm</td>
<td>Queen Mab (marble).</td>
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(Memorial Hall, Grand Central Hall, Gallery B.)

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<td>MacMahon (bronze).</td>
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<td>234</td>
<td>Cordier, Charles, Paris</td>
<td>Starting for Cythera (painting on porcelain).</td>
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(Annex, Gallery No. 32.)
### FRANCE.

**ARTIST.**

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**SCULPTURE.**

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*(Annex, Gallery No. 38.)*

**OIL PAINTINGS.**

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<td>Rivey, A., Paris,</td>
<td>Young Girl (time of Louis XIII.).</td>
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<td>296</td>
<td>Kock, Miss Eliza, Paris,</td>
<td>&quot;You can't have any.&quot;</td>
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<td>299</td>
<td>Berchère, N., Paris,</td>
<td>After the Simoon.</td>
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<td>300</td>
<td>Laporte, Emile, Paris,</td>
<td>Gathering Grapes.</td>
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<td>301</td>
<td>Maillart, D., Paris,</td>
<td>A Young Italian Girl and Mandolin.</td>
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<td>304</td>
<td>Laporte, Emile, Paris,</td>
<td>Harvest Scene.</td>
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<tr>
<td>306</td>
<td>Merry, B., Bougival,</td>
<td>&quot;Don't touch.&quot;</td>
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SCULPTURE.

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<tr>
<td>310</td>
<td>Mène, P. J., Paris,</td>
<td>A Falconer on Horseback (bronze).</td>
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<td>Callias, H., Paris,</td>
<td>A Concert (period of Charles the Bold).</td>
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<td>Doux, Mrs. Lucile, Paris,</td>
<td>Revery.</td>
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<td>316</td>
<td>Ferry, G., Paris,</td>
<td>Worship of Bacchus.</td>
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<tr>
<td>317</td>
<td>Breton, Emile, Pas-de-Calais,</td>
<td>The Canal of Courrières.</td>
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<tr>
<td>318</td>
<td>Trouillebert, ———, Paris,</td>
<td>A Young Girl at the Fountain.</td>
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<td>322</td>
<td>Dubos, Miss A., Paris,</td>
<td>The Barber's Daughter.</td>
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<td>324</td>
<td>Gudin, Théodore, Chateau de la Barre,</td>
<td>Escape of a Christian Slave.</td>
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<td>325</td>
<td>Camorlé, Léon, Lille,</td>
<td>Cassandra.</td>
</tr>
<tr>
<td>327</td>
<td>Valand, I., Paris,</td>
<td>Motherly Apprenticeship.</td>
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<tr>
<td>328</td>
<td>Ferry, Miss L., Paris,</td>
<td>Roses and Fruit.</td>
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<tr>
<td>330</td>
<td>Deshayes, Ch., Paris,</td>
<td>Cattle in Pasture.</td>
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<td>332</td>
<td>Poncet, I. B., Paris,</td>
<td>Orpheus and Eurydice.</td>
</tr>
<tr>
<td>334</td>
<td>Durst, Aug., Puteaux,</td>
<td>Evening in the Kitchen.</td>
</tr>
<tr>
<td>335</td>
<td>Vely, A., Paris,</td>
<td>A Lady with a Guitar.</td>
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<tr>
<td>336</td>
<td>Landelle, Ch., Paris,</td>
<td>A Samaritan Woman.</td>
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SCULPTURE.

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<thead>
<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>338</td>
<td>Cain, A., Paris,</td>
<td>Cock Fight (bronze).</td>
</tr>
<tr>
<td>339</td>
<td>Mène, P. J., Paris,</td>
<td>Scottish Hunting Scene (bronze).</td>
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### FRANCE.

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<tbody>
<tr>
<td>341</td>
<td>Méne, P. J., Paris</td>
<td>Hunter and Dogs (bronze).</td>
</tr>
<tr>
<td>342</td>
<td>Megrez, A., Paris</td>
<td>The Youth David (bronze).</td>
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</table>

*(Annex, Gallery No. 35.)*

### OIL PAINTINGS.

<table>
<thead>
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<th>ARTIST</th>
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<tbody>
<tr>
<td>343</td>
<td>Cassinelli, H., Nice</td>
<td>Decatur leaving the harbor of Tripoli, February, 1804, after having set fire to the Frigate Philadelphia.</td>
</tr>
<tr>
<td>344</td>
<td>Laguillermie, F., Paris</td>
<td>Crossing the Run.</td>
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<td>345</td>
<td>Cettner, A., Paris</td>
<td>Faith.</td>
</tr>
<tr>
<td>347</td>
<td>Adam, L. Emile, Paris</td>
<td>Scene of the Inquisition.</td>
</tr>
<tr>
<td>349</td>
<td>Zier, Edouard, Paris</td>
<td>Julia.</td>
</tr>
<tr>
<td>350</td>
<td>Mallet, Joseph, Paris</td>
<td>Boats on the Rhone.</td>
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<tr>
<td>351</td>
<td>Daubigny, Karl, Paris</td>
<td>Shipping Oysters at Cancale.</td>
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<td>352</td>
<td>Antigna, J. P. A., Paris</td>
<td>Fascination.</td>
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<tr>
<td>353</td>
<td>Breton, Emile, Pas-de-Calais</td>
<td>A Village in Winter.</td>
</tr>
<tr>
<td>354</td>
<td>Bar, Alexandre de, Paris</td>
<td>The Death of Virginia.</td>
</tr>
<tr>
<td>355</td>
<td>Jacomin, A., Paris</td>
<td>Bilboquet and his Companion.</td>
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<tr>
<td>356</td>
<td>Poncet, B., Paris</td>
<td>Sully, of the Théâtre Français, in the part of &quot;Orestes.&quot;</td>
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<tr>
<td>357</td>
<td>Renié, J. Emile, Paris</td>
<td>Old Oaks.</td>
</tr>
<tr>
<td>358</td>
<td>Barras, Felix, Paris</td>
<td>&quot;My Husband is on the Sea.&quot;</td>
</tr>
<tr>
<td>359</td>
<td>Princeteau, R., Paris</td>
<td>Horses frightened by the Railway Train.</td>
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<td>360</td>
<td>Rouffio, P., Paris</td>
<td>Herodias.</td>
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<td>361</td>
<td>Jundt, G., Paris</td>
<td>The Hair Fair in Auvregn.</td>
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<td>362</td>
<td>Ségé, A., Paris</td>
<td>Fountain at Nantos.</td>
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<tr>
<td>363</td>
<td>Durst, A., Puteaux</td>
<td>Evening Landscape.</td>
</tr>
<tr>
<td>364</td>
<td>Jundt, G., Paris</td>
<td>Coast Scene.</td>
</tr>
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<td>365</td>
<td>Rougeron, A., Paris</td>
<td>Teasing.</td>
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</table>

### SCULPTURE.

<table>
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<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>366</td>
<td>Cordier, Charles, Paris</td>
<td>Young Grecian Girl (bronze).</td>
</tr>
<tr>
<td>367</td>
<td>Gobineau, de, Stockholm</td>
<td>Valkyria after the Victory (marble).</td>
</tr>
<tr>
<td>368</td>
<td>Cordier, Charles, Paris</td>
<td>Fellah Girl (bronze).</td>
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<tr>
<td>369</td>
<td>Bertaux, Miss Leon, Paris</td>
<td>Ideal bust (marble).</td>
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</tbody>
</table>

*(Annex, Galleries Nos. 34, 36, 45.)*

### WATER COLORS, ENGRAVINGS, ETC.

<table>
<thead>
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<th>NO.</th>
<th>ARTIST</th>
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<tbody>
<tr>
<td>371</td>
<td>Lalande, Maxime, Paris</td>
<td>Crayon drawing.</td>
</tr>
<tr>
<td>372</td>
<td>Dumas, Em., Paris</td>
<td>Flowers (water color).</td>
</tr>
<tr>
<td>373</td>
<td>Herst, A., Paris</td>
<td>Pines in Provence (water color).</td>
</tr>
<tr>
<td>374</td>
<td>Mermet, C., Paris</td>
<td>Butterflies (water color).</td>
</tr>
<tr>
<td>375</td>
<td>Courdouan, V., Toulon</td>
<td>Valley in the Ardennes Mountains (crayon).</td>
</tr>
<tr>
<td>376</td>
<td>Cassagne, A., Paris</td>
<td>View in a Forest (water color).</td>
</tr>
<tr>
<td>377</td>
<td>Courdouan, V., Toulon</td>
<td>Moustier Ste. Marie (pastel).</td>
</tr>
<tr>
<td>378</td>
<td>Félon, Joseph, Paris</td>
<td>Massacre of the Innocents (India ink).</td>
</tr>
<tr>
<td>379</td>
<td>Lestang, Parade de, Paris</td>
<td>Autumn Flowers (water color).</td>
</tr>
<tr>
<td>380</td>
<td>Herst, A., Paris</td>
<td>Aygalades, near Marseilles (water color).</td>
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<tr>
<td>381</td>
<td>Lalanne, M., Paris</td>
<td>View of Bordeaux Harbor.</td>
</tr>
<tr>
<td>382</td>
<td>Félon, Joseph, Paris</td>
<td>Engravings.</td>
</tr>
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<td>384</td>
<td>Cassagne, A., Paris</td>
<td>An Up-hill Road.</td>
</tr>
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<td>NO.</td>
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<tr>
<td>385</td>
<td>Brunet, Debaines A., Paris,</td>
<td>Three etchings, after Turner.</td>
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<tr>
<td>390</td>
<td>Gaillard, S., Paris,</td>
<td>Portrait of Pius IX.</td>
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<tr>
<td>391</td>
<td>Brunet, Debaines A., Paris,</td>
<td>Six etchings.</td>
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<tr>
<td>392</td>
<td>Bichot, Felix, Paris,</td>
<td>Japanese objects of art (etching).</td>
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<tr>
<td>395</td>
<td>Thomas, Emile, Paris,</td>
<td>Marshal Prim (wood engraving).</td>
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<td>396</td>
<td>Levasseur, J. G., Paris,</td>
<td>Miracle of the Loaves and Fishes, after Murillo.</td>
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<td>400</td>
<td>Levy, Gustave, Paris,</td>
<td>La belle Jardinière.</td>
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<td>401</td>
<td>Dubouchet, H., Auteuil,</td>
<td>Charon (engraving).</td>
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<td>404</td>
<td>Lalanne, M., Paris,</td>
<td>View of the Pont de la Concorde, Paris (engraving).</td>
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<td>405</td>
<td>Flameng, Leopold, Paris,</td>
<td>Three etchings.</td>
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<td>406</td>
<td>Thomas, E., Paris,</td>
<td>Mater Dolorosa (engraving).</td>
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<td>408</td>
<td>Poncet, J. B., Paris,</td>
<td>Moses before the Burning Bush.</td>
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<td>413</td>
<td>Poncet, J. B., Paris,</td>
<td>Jesus bearing the Cross (engraving).</td>
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<td>415</td>
<td>Varin, Eugène, Paris,</td>
<td>Spring (engraving).</td>
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<td>416</td>
<td>Hildebrand, H., Paris,</td>
<td>Fifteen engravings.</td>
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<td>418</td>
<td>Robert, Jules, Paris,</td>
<td>Three portraits (engraving).</td>
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<td>419</td>
<td>Potemont, M., Paris,</td>
<td>La Merveilleuse.</td>
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<td>420</td>
<td>Bellel, J. J., Paris,</td>
<td>Don Quixote and Sancho Panza (crayon).</td>
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<td>421</td>
<td>Poncet, J. B., Paris,</td>
<td>Jesus riding into Jerusalem.</td>
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<td>422</td>
<td>Lamotte, A., Chaville,</td>
<td>The One-Year Volunteer (engraving).</td>
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<td>423</td>
<td>Lalanne, M., Paris,</td>
<td>Twelve etchings, representing the interior of Victor Hugo's house.</td>
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<tr>
<td>424</td>
<td>Thomas, E., Paris,</td>
<td>Turtle Fight (engraving).</td>
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<td>425</td>
<td>Deblois, Ch., Paris,</td>
<td>The Betrothed (engraving).</td>
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<td>431</td>
<td>Coindre, G. J., Paris,</td>
<td>Twenty-one etchings.</td>
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<td>432</td>
<td>Dubouchet, H., Auteuil,</td>
<td>Three engravings.</td>
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<td>433</td>
<td>Jaquemart, J., Paris,</td>
<td>Five objects of art (etchings) from the Louvre.</td>
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<td>434</td>
<td>Flameng, Leopold, Paris,</td>
<td>Six etchings.</td>
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<td>437</td>
<td>Dubouchet, H., Auteuil,</td>
<td>Portrait—Balthasar Castiglione.</td>
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<td>441</td>
<td>Dubouchet, H., Auteuil,</td>
<td>Charity (engraving).</td>
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<td>442</td>
<td>Flameng, Leopold, Paris,</td>
<td>Etching.</td>
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<td>443</td>
<td>Gaillard, F., Paris,</td>
<td>Dante (engraving).</td>
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<tr>
<td>444</td>
<td>Adeline, Jules, Rouen,</td>
<td>The Great Town-gate at Rouen.</td>
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### ARTIST.

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<th>NO.</th>
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<tbody>
<tr>
<td>446</td>
<td>Gaillart, F., Paris,</td>
<td>Statue on the Tomb of one of the Medici, after</td>
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<td></td>
<td></td>
<td>Michael Angelo (etching).</td>
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<td>451</td>
<td>Adeline, Jules, Rouen,</td>
<td>The Cathedral at Rouen.</td>
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<td>452</td>
<td>Gaucherel, Léon, Paris,</td>
<td>Four Actors of the Théâtre Francais (etching).</td>
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<td>453</td>
<td>Lévy, Gustave, Paris,</td>
<td>Damocles (engraving).</td>
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<td>455</td>
<td>Laplante, Paris,</td>
<td>Nine engravings.</td>
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<td>459</td>
<td>Laplante, Paris,</td>
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<td>460</td>
<td>Dubouchet, H., Paris,</td>
<td>Divine Retribution (engraving).</td>
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<td>Flameng, Leopold, Paris,</td>
<td>Five engravings.</td>
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<td>Saintin, J. E., Paris,</td>
<td>Breakfast (crayon).</td>
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<td>465</td>
<td>Lalanne, M., Paris,</td>
<td>Park scene (crayon).</td>
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<td>466</td>
<td>Courdouan, V., Toulon,</td>
<td>Ghizeh, Egypt (water color).</td>
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<td>467</td>
<td>Herst, A., Paris,</td>
<td>Road at Calvioir (water color).</td>
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<td>469</td>
<td>Eliot, G., Paris,</td>
<td>Cock-Fight (pastel).</td>
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<td>473</td>
<td>Eliot, G., Paris,</td>
<td>White Hen and her Chickens (pastel).</td>
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<td>474</td>
<td>Herst, A., Paris,</td>
<td>The Great Fall at Chartreuse (water color).</td>
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<td>475</td>
<td>Lalanne, M., Paris,</td>
<td>View at Fribourg (crayon).</td>
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<td>476</td>
<td>Bérel, J. J., Paris,</td>
<td>Road from Biskra to Tooggoort, Algeria (water</td>
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### SCULPTURE.

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<tr>
<td>477</td>
<td>Bartholdi, A., Paris,</td>
<td>Génie funèbre (bronze).</td>
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<tr>
<td>479</td>
<td>Bartholdi, A., Paris,</td>
<td>Genius in the Grasp of Misery (bronze).</td>
</tr>
<tr>
<td>482</td>
<td>Cambos, J., Paris,</td>
<td>&quot;I he that is without sin among you, let him first</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cast a stone at her&quot; (bronze).</td>
</tr>
<tr>
<td>483</td>
<td>Cambos, J., Paris,</td>
<td>La Cigale.</td>
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<tr>
<td>486</td>
<td>Moulin, H., Paris,</td>
<td>A Discovery at Pompeii (bronze).</td>
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<tr>
<td>488</td>
<td>Itasse, A., Paris,</td>
<td>Sleeping Cupid (marble).</td>
</tr>
<tr>
<td>489</td>
<td>Bertaux, Mrs. Léon, Paris,</td>
<td>The Bather (bronze).</td>
</tr>
<tr>
<td>491</td>
<td>Barrias, L. E., Paris,</td>
<td>Spinning-Girl of Megara (silver bronze).</td>
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<tr>
<td>492</td>
<td>Doublemare, A., Paris,</td>
<td>Scapin, after Molière (bronze).</td>
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<td>493</td>
<td>Ross, A., Paris,</td>
<td>Bohemian at the Spring (bronze).</td>
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<tr>
<td>495</td>
<td>Leschesne, Paris,</td>
<td>Lapwings (bronze).</td>
</tr>
<tr>
<td>496</td>
<td>Cain, A., Paris,</td>
<td>Pheasants’ Nest (bronze).</td>
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<tr>
<td>498</td>
<td>Moreau, Voutière, Paris,</td>
<td>Young Italian Shepherd (bronze).</td>
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(Annex, Galleries Nos. 34, 36, 45.)
(Annex, Gallery No. 43.)

<table>
<thead>
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<th>ARTIST.</th>
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<tbody>
<tr>
<td>499</td>
<td>Devrez, Désiré Henri Louis, Paris,</td>
<td>Nine architectural designs for the church of the Sacré Cœur at Montmartre.</td>
</tr>
<tr>
<td>500</td>
<td>L'Heureux, Paris,</td>
<td>Eight architectural designs for La Faculté des Sciences.</td>
</tr>
<tr>
<td>504</td>
<td>Devrez, D. H. L., Paris,</td>
<td>Two church designs for the diocese of Orleans.</td>
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<tr>
<td>505</td>
<td>Crepinet, A., Paris,</td>
<td>Four architectural designs for the church of the Sacré Cœur at Montmartre.</td>
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<tr>
<td>507</td>
<td>Penel, Jules, Paris,</td>
<td>Engravings of sculpture in the church of Vezelay.</td>
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<tr>
<td>508</td>
<td>Penel, Jules, Paris,</td>
<td>Engraving of Holy Trinity Church.</td>
</tr>
<tr>
<td>509</td>
<td>Lalande, Ch.de, Paris,</td>
<td>Eight architectural designs for the Théâtre de la Renaissance, Paris.</td>
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<tr>
<td>510</td>
<td>Picq, H., Paris,</td>
<td>Wall drawing of the Grand Salon Louis XVI.</td>
</tr>
<tr>
<td>511</td>
<td>Picq, H., Paris,</td>
<td>Design of a monument to be erected at Lisbon in memory of the Emperor Dom Pedro IV.</td>
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</tbody>
</table>
GERMANY.

[Information regarding works for sale will be given at the desk in Gallery F, Memorial Hall.]

(Memorial Hall, Central Gallery, East.)

OIL PAINTINGS.

<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>Jaeckel, H., Berlin,</td>
<td>Court-yard in Venice.</td>
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<td>2</td>
<td>Koken, G., Berlin,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>4</td>
<td>Haber, R. von, Weimar,</td>
<td>Thomas the Shepherd.</td>
</tr>
<tr>
<td>5</td>
<td>Pixis, Theodore, Munich</td>
<td>The Car of Thespis (Strolling Players' cart) in a Dilemma.</td>
</tr>
<tr>
<td>6</td>
<td>Farbarius, F. W., Düsseldorf,</td>
<td>Departure of Dutch Herring-Fishermen for the Dogger-Bank.</td>
</tr>
<tr>
<td>7</td>
<td>Hallatz, E., Berlin,</td>
<td>Harvest Festivities in Westphalia.</td>
</tr>
<tr>
<td>8</td>
<td>Douzette, L., Berlin,</td>
<td>Ship on the Strand.</td>
</tr>
<tr>
<td>9</td>
<td>Bellermann, Frd., Berlin,</td>
<td>American Forest.</td>
</tr>
<tr>
<td>10</td>
<td>Hahn, J., Munich,</td>
<td>Moonlight Landscape (Sternberg Lake).</td>
</tr>
<tr>
<td>11</td>
<td>Jungheim, C., Düsseldorf,</td>
<td>The Gosau Lake, with the Dachstein, in the Austrian Salt Regions.</td>
</tr>
<tr>
<td>12</td>
<td>Jungheim, C., Düsseldorf,</td>
<td>Lake of the Four Cantons.</td>
</tr>
<tr>
<td>13</td>
<td>Molnar, J., Pesth,</td>
<td>Consolation.</td>
</tr>
<tr>
<td>16</td>
<td>Preller, L., Weimar,</td>
<td>Port of Safety, Norwegian Coast.</td>
</tr>
<tr>
<td>17</td>
<td>Hagn, L. von, Munich,</td>
<td>Monastery Festivities.</td>
</tr>
<tr>
<td>19</td>
<td>Seybold, G. von, Munich,</td>
<td>Wanderers.</td>
</tr>
<tr>
<td>20</td>
<td>Gebhardt, L., Munich,</td>
<td>Lake Sim.</td>
</tr>
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<td>21</td>
<td>Gebhardt, L., Munich,</td>
<td>Lake Constance.</td>
</tr>
<tr>
<td>22</td>
<td>Thiersch, L., Munich,</td>
<td>Easter Morn.</td>
</tr>
<tr>
<td>23</td>
<td>Fries, B., Munich,</td>
<td>Suburbs of Naples.</td>
</tr>
<tr>
<td>25</td>
<td>Begas, O., Berlin,</td>
<td>Pauline Lucca.</td>
</tr>
<tr>
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<td>Koerner, E., Berlin,</td>
<td>Mahmudi Canal near Alexandria.</td>
</tr>
<tr>
<td>27</td>
<td>Dietz, Th., Carlsruhe,</td>
<td>Flight of an American Family (Revolutionary scene).</td>
</tr>
<tr>
<td>28</td>
<td>Güterbock, L., Berlin,</td>
<td>The Daughter of Herodias with the Head of John the Baptist.</td>
</tr>
<tr>
<td>29</td>
<td>Willich, C., Munich,</td>
<td>Girl from the Sabine Mountains.</td>
</tr>
<tr>
<td>30</td>
<td>Souchon, W., Weimar,</td>
<td>Marguerite (Faust).</td>
</tr>
<tr>
<td>31</td>
<td>Deutsch, R. von, Berlin,</td>
<td>“Know whom you trust.”</td>
</tr>
<tr>
<td>34</td>
<td>Fischer, Helene von, Bremen,</td>
<td>Flowers.</td>
</tr>
<tr>
<td>36</td>
<td>Fries, B., Munich,</td>
<td>The Tiber at Rome.</td>
</tr>
</tbody>
</table>

(Memorial Hall, Gallery F.)

OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
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<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Kappis, A., Munich,</td>
<td>Fishermen surprised by a Storm.</td>
</tr>
<tr>
<td>38</td>
<td>Ockel, E., Berlin,</td>
<td>Oxen Ploughing (Mark of Brandenburg).</td>
</tr>
<tr>
<td>39</td>
<td>Swieszewski, A. von, Munich,</td>
<td>View of Pompeii, with Mount Vesuvius.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST</td>
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<tr>
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<td>40</td>
<td>Eschke, H., Berlin,</td>
<td>Coast of Capri.</td>
</tr>
<tr>
<td>41</td>
<td>Hertel, A., Berlin,</td>
<td>Summer Evening at the Brandenburger Gate, Berlin.</td>
</tr>
<tr>
<td>42</td>
<td>Brücke, G., New York</td>
<td>Columbus discovering America.</td>
</tr>
<tr>
<td>43</td>
<td>Boyen, O. von, Munich</td>
<td>Neptune riding the Waves.</td>
</tr>
<tr>
<td>44</td>
<td>Wider, W., Berlin,</td>
<td>Taking the Veil in Rome.</td>
</tr>
<tr>
<td>45</td>
<td>Harach, Count von, Berlin</td>
<td>Capitalization of Sedan.</td>
</tr>
<tr>
<td>46</td>
<td>Bosch, E., Düsseldorf</td>
<td>The Old Shepherd and his Granddaughter.</td>
</tr>
<tr>
<td>47</td>
<td>Laar, Ulrica, Berlin,</td>
<td>The Lesson Hour.</td>
</tr>
<tr>
<td>48</td>
<td>Erdmann, M., Berlin,</td>
<td>Morsum Cliff, on the Isle of Sylt.</td>
</tr>
<tr>
<td>49</td>
<td>Moras, W., Berlin,</td>
<td>Moonlight in the Harbor of Elsinore.</td>
</tr>
<tr>
<td>50</td>
<td>Laar, Ulrica, Berlin,</td>
<td>Caught in the Rain.</td>
</tr>
<tr>
<td>51</td>
<td>Wider, W., Berlin,</td>
<td>Girl Reading.</td>
</tr>
<tr>
<td>52</td>
<td>Steffeck, C., Berlin,</td>
<td>Mares in Pasture.</td>
</tr>
<tr>
<td>54</td>
<td>Schaums, F., Weimar,</td>
<td>A Dryad.</td>
</tr>
<tr>
<td>55</td>
<td>Gräf, G., Berlin,</td>
<td>Penserosa.</td>
</tr>
<tr>
<td>56</td>
<td>Deiker, J., Düsseldorf,</td>
<td>Dog with Fox.</td>
</tr>
<tr>
<td>57</td>
<td>Gräf, G., Berlin,</td>
<td>Lady with Rose.</td>
</tr>
<tr>
<td>58</td>
<td>Pohle, H., Düsseldorf,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>59</td>
<td>Horst, L., Stuttgart,</td>
<td>Portrait of the German Emperor.</td>
</tr>
<tr>
<td>60</td>
<td>Meissner, E., Munich,</td>
<td>&quot;Young Ones.&quot;</td>
</tr>
<tr>
<td>61</td>
<td>Poschinger, R. von, Munich,</td>
<td>Environs of Munich.</td>
</tr>
<tr>
<td>62</td>
<td>Bechtolsheim, G. von, Munich,</td>
<td>Landscape (Upper Bavaria).</td>
</tr>
<tr>
<td>63</td>
<td>Geibel, C., Weimar,</td>
<td>Concert in a Beer-Room.</td>
</tr>
<tr>
<td>64</td>
<td>Harling, E. von, Munich,</td>
<td>An Evening Melody.</td>
</tr>
<tr>
<td>65</td>
<td>Lier, A., Munich,</td>
<td>Autumn Landscape.</td>
</tr>
<tr>
<td>66</td>
<td>Preller, N., Weimar,</td>
<td>Autumn</td>
</tr>
<tr>
<td>67</td>
<td>Jordan, R., Munich,</td>
<td>Happy Old Age.</td>
</tr>
<tr>
<td>68</td>
<td>Starkenberg, J. N. T. von, Düsseldorf,</td>
<td>Tobacco-Gatherers.</td>
</tr>
<tr>
<td>69</td>
<td>Ortlieb, F., Munich,</td>
<td>The Last Rehearsal previous to going to the Singers' Festival.</td>
</tr>
<tr>
<td>70</td>
<td>Heger, H., Munich,</td>
<td>Audience-Hall in the Doge's Palace, Venice.</td>
</tr>
<tr>
<td>72</td>
<td>Hallatz, E., Berlin,</td>
<td>Snow-Storm in the Pustha (Russia).</td>
</tr>
<tr>
<td>73</td>
<td>Mücke, C., Düsseldorf,</td>
<td>Lullaby.</td>
</tr>
<tr>
<td>74</td>
<td>Ewers, H., Düsseldorf,</td>
<td>Duet in a Village Blacksmith's Shop.</td>
</tr>
<tr>
<td>75</td>
<td>Seibels, C., Düsseldorf,</td>
<td>Cattle.</td>
</tr>
<tr>
<td>76</td>
<td>Meyer, F., Munich,</td>
<td>Carousel after the Fair.</td>
</tr>
<tr>
<td>77</td>
<td>Hildebrand, E., Karlsruhe,</td>
<td>A Sentinel.</td>
</tr>
<tr>
<td>78</td>
<td>Steffeck, C., Berlin,</td>
<td>Steeple Chase.</td>
</tr>
<tr>
<td>79</td>
<td>Xylander, W., Schleissheim, near Munich,</td>
<td>Mouth of the Thames.</td>
</tr>
<tr>
<td>80</td>
<td>Seibels, C., Düsseldorf,</td>
<td>Cattle.</td>
</tr>
<tr>
<td>81</td>
<td>Hiddemann, F., Düsseldorf,</td>
<td>Nothing but Practice makes Perfect.</td>
</tr>
<tr>
<td>82</td>
<td>Mücke, C., Düsseldorf,</td>
<td>The Sailor's Home.</td>
</tr>
<tr>
<td>83</td>
<td>Hirschfelder, S., Munich,</td>
<td>Unexpected Issue.</td>
</tr>
<tr>
<td>84</td>
<td>Frey, W., Munich,</td>
<td>Cattle.</td>
</tr>
<tr>
<td>86</td>
<td>Becker, Q., Berlin,</td>
<td>After the Christening.</td>
</tr>
<tr>
<td>87</td>
<td>Hiddemann, F., Düsseldorf,</td>
<td>In the Park.</td>
</tr>
<tr>
<td>88</td>
<td>Dielitz, K., Berlin,</td>
<td>A Smoker (Upper Bavaria).</td>
</tr>
<tr>
<td>90</td>
<td>Kretzschmer, H., Berlin,</td>
<td>Vanity.</td>
</tr>
<tr>
<td>91</td>
<td>Marc, W., Munich,</td>
<td>Disagreement.</td>
</tr>
<tr>
<td>92</td>
<td>Frey, W., Munich,</td>
<td>Cattle.</td>
</tr>
<tr>
<td>94</td>
<td>Schlesinger, F., Munich,</td>
<td>Convalescent.</td>
</tr>
<tr>
<td>95</td>
<td>Kretzschmer, H., Berlin,</td>
<td>Buying the Cradle.</td>
</tr>
<tr>
<td>97</td>
<td>Risse, R., Düsseldorf,</td>
<td>The God and the Bayadere.</td>
</tr>
</tbody>
</table>
GERMANY.

85

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Kornbeck, J., Stuttgart,</td>
<td>Sheep in the Pasture.</td>
</tr>
<tr>
<td>101</td>
<td>Neustätter, L., Munich,</td>
<td>The Strong Inclination.</td>
</tr>
<tr>
<td>102</td>
<td>Neustätter, L., Munich,</td>
<td>The Mouse.</td>
</tr>
<tr>
<td>103</td>
<td>Eggert, S., Munich,</td>
<td>Visit to the Village Artist.</td>
</tr>
<tr>
<td>104</td>
<td>Wider, W., Berlin,</td>
<td>Child and Doll.</td>
</tr>
<tr>
<td>105</td>
<td>Kornbeck, J., Stuttgart,</td>
<td>Good Friends.</td>
</tr>
<tr>
<td>106</td>
<td>Kornbeck, J., Stuttgart,</td>
<td>Sheep on the Mountain.</td>
</tr>
<tr>
<td>107</td>
<td>Souchon, W., Weimar,</td>
<td>Imogene.</td>
</tr>
<tr>
<td>110</td>
<td>Lutteroth, A., Berlin,</td>
<td>Lake Chiem, Italy.</td>
</tr>
<tr>
<td>112</td>
<td>Achenbach, A., Düsseldorf,</td>
<td>Storm at Vlissingen (Holland).</td>
</tr>
<tr>
<td>113</td>
<td>Boser, F., Düsseldorf,</td>
<td>Early Affliction.</td>
</tr>
<tr>
<td>114</td>
<td>Eckenbrecher, Th. v., Munich,</td>
<td>Picnic in Asia Minor.</td>
</tr>
<tr>
<td>115</td>
<td>Becker, Q., Berlin,</td>
<td>Before the Christening.</td>
</tr>
<tr>
<td>116</td>
<td>Hacker, H., Munich,</td>
<td>König Lake, from the Kessel-Alp.</td>
</tr>
<tr>
<td>117</td>
<td>Hacker, H., Munich,</td>
<td>Lake of the Four Cantons at Brunnen.</td>
</tr>
<tr>
<td>118</td>
<td>Grund, J., Baden-Baden,</td>
<td>Diana and Endymion.</td>
</tr>
<tr>
<td>119</td>
<td>Lasch, C., Düsseldorf,</td>
<td>The Orphans.</td>
</tr>
<tr>
<td>121</td>
<td>Amberg, W., Berlin,</td>
<td>Ophelia.</td>
</tr>
<tr>
<td>122</td>
<td>Sturm, F., Berlin,</td>
<td>A Storm.</td>
</tr>
<tr>
<td>123</td>
<td>Sturm, F., Berlin,</td>
<td>Pilot-Boat.</td>
</tr>
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<td>124</td>
<td>Faber du Faur, Otto von, Munich,</td>
<td>Departure of Frederick V. from Prague after the Battle of the White Hills.</td>
</tr>
<tr>
<td>125</td>
<td>Schrader, Jul., Berlin,</td>
<td>Queen Elizabeth signing the Death-Warrant of Mary Queen of Scots.</td>
</tr>
<tr>
<td>126</td>
<td>Schwarz, A.,</td>
<td>Broken Flowers.</td>
</tr>
<tr>
<td>127</td>
<td>Molnar, J., Pesth,</td>
<td>Misty Veil.</td>
</tr>
<tr>
<td>128</td>
<td>Starkenborck, J. N. T. von, Düsseldorf,</td>
<td>Harvest in Holland.</td>
</tr>
<tr>
<td>129</td>
<td>Dietrich, A., Dresden,</td>
<td>Faust and Marguerite (Prison Scene).</td>
</tr>
<tr>
<td>130</td>
<td>Wider, W., Berlin,</td>
<td>Return from Skating.</td>
</tr>
<tr>
<td>131</td>
<td>Rückart, F., Hamburg,</td>
<td>After the Chase.</td>
</tr>
<tr>
<td>132</td>
<td>Grund, J., Baden-Baden,</td>
<td>Queen Esther.</td>
</tr>
<tr>
<td>133</td>
<td>Heck, R., Stuttgart,</td>
<td>Natural Arch at Capri.</td>
</tr>
<tr>
<td>134</td>
<td>Braun, L., Munich,</td>
<td>Capitulation of Sedan.</td>
</tr>
<tr>
<td>135</td>
<td>Harach, Count von, Berlin,</td>
<td>Luther Intercepted.</td>
</tr>
<tr>
<td>136</td>
<td>Plockhorst, Prof., Berlin,</td>
<td>Christ appearing to Mary Magdalene.</td>
</tr>
<tr>
<td>137</td>
<td>Folingsby, G. F., Munich,</td>
<td>Lady Jane Grey’s Triumph over Bishop Gardiner.</td>
</tr>
<tr>
<td>139</td>
<td>Lutteroth, A., Berlin,</td>
<td>Bismarck on his Estates in Lauenburg.</td>
</tr>
<tr>
<td>140</td>
<td>Behmer, H., Weimar,</td>
<td>Girl with Wild Roses.</td>
</tr>
<tr>
<td>143</td>
<td>Weber, P., Munich,</td>
<td>View near Munich.</td>
</tr>
<tr>
<td>144</td>
<td>Mayer, T., Munich,</td>
<td>Statue of Cincinnatus.</td>
</tr>
<tr>
<td>145</td>
<td>Hearth, S. D., Munich,</td>
<td>Evening in the Woods.</td>
</tr>
</tbody>
</table>

(Memorial Hall, Gallery F.)

SCULPTURE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
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<tbody>
<tr>
<td>146</td>
<td>Schulz, M., Berlin,</td>
<td>Love conquers Strength.</td>
</tr>
<tr>
<td>147</td>
<td>Reusch, F., Berlin,</td>
<td>Group for fountain (bronze).</td>
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</tbody>
</table>

(Memorial Hall, Gallery J.)

SCULPTURE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>148</td>
<td>Herter, E., Berlin,</td>
<td>Orestes (bronze).</td>
</tr>
<tr>
<td>149</td>
<td>Herter, E., Berlin,</td>
<td>Antigone (bronze).</td>
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</tbody>
</table>
**DEPT. IV.—ART.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>Silbernagel, C.</td>
<td>Statuette of Prince Bismarck (bronze).</td>
</tr>
<tr>
<td>151</td>
<td>Brunow, L., Berlin,</td>
<td>Statue of Count Moltke (bronze).</td>
</tr>
<tr>
<td>152</td>
<td>Andressen, E., Dresden,</td>
<td>Boy and Frog (group).</td>
</tr>
<tr>
<td>153</td>
<td>Brunow, L., Berlin,</td>
<td>Marble bust of Count Moltke.</td>
</tr>
<tr>
<td>155</td>
<td>Ezekiel, M., Rome,</td>
<td>Relief in plaster.</td>
</tr>
<tr>
<td>155a</td>
<td>Toberenz, R., Berlin,</td>
<td>Ideal bust (marble).</td>
</tr>
</tbody>
</table>

**GALVANOPLASTY.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>156</td>
<td>Bavarian Museum of Art, Nuremberg,</td>
<td>Galvanoplastic representations of ancient art, especially of gold and silver.</td>
</tr>
</tbody>
</table>

**WATER COLORS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>157</td>
<td>Meyerheim, P., Berlin,</td>
<td>Rhenish Landscape.</td>
</tr>
<tr>
<td>159</td>
<td>Meyerheim, P., Berlin,</td>
<td>Glass-Works in Bohemia.</td>
</tr>
<tr>
<td>161</td>
<td>Meyerheim, P., Berlin,</td>
<td>At the Brook.</td>
</tr>
<tr>
<td>162</td>
<td>Meyerheim, P., Berlin,</td>
<td>Twilight.</td>
</tr>
<tr>
<td>163</td>
<td>Spangenberg, L., Berlin,</td>
<td>Glacier in Engadin.</td>
</tr>
<tr>
<td>164</td>
<td>Spangenberg, L., Berlin,</td>
<td>Capuchin Cloister near Salzburg.</td>
</tr>
<tr>
<td>165</td>
<td>Spangenberg, L., Berlin,</td>
<td>Mount Pilatus, on the Lake of the Four Cantons.</td>
</tr>
<tr>
<td>166</td>
<td>Lage, Julia von der, Berlin,</td>
<td>Flowers.</td>
</tr>
<tr>
<td>167</td>
<td>Skarbina, F.,</td>
<td>Alpine Hospitality.</td>
</tr>
<tr>
<td>168</td>
<td>Friedrich, C. F., Dresden,</td>
<td>Thirteen water colors.</td>
</tr>
</tbody>
</table>

**PORCELAIN PAINTINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>169</td>
<td>Ens &amp; Greiner, Lauscha,</td>
<td>Porcelain paintings.</td>
</tr>
<tr>
<td>170</td>
<td>Deininger, C. H., Munich,</td>
<td>Portrait of a lady.</td>
</tr>
</tbody>
</table>

**ENGRAVINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>171</td>
<td>Dinger, F., Coblentz,</td>
<td>Cinderella.</td>
</tr>
<tr>
<td>172</td>
<td>Bartelhess, N., Düsseldorf,</td>
<td>In a House of Mourning—copper engraving after Vautier.</td>
</tr>
<tr>
<td>173</td>
<td>Krausse, A., Leipsic,</td>
<td>Engravings.</td>
</tr>
<tr>
<td>174</td>
<td>Duncker, A., Berlin,</td>
<td>Engravings.</td>
</tr>
<tr>
<td>175</td>
<td>Gräf, C., Dresden,</td>
<td>Thirty-six engravings.</td>
</tr>
<tr>
<td>176</td>
<td>Boehm, Hannah, Berlin,</td>
<td>Silhouettes.</td>
</tr>
</tbody>
</table>

**PHOTOGRAPHS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>177</td>
<td>Berlin Photograph Co., Stroever &amp; Kirchner, New York, Agents,</td>
<td>Madonna San Sisto, after Raphael; Angels, after Raphael; St. Sixtus, after Raphael; St. Barbara, after Raphael; Morning Prayer, after Rosenthal; Elaine, after Rosenthal; Marie Stuart, after Neal; The Broken Pitcher, after Greuze.</td>
</tr>
</tbody>
</table>

**CHROMO-LITHOGRAPHS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>178</td>
<td>Zettler, F. X., Munich,</td>
<td>Four frames containing chromo-lithographs.</td>
</tr>
<tr>
<td>179</td>
<td>Duncker, A., Berlin,</td>
<td>Chromo-lithographs.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST</td>
<td>TITLE</td>
</tr>
<tr>
<td>-----</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>180</td>
<td>Zettler, F. X., Munich</td>
<td>Stained glass window, Christian church</td>
</tr>
<tr>
<td>181</td>
<td>Zettler, F. X., Munich</td>
<td>Stained glass window, Mohammedan temple</td>
</tr>
<tr>
<td>182</td>
<td>Zettler, F. X., Munich</td>
<td>Stained glass window, Persian temple</td>
</tr>
</tbody>
</table>

**MEDALS.**

<table>
<thead>
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<tbody>
<tr>
<td>183</td>
<td>Jungfer, A., Berlin</td>
<td>Collection of coins and medals</td>
</tr>
</tbody>
</table>

**MINERALOGY.**

<table>
<thead>
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<th>NO.</th>
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</thead>
<tbody>
<tr>
<td>184</td>
<td>Jungfer, A., Berlin</td>
<td>Pieces of amber, inclosing antediluvian insects, —ants, flies, gnats, sugar-mites, moths, scarabei, spiders, etc.</td>
</tr>
</tbody>
</table>

*(Memorial Hall, Gallery B.)*

**STATUARY.**

<table>
<thead>
<tr>
<th>NO.</th>
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</thead>
<tbody>
<tr>
<td>185</td>
<td>Manger, H., Berlin</td>
<td>Colossal statue of Prince Bismarck (bronze)</td>
</tr>
</tbody>
</table>
AUSTRIA.

[Works of Art marked with an asterisk (*) are for sale. Information may be obtained at the Austrian office, in Gallery G, Memorial Hall.]

(Memorial Hall, Galleries G and Z.)

<table>
<thead>
<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>1</td>
<td>Makart, Hans, Vienna,</td>
<td>*Venice paying Homage to Caterina Cornaro.</td>
</tr>
<tr>
<td>2</td>
<td>Engl, Hugh, Lienz,</td>
<td>*Still Life—game.</td>
</tr>
<tr>
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<td>Russ, Robert, Vienna,</td>
<td>*Mill near Mals, South Tyrol.</td>
</tr>
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<td>5</td>
<td>Brunner, Joseph, Vienna,</td>
<td>*Landscape.</td>
</tr>
<tr>
<td>8</td>
<td>Amerling, Fred., Vienna,</td>
<td>*Ideal female.</td>
</tr>
<tr>
<td>9</td>
<td>Schödl, Max, Vienna,</td>
<td>*Still Life.</td>
</tr>
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<td>10</td>
<td>Schödl, Max, Vienna,</td>
<td>*Still Life.</td>
</tr>
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<td>11</td>
<td>Friedländer, Fred., Vienna,</td>
<td>*Tasting the Wine.</td>
</tr>
<tr>
<td>12</td>
<td>Canon, John, Vienna,</td>
<td>*Girl with Fruit.</td>
</tr>
<tr>
<td>14</td>
<td>Ruben, Francis Leo, Vienna,</td>
<td>*Roman Woman selling Pomegranates.</td>
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<tr>
<td>19</td>
<td>Hoegel, Minna, Vienna,</td>
<td>*Castle Court.</td>
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<td>22</td>
<td>Graf, Lewis, Vienna,</td>
<td>** At the Sea&quot; (desolate beach).</td>
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<tr>
<td>24</td>
<td>Riedel, Charles, Vienna,</td>
<td>*Landscape, with animals.</td>
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<tr>
<td>29</td>
<td>Ribarz, Ralph, Vienna,</td>
<td>*Villa d'Este, at Tivoli, near Rome.</td>
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<tr>
<td>31</td>
<td>Munsch, Leopold, Vienna,</td>
<td>*Caravan in the Caucasus.</td>
</tr>
<tr>
<td>33</td>
<td>Schilcher, Fred., Vienna,</td>
<td>*Moonrise.</td>
</tr>
<tr>
<td>34</td>
<td>Hlavacek, Anthony, Vienna,</td>
<td>*View in Venice.</td>
</tr>
<tr>
<td>35</td>
<td>Ribarz, Ralph, Vienna,</td>
<td>*An Interior.</td>
</tr>
<tr>
<td>37</td>
<td>Berres, Joseph von, Vienna,</td>
<td>*Peasant Woman of Upper Austria.</td>
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<tr>
<td>38</td>
<td>Lafite, Erneste, Vienna,</td>
<td>*Village Road.</td>
</tr>
<tr>
<td>39</td>
<td>Halauska, Lewis, Vienna,</td>
<td>*Girl of Upper Austria.</td>
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<tr>
<td>40</td>
<td>Lafite, Erneste, Vienna,</td>
<td>*Children's Tenderness.</td>
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<td>41</td>
<td>Berres, Joseph von, Vienna,</td>
<td>*Girl and Cat.</td>
</tr>
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<td>42</td>
<td>Russ, Francis, Vienna,</td>
<td>*Overwhelmed with Grief.</td>
</tr>
<tr>
<td>43</td>
<td>Stocker, Francis, Vienna,</td>
<td>*Bas-relief.</td>
</tr>
<tr>
<td>44</td>
<td>Schilcher, Fred., Vienna,</td>
<td>*View near Naples.</td>
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<td>48</td>
<td>Blas, Charles, Vienna,</td>
<td>*Centaur carrying off a Nymph.</td>
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<td>Oeconomos, A., Vienna,</td>
<td>Portrait of the artist.</td>
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<tr>
<td>50</td>
<td>Ribarz, Ralph, Vienna,</td>
<td>*Fish-Market at Chioggia.</td>
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<tr>
<td>52</td>
<td>Pausinger, Francis von, Munich,</td>
<td>*A Chamois killed by a Fall.</td>
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<tr>
<td>54</td>
<td>George-Mayer, Augustus, Vienna,</td>
<td>*A Study (female head).</td>
</tr>
<tr>
<td>55</td>
<td>Hoffmann, Joseph, Vienna,</td>
<td>*Ideal landscape.</td>
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<td>56</td>
<td>Fux, Joseph, Vienna,</td>
<td>**&quot;Sans-Souci&quot; (strolling minstrel).</td>
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<tr>
<td>57</td>
<td>Penther, Daniel, Vienna,</td>
<td>*Portrait (Schopenhauer).</td>
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<tr>
<td>58</td>
<td>Lichtenfels, Edward, Chevalier, Vienna,</td>
<td>*Village Road in Upper Austria.</td>
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<tr>
<td>60</td>
<td>Schweninger, Rosa, Vienna,</td>
<td>*A Neapolitan.</td>
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<tr>
<td>63</td>
<td>Russ, Francis, Vienna,</td>
<td>*Life in a Castle (Middle Ages).</td>
</tr>
<tr>
<td>64</td>
<td>Lichtenfels, Edward, Chevalier, Vienna,</td>
<td>*Copper-Mines of Agordo.</td>
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<tr>
<td>66</td>
<td>Geyling, Ralph, Vienna,</td>
<td>*Garden Scene (Jesuit College).</td>
</tr>
<tr>
<td>67</td>
<td>Parmentier, Mary von, Vienna,</td>
<td>*Village Scenery in the Tyrol.</td>
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<tr>
<td>68</td>
<td>Obermüller, Adolphus, Vienna,</td>
<td>*&quot;Welcome Sounds,&quot; a hunting episode of the</td>
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<tr>
<td></td>
<td></td>
<td>Austro-Hungarian North Polar Sledge Expedition,</td>
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<td>1872-1874 (after Julius Payer).</td>
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<td>69</td>
<td>Probst, Charles, Vienna,</td>
<td>*A Study (female figure).</td>
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<tr>
<td>70</td>
<td>Obermüller, Adolphus, Vienna,</td>
<td>*The Lake of Constance seen from the Gebharts</td>
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<tr>
<td></td>
<td></td>
<td>Mountains, Tyrol, at the beginning of a storm</td>
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<td>called &quot;Föhnwind.&quot;</td>
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<tr>
<td>71</td>
<td>Gaul, Gustavus, Vienna,</td>
<td>*A Study (female head).</td>
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<tr>
<td>72</td>
<td>Pausinger, Francis von, Munich,</td>
<td>*Distrustful.</td>
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<tr>
<td>74</td>
<td>Schönreither, George, Vienna,</td>
<td>*View of the High Tauern, Austrian Alps.</td>
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<tr>
<td>76</td>
<td>Seeles, Godfrey, Vienna,</td>
<td>*The Vogelweidehof, near Botzen, South Tyrol,</td>
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<tr>
<td></td>
<td></td>
<td>birthplace of Walter von der Vogelweide, the</td>
</tr>
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<td></td>
<td></td>
<td>greatest lyric poet of the Germans in the Middle</td>
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<tr>
<td></td>
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<td>Ages.</td>
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<tr>
<td>77</td>
<td>Amerling, Fred., Vienna,</td>
<td>*Counsellor of the Middle Ages.</td>
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<td>78</td>
<td>Geving, Ralph, Vienna,</td>
<td>*Roman Pomegranate-Seller.</td>
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<td>79</td>
<td>Grabowski, Andrew, Lemberg,</td>
<td>Portrait.</td>
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<td>80</td>
<td>Obermüller, Adolphus, Vienna,</td>
<td>*View of the Grum Alpe, with the Paluglacier,</td>
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<tr>
<td></td>
<td></td>
<td>Upper Engadin, in Switzerland (morning).</td>
</tr>
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<td>81</td>
<td>Ruben, Francis Leo, Vienna,</td>
<td>*Venetian Society.</td>
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<tr>
<td>83</td>
<td>Ribarz, Ralph, Vienna,</td>
<td>*Ox-Team.</td>
</tr>
<tr>
<td>84</td>
<td>Fritsch, Melchior, Vienna,</td>
<td>*The Leopoldstein Lake in Styria.</td>
</tr>
<tr>
<td>85</td>
<td>Schrödl, Anthony, Vienna,</td>
<td>*An Interior at Hallstäd, in Upper Austria.</td>
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<td>86</td>
<td>Graf, Lewis, Vienna,</td>
<td>*A Study (boy).</td>
</tr>
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<td>89</td>
<td>Hansch, Anthony, Salzburg,</td>
<td>*The Weissbachhorn, in the Pinzgau, Austrian</td>
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<td></td>
<td></td>
<td>Alps.</td>
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<td>90</td>
<td>Aigner, J. M., Vienna,</td>
<td>Portrait of the artist.</td>
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<tr>
<td>91</td>
<td>Schrödl, Anthony, Vienna,</td>
<td>*Animals and Girl—scene in the valley of Fer-</td>
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<td>lleithen, near Gastein.</td>
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<tr>
<td>97</td>
<td>Hansch, Anthony, Salzburg,</td>
<td>*The Great Oetz Valley, Ferner (glacier), and Gurgl Lake.</td>
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<td>98</td>
<td>Schams, Francis, Vienna,</td>
<td>*The Newly-Elected Mayor.</td>
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<tr>
<td>100</td>
<td>Graf, Lewis, Vienna,</td>
<td>*&quot;He loveth me.&quot;</td>
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<tr>
<td>101</td>
<td>Haanen, Remi van, Vienna,</td>
<td>*View of a Dutch town by Moonlight.</td>
</tr>
<tr>
<td>107</td>
<td>Friedländer, Camilla, Vienna,</td>
<td>*Still Life (ham, etc.).</td>
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<tr>
<td>110</td>
<td>Stainer-Knittl, Anne, Innsbruck,</td>
<td>Alpine Flowers.</td>
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<tr>
<td>111</td>
<td>Friedländer, Fred., Vienna,</td>
<td>*A Bashful Declaration of Love.</td>
</tr>
<tr>
<td>112</td>
<td>Huber, Ralph, Vienna,</td>
<td>*In the Pasture.</td>
</tr>
<tr>
<td>113</td>
<td>Friedländer, Camilla, Vienna,</td>
<td>*Antiquities and Books.</td>
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<tr>
<td>114</td>
<td>Rumpler, Francis, Vienna,</td>
<td>*Smiling Girl.</td>
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<tr>
<td>115</td>
<td>Friedländer, Camilla, Vienna,</td>
<td>*Still Life (fancy ware).</td>
</tr>
<tr>
<td>116</td>
<td>Russ, Robertus, Vienna,</td>
<td>*View in the Prater, Vienna, previous to the Exhibition of 1873.</td>
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<tr>
<td>118</td>
<td>Fritsch, Melchior, Vienna,</td>
<td>*Mountain Landscape (autumn).</td>
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<td>119</td>
<td>Nemes-Ransonnet, Eliza, Countess, Vienna,</td>
<td>Portrait of the artist.</td>
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<tr>
<td>120</td>
<td>Hlavacek, Anthony, Vienna,</td>
<td>*Under the Maple-Tree.</td>
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<tr>
<td>121</td>
<td>Wertheimer, Gustavus, Vienna,</td>
<td>*The Moor and his Horse.</td>
</tr>
</tbody>
</table>

(\textit{Memorial Hall, Galleries G and Z.})

**STATUARY.**

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<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>122</td>
<td>Zumbusch, Caspar, Vienna,</td>
<td>His Majesty the Emperor of Austria (marble bust).</td>
</tr>
<tr>
<td>123</td>
<td>Gliber, James, Vienna,</td>
<td>*A Study (marble head).</td>
</tr>
<tr>
<td>124</td>
<td>Pilz, Vincenz, Vienna,</td>
<td>A Portrait (plaster bust).</td>
</tr>
<tr>
<td>128</td>
<td>Gliber, James, Vienna,</td>
<td>*Madonna (wood).</td>
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</tbody>
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**WATER COLORS.**

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<tr>
<td>129</td>
<td>Tepa, Francis, Lemberg,</td>
<td>*The Polish Cavalry Captain Jastrzebiec.</td>
</tr>
<tr>
<td>131</td>
<td>Alt, Francis, Vienna,</td>
<td>*The Landing at Lucerne.</td>
</tr>
<tr>
<td>133</td>
<td>Alt, Francis, Vienna,</td>
<td>*Interior of the Cathedral, Milan.</td>
</tr>
<tr>
<td>134</td>
<td>Alt, Francis, Vienna,</td>
<td>*The Cursalon in the Stadt Park, Vienna.</td>
</tr>
<tr>
<td>135</td>
<td>Stöckler, Emanuel, Vienna,</td>
<td>*Girl at the Window.</td>
</tr>
<tr>
<td>136</td>
<td>Stöckler, Emanuel, Vienna,</td>
<td>*Campanile of San Marco, Venice.</td>
</tr>
<tr>
<td>137</td>
<td>Stöckler, Emanuel, Vienna,</td>
<td>*Fishmonger in Venice.</td>
</tr>
<tr>
<td>139</td>
<td>Hoffmann, Joseph, Vienna,</td>
<td>*View in the Herrengarten, Darmstadt.</td>
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<tr>
<td>140</td>
<td>Hoffmann, Joseph, Vienna,</td>
<td>*&quot;The Beautiful Chestnut-Tree,&quot; Theaterhof, Darmstadt.</td>
</tr>
<tr>
<td>142</td>
<td>Alt, Ralph, Vienna,</td>
<td>*Cathedral in Orvieto.</td>
</tr>
<tr>
<td>143</td>
<td>Alt, Ralph, Vienna,</td>
<td>*Arch of Constantine, Rome.</td>
</tr>
<tr>
<td>147</td>
<td>Tepa, Francis, Lemberg,</td>
<td>*Peasant Woman of Truskawiec, Galicia.</td>
</tr>
<tr>
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<tr>
<td>149</td>
<td>Tepa, Francis, Lemberg</td>
<td>*A Study (boy).</td>
</tr>
<tr>
<td>150</td>
<td>Lauer, Joseph, Vienna</td>
<td>*Brier Bush (oil painting).</td>
</tr>
<tr>
<td>151</td>
<td>Pönninger, Miss C., Vienna</td>
<td>*Still Life (a duck, in water colors).</td>
</tr>
<tr>
<td>152</td>
<td>Pönninger, Miss C., Vienna</td>
<td>*Flowers (water colors).</td>
</tr>
<tr>
<td>153</td>
<td>Pönninger, Miss C., Vienna</td>
<td>*Flowers (water colors).</td>
</tr>
<tr>
<td>154</td>
<td>Schuster, Miss Adele, Vienna</td>
<td>*Alpine Flowers (oil painting).</td>
</tr>
<tr>
<td>155</td>
<td>Schuster, Miss Adele, Vienna</td>
<td>*The Four Seasons (oil painting).</td>
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**ETCHINGS.**

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<thead>
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<th>NO.</th>
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<tbody>
<tr>
<td>156</td>
<td>Unger, W., Vienna</td>
<td>*Marine view (after Van der Capellen).</td>
</tr>
<tr>
<td>157</td>
<td>Unger, W., Vienna</td>
<td>*Portrait (after Velazquez).</td>
</tr>
<tr>
<td>158</td>
<td>Unger, W., Vienna</td>
<td>*Portrait (after Palma Vecchio).</td>
</tr>
<tr>
<td>159</td>
<td>Unger, W., Vienna</td>
<td>*Landscape (after Hobbema).</td>
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<tr>
<td>160</td>
<td>Unger, W., Vienna</td>
<td>*Jacob's Blessing (after Govaers Flink).</td>
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<tr>
<td>161</td>
<td>Unger, W., Vienna</td>
<td>*Catharine Cornaro (after Hans Makart).</td>
</tr>
<tr>
<td>162</td>
<td>Unger, W., Vienna</td>
<td>*Katharina Formann (after Rubens).</td>
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**STATUARY.**

<table>
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<tr>
<th>NO.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>163</td>
<td>Pezzicar, F., Trieste</td>
<td>*The Abolition of Slavery in the United States, 1863 (statue in bronze).</td>
</tr>
</tbody>
</table>

**PHOTOGRAPH.**

<table>
<thead>
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<th>NO.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>164</td>
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<td>*Catharine Cornaro.</td>
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**OIL PAINTINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
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<th>TITLE</th>
</tr>
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<tbody>
<tr>
<td>165</td>
<td>Angeli, Henry von, Vienna</td>
<td>Portrait.</td>
</tr>
<tr>
<td>166</td>
<td>Angeli, Henry von, Vienna</td>
<td>Portrait.</td>
</tr>
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</table>

**MEDALS.**

(Memorial Hall, Gallery O.)

<table>
<thead>
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<th>NO.</th>
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<tbody>
<tr>
<td>167</td>
<td>Scharff, Anthony, Vienna</td>
<td>*Collection of medals.</td>
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**BELGIUM.**

[Information regarding the sale of Works of Art can be obtained at the office of the Belgian Commission, Main Building.]

*(Annex, Gallery No. 33.)*

**OIL PAINTINGS.**

<table>
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<tbody>
<tr>
<td>1</td>
<td>Portaels, Jean, Brussels</td>
<td>Morning</td>
</tr>
<tr>
<td>2</td>
<td>De Biseau, Aristide, Brussels</td>
<td>The River Semoy (Ardennes)</td>
</tr>
<tr>
<td>3</td>
<td>Gerboux, Auguste Charles, Mons</td>
<td>The Mill of Lens, near Mons</td>
</tr>
<tr>
<td>4</td>
<td>Roffiaen, François, Brussels</td>
<td>Morning, Lake Kœnigsee (Bavaria)</td>
</tr>
<tr>
<td>5</td>
<td>Slingeneyer, Ernest, Brussels</td>
<td>A Christian Martyr in the Reign of Diocletian</td>
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<tr>
<td>6</td>
<td>De Schampheler, Edmond, Brussels</td>
<td>Nymwegen, on the River Wahal, Netherlands</td>
</tr>
<tr>
<td>7</td>
<td>Musin, François, Brussels</td>
<td>Harbor of Rotterdam in Rainy Weather</td>
</tr>
<tr>
<td>8</td>
<td>Huygens, François Joseph, Brussels</td>
<td>Bouquet of Thorn-Blossoms</td>
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<tr>
<td>9</td>
<td>De Heuvel, Theodore, Brussels</td>
<td>The Prayer</td>
</tr>
<tr>
<td>10</td>
<td>Soubre, Charles, Liège</td>
<td>Insurrection of St. Martin (history of Liège)</td>
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<td>11</td>
<td>Coosemans, Joseph Theodore, Brussels</td>
<td>Sunset</td>
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<td>Barnaba, Louis, Brussels</td>
<td>Coast of France</td>
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<tr>
<td>13</td>
<td>Mols, Robert, Antwerp</td>
<td>The Dome of &quot;Les Invalides,&quot; Paris</td>
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<td>14</td>
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<td>De Bylandt, Count Alfred, Brussels</td>
<td>Mountain View in Switzerland</td>
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<td>Langlet, Mrs. Caroline, Brussels</td>
<td>Lighting Candles to the Holy Mother—Italian woman</td>
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<td>Cardon, Charles Léon, Brussels</td>
<td>The Smoking-Room</td>
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<td>Robbe, Henry, Brussels</td>
<td>The Destroyer</td>
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<td>21</td>
<td>De Meester, Raymond, Brussels</td>
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<td>22</td>
<td>Wagner, Jules, Antwerp</td>
<td>Griseldis</td>
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<td>Walkiers, Gustave, Brussels</td>
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<td>24</td>
<td>Verhoeven-Ball, Antwerp</td>
<td>Preparing the Christmas Plum-Pudding</td>
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<td>25</td>
<td>Kuhnen, Victor, Brussels</td>
<td>Steen Street in Antwerp</td>
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<td>Vinck, Franz, Antwerp</td>
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<td>De Pratere, Edmond, Brussels</td>
<td>Stop!</td>
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<td>28</td>
<td>Slingeneyer, Ernest, Brussels</td>
<td>The Night of St. Bartholomew</td>
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<td>29</td>
<td>Tschagggeny, Charles, Brussels</td>
<td>Flemish Stallion</td>
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<td>Van Kersbick, Jules, Brussels</td>
<td>Crime and Superstition</td>
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<td>31</td>
<td>Steens, Edmond, Brussels</td>
<td>Poultry</td>
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<td>32</td>
<td>Unterberger, F. R., Brussels</td>
<td>Posilippo, near Naples</td>
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<td>Roosenboom, Albert, Brussels</td>
<td>Motherly Love</td>
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<td>Cogen, Felix, Brussels</td>
<td>Fisherman of the Zuyder-Zee, Netherlands</td>
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<td>Keelhoff, François, Brussels</td>
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<td>Walraven, Jean, Brussels</td>
<td>The Right of Way</td>
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<td>De St. Cyr, Georges, Brussels</td>
<td>Sentinel at the Entrance of the Harem</td>
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<td>Vinck, Franz, Antwerp</td>
<td>The Confederates in the Presence of Marguerite of Parma</td>
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<td>40</td>
<td>Stroobant, François, Brussels</td>
<td>The House of the Society of the Archers in Bruges</td>
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<td>41</td>
<td>Dandoy, Armand, Namur</td>
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<td>42</td>
<td>Stroobant, François, Brussels,</td>
<td>Dordrecht—View from the River Meuse.</td>
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<td>43</td>
<td>Tschaggeny, Charles, Brussels,</td>
<td>Fire in the Stable.</td>
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**STATUARY.**

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<tr>
<td>42a</td>
<td>Vincotte, Thomas, Brussels,</td>
<td>The Female Captive (bronze statue).</td>
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*(Annex, Gallery No. 39.)*

**OIL PAINTINGS.**

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<td>Van den Broeck, Miss Clemence, Brussels,</td>
<td>Flemish House in A.D. 1600.</td>
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<td>Berlin, Jean Joseph, Brussels,</td>
<td>A Confidential Talk.</td>
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<td>46</td>
<td>Madiol, Adrien Jean, Brussels,</td>
<td>“Don’t let him fly.”</td>
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<td>De Beughem, Count Charles, Brussels,</td>
<td>Landscape near Wiesbaden, Germany.</td>
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<td>De Schampheleer, Edmond, Brussels,</td>
<td>River Moerdyk, Netherlands.</td>
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<td>50</td>
<td>Raoux, Albert, Brussels,</td>
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<td>Sodar, Franz, Dinant,</td>
<td>Reminiscence of Rome.</td>
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<td>Bellemans, Joseph, Antwerp,</td>
<td>Ariosto at the Fountain.</td>
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<td>Col, David, Antwerp,</td>
<td>In the Wine-Cellar.</td>
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<td>Dekeghel, Jules, Ghent,</td>
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<td>Geomens, Gustave, Melle, near Ghent,</td>
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<td>Asselbergs, Alphonse, Brussels,</td>
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<td>Stallaert, Joseph, Brussels,</td>
<td>Palm Sunday (Albano costume, Italy).</td>
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<td>Van Lil, Joseph, Antwerp,</td>
<td>The Last at Church.</td>
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<td>Starck, Jules, Brussels,</td>
<td>Louis XIV. visits young Malandry, the Dead Defender of Montmédy.</td>
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<td>Pauwels, Ferdinand, Antwerp,</td>
<td>Fire in the Village of Ruhla, Germany.</td>
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<td>Nisen, Felix, Liège,</td>
<td>Fancy head.</td>
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<td>Carlier, Modeste, Brussels,</td>
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<td>De Vigne, Miss Malvina, Ghent,</td>
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<td>De Burbure, L., Brussels,</td>
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<td>Beernaert, Miss Euphrosyne, Brussels,</td>
<td>Banks of the River Scheldt, near Antwerp.</td>
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<td>Robert, Alexander, Brussels,</td>
<td>Three Friends.</td>
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<td>De Schampheleer, Edmond, Brussels,</td>
<td>Domburg Banks, Island of Walcheren, Netherlands.</td>
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<td>74</td>
<td>De Loose, Basile, Brussels,</td>
<td>Fair in a Flemish Village.</td>
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<td>75</td>
<td>Van Luppen, G. Joseph, Antwerp,</td>
<td>Before the Thunder Storm—View in Flanders.</td>
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<td>76</td>
<td>Mellery, Xavier, Brussels,</td>
<td>Young Girl from the Environs of Rome.</td>
</tr>
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<td>78</td>
<td>Beernaert, Miss Euphrosyne, Brussels,</td>
<td>View of Domburg, Island of Walcheren, Netherlands.</td>
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<td>79</td>
<td>De Vigne, Miss Emma, Ghent,</td>
<td>Lilacs.</td>
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<td>Génisson, Georges, Namur,</td>
<td>Old Hermitage of St. Hubert, Namur.</td>
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<td>The School.</td>
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<td>Asselbergs, Alphonse, Brussels,</td>
<td>Harvest on the River Meuse.</td>
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<td>Carabain, Jacques François, Brussels,</td>
<td>Church of St. Fermo, Verona, Italy.</td>
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<td>84</td>
<td>De Biseau, Aristide, Brussels,</td>
<td>Reminiscence of the Ardennes Mountains—War.</td>
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<td>85</td>
<td>Smits, Eugène, Brussels,</td>
<td>Mill on the River Scheldt.</td>
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<td>Rosseels, Jacques, Antwerp,</td>
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### DEPT. IV.—ART.

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<tbody>
<tr>
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<td>Meerts, Franz, Brussels,</td>
<td>Saturday in the Monastery.</td>
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<tr>
<td>88</td>
<td>Van Seben, Henry, Brussels,</td>
<td>The Dead Bird—winter landscape.</td>
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<tr>
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<td>Portaels, Jean, Brussels,</td>
<td>Deception.</td>
</tr>
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<td>90</td>
<td>Huygens, François Joseph, Brussels,</td>
<td>Hazels and Roses.</td>
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<td>91</td>
<td>Meerts, Franz, Brussels,</td>
<td>Announcement of Marriage.</td>
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<tr>
<td>92</td>
<td>De Baerdemaeker, Felix, Ghent,</td>
<td>View from the Highway Anthée, Harvest Time.</td>
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<tr>
<td>94</td>
<td>Bouvier, A., Brussels,</td>
<td>The Coast of Bretagne, France.</td>
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<td>Lampe, Louis, Brussels,</td>
<td>The Little Sleeper.</td>
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<td>Carabain, Jacques François, Brussels,</td>
<td>St. Peter and St. Paul’s Church, Antwerp.</td>
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<td>Goemans, Gustave, Melle, near Ghent,</td>
<td>Banks of the River Meuse, near Yvoir.</td>
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<td>De Beughm, Count Charles, Brussels,</td>
<td>Kreuznach, on the Rhine, Prussia.</td>
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<td>Guffens, Godfrey, Brussels,</td>
<td>The Crucifixion.</td>
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<td>Smits, Eugène, Brussels,</td>
<td>Rosetta.</td>
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<td>De Franchimont, Mrs. Emilie, Brussels,</td>
<td>Fruit.</td>
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<td>Wagner, Jules, Antwerp,</td>
<td>Girl tending Geese.</td>
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<td>Dante and the Young Girls of Florence.</td>
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<td>Van Luppen, G. Joseph, Antwerp,</td>
<td>Morning—View near Dinant.</td>
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<td>Gérard, Theodore, Brussels,</td>
<td>An Inn in Württemberg, Germany.</td>
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<td>Wagner, Jules, Antwerp,</td>
<td>Dangerous Medium.</td>
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<td>112</td>
<td>Langlet, Mrs. Caroline, Brussels,</td>
<td>In Prison as a Vagabond.</td>
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(Annex, Gallery No. 39.)

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<tr>
<td>113</td>
<td>Platteel, Jean David, Brussels,</td>
<td>The Exercise (bronze statue).</td>
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(Annex, Gallery No. 41.)

### STATUARY.

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<td>Platteel, Jean David, Brussels,</td>
<td>The Broken Sledge—Zealand, Netherlands.</td>
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<tr>
<td>114</td>
<td>Carabain, Jacques François, Brussels,</td>
<td>Sotto Riva Street in Verona, Italy.</td>
</tr>
<tr>
<td>115</td>
<td>De Sempel, Bruno Alphonse, Brussels,</td>
<td>Location in France (Pas-de-Calais) where the Channel Tunnel is to be commenced.</td>
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<tr>
<td>116</td>
<td>Maswien, Joseph, Louvain,</td>
<td>Church Interior in the Abbey of Everbode, Brabant.</td>
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<tr>
<td>117</td>
<td>Robert, Alexander, Brussels,</td>
<td>Discontent in the Harem.</td>
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<tr>
<td>118</td>
<td>Fourmois, Theodore, Brussels (deceased),</td>
<td>The Mill in the Campine.</td>
</tr>
<tr>
<td>119</td>
<td>Sodar, Franz, Dinant,</td>
<td>Destruction of the Home by Fire.</td>
</tr>
<tr>
<td>120</td>
<td>Barnaba, Louis, Brussels,</td>
<td>Beats ashore on the Coast of France.</td>
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<tr>
<td>121</td>
<td>Dillens, Adolphe, Brussels,</td>
<td>Fair in Zuid-Beveland, Zealand—“The Youths’ Day.”</td>
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<tr>
<td>122</td>
<td>Jacobs, Jacob, Antwerp,</td>
<td>Falls in Norway.</td>
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<tr>
<td>123</td>
<td>Guffens, Godfrey, Brussels,</td>
<td>Episode of the destruction of Pompeii.</td>
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<tr>
<td>125</td>
<td>Van Keirsbik, Jules, Brussels,</td>
<td>Desdemona.</td>
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<td>126</td>
<td>Plumot, André, Antwerp,</td>
<td>On the Road to Market.</td>
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<td>127</td>
<td>Bouvier, A., Brussels,</td>
<td>Coast of Flanders (Sunrise).</td>
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<tr>
<td>128</td>
<td>Houzé, Florentin, Brussels,</td>
<td>An Italian Shepherd Family.</td>
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<tr>
<td>129</td>
<td>De Meester, Raymond, Brussels,</td>
<td>View at Oneglia, near the Cornice, Italy.</td>
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<td>The Town-Gate at Wertheim, Germany.</td>
</tr>
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<td>Madiol, Adrien Jean, Brussels</td>
<td>Hesitation.</td>
</tr>
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<td>Sebes, Pieter Willem, Brussels</td>
<td>An Interior at Hindelopen, Province of Friesland, Netherlands.</td>
</tr>
<tr>
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<td>Barnaba, Louis, Brussels</td>
<td>Sunset on the English Coast.</td>
</tr>
<tr>
<td>134</td>
<td>Bossuet, François Antoine, Brussels</td>
<td>Rome—View from the River Tiber, the Fort and the Bridge of St. Angelo, and St. Peter’s Cathedral.</td>
</tr>
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<td>135</td>
<td>Stellaert, Joseph, Brussels</td>
<td>The Cellar of Diomede—scene at the destruction of Pompeii.</td>
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<td>Mols, Robert, Antwerp</td>
<td>View at Saxenhausen, near Frankfort-on-the-Main, Germany.</td>
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<td>Keymeulen, Emile, Brussels</td>
<td>After the Hurricane.</td>
</tr>
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<td>Van Keirsbilck, Jules, Brussels</td>
<td>The Duet.</td>
</tr>
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<td>139</td>
<td>Gérard, Theodore, Brussels</td>
<td>Soup.</td>
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<td>Madiol, Adrien Jean, Brussels</td>
<td>Pancakes.</td>
</tr>
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<td>Meyers, Isidore, Antwerp</td>
<td>View on the River Scheldt, in Winter.</td>
</tr>
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<td>Smits, Eugène, Brussels</td>
<td>Studio Corner.</td>
</tr>
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<td>143</td>
<td>Gérard, Joseph, Brussels</td>
<td>A Roman Pottery-Seller.</td>
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<td>Berlin, Jean Joseph, Brussels</td>
<td>In the Country.</td>
</tr>
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<td>Verhoeven-Ball, Antwerp</td>
<td>Fruit and Game.</td>
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<tr>
<td>146</td>
<td>Gabriel, Paul Joseph Constantin, Brussels</td>
<td>Landscape—Morning View in Netherlands.</td>
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<td>Dekeghel, Jules, Ghent</td>
<td>The Little Rogue.</td>
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<td>Smits, Eugène, Brussels</td>
<td>Italian Girl.</td>
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<td>The Birthday.</td>
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<td>Wittkamp, Jean Bernard, Antwerp</td>
<td>Byron’s Parisina.</td>
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<td>Gérard, Theodore, Brussels</td>
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<td>Van den Broeck, Miss Clemence, Brussels</td>
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</tr>
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<td>155</td>
<td>Musin, François, Brussels</td>
<td>Sea-Shore at Scheveningen.</td>
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<tr>
<td>156</td>
<td>Wulffaert, Hippolyte, Brussels</td>
<td>Waterwomen of Venice.</td>
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<tr>
<td>159</td>
<td>Verheyden, François, Brussels</td>
<td>The Removal.</td>
</tr>
<tr>
<td>160</td>
<td>De Baerdemaecker, Felix, Ghent</td>
<td>The Village of Maurenne, Ardennes Mountains.</td>
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<tr>
<td>161</td>
<td>Nisen, Félix, Liège</td>
<td>In the Fields, Ardennes.</td>
</tr>
<tr>
<td>162</td>
<td>Mellery, Xavier, Brussels</td>
<td>A Roman Peasant Woman.</td>
</tr>
<tr>
<td>163</td>
<td>Le Gendre, Léonce, Tournai</td>
<td>Clytie (Ovid).</td>
</tr>
<tr>
<td>164</td>
<td>Van Seben, Henri, Brussels</td>
<td>Winter Amusements.</td>
</tr>
<tr>
<td>165</td>
<td>Raoux, Albert, Brussels</td>
<td>Flowers.</td>
</tr>
<tr>
<td>166</td>
<td>Bossuet, François Antoine, Brussels</td>
<td>Flowers.</td>
</tr>
<tr>
<td>167</td>
<td>Bellemans, Joseph, Antwerp</td>
<td>Granada, Spain.</td>
</tr>
<tr>
<td>169</td>
<td>Roosendoom, Albert, Brussels</td>
<td>Shipwreck in Douarnenez Bay, Finistère, France.</td>
</tr>
<tr>
<td>171</td>
<td>Verheyden, Isidore, Brussels</td>
<td>Shipwreck on the Shore of Mariakerke, near Ostend.</td>
</tr>
<tr>
<td>172</td>
<td>Glibert, Albert, Brussels</td>
<td>Landscape.</td>
</tr>
<tr>
<td>173</td>
<td>Speeckaert, Gustave, Antwerp</td>
<td>Good Counsels.</td>
</tr>
<tr>
<td>174</td>
<td>Ooms, Karel, Antwerp</td>
<td>Landscape—Pueri, near Antwerp.</td>
</tr>
<tr>
<td>174</td>
<td>Fassin, Adolphe, Brussels</td>
<td>The First Ice of the Season.</td>
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</tbody>
</table>

**STATUARY.**

<table>
<thead>
<tr>
<th>NO.</th>
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</thead>
<tbody>
<tr>
<td>174a</td>
<td>Fassin, Adolphe, Brussels</td>
<td>The Neapolitan Water-Seller (galvanoplastic statue).</td>
</tr>
</tbody>
</table>
(Memorial Hall, Gallery O.)

**STATUARY.**

<table>
<thead>
<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>175</td>
<td>Bouré, Antoine Félix, Brussels,</td>
<td>The Lizard (marble).</td>
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<td>176</td>
<td>Bouré, Antoine Félix, Brussels,</td>
<td>A Lion (marble).</td>
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<td>Bouré, Antoine Félix, Brussels,</td>
<td>A Lion (marble).</td>
</tr>
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<td>178</td>
<td>Bouré, Antoine Félix, Brussels,</td>
<td>A Recumbent Lion (marble).</td>
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<td>179</td>
<td>Brunin, Charles, Mons,</td>
<td>Laughing Neapolitan (bronze).</td>
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<td>180</td>
<td>Comein, Polydore, Brussels,</td>
<td>The Little Mother (terra-cotta).</td>
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<td>Comein, Polydore, Brussels,</td>
<td>Awakening (terra-cotta).</td>
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<td>Comein, Polydore, Brussels,</td>
<td>Winter (terra-cotta).</td>
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<td>183</td>
<td>Comein, Polydore, Brussels,</td>
<td>Summer (terra-cotta).</td>
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<td>184</td>
<td>De Groot, Guillaume, Brussels,</td>
<td>A Child (marble).</td>
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<td>185</td>
<td>De Villez, Louis Henri, Mons,</td>
<td>Laughing Faun.</td>
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<td>De Woelmont, Gustave, Baron, Brussels,</td>
<td>Bust of Miss De W. (marble).</td>
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<td>187</td>
<td>Fassin, Adolphe, Brussels,</td>
<td>Roma (marble).</td>
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<td>Fassin, Adolphe, Brussels,</td>
<td>Napoli (marble).</td>
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<td>Fraikin, Charles Auguste, Brussels,</td>
<td>The First Child (marble).</td>
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<td>190</td>
<td>Fraikin, Charles Auguste, Brussels,</td>
<td>The Drone Bee (marble).</td>
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<td>192</td>
<td>Godebski, Cyprien, Neuilly, Paris,</td>
<td>Russian Peasant Woman (marble).</td>
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<td>193</td>
<td>Lefever, Edmond Florimond, Brussels,</td>
<td>Piccolo (terra-cotta).</td>
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<td>194</td>
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<td>Piccola (terra-cotta).</td>
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<td>Lefever, Edmond Florimond, Brussels,</td>
<td>Summer (terra-cotta).</td>
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<td>196</td>
<td>Lefever, Edmond Florimond, Brussels,</td>
<td>Remembrance (terra-cotta).</td>
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<td>198</td>
<td>Rodin, Auguste, Brussels,</td>
<td>Loving Thoughts.</td>
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<td>199</td>
<td>Rodin, Auguste, Brussels,</td>
<td>The Rose.</td>
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<td>200</td>
<td>Rodin, Auguste, Brussels,</td>
<td>Alsacian Woman.</td>
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<td>201</td>
<td>Rodin, Auguste, Brussels,</td>
<td>Spring.</td>
</tr>
<tr>
<td>202</td>
<td>Rodin, Auguste, Brussels,</td>
<td>Autumn (small grapes).</td>
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<td>203</td>
<td>Rodin, Auguste, Brussels,</td>
<td>Large Grapes.</td>
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<tr>
<td>204</td>
<td>Rodin, Auguste, Brussels,</td>
<td>Field Flowers.</td>
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**MEDALS.**

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<tr>
<td>205</td>
<td>Wiener, Charles, Brussels,</td>
<td>Frame with the following medals:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. The Orange Society medals.</td>
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<tr>
<td></td>
<td></td>
<td>3. The Cathedral in Seville, interior and exterior.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. The Cathedral of Belem (Portugal).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. The King of Holland.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Medallion of Jenner.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10. A. Rodenbach.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11. Two medallions—awarded by the Society of the &quot;Seine-Inferieure.&quot;</td>
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<tr>
<td></td>
<td></td>
<td>13. Two medallions—The Exhibition in Oporto, Portugal.</td>
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<tr>
<td></td>
<td></td>
<td>14. Award from the Lisbon Academy of Fine Arts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15. The Prison in Arlon.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16. Anthony Van Dyck.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17. Benjamin Rumford.</td>
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<tr>
<td></td>
<td></td>
<td>18. Queen Victoria.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20. A &quot;5000 reis&quot; silver piece, Portuguese money.</td>
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<td></td>
<td></td>
<td>22. Sir Moses and Lady Montefiore.</td>
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BELGIUM.

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<tr>
<td>23.</td>
<td>A. Horsen.</td>
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<td>24.</td>
<td>Baron de St. Géneis.</td>
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<tr>
<td>25.</td>
<td>M. C. Pycke, Baron, Governor of the Province of Antwerp.</td>
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<tr>
<td>27.</td>
<td>Cardinal Sterckx.</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>Interior of the Cathedral in Cologne.</td>
<td></td>
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<tr>
<td>29.</td>
<td>The King of the Belgians.</td>
<td></td>
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<tr>
<td>30.</td>
<td>Cardinal Dechamps.</td>
<td></td>
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<tr>
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<td>The Interior of the Cathedral in Toledo, Spain.</td>
<td></td>
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<tr>
<td>32.</td>
<td>Stock Exchange in Brussels.</td>
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</tr>
<tr>
<td>33.</td>
<td>Cardinal Sterckx.</td>
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<tr>
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<tr>
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<tr>
<td>36.</td>
<td>Cardinal Dechamps.</td>
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<td>The Interior of the Cathedral in Toledo, Spain.</td>
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<td>38.</td>
<td>Stock Exchange in Brussels.</td>
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<td>47.</td>
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<tr>
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<td>The Interior of the Cathedral in Toledo, Spain.</td>
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ARTISTIC BRASS WORK.

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<tr>
<td>206</td>
<td>Labaer, Jean Jacques, Antwerp,</td>
<td>William the Silent.</td>
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<tr>
<td>207</td>
<td>Labaer, Jean Jacques, Antwerp,</td>
<td>Marnix de Sainte-Aldegonde, Mayor of Antwerp.</td>
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<tr>
<td>208</td>
<td>Labaer, Jean Jacques, Antwerp,</td>
<td>Van Strale, Mayor of Antwerp.</td>
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<tr>
<td>209</td>
<td>Labaer, Jean Jacques, Antwerp,</td>
<td>Brederode, Chief of the Gueux.</td>
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<tr>
<td>210</td>
<td>Labaer, Jean Jacques, Antwerp,</td>
<td>Saint John (after Quentin Matsys).</td>
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<td>211</td>
<td>Labaer, Jean Jacques, Antwerp,</td>
<td>M. Emanuel Hiel.</td>
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<td>212</td>
<td>Dauge, Franz, Brussels,</td>
<td>Battle scene.</td>
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<td>Dauge, Franz, Brussels,</td>
<td>Landscape, with Cattle.</td>
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<td>215</td>
<td>Dauge, Franz, Brussels,</td>
<td>Cupids.</td>
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<td>Dauge, Franz, Brussels,</td>
<td>Cupids.</td>
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<tr>
<td>217</td>
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<tr>
<td>218</td>
<td>Dauge, Franz, Brussels,</td>
<td>Interior.</td>
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<td>De Mol, Adolphe, Brussels,</td>
<td>Bacchante playing the Tambourine.</td>
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<td>221</td>
<td>De Mol, Adolphe, Brussels,</td>
<td>Bacchante.</td>
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<td>Meunier, Miss Georgette, Brussels,</td>
<td>The Holy Family.</td>
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<td>Meunier, Miss Georgette, Brussels,</td>
<td>Diana (after Vouet).</td>
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<td>Meunier, Miss Georgette, Brussels,</td>
<td>Spring (after Boucher).</td>
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<td>Meunier, Miss Georgette, Brussels,</td>
<td>Harvest (after Boucher).</td>
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<td>Tourteau, Edward, Brussels,</td>
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<tr>
<td>230</td>
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<td>Cupids.</td>
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<tr>
<td>231</td>
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<td>Odalisque.</td>
</tr>
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<td>Cupids.</td>
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<td>234</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Venus.</td>
</tr>
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<td>235</td>
<td>Tourteau, Edward, Brussels,</td>
<td>The Infant Jesus.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>The War-Flag.</td>
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<td>237</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Holy Woman.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>Autumn.</td>
</tr>
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<td>Tourteau, Edward, Brussels,</td>
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<td>The Dance.</td>
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</tr>
<tr>
<td>244</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Goat.</td>
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<td>245</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Cupid.</td>
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<td>246</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Dish, style of Louis XV.</td>
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DEPARTMENT IV.—ART.

DECORATED EARTHENWARE.

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<thead>
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<th>NO.</th>
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<tr>
<td>247</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Nessus eloping with Dejanira.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>Rape of the Sabines.</td>
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<td>Tourteau, Edward, Brussels,</td>
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<td>Tourteau, Edward, Brussels,</td>
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<td>The Child with the Butterfly.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>Amphitrite.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>Venus and Vulcan.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>The Elopement.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>The Thinker.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>The Dreamer.</td>
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<td>Boy's head.</td>
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<tr>
<td>260</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Girl's head.</td>
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<td>The Rat-Catcher.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>A Woman's head.</td>
</tr>
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<td>Tourteau, Edward, Brussels,</td>
<td>Love is Conqueror.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>A Gothic Triptych.</td>
</tr>
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<td>Tourteau, Edward, Brussels,</td>
<td>Child's head.</td>
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<td>Tourteau, Edward, Brussels,</td>
<td>Boy's head.</td>
</tr>
<tr>
<td>269</td>
<td>Tourteau, Edward, Brussels,</td>
<td>Girl's head.</td>
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<tr>
<td>270</td>
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<td>Ducks.</td>
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<tr>
<td>271</td>
<td>Volkaerts, François Xavier, Brussels,</td>
<td>Venus and Cupid.</td>
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PHOTOGRAPHS.

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<tr>
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<td>Royal Belgian Society for Photography,</td>
<td>Album of photographs (after the Belgian painter Wiertz, deceased)</td>
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ARCHITECTURAL DRAWING.

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<tr>
<td>274</td>
<td>De Curte, Louis, Brussels,</td>
<td>Plans for a cathedral in the Gothic style of the thirteenth century.</td>
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</table>

(Annex, Gallery No. 23.)

DRAWINGS.

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ENGRAVINGS.

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<tr>
<td>277</td>
<td>Biot, Gustave, Brussels,</td>
<td>Portrait.</td>
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<tr>
<td>278</td>
<td>Biot, Gustave, Brussels,</td>
<td>Portrait of the Emperor of Austria.</td>
</tr>
<tr>
<td>279</td>
<td>Danse, Auguste, Mons,</td>
<td>The Sorceress.</td>
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<tr>
<td>280</td>
<td>Danse, Auguste, Mons,</td>
<td>The Last Moments of Charles V.</td>
</tr>
<tr>
<td>281</td>
<td>Danse, Auguste, Mons,</td>
<td>The Wedding.</td>
</tr>
<tr>
<td>282</td>
<td>Danse, Auguste, Mons,</td>
<td>The Martyrdom of Saint Peter.</td>
</tr>
<tr>
<td>283</td>
<td>Danse, Auguste, Mons,</td>
<td>The Virgin on Calvary.</td>
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### OIL PAINTING.

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<th>TITLE.</th>
</tr>
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<tbody>
<tr>
<td>285</td>
<td>D’Inghuem, Le Bailly, Brussels</td>
<td>Frame containing etchings.</td>
</tr>
<tr>
<td>286</td>
<td>D’Inghuem, Le Bailly, Brussels</td>
<td>Frame containing etchings.</td>
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</table>

### WATER COLORS.

<table>
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<tbody>
<tr>
<td>287</td>
<td>Wittkamp, John Bernard, Antwerp</td>
<td>Cruelty of Adolph towards his father, Duc de Guelders (Motley's History of the Netherlands).</td>
</tr>
<tr>
<td>288</td>
<td>Beeckman, Marie Ferdinand de, Brussels</td>
<td>View at Tervueren, Belgium.</td>
</tr>
<tr>
<td>289</td>
<td>Beeckman, Marie Ferdinand de, Brussels</td>
<td>View in the Forest of Fontainebleau.</td>
</tr>
<tr>
<td>290</td>
<td>Robinson, John, Brussels</td>
<td>‘‘She is a winsome wee thing.’’—(Burns.)</td>
</tr>
</tbody>
</table>
NETHERLANDS.

[Works of Art marked with an asterisk (*) are for sale. Information may be obtained at the office of the Netherlands Commission, in Annex, Gallery 13.]

(Annex, Gallery No. 15.)

**OIL PAINTINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
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<tbody>
<tr>
<td>1</td>
<td>Van Lockhorst, D., Utrecht,</td>
<td>Field of Heather near Epé.</td>
</tr>
<tr>
<td>2</td>
<td>Heemskerk, Van Beest E. v., the Hague,</td>
<td>Storm near Dover.</td>
</tr>
<tr>
<td>3</td>
<td>Taanman, J., Amsterdam,</td>
<td>Flower-Girl.</td>
</tr>
<tr>
<td>4</td>
<td>Koekkoek, H., Amsterdam,</td>
<td>Beach on the French Coast.</td>
</tr>
<tr>
<td>5</td>
<td>Koekkoek, H., Jr., London,</td>
<td>Stormy Weather at Sea.</td>
</tr>
<tr>
<td>6</td>
<td>Isaels, J., the Hague,</td>
<td>The Card-Players.</td>
</tr>
<tr>
<td>7</td>
<td>Egenberger, J. H., Groningen,</td>
<td>Rain and Sunshine.</td>
</tr>
<tr>
<td>8</td>
<td>Van Deventer, J. F., the Hague,</td>
<td>Holland Landscape.</td>
</tr>
<tr>
<td>9</td>
<td>Gruijter, W., Jr., Amsterdam,</td>
<td>Dutch Fishermen caught in a Rain-Storm.</td>
</tr>
<tr>
<td>10</td>
<td>Kate, J. Mari H. Ten, the Hague,</td>
<td>Good Friends.</td>
</tr>
<tr>
<td>11</td>
<td>Mesdag, van Houten, Mrs., the Hague,</td>
<td>In the Downs.</td>
</tr>
<tr>
<td>12</td>
<td>Stroebel, J. A. B., the Hague,</td>
<td>The Deaconess of the Silversmiths’ Guild conferring a Freeman’s Certificate—seventeenth century.</td>
</tr>
<tr>
<td>13</td>
<td>Eerelman, O., Brussels,</td>
<td>Landscape near Vorden.</td>
</tr>
<tr>
<td>14</td>
<td>Bilderis, J. W., Amsterdam,</td>
<td>In Summer.</td>
</tr>
<tr>
<td>15</td>
<td>Cunaeus, C., Amsterdam,</td>
<td>Dieuwke.</td>
</tr>
<tr>
<td>16</td>
<td>Bishop, C., the Hague,</td>
<td>Saturday Afternoon in Friesland.</td>
</tr>
<tr>
<td>17</td>
<td>Kool, S., Amsterdam,</td>
<td>Landscape with Cattle.</td>
</tr>
<tr>
<td>18</td>
<td>Stortenbeker, P., the Hague,</td>
<td>Summer in the Fields.</td>
</tr>
<tr>
<td>19</td>
<td>Canta, J. A., Rotterdam,</td>
<td>Church at Treves.</td>
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<tr>
<td>20</td>
<td>Bosboom, J., the Hague,</td>
<td>A Connoisseur.</td>
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<tr>
<td>21</td>
<td>Hanrath, Th.,</td>
<td>Flowers.</td>
</tr>
<tr>
<td>22</td>
<td>Haanen, Adriane, Mrs., Oosterbeek,</td>
<td>Storm on the North Sea.</td>
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<tr>
<td>23</td>
<td>Mesdag, H. W., the Hague,</td>
<td>Vestibule of St. Mark in Venice.</td>
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<tr>
<td>26</td>
<td>Oppenooth, W. J., Antwerp,</td>
<td>Early Morning.</td>
</tr>
<tr>
<td>27</td>
<td>Apol, L., the Hague,</td>
<td>Domestic Happiness.</td>
</tr>
<tr>
<td>28</td>
<td>Valkenburg, H., Amsterdam,</td>
<td>River View near Dordrecht.</td>
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<tr>
<td>30</td>
<td>Cunaeus, C., Amsterdam,</td>
<td>The Barber of Seville.</td>
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<tr>
<td>31</td>
<td>Postma, G., Haarlem,</td>
<td>Four Weeks after St. John’s Day.</td>
</tr>
<tr>
<td>32</td>
<td>Huybers, J. D., Zwolle,</td>
<td>Still Life.</td>
</tr>
<tr>
<td>33</td>
<td>Vos, M., Miss, Oosterbeek,</td>
<td>Solitude.</td>
</tr>
<tr>
<td>34</td>
<td>Soeterick, Th., Utrecht,</td>
<td>Trial of a Prisoner of War.</td>
</tr>
<tr>
<td>35</td>
<td>Lingeman, L., Baarn,</td>
<td>Good Tidings.</td>
</tr>
<tr>
<td>36</td>
<td>Van Hove, J. H., the Hague,</td>
<td>Sunday Morning.</td>
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<tr>
<td>37</td>
<td>Scholten, J. H., Haarlem,</td>
<td>Pastoral Scene near Haarlem.</td>
</tr>
<tr>
<td>38</td>
<td>Savrij, H., Haarlem,</td>
<td>Cheese-Market in North Holland.</td>
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<tr>
<td>39</td>
<td>Rochussen, Ch., Rotterdam,</td>
<td>In Winter.</td>
</tr>
<tr>
<td>40</td>
<td>Cunaeus, C., Amsterdam,</td>
<td>Off the Island of Texel.</td>
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<td>41</td>
<td>Heemskerk, Van Beest E. v., the Hague,</td>
<td>Mill at Vorden.</td>
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<td>42</td>
<td>Roth, G. A., Amsterdam,</td>
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<tr>
<td>43</td>
<td>Verveer, S. L. (deceased),</td>
<td>Village of Scheveningen.</td>
</tr>
<tr>
<td>44</td>
<td>Seggern, F. van, Amsterdam,</td>
<td>*Evening near Calmpthout.</td>
</tr>
<tr>
<td>45</td>
<td>Masurel, J. E., Amsterdam,</td>
<td>*Recreation.</td>
</tr>
<tr>
<td>46</td>
<td>Kate, H. F. C. Ten, the Hague,</td>
<td>*A Morning Concert.</td>
</tr>
<tr>
<td>47</td>
<td>Haezu, A. C., Haarlem,</td>
<td>*Landscape in Gelderland.</td>
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(Annex, Gallery No. 5.)

**OIL PAINTINGS.**

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<tbody>
<tr>
<td>50</td>
<td>Verveer, Elchanon, the Hague,</td>
<td>*The Widow.</td>
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<tr>
<td>51</td>
<td>Vester, W., Heemstede,</td>
<td>*Landscape in Holland.</td>
</tr>
<tr>
<td>52</td>
<td>Nakken, W. C., the Hague,</td>
<td>Packhorses in the Woods of St. Gatlen, Normandy.</td>
</tr>
<tr>
<td>54</td>
<td>Bisschop, C., the Hague,</td>
<td>At Church.</td>
</tr>
<tr>
<td>55</td>
<td>Koekkoek, W., the Hague,</td>
<td>*Scene in Kuilenburg.</td>
</tr>
<tr>
<td>56</td>
<td>Ronner, Mrs. Henriette, née Knip, Brussels,</td>
<td>*Hare in his Covert.</td>
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<tr>
<td>59</td>
<td>Greive, J. C., Jr., Amsterdam,</td>
<td>*The Dock at Amsterdam.</td>
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<td>60</td>
<td>Israels, J., the Hague,</td>
<td>In the Grain-Field.</td>
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<td>61</td>
<td>Roeofs, W., Brussels,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>63</td>
<td>Hanedoes, L., and Verveer, S. L., the Hague,</td>
<td>*Woodland, with Figures.</td>
</tr>
<tr>
<td>65</td>
<td>Tom, J. B., the Hague,</td>
<td>Heath with Sheep.</td>
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<tr>
<td>67</td>
<td>Israels, J., the Hague,</td>
<td>After the Storm.</td>
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<tr>
<td>68</td>
<td>Gempt, B. te, Amsterdam,</td>
<td>Dog.</td>
</tr>
<tr>
<td>69</td>
<td>Trigt, H. A. van, Hilversum,</td>
<td>*Norwegian Women bringing Children to be Baptized, and being welcomed by the Clergyman.</td>
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<tr>
<td>70</td>
<td>Maris, Willem, the Hague,</td>
<td>*The First Lesson in Swimming.</td>
</tr>
<tr>
<td>71</td>
<td>Verschuur, W., Jr., Amsterdam,</td>
<td>*Horse in the Stable.</td>
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<td>72</td>
<td>Philippeau, C. F., Amsterdam,</td>
<td>On the Lookout.</td>
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<td>74</td>
<td>Verschuur, W., Jr., Amsterdam,</td>
<td>*Dog.</td>
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<td>75</td>
<td>Weissenbruch, Jan, the Hague,</td>
<td>Leerdam.</td>
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<td>76</td>
<td>Vos, Miss M., Oosterbeek,</td>
<td>*Still Life.</td>
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<td>77</td>
<td>Schenkel, J. J., Amsterdam,</td>
<td>*St. Nicholas Church at Amsterdam.</td>
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<td>Koster, E., Haarlem,</td>
<td>*On the Beach.</td>
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<td>Windt, P. P., the Hague,</td>
<td>*Tough Beans.</td>
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<td>82</td>
<td>Heerebaarth, G., Amsterdam,</td>
<td>*Suburbs of a Dutch City.</td>
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<td>85</td>
<td>Borselen, I. W. van, the Hague,</td>
<td>A Holland Landscape.</td>
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<td>87</td>
<td>Testas, W. de Famars, Brussels,</td>
<td>*A Barber's Shop at Cairo.</td>
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<td>88</td>
<td>Mesdag, H. H., the Hague,</td>
<td>*Evening on the Beach.</td>
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<td>89</td>
<td>Sadee, Th., the Hague,</td>
<td>The Potato-Gatherers.</td>
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<td>90</td>
<td>Ronner, Mrs. Henriette, Brussels,</td>
<td>*The Last Hope.</td>
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<td>Kruseman, Elten van, New York,</td>
<td>*Holland Landscape.</td>
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<td>Lingeman, L., Baarn,</td>
<td>A Conference.</td>
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<td>97</td>
<td>Gemipt, B. te, Amsterdam,</td>
<td>Three Dogs.</td>
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<td>Steffellaar, J., Amsterdam,</td>
<td>*In the Church Kitchen.</td>
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<tr>
<td>100</td>
<td>Kate, J. Mari H. Ten, the Hague,</td>
<td>*On the Beach.</td>
</tr>
<tr>
<td>101</td>
<td>Boks, M., the Hague,</td>
<td>*Landscape.</td>
</tr>
<tr>
<td>102</td>
<td>Taanman, J., Amsterdam,</td>
<td>*Sheriff's Hall in the old Town Hall at Kampen—</td>
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<td></td>
<td></td>
<td>—with figures from the sixteenth century.</td>
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<tr>
<td>103</td>
<td>Craeyvanger, R., Amsterdam,</td>
<td>*The First Pair of Spectacles.</td>
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<tr>
<td>104</td>
<td>Roelofs, W., the Hague,</td>
<td>*A Thunder-Storm.</td>
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<tr>
<td>105</td>
<td>Heemskerker, Van Beest E. v.,</td>
<td>The River Y, near Amsterdam.</td>
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<tr>
<td></td>
<td></td>
<td>*Holland Landscape.</td>
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<tr>
<td>107</td>
<td>Kate, H. F. C. Ten, the Hague,</td>
<td>The Fortunes of War—seventeenth century.</td>
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<td>108</td>
<td>Apol, L., the Hague,</td>
<td>In the River.</td>
</tr>
<tr>
<td>109</td>
<td>Mauve, A., the Hague,</td>
<td>*Hauling up the Fishing-Boat.</td>
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<tr>
<td>111</td>
<td>Bosboom, J., the Hague,</td>
<td>*The New Church at Amsterdam.</td>
</tr>
<tr>
<td>112</td>
<td>Mesdag, H. W., the Hague,</td>
<td>*Winter near the Hague.</td>
</tr>
<tr>
<td>113</td>
<td>Vogel, J. G., the Hague,</td>
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(Annex, Gallery No. 13.)

**OIL PAINTINGS.**

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<tr>
<td>114</td>
<td>Riegen, N., Amsterdam,</td>
<td>A Calm.</td>
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<tr>
<td>115</td>
<td>Heijl, M., Amsterdam,</td>
<td>*Evening.</td>
</tr>
<tr>
<td>119</td>
<td>Altmann, S., Amsterdam,</td>
<td>*The Young Bull (after Potter).</td>
</tr>
<tr>
<td>120</td>
<td>Segger, P. van,</td>
<td>*Landscape in Norway.</td>
</tr>
<tr>
<td>126</td>
<td>Nakken, W. C., the Hague,</td>
<td>*Haymaking—Normandy.</td>
</tr>
<tr>
<td>129</td>
<td>Deventer, J. F. van, the Hague,</td>
<td>*Holland Landscape and Cattle.</td>
</tr>
<tr>
<td>131</td>
<td>Ebersbach, J. E., Amsterdam,</td>
<td>*Recreation.</td>
</tr>
<tr>
<td>136</td>
<td>Streebel, J. A. B., the Hague,</td>
<td>*Dutch Interior.</td>
</tr>
<tr>
<td>137</td>
<td>Rochussen, Ch., Rotterdam,</td>
<td>*A Picnic.</td>
</tr>
<tr>
<td>138</td>
<td>Rochussen, Ch., Rotterdam,</td>
<td>Near Scheveningen.</td>
</tr>
<tr>
<td>139</td>
<td>Rolofs, W., Brussels,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>140</td>
<td>Kate, H. F. C. Ten, the Hague,</td>
<td>*Gamblers—seventeenth century.</td>
</tr>
<tr>
<td>141</td>
<td>Deventer, W. A., the Hague,</td>
<td>Near Scheveningen.</td>
</tr>
<tr>
<td>142</td>
<td>Rochussen, Ch., Rotterdam,</td>
<td>*A Moonlight Excursion.</td>
</tr>
<tr>
<td>143</td>
<td>Rochussen, Ch., Rotterdam,</td>
<td>*Reconnoitring.</td>
</tr>
<tr>
<td>145</td>
<td>Destree, J. J., the Hague,</td>
<td>*Dutch Meadow.</td>
</tr>
<tr>
<td>146</td>
<td>Heemskerker, Van Beest E. v.,</td>
<td>*Arrival in the Harbor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the Hague,</td>
</tr>
</tbody>
</table>
NETHERLANDS.

147 Reijntjes, H. E., Amsterdam, *Sixty-five by Forty.
148 Bosboom, J., the Hague, Dutch Church.
151 Joosten, D. J. H., Haarlem, *Fruit.
152 Essen, J. C. van, Amsterdam, *A Moment's Rest.
153 Bocks, M., the Hague, *Landscape.
154 Riegen, N., Amsterdam, *Coast Scene in France.
155 Altmann, S., Amsterdam, *Jan Steen in his Studio.
156 Altmann, S., Amsterdam, *The Masters of the Kloveniersguild (after F. Hals, 1633).
158 Altmann, S., Amsterdam, *Banquet of the Civil Guard (after Van der Helst).
160 Eversen, A., Amsterdam, *Street Scene in Winter.

(Annex, Gallery No. 23.)

ENGRAVINGS, PHOTOGRAPHS, CARVINGS.

161 Sluijter, H. Dzn, Amsterdam, *Fourteen engravings, representing Dutch paint-
162 Cuypers & Stolzenberg, Sculptors, Roermond, ings.

163 Wollrabe, H. W., the Hague, a The Crucifixion.
164 De Jong, G., Groningen, b The Holy Virgin.
165 Tresling & Co., Amsterdam, c St. Joris.
166 Molkenboer, W. B. G., Leeu-
167 Kolkow, F. J. von, Groningen, warden, Microscopic photographs on glass.
168 Bauer, C. W., Middelburg, Five photographs.

(Annex, Gallery No. 21.)

STATUARY.

169 Goossens & Son, Bosch, Saul on the Road to Damascus (terra-cotta).
DENMARK.

[Works of Art marked with an asterisk (*) are for sale. Information may be obtained at the office of the Danish Commissioner, Main Building.]

(Annex, Gallery No. 7.)

OIL PAINTINGS.

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<tbody>
<tr>
<td>1</td>
<td>Andersen, A., Copenhagen,</td>
<td>*Winter Landscape.</td>
</tr>
<tr>
<td>2</td>
<td>Andersen, A., Copenhagen,</td>
<td>*Afternoon in a Danish Beech Forest.</td>
</tr>
<tr>
<td>4</td>
<td>Eckardt, C., Copenhagen,</td>
<td>*The Coast of Spalato, Dalmatia.</td>
</tr>
<tr>
<td>5</td>
<td>Hammer, H. J., Copenhagen,</td>
<td>*By the Fountain in Ariccia, Italy.</td>
</tr>
<tr>
<td>6</td>
<td>Hammer, W., Copenhagen,</td>
<td>Fruit under an Apple-Tree.</td>
</tr>
<tr>
<td>7</td>
<td>Hammer, W., Copenhagen,</td>
<td>*Garden Fruit in a Basket.</td>
</tr>
<tr>
<td>8</td>
<td>Melby, W., Copenhagen,</td>
<td>*Midsummer Night, Iceland, Stormy Weather.</td>
</tr>
<tr>
<td>9</td>
<td>Mackeprang, A., Copenhagen,</td>
<td>*Fox in the Chicken-Yard.</td>
</tr>
<tr>
<td>10</td>
<td>Mackeprang, A., Copenhagen,</td>
<td>*Fox and its Young.</td>
</tr>
<tr>
<td>11</td>
<td>Rasmussen, J. E. C., Copenhagen,</td>
<td>*Discovery of America in the Year 1000.</td>
</tr>
<tr>
<td>12</td>
<td>Rasmussen, J. E. C., Copenhagen,</td>
<td>*Greenlanders on a Journey.</td>
</tr>
<tr>
<td>13</td>
<td>Rasmussen, J. E. C., Copenhagen,</td>
<td>*Danish Fjord.</td>
</tr>
<tr>
<td>14</td>
<td>Schovelin, A., Copenhagen,</td>
<td>*Ruins of Heidelberg.</td>
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SWEDEN.

[Works of Art marked with an asterisk (*) are for sale. Information may be obtained at the office of the Swedish Commission, Memorial Hall.]

(Memorial Hall, Galleries H and K: Annex, Galleries Nos. 11 and 25.)

STATUARY.

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WOOD CARVINGS.

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<tr>
<td>4</td>
<td>Wästfelt, Carl C., Kölingsholm,</td>
<td>*Carvings in wood.</td>
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OIL PAINTINGS.

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<tr>
<td>5a</td>
<td>Adelskold, C., Stockholm,</td>
<td>*Preparing for Dinner.</td>
</tr>
<tr>
<td>5b</td>
<td>Adelskold, C., Stockholm,</td>
<td>*A Gale on the Coast of Sweden.</td>
</tr>
<tr>
<td>6b</td>
<td>Ankarkrona, H., Stockholm,</td>
<td>*View from the Boundaries of Algiers and Morocco.</td>
</tr>
<tr>
<td>7a</td>
<td>Arborelius, O. P., Stockholm,</td>
<td>*View from Djarnie.</td>
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<tr>
<td>11c</td>
<td>Berg, Edward, Stockholm,</td>
<td>Swedish Waterfall.</td>
</tr>
<tr>
<td>12</td>
<td>Bergman, Miss Elizabeth, Stockholm,</td>
<td>*Landscape in Wermland.</td>
</tr>
<tr>
<td>13</td>
<td>Bergstedt, Miss Amanda,</td>
<td>*The Difficult Lesson.</td>
</tr>
<tr>
<td>17a</td>
<td>Börjesson, Miss Agnes, Rome,</td>
<td>*Farewell.</td>
</tr>
<tr>
<td>17b</td>
<td>Börjesson, Miss Agnes, Rome,</td>
<td>*A Happy Finding.</td>
</tr>
<tr>
<td>18b</td>
<td>Cantzier, H., Stockholm,</td>
<td>*Reaping in Italy.</td>
</tr>
<tr>
<td>20</td>
<td>Cederström, G., Baron, Stockholm,</td>
<td>*Dark Moments.</td>
</tr>
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<td>21</td>
<td>Dietrichson, Mrs. M., Christiania,</td>
<td>*The Recovered Document.</td>
</tr>
<tr>
<td>23a</td>
<td>Engström, W. O., Düsseldorf,</td>
<td>*Good-Morning!</td>
</tr>
<tr>
<td>24a</td>
<td>Fagerlin, F. I., Stockholm,</td>
<td>Boys smoking.</td>
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<tr>
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<tr>
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<td>Fagerlin, F. I., Stockholm,</td>
<td>Jealousy.</td>
</tr>
<tr>
<td>27b</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*Poor People's Graveyard.</td>
</tr>
<tr>
<td>27c</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*The First Snow.</td>
</tr>
<tr>
<td>27e</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*Spring, Montmartre, Paris.</td>
</tr>
<tr>
<td>27f</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*In a Stockholm Suburb.</td>
</tr>
<tr>
<td>27i</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*Returning at Noon.</td>
</tr>
<tr>
<td>27h</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*Landscape in Södermanland.</td>
</tr>
<tr>
<td>27k</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*Birch Forest.</td>
</tr>
<tr>
<td>27m</td>
<td>Hermelin, O., Baron, Stockholm,</td>
<td>*Fishing-Place near Stockholm.</td>
</tr>
<tr>
<td>28</td>
<td>Herzberg, A. G., Stockholm,</td>
<td>Going to Confirmation.</td>
</tr>
<tr>
<td>29a</td>
<td>Holm, P. D., Stockholm,</td>
<td>In the Mining Districts of Wermland.</td>
</tr>
<tr>
<td>29b</td>
<td>Holm, P. D., Stockholm,</td>
<td>*In the Forest.</td>
</tr>
<tr>
<td>30</td>
<td>Holmlund, Miss Josefinna, Stockholm,</td>
<td>*Frederika Bremer's First and Last Home.</td>
</tr>
<tr>
<td>32</td>
<td>Höckert, J., Stockholm,</td>
<td>*Burning of the Royal Palace in Stockholm during the Youth of Charles XII.</td>
</tr>
<tr>
<td>33b</td>
<td>Jernberg, Aug., Düsseldorf,</td>
<td>The Broken Pipe.</td>
</tr>
<tr>
<td>33c</td>
<td>Jernberg, Aug., Düsseldorf,</td>
<td>*Preparations for Meal.</td>
</tr>
<tr>
<td>33d</td>
<td>Jernberg, Aug., Düsseldorf,</td>
<td>*Visitors in the Amsterdam Museum, looking at Rembrandt's Night Watch.</td>
</tr>
<tr>
<td>34</td>
<td>Jernberg, O., Düsseldorf,</td>
<td>*Swedish Landscape.</td>
</tr>
<tr>
<td>36</td>
<td>Kjörbel, C. F., Dijon,</td>
<td>Dogs attacking a Fox.</td>
</tr>
<tr>
<td>40a</td>
<td>Lindegren, Miss Amalia, Stockholm,</td>
<td>Father returned from Market.</td>
</tr>
<tr>
<td>40b</td>
<td>Lindegren, Miss Amalia, Stockholm,</td>
<td>Merriment at Home.</td>
</tr>
<tr>
<td>40c</td>
<td>Lindegren, Miss Amalia, Stockholm,</td>
<td>Girl with an Orange.</td>
</tr>
<tr>
<td>42</td>
<td>Lindström, C., Munich,</td>
<td>Autumn Landscape.</td>
</tr>
<tr>
<td>43</td>
<td>Löfgren, Miss Clara, Stockholm,</td>
<td>*Sorrow.</td>
</tr>
<tr>
<td>44</td>
<td>Lännroth, Fr., Boras,</td>
<td>*Norwegian Horses.</td>
</tr>
<tr>
<td>47a</td>
<td>Nordenberg, B.,</td>
<td>Dalecarlians put to Flight by a Fire in the Forest.</td>
</tr>
<tr>
<td>47c</td>
<td>Nordenberg, B.,</td>
<td>*Rest in a Säter, Alpine Dairy.</td>
</tr>
<tr>
<td>47d</td>
<td>Nordenberg, B.,</td>
<td>The Dead Sheep.</td>
</tr>
<tr>
<td>48a</td>
<td>Nordgren, Miss Anna, Paris,</td>
<td>*Italian Girl.</td>
</tr>
<tr>
<td>48b</td>
<td>Nordgren, Miss Anna, Paris,</td>
<td>*Genre.</td>
</tr>
<tr>
<td>49a</td>
<td>Nordgren, Axel, Düsseldorf,</td>
<td>*View from the Promontory of Kullen in Skane.</td>
</tr>
<tr>
<td>49b</td>
<td>Nordgren, Axel, Düsseldorf,</td>
<td>*Coast Scenery.</td>
</tr>
<tr>
<td>50</td>
<td>Nordlander, Miss Anna, Stockholm,</td>
<td>*The Favorite Toilet.</td>
</tr>
</tbody>
</table>
| 51  | Palm, O. W., | *View of Stockholm
SWEDEN.

NO.  ARTIST.  TITLE.
53  Post, Miss Christine, Stockholm,  The Five Foolish Virgins at the Locked Door.
54  Ribbing, Miss S., London,  *Young Girl with Grapes.
60  Saloman, Geskel, Stockholm,  Spring Landscape.
61  Saloman, Geskel, Stockholm,  Landscape in Bleking.
63  Schwerin, Baroness Amelia von,  Maid with an Open Letter.
64  Schwerin, Baroness Amelia von,  *At the Letter-Box.
69  Törna, O., Düsseldorf,  *In the Spring.
70  Törna, O., Düsseldorf,  *H. M. Frigate "Vanadies."
71  Törna, O., Düsseldorf,  *French Coast Landscape.
75  Wahlquist, E., Sigtuna,  Moonlight Landscape.
77  Wallander, W., Stockholm,  *Cronberg Castle, at the Oeresund.
78  Wallander & Torslow, Stockholm,  *Smugglers.
79  Wallander & Torslow, Stockholm,  *Forge in the Forest.
81  Winge, Mrs. H., Stockholm,  *Saturday Night on an Alpine Pasture.
82  Winge, Mrs. H., Stockholm,  The Salamander.
83  Winge, Mrs. H., Stockholm,  Church at Rättvik, Dalarna.
84  Winge, E., Stockholm,  Before Service.
85  Winge, E., Stockholm,  Signe burning Herself on witnessing her Lover hanged.
89  Zetterström, Mrs. M., Paris,  **'Of what is she thinking?"

WATER COLORS.

NO.  ARTIST.  TITLE.
74  Ahrenberg, J., Stockholm,  *City Gate of Rouen.
75  Blackstadius, J. L., Stockholm,  *Miller's Cottage at Alwastra.
77  Gardell, Miss Anna, Stockholm,  *Views from Skane.
78  Gardell, Miss Anna, Stockholm,  *A Spring Day.
80  Hägg, J., Stockholm,  *In the River at Stockholm.
83  Larson, Miss Virginia, Stockholm,  Peasant Girl from Dalarna.
84  Kyberg, Miss Virginia, Stockholm,  *Swedish Landscape.
NORWAY.

[Works of Art marked with an asterisk (*) are for sale. Information can be obtained at the office of the Norwegian Commission, Main Building.]

(Memorial Hall, Gallery K.)

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST</th>
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<tbody>
<tr>
<td>1</td>
<td>Gude, Hans, Carlsruhe</td>
<td>*A Fresh Breeze, Norwegian Coast.</td>
</tr>
<tr>
<td>3</td>
<td>Arbo, P. M., Christiania</td>
<td>*Day.</td>
</tr>
<tr>
<td>4</td>
<td>Böe, Frantz, Bergen</td>
<td>*Midnight Sun in Norway.</td>
</tr>
<tr>
<td>5</td>
<td>Gude, Hans, Carlsruhe</td>
<td>*Calm, Christianiafjord.</td>
</tr>
<tr>
<td>6</td>
<td>Thaulow, Fritz, Christiania</td>
<td>*On the Thames.</td>
</tr>
<tr>
<td>8</td>
<td>Askevold, A., Bergen</td>
<td>*Summer Day at the Mountain Tarn.</td>
</tr>
<tr>
<td>9</td>
<td>Thurman, P., Christiania</td>
<td>*Hardangerfjord.</td>
</tr>
<tr>
<td>10</td>
<td>Lerche, Vinc. St., Düsseldorf</td>
<td>*Studio in a Monastery.</td>
</tr>
<tr>
<td>11</td>
<td>Munthe, ——, Düsseldorf</td>
<td>Winter Day in a Forest.</td>
</tr>
<tr>
<td>12</td>
<td>Tidemand, A., Düsseldorf</td>
<td>Peasants in a Wood.</td>
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</table>

(Annex, Gallery No. 7.)

<table>
<thead>
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<tbody>
<tr>
<td>13</td>
<td>Thaulow, Fritz, Christiania</td>
<td>*View of the Ice Channel, Christianiafjord.</td>
</tr>
<tr>
<td>14</td>
<td>Skari, E. O. R., Christiania</td>
<td>*French Fishermen in the Channel.</td>
</tr>
<tr>
<td>15</td>
<td>Jacobsen, S., Düsseldorf</td>
<td>*Birch Forest.</td>
</tr>
<tr>
<td>16</td>
<td>Schive, Jacob, Düsseldorf</td>
<td>*Norwegian Winter Landscape.</td>
</tr>
<tr>
<td>17</td>
<td>Gude, Hans, Carlsruhe</td>
<td>*View from Drobak, near Christiania.</td>
</tr>
<tr>
<td>18</td>
<td>Sinding, Otto, Munich</td>
<td>*Fight at a Christmas Feast.</td>
</tr>
<tr>
<td>19</td>
<td>Askevold, A., Bergen</td>
<td>*Evening on the Mountain Pastures.</td>
</tr>
<tr>
<td>20</td>
<td>Möller, Niels B., Düsseldorf</td>
<td>*Waterfall in Telemarken, Norway.</td>
</tr>
<tr>
<td>21</td>
<td>Nielsen, Amaldus, Christiania</td>
<td>*The Vingeraashei, Telemarken.</td>
</tr>
<tr>
<td>22</td>
<td>Norman, A., Düsseldorf</td>
<td>*Landscape from Lærdal, Sognefjord.</td>
</tr>
<tr>
<td>23</td>
<td>Baade, Knud, Munich</td>
<td>*View on the Norwegian Coast.</td>
</tr>
<tr>
<td>24</td>
<td>Nicolaysen, L. W., Christiania</td>
<td>*Norwegian Landscape, from Lake Bandak, in Telemarken.</td>
</tr>
<tr>
<td>26</td>
<td>Nielsen, Johan, Munich</td>
<td>*Approaching Thunder-Storm, Lofoten Islands, Norway.</td>
</tr>
<tr>
<td>27</td>
<td>Norman, A., Düsseldorf</td>
<td>*Norwegian Fjord.</td>
</tr>
<tr>
<td>29</td>
<td>Sinding, Otto, Munich</td>
<td>*Ruth and Boaz.</td>
</tr>
<tr>
<td>30</td>
<td>Wexelsen, Chr., Christiania</td>
<td>*Scenery from Sørfjorden, Hardanger.</td>
</tr>
<tr>
<td>32</td>
<td>Möller, Niels B., Düsseldorf</td>
<td>*Moonlight, Lysekil.</td>
</tr>
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</table>
### NORWAY.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
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<tbody>
<tr>
<td>34</td>
<td>Möller, Niels B., Düsseldorf,</td>
<td>*From Fiorland, Sognefjord, Norway.</td>
</tr>
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<td>35</td>
<td>Nielsen, Amaldus, Christiania,</td>
<td>*Scenery in the Sognefjord, Norway.</td>
</tr>
<tr>
<td>36</td>
<td>Hanno, W. von, Christiania,</td>
<td>*A Street in Brunswick, Germany.</td>
</tr>
<tr>
<td>37</td>
<td>Bergslien, Christiania,</td>
<td>*Portrait.</td>
</tr>
<tr>
<td>40</td>
<td>Rummelhof, Chr., Arendal,</td>
<td>&quot;Morning&quot;—Faleide in Norfjord.</td>
</tr>
<tr>
<td>41</td>
<td>Ulfsten, —, Karlsruhe,</td>
<td>*Moonrise on the Norwegian Coast.</td>
</tr>
<tr>
<td>42</td>
<td>Nielsen, Amaldus, Christiania,</td>
<td>*Towards Evening.</td>
</tr>
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<td>44</td>
<td>Anker, Herman, Christiania,</td>
<td>Scenery in Romsdalene.</td>
</tr>
<tr>
<td>46</td>
<td>Anker, Herman, Christiania,</td>
<td>*Scenery near Loen, in Nordfjord.</td>
</tr>
<tr>
<td>47</td>
<td>Bøe, Frantz, Bergen,</td>
<td>*Flowers.</td>
</tr>
<tr>
<td>48</td>
<td>Rummelhof, Chr., Arendal,</td>
<td>*After the Rain—View in the Sørfjord.</td>
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</tbody>
</table>

### SCULPTURE.

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<tr>
<td>55</td>
<td>Sinding, Stephan, Christiania,</td>
<td>*Hermes (marble).</td>
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<td>56</td>
<td>Sinding, Stephan, Christiania,</td>
<td>*Völund (plaster).</td>
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ITALY.

(Annex, Gallery No. 1.)

**SCULPTURE.**

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<td>Lazzerini, Pietro, Florence,</td>
<td>Brotherly Love (group in marble).</td>
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<tr>
<td>3</td>
<td>Magni, Prof., Milan,</td>
<td>The Sergeant’s Family.</td>
</tr>
<tr>
<td>4</td>
<td>Becucci Brothers, Florence,</td>
<td>Bacchante.</td>
</tr>
<tr>
<td>5</td>
<td>Bottinelli, Antonio, Rome,</td>
<td>Modesty.</td>
</tr>
<tr>
<td>6</td>
<td>Pazzi, Prof. Enrico, Florence,</td>
<td>Innocence Playing with Vice.</td>
</tr>
<tr>
<td>7</td>
<td>Martegani, Alessandro, Milan,</td>
<td>Moses trampling on the Crown of Pharaoh.</td>
</tr>
<tr>
<td>8</td>
<td>Sarrocchi, Prof. Tito, Siena,</td>
<td>The First Capture.</td>
</tr>
<tr>
<td>9</td>
<td>Malfatti, Andrea, Milan,</td>
<td>Emancipation.</td>
</tr>
<tr>
<td>10</td>
<td>Braga, Enrico, Milan,</td>
<td>Morning.</td>
</tr>
<tr>
<td>11</td>
<td>Pazzi, Prof. Enrico, Florence,</td>
<td>Cupid Asleep.</td>
</tr>
<tr>
<td>12</td>
<td>Romani, Prof. Carlo, Milan,</td>
<td>A Jealous Sweetheart.</td>
</tr>
<tr>
<td>13</td>
<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Cold.</td>
</tr>
<tr>
<td>14</td>
<td>Motelli, Metello, Milan,</td>
<td>Prayer.</td>
</tr>
<tr>
<td>15</td>
<td>Barcaglia, Donato, Milan,</td>
<td>Fleeting Time.</td>
</tr>
<tr>
<td>16</td>
<td>Bazzanti, Peter, &amp; Son, Florence,</td>
<td>Ruth.</td>
</tr>
<tr>
<td>17</td>
<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Effects of Cold Water.</td>
</tr>
<tr>
<td>18</td>
<td>Sarrocchi, Prof. Tito, Siena,</td>
<td>The Fisher-Boy.</td>
</tr>
<tr>
<td>19</td>
<td>Barzaghi, Francesco, Milan,</td>
<td>Blind-Man’s-Buff.</td>
</tr>
<tr>
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<td>Barzaghi, Francesco, Milan,</td>
<td>Vanity.</td>
</tr>
<tr>
<td>21</td>
<td>Marai, Luigi, Milan,</td>
<td>Cupid Flying.</td>
</tr>
<tr>
<td>22</td>
<td>Calvi, Pietro, Milan,</td>
<td>A Courageous Defender of the Feeble.</td>
</tr>
<tr>
<td>23</td>
<td>Malfatti, Andrea, Milan,</td>
<td>After the Bath.</td>
</tr>
<tr>
<td>24</td>
<td>Trombeta, Milan,</td>
<td>“The First Step.”</td>
</tr>
<tr>
<td>25</td>
<td>Argenti, Giosue, Milan,</td>
<td>Dreams of Youth.</td>
</tr>
<tr>
<td>27</td>
<td>Bernasconi, Pietro, Milan,</td>
<td>A Childish Pleasure.</td>
</tr>
<tr>
<td>28</td>
<td>Bernasconi, Pietro, Milan,</td>
<td>A Child’s First Misfortune.</td>
</tr>
<tr>
<td>29</td>
<td>Ramazzotti, Serafino, Rome,</td>
<td>Spirit of Liberty.</td>
</tr>
<tr>
<td>31</td>
<td>Becucci Brothers, Florence,</td>
<td>A Gipsy.</td>
</tr>
<tr>
<td>32</td>
<td>Pandiani, Innocente, Milan,</td>
<td>Eagle attacking a Turkey.</td>
</tr>
<tr>
<td>33</td>
<td>Braga, Enrico, Milan,</td>
<td>Playing Cat’s Cradle.</td>
</tr>
<tr>
<td>34</td>
<td>Braga, Enrico, Milan,</td>
<td>Beating the Ratsplan.</td>
</tr>
<tr>
<td>36</td>
<td>Bracony, Guglielmo, Rome,</td>
<td>Vanity.</td>
</tr>
<tr>
<td>37</td>
<td>Bergonzoli, Giulio, Milan,</td>
<td>Angelic Love.</td>
</tr>
<tr>
<td>38</td>
<td>Lombardo, Giovanni, Rome,</td>
<td>Hen and Chickens.</td>
</tr>
<tr>
<td>39</td>
<td>Ragusa, Vincenzo,</td>
<td>Young Bacchus.</td>
</tr>
<tr>
<td>40</td>
<td>Maraini, Adelaide, Rome,</td>
<td>Innocence (exhibited in Women’s Pavilion).</td>
</tr>
<tr>
<td>41</td>
<td>Corti, ———, Milan,</td>
<td>Lucifer.</td>
</tr>
<tr>
<td>42</td>
<td>Del Panta, Egisto, Florence,</td>
<td>Carnival.</td>
</tr>
<tr>
<td>43</td>
<td>Braga, Enrico, Milan,</td>
<td>Cleopatra.</td>
</tr>
<tr>
<td>44</td>
<td>Frilli, Antonio, Florence,</td>
<td>Winter.</td>
</tr>
<tr>
<td>45</td>
<td>Pandiani, Costantino, Milan,</td>
<td>Love’s First Whispers.</td>
</tr>
<tr>
<td>46</td>
<td>Frilli, Antonio, Florence,</td>
<td>Spring.</td>
</tr>
<tr>
<td>47</td>
<td>Romanelli, Prof. Pasquale, Florence,</td>
<td>Madonna of San Sisto.</td>
</tr>
<tr>
<td>48</td>
<td>Miglioretti, Milan,</td>
<td>Death of Abel.</td>
</tr>
<tr>
<td>49</td>
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<td>Innocence.</td>
</tr>
<tr>
<td>NO.</td>
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<td>TITLE.</td>
</tr>
<tr>
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<td>--------------------------------</td>
</tr>
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<td>50</td>
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</tr>
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<td>Psyche.</td>
</tr>
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<td>Lurking Love.</td>
</tr>
<tr>
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<td>Pagani, Luigi, Milan,</td>
<td>Child’s First Grief.</td>
</tr>
<tr>
<td>54</td>
<td>Pagani, Luigi, Milan,</td>
<td>Luisa San Felice, of Naples.</td>
</tr>
<tr>
<td>55</td>
<td>Monari, Alessandro, Ravenna,</td>
<td>Raphael of Urbino.</td>
</tr>
<tr>
<td>56</td>
<td>Pessina, Carlo, Milan,</td>
<td>The Bird’s Nest.</td>
</tr>
<tr>
<td>57</td>
<td>Romanelli, Prof. Pasquale, Flo-</td>
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<td>58</td>
<td>Tantardini, Antonio, Milan,</td>
<td>Bathing Girl.</td>
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<tr>
<td>59</td>
<td>Bazzanti, Peter, &amp; Son, Floren-</td>
<td>Vase (in green marble).</td>
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<tr>
<td>60</td>
<td>Becucci Brothers, Florence,</td>
<td>Boy with a Dove.</td>
</tr>
<tr>
<td>61</td>
<td>Ragusa, Vincenzo, Milan,</td>
<td>Emancipation.</td>
</tr>
<tr>
<td>62</td>
<td>Pandiani, Giovanni, Rome,</td>
<td>Caprice (bust).</td>
</tr>
<tr>
<td>63</td>
<td>Struzzi, Giovanni, Milan,</td>
<td>Alessandro Manzoni (bronze).</td>
</tr>
<tr>
<td>64</td>
<td>Frilli, Antonio, Florence,</td>
<td>Autumn.</td>
</tr>
<tr>
<td>65</td>
<td>Cambi, Ulisse, Florence,</td>
<td>Moses trampling on the Crown of Pharaoh.</td>
</tr>
<tr>
<td>66</td>
<td>Martegani, Alessandro, Milan,</td>
<td>Garibaldi (bust).</td>
</tr>
<tr>
<td>67</td>
<td>Luccagni, Prof., Milan,</td>
<td>Innocent Contrast.</td>
</tr>
<tr>
<td>68</td>
<td>Biella, Angelo, Milan,</td>
<td>Woman of Pompeii.</td>
</tr>
<tr>
<td>69</td>
<td>Funeeo, Pietro, Milan,</td>
<td>Maternal Hope.</td>
</tr>
<tr>
<td>70</td>
<td>Argenti, Antonio, Milan,</td>
<td>Modesty (bust).</td>
</tr>
<tr>
<td>71</td>
<td>Veneroni, Rome,</td>
<td>The Prayer (bust).</td>
</tr>
<tr>
<td>72</td>
<td>Becucci Brothers, Florence,</td>
<td>Girl and Dog.</td>
</tr>
<tr>
<td>73</td>
<td>Frilli, Antonio, Florence,</td>
<td>Tazza (in green marble).</td>
</tr>
<tr>
<td>74</td>
<td>Saul, Giorgio, Florence,</td>
<td>The Last Farewell to her Native Land.</td>
</tr>
<tr>
<td>75</td>
<td>Motelli, Metello, Milan,</td>
<td>An Awkward Surprise.</td>
</tr>
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<td>76</td>
<td>Bazzanti, Peter, &amp; Son, Floren-</td>
<td>Washington and his Hatchet.</td>
</tr>
<tr>
<td>77</td>
<td>Bazzanti, Peter, &amp; Son, Floren-</td>
<td>Franklin and his Whistle.</td>
</tr>
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<td>78</td>
<td>Bottinelli, Cesare, Milan,</td>
<td>Beatrice Cenci.</td>
</tr>
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<td>80</td>
<td>Porciani, Antonio, Florence,</td>
<td>Innocence.</td>
</tr>
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<td>87</td>
<td>Peduzzi, Renato, Milan,</td>
<td>Chimney-piece with a Boy representing Silence.</td>
</tr>
<tr>
<td>88</td>
<td>Porciani, Antonio, Florence,</td>
<td>Girl and Dog.</td>
</tr>
<tr>
<td>89</td>
<td>Metti, Raimondo, Florence,</td>
<td>Bust of Dante’s Beatrice.</td>
</tr>
<tr>
<td>90</td>
<td>Dini, Ernesto, Florence,</td>
<td>Effect of the Wind.</td>
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(Annex, Gallery No. 1.)

**OIL PAINTINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
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<tbody>
<tr>
<td>91</td>
<td>Tedesco, Prof. Michele, Florence,</td>
<td>The School of Love.</td>
</tr>
<tr>
<td>92</td>
<td>Lodigiani, Scipione, Milan,</td>
<td>Galileo before the Tribunal of the Inquisition.</td>
</tr>
<tr>
<td>93</td>
<td>Bigara, C. F., Milan,</td>
<td>The Invention of Engraving.</td>
</tr>
<tr>
<td>94</td>
<td>Bisi, Prof. Luigi, Milan,</td>
<td>Interior of St. Mark’s Church, Venice.</td>
</tr>
<tr>
<td>95</td>
<td>Gilli, Alberto, Turin,</td>
<td>Arnoldo da Brescia and Pope Adrian IV.</td>
</tr>
<tr>
<td>96</td>
<td>Rubio, Prof. Luigi, Florence,</td>
<td>Magdalene.</td>
</tr>
<tr>
<td>97</td>
<td>Bisi, Prof. Luigi, Milan,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>98</td>
<td>Trenti, Girolamo, Milan,</td>
<td>Inundation of the River Po, Italy.</td>
</tr>
<tr>
<td>99</td>
<td>Romoli, ———, Florence,</td>
<td>Copy of Fra Angelico’s Incarnation of the Virgin.</td>
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<tr>
<td>100</td>
<td>Fumagalli, Michelangelo,</td>
<td>Columbus conducted back to Spain as a Prisoner.</td>
</tr>
<tr>
<td>101</td>
<td>Roi, Pietro, Venice,</td>
<td>Lombardy and Venice, the Two Sister Provinces.</td>
</tr>
<tr>
<td>102</td>
<td>Cornielli, Cherubino, Bologna,</td>
<td>Lodovico il Moro visits Leonardo da Vinci while building the Canal of Pavia.</td>
</tr>
<tr>
<td>103</td>
<td>Giroux, Ernesto, Rome,</td>
<td>A Cup of Tea.</td>
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</tbody>
</table>
FLORENTINE MOSAIC WORK.

[The tables and pictures exhibited in the Annex of Memorial Hall, by the following manufacturers and artists of Florentine mosaics, are all made of small pieces of natural stones, inlaid in black marble, porphyry, or other stones.]

MOSAIC TABLES.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST</th>
<th>TITLE</th>
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</thead>
<tbody>
<tr>
<td>106</td>
<td>Scappini, Giovanni, Florence,</td>
<td>The Table of Science, and various other tables.</td>
</tr>
<tr>
<td>107</td>
<td>Civita, Angelo, Florence,</td>
<td>Table inlaid in porphyry, and collection of various tables.</td>
</tr>
<tr>
<td>108</td>
<td>Torrini, Giocondo, Florence,</td>
<td>Large round table with bouquet and garland, and various other tables.</td>
</tr>
<tr>
<td>109</td>
<td>Bazzanti, Peter, &amp; Son, Florence,</td>
<td>Two large round tables, rococo style, and collection of various tables.</td>
</tr>
<tr>
<td>110</td>
<td>Boncinelli, Giov., &amp; Co., Florence,</td>
<td>Collection of various mosaic tables.</td>
</tr>
<tr>
<td>111</td>
<td>Betti, Francesco, Florence,</td>
<td>Collection of various tables.</td>
</tr>
<tr>
<td>112</td>
<td>Bianchini, Telemaco, Florence,</td>
<td>Collection of mosaic tables.</td>
</tr>
<tr>
<td>113</td>
<td>Francolini, Tito, Florence,</td>
<td>Mosaic table with Ganymede and the eagle; collection of mosaic tables.</td>
</tr>
<tr>
<td>114</td>
<td>Montelatici Brothers, Florence,</td>
<td>Collection of various mosaic tables.</td>
</tr>
<tr>
<td>115</td>
<td>Montelatici, Giuseppe, Florence,</td>
<td>Collection of mosaic tables.</td>
</tr>
<tr>
<td>116</td>
<td>Novello, Luigi, Florence,</td>
<td>Collection of mosaic tables.</td>
</tr>
<tr>
<td>118</td>
<td>Sandrini, Antonio, Florence,</td>
<td>Collection of mosaic tables.</td>
</tr>
<tr>
<td>119</td>
<td>Orlandini, Florence,</td>
<td>Collection of mosaic tables.</td>
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<tr>
<td>120</td>
<td>Gherardi, Goffredo, Florence,</td>
<td>Square table—illustration of Michael Angelo.</td>
</tr>
<tr>
<td>121</td>
<td>Brunacci, Pietro, Florence,</td>
<td>Mosaic table.</td>
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<tr>
<td>122</td>
<td>Falcini, Andrea, Florence,</td>
<td>Mosaic tables.</td>
</tr>
<tr>
<td>123</td>
<td>Scarselli, Nicola, Florence,</td>
<td>Collection of mosaic tables.</td>
</tr>
<tr>
<td>124</td>
<td>Vichi, Ferdinando, Florence,</td>
<td>Collection of mosaic tables.</td>
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MOSAIC PICTURES.

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<tr>
<td>125</td>
<td>Scarselli, Nicola, Florence,</td>
<td>Still Life.</td>
</tr>
<tr>
<td>127</td>
<td>Scarselli, Nicola, Florence,</td>
<td>Still Life.</td>
</tr>
<tr>
<td>128</td>
<td>Francolini, Tito, Florence,</td>
<td>Portrait of President Lincoln.</td>
</tr>
<tr>
<td>129</td>
<td>Bianchini, Telemaco, Florence,</td>
<td>Jacob, Rachel, and Laban.</td>
</tr>
<tr>
<td>130</td>
<td>Bianchini, Telemaco, Florence,</td>
<td>Cimabue and Giotto, and four medallions.</td>
</tr>
<tr>
<td>131</td>
<td>Bianchini, Telemaco, Florence,</td>
<td>Vase of flowers.</td>
</tr>
<tr>
<td>132</td>
<td>Betti, Telemaco, Florence,</td>
<td>A Bouquet.</td>
</tr>
<tr>
<td>133</td>
<td>Betti, Telemaco, Florence,</td>
<td>A Bouquet.</td>
</tr>
<tr>
<td>134</td>
<td>Francolini, Tito, Florence,</td>
<td>A Roman Peasant Woman.</td>
</tr>
<tr>
<td>135</td>
<td>Francolini, Tito, Florence,</td>
<td>Group in the Goldonian Costume.</td>
</tr>
<tr>
<td>136</td>
<td>Francolini, Tito, Florence,</td>
<td>Woman of the Roman Campagna.</td>
</tr>
<tr>
<td>137</td>
<td>Francolini, Tito, Florence,</td>
<td>The Improvisator.</td>
</tr>
<tr>
<td>138</td>
<td>Francolini, Tito, Florence,</td>
<td>A Neapolitan Fisherman playing the Guitar.</td>
</tr>
<tr>
<td>139</td>
<td>Francolini, Tito, Florence,</td>
<td>Fowls.</td>
</tr>
<tr>
<td>142</td>
<td>Boncinelli, Giov., &amp; Co., Florence,</td>
<td>A Page leading the Favorite Horse to his Master.</td>
</tr>
<tr>
<td>143</td>
<td>Boncinelli, Giov., &amp; Co., Florence,</td>
<td>Scene in a Roman Village.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
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<tr>
<td>145</td>
<td>Scappini, Giovanni, Florence,</td>
<td>Roman Costume.</td>
</tr>
<tr>
<td>146</td>
<td>Scappini, Giovanni, Florence,</td>
<td>Woman of the Roman Campagna.</td>
</tr>
<tr>
<td>147</td>
<td>Scappini, Giovanni, Florence,</td>
<td>Woman of the Roman Campagna.</td>
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(Annex, Gallery No. 3.)

**SCULPTURE.**

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</thead>
<tbody>
<tr>
<td>149</td>
<td>Bazzanti, Peter, &amp; Son, Florence,</td>
<td>Rebecca at the Well.</td>
</tr>
<tr>
<td>150</td>
<td>Peduzzi, Renato, Milan,</td>
<td>Boy and Bird.</td>
</tr>
<tr>
<td>151</td>
<td>Barcaglia, Donato, Milan,</td>
<td>The First Visit.</td>
</tr>
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<td>152</td>
<td>Pereda, Raimondo, Milan,</td>
<td>Love's Net.</td>
</tr>
<tr>
<td>153</td>
<td>Peduzzi, Renato, Milan,</td>
<td>Boy and Swan.</td>
</tr>
<tr>
<td>154</td>
<td>Barcaglia, Donato, Milan,</td>
<td>Butterfly.</td>
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<tr>
<td>155</td>
<td>Peduzzi, Renato, Milan,</td>
<td>Berenice.</td>
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<td>156</td>
<td>Caroni, Prof. Emanuele, Florence,</td>
<td>L'Africaine.</td>
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<td>159</td>
<td>Cantalamessa, P. Capotti, Rome,</td>
<td>Storm.</td>
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<tr>
<td>161</td>
<td>Cantalamessa, P. Capotti, Rome,</td>
<td>Sunshine.</td>
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<td>162</td>
<td>Torelli, Lot, Florence,</td>
<td>Eva St. Clair, &quot;Uncle Tom's Cabin.&quot;</td>
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<tr>
<td>163</td>
<td>Guarnieri, Pietro, Milan,</td>
<td>Girl at the Bath.</td>
</tr>
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<td>164</td>
<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Effects of Cold Water.</td>
</tr>
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<td>165</td>
<td>Barcaglia, Donato, Milan,</td>
<td>Children Blowing Bubbles.</td>
</tr>
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<td>166</td>
<td>Guarnieri, Pietro, Milan,</td>
<td>Evening.</td>
</tr>
<tr>
<td>167</td>
<td>Fantachiotti, Cesare, Florence,</td>
<td>Vanity.</td>
</tr>
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<td>168</td>
<td>Trojani, Giovanni Battista, Florence,</td>
<td>Bas-relief in terra-cotta.</td>
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<td>169</td>
<td>Spertini, Giovanni, Milan,</td>
<td>Bas-relief in terra-cotta—The Modern Cain.</td>
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<tr>
<td>170</td>
<td>Trojani, Giov. Batt., Florence,</td>
<td>Bas-relief in terra-cotta—Michel Angelo in San Miniato</td>
</tr>
<tr>
<td>173</td>
<td>Bottinelli, Antonio, Rome,</td>
<td>Hope (bust)</td>
</tr>
<tr>
<td>175</td>
<td>Bernasconi, Pietro, Milan,</td>
<td>Summer (bust).</td>
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(Annex, Gallery No. 3.)

**OIL PAINTINGS.**

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<tr>
<td>176</td>
<td>Faustini, Modesto, Rome,</td>
<td>A Revolt.</td>
</tr>
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<td>177</td>
<td>Formis, Achille, Milan,</td>
<td>Landscape—A Park.</td>
</tr>
<tr>
<td>178</td>
<td>Lessi, Luigi, Rome,</td>
<td>The Conspiracy of the Pazzi.</td>
</tr>
<tr>
<td>181</td>
<td>Della Valle, N., Leghorn,</td>
<td>Storm on the Coast.</td>
</tr>
<tr>
<td>182</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Summer.</td>
</tr>
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<td>183</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Dancing the Tarantella.</td>
</tr>
<tr>
<td>184</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>The Bath.</td>
</tr>
<tr>
<td>185</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Playing on the Tambourine.</td>
</tr>
<tr>
<td>186</td>
<td>Queriuau, Luigi, Messina,</td>
<td>Scene in Sicily.</td>
</tr>
<tr>
<td>187</td>
<td>Palazzi, Gaetano, Bologna,</td>
<td>A Refusal.</td>
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<tr>
<td>188</td>
<td>Fontana, Roberto, Milan,</td>
<td>Evocation of Souls, from &quot;Robert le Diable.&quot;</td>
</tr>
<tr>
<td>189</td>
<td>Fattori, Giovanni, Florence,</td>
<td>Landscape—At Rest in Summer.</td>
</tr>
<tr>
<td>190</td>
<td>Malatesta, Cav. Prof. Narciso, Modena,</td>
<td>Laia, a celebrated Roman artist, painting Julius Caesar as Apollo.</td>
</tr>
<tr>
<td>191</td>
<td>Signorini, Telemaco, Florence,</td>
<td>Olive-Gathering in Tuscany.</td>
</tr>
<tr>
<td>192</td>
<td>Zuccoli, Prof. Luigi, Rome,</td>
<td>A Poor Man at the Church-Door.</td>
</tr>
<tr>
<td>193</td>
<td>Romagnoli, Angelo, Florence,</td>
<td>Meditation.</td>
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<td>ARTIST.</td>
<td>TITLE.</td>
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<tr>
<td>194</td>
<td>Marchesi, Salvatore, Parma</td>
<td>Interior of the Choir of the Cathedral of Parma.</td>
</tr>
<tr>
<td>195</td>
<td>Cammarano, Michele, Rome</td>
<td>A Grandmother’s Admonition.</td>
</tr>
<tr>
<td>196</td>
<td>Zuccoli, Prof. Luigi, Rome</td>
<td>The Hunter’s Rest.</td>
</tr>
<tr>
<td>197</td>
<td>Ashton, Federico, Florence</td>
<td>Woods in Autumn.</td>
</tr>
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<td>198</td>
<td>Solmi, Prof. Valentino, Bologna</td>
<td>Bizantino d’Aria.</td>
</tr>
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<td>199</td>
<td>Gioli, Francesco, Florence</td>
<td>The Unlucky Number.</td>
</tr>
<tr>
<td>200</td>
<td>Altamura, Prof., Naples</td>
<td>The Bagpipe-Player.</td>
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<tr>
<td>201</td>
<td>Fattori, Giovanni, Florence</td>
<td>The Escort.</td>
</tr>
<tr>
<td>202</td>
<td>Maldarelli, Federico, Naples</td>
<td>The Reader.</td>
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<tr>
<td>203</td>
<td>Maldarelli, Federico, Naples</td>
<td>The Assumption.</td>
</tr>
<tr>
<td>204</td>
<td>Fattori, Giovanni, Florence</td>
<td>Returning from a Military Inspection.</td>
</tr>
<tr>
<td>205</td>
<td>Iosio, Prof. Luigi, Rome</td>
<td>Noon in the Roman Campagna.</td>
</tr>
<tr>
<td>206</td>
<td>Bade, Garcia, Rome</td>
<td>A Portrait.</td>
</tr>
<tr>
<td>207</td>
<td>Ridossi, Angelo, Milan</td>
<td>Resting.</td>
</tr>
<tr>
<td>208</td>
<td>Lelli, Giovanni, Milan</td>
<td>View of Lakes Margozza and Maggiore.</td>
</tr>
<tr>
<td>209</td>
<td>Fattori, Giovanni, Florence</td>
<td>The Roman Campagna (Oxen).</td>
</tr>
<tr>
<td>210</td>
<td>Maldarelli, Prof. Federico, Naples</td>
<td>A Flower-Girl of Pompei.</td>
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<tr>
<td>211</td>
<td>Gastaldi, Prof. Andrea, Turin</td>
<td>“Beware of a False Step.”</td>
</tr>
<tr>
<td>212</td>
<td>De Santis, Guglielmo, Rome</td>
<td>A Veiled Figure.</td>
</tr>
<tr>
<td>213</td>
<td>Pesenti, Domenico, Florence</td>
<td>The Ducal Palace of Venice.</td>
</tr>
<tr>
<td>214</td>
<td>Ribossi, Angelo, Milan</td>
<td>“At work yet.”</td>
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<tr>
<td>215</td>
<td>Maldarelli, Prof. Federico, Naples</td>
<td>A Bath in Pompei.</td>
</tr>
<tr>
<td>216</td>
<td>Totti, Prof. Carlo, Milan</td>
<td>The Vintage.</td>
</tr>
<tr>
<td>217</td>
<td>Scifoni, Anatolio, Rome</td>
<td>Preparation for a Feast in Pompei.</td>
</tr>
<tr>
<td>218</td>
<td>Accarisi, Lodovico, Florence</td>
<td>Sleeping Child and Dog.</td>
</tr>
<tr>
<td>219</td>
<td>Giuliani, Prof. Bartolomeo, Milan</td>
<td>An Alpine Sketch.</td>
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</table>

(Appex, Galleries Nos. 2 and 17.)

<table>
<thead>
<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>220</td>
<td>Bottinelli, Antonio, Rome</td>
<td>Modesty.</td>
</tr>
<tr>
<td>221</td>
<td>Dini, Ernesto, Florence</td>
<td>Beggar Woman.</td>
</tr>
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<td>222</td>
<td>Romanelli, Prof. Pasquale, Florence</td>
<td>Franklin and his Whistle.</td>
</tr>
<tr>
<td>223</td>
<td>Zocchi, Prof. Emilio, Florence</td>
<td>Benjamin Franklin in his Youth.</td>
</tr>
<tr>
<td>224</td>
<td>Romanelli, Prof. Pasquale, Florence</td>
<td>Washington and his Hatchet.</td>
</tr>
<tr>
<td>226</td>
<td>Torelli, Lot, Florence</td>
<td>Timidity.</td>
</tr>
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<td>227</td>
<td>Peduzzi, Renato, Milan</td>
<td>Boy and Basket.</td>
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<td>Peduzzi, Renato, Milan</td>
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<td>229</td>
<td>Pandiani, Costantino, Milan</td>
<td>Moses Trampling on the Crown of Pharaoh.</td>
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<td>Borghi, Ambrogio, Milan</td>
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</tr>
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<td>Pereda, Raimondo, Milan</td>
<td>A Child’s Grief.</td>
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<td>Barzaghi, Francesco, Milan</td>
<td>A Young Smoker.</td>
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<td>233</td>
<td>Butti, Enrico, Milan</td>
<td>“Once I was rich.”</td>
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<td>Society of Sculptors, Florence</td>
<td>The Young Soldier.</td>
</tr>
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<td>Society of Sculptors, Florence</td>
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<td>Ramaschiello, Vincenzo, Rome</td>
<td>Cupid on the Lookout.</td>
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<td>Caroni, Prof. Emanuele, Florence</td>
<td>Bust of a Roman Girl.</td>
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<td>Society of Sculptors, Florence</td>
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<td>Del Panta, Egisto</td>
<td>Goldoni’s Boyhood.</td>
</tr>
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<td>Tantardini, Prof. Antonio, Milan</td>
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<td>243</td>
<td>Mailatti, Andrea, Milan</td>
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<td>Barcaglia, Donato, Milan</td>
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<td>Bazzanti, Peter, &amp; Son, Florence</td>
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<td>Rossi, Prof. Alessandro, Milan</td>
<td>Hope.</td>
</tr>
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<td>Borghi, Ambrogio, Milan</td>
<td>The Mother’s Treasure.</td>
</tr>
<tr>
<td>249</td>
<td>Rossetti, Antonio, Rome</td>
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</tr>
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<td>Michael Angelo sculpturing the head of a Faun</td>
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<td>251</td>
<td>Gori, Lorenzo, Florence</td>
<td>After the Bath.</td>
</tr>
<tr>
<td>252</td>
<td>Dini, Ernesto, Florence</td>
<td>Dante and Beatrice—Childhood.</td>
</tr>
<tr>
<td>253</td>
<td>Magni, Prof. Enrico, Milan</td>
<td>The Reader.</td>
</tr>
<tr>
<td>254</td>
<td>Vela, Prof. Vincenzo, Milan</td>
<td>The First Sorrow.</td>
</tr>
<tr>
<td>255</td>
<td>Rossi, Prof. Alessandro, Milan</td>
<td>A Free Church in a Free State.</td>
</tr>
</tbody>
</table>

(Annex, Galleries Nos. 2 and 17.)

**OIL PAINTINGS.**

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<tr>
<th>NO.</th>
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<tbody>
<tr>
<td>256</td>
<td>Mancini, Carlo, Milan</td>
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<td>257</td>
<td>Michis, Pietro, Milan</td>
<td>During the Sermon.</td>
</tr>
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<td>Accarisi, Lodovico, Florence</td>
<td>Meditation.</td>
</tr>
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<td>259</td>
<td>De Sanctis, Guglielmo, Rome</td>
<td>Waiting for her Lover.</td>
</tr>
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<td>Formis, Augusto, Turin</td>
<td>The Refusal.</td>
</tr>
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<td>261</td>
<td>Gelati, Prof. Lorenzo, Florence</td>
<td>View of Florence.</td>
</tr>
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<td>262</td>
<td>Solmi, Prof., Bologna</td>
<td>Porta del Popolo, Rome.</td>
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<td>Lombardi, Giovanni, Rome</td>
<td>Flowers.</td>
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<td>Mancinelli, Prof. Gustavo, Naples</td>
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<td>265</td>
<td>Meuccci, Michele, Florence</td>
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<td>Bartesago, Enrico, Milan</td>
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</tr>
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<td>Mola, ———, Venice</td>
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<td>Accarisi, Lodovico, Florence</td>
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<td>Dies, Cesare, Rome</td>
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<tr>
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<td>Ashton, Federico, Rome</td>
<td>Landscape.</td>
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<td>Sommaruga, Napoleone, Milan</td>
<td>Landscape, with Boys Bathing.</td>
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<td>Bianchi, Luigi, Milan</td>
<td>The Nettunese Bride.</td>
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<td>Pitarra, Cav. Carlo, Rome</td>
<td>At the Foot of the Alps.</td>
</tr>
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<td>Facciolli, Raffaello, Bologna</td>
<td>Two o'clock at the Procurator's Office in Venice.</td>
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<td>Picchi, Andrea, Florence</td>
<td>Frame in ebony, Florentine style (sixteenth century), with picture.</td>
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<td>Formis, Achille, Milan</td>
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<td>Gioli, Francesco, Florence</td>
<td>Working in the Campagna of Pisa.</td>
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<td>The Convent of Vallombrosa, in Tuscany.</td>
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<td>Sommaruga, Napoleone, Naples</td>
<td>Interior of St. Alexander's Church.</td>
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<td>Signorini, Telemaco, Florence</td>
<td>Scottish Covenanters.</td>
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<td>Pempeian Boy Flute-Player.</td>
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<td>Bompiani, Roberto, Rome</td>
<td>The Anniversary.</td>
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<td>Angelic Love.</td>
</tr>
<tr>
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<td>Ashton, Prof. Luigi, Milan</td>
<td>Animals.</td>
</tr>
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<td>Radice, Cav. Pasquale, Naples</td>
<td>View of Mount Etna, Sicily.</td>
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<td>Bompiani, Roberto, Rome</td>
<td>Scene in a Neapolitan Village.</td>
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<td>Fattori, Giovanni, Florence</td>
<td>Arrival of the Mail in Camp.</td>
</tr>
<tr>
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<td>Accarisi, Lodovico, Florence</td>
<td>Spring.</td>
</tr>
<tr>
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<td>Meuccci, Michele, Florence</td>
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<td>Cicconi, Prof. Ferdinando, Ancona</td>
<td>Columbus at the Convent of Palos.</td>
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<td>Busio, Prof. Luigi, Florence,</td>
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<td>Trenti, Girolamo, Milan,</td>
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<td>A Moorish portrait.</td>
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<td>Busio, Prof. Luigi, Florence,</td>
<td>The Flight into Egypt.</td>
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<td>Roman Woman.</td>
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<td>Returning from Church.</td>
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<td>Group of Trees.</td>
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<td>The Staubbach Cascade in Switzerland.</td>
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<td>Mosque of Soliman, Constantinople.</td>
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<td>Sheep.</td>
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<td>Candidi, Alfredo, Florence,</td>
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<td>Scifoni, Anatolio, Rome,</td>
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(Annex, Gallery No. 4.)

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<td>Barzaghi, Milan,</td>
<td>Phryne before the Judges.</td>
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<td>Cambi, Prof. Ulisse, Florence,</td>
<td>At the Carnival.</td>
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<td>Guarnerio, Pietro, Milan,</td>
<td>Raphael of Urbino in his Youth.</td>
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<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Birth of Love.</td>
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<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Love's Messenger.</td>
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<td>Caroni, Prof. Emanuele, Florence,</td>
<td>A Christmas-Present.</td>
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<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Youth as a Butterfly.</td>
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<td>Caroni, Prof. Emanuele, Florence,</td>
<td>Recreation at School.</td>
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<td>Barcaglia, Donato, Milan,</td>
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<td>Vanity.</td>
</tr>
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<td>The Orphans.</td>
</tr>
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<td>Pereda, Raimondo, Milan,</td>
<td>Pretence and Sympathy.</td>
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<td>Zocchi, Prof. Emilio, Florence,</td>
<td>Bacchus.</td>
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<td>Monari, Prof. Carlo, Bologna,</td>
<td>Ophelia.</td>
</tr>
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<td>Bottinelli, Antonio, Rome,</td>
<td>Bust—Winter.</td>
</tr>
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<td>Bottinelli, Antonio, Rome,</td>
<td>Bust—Modesty.</td>
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<td>Summer (bust).</td>
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<td>Argenti, Giosué, Milan,</td>
<td>Hope (bust).</td>
</tr>
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<td>Bottinelli, Antonio, Rome,</td>
<td>Spring (bust).</td>
</tr>
<tr>
<td>353</td>
<td>Bottinelli, Antonio, Rome,</td>
<td>Autumn (bust).</td>
</tr>
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<td>Argenti, Giosué, Milan,</td>
<td>Tamar (bust).</td>
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<td>355</td>
<td>Formis, Cav. Achille, Milan,</td>
<td>A Lunch.</td>
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<td>Di Chierico, ———, Naples,</td>
<td>Buoso da Duero, the Betrayer of King Manfred of Sicily, dying from Starvation at the Door of a Convent.</td>
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<td>Picchi, Andrea, Florence,</td>
<td>Four pictures (with ebony frame, inlaid with stones—style sixteenth century).</td>
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<td>Ardi, Bartolomeo, Turin,</td>
<td>The Rest in the Fenestrelles Valley, Piedmont.</td>
</tr>
<tr>
<td>361</td>
<td>Lelli, Giovanni Battista, Milan,</td>
<td>Fishermen's Island.</td>
</tr>
<tr>
<td>362</td>
<td>Canelia, Carlo, Milan,</td>
<td>Piazza San Marco, Venice.</td>
</tr>
<tr>
<td>363</td>
<td>Burdin, Margherita, Rome,</td>
<td>Still Life.</td>
</tr>
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</tr>
<tr>
<td>365</td>
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</tr>
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<td>A Pilgrim.</td>
</tr>
<tr>
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<td>Accarisi, Lodovico, Florence,</td>
<td>Monk and Farmer.</td>
</tr>
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<td>Sasso, Antonio, &amp; Son, Florence,</td>
<td>Titian's Flora (copy).</td>
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<td>Sasso, Antonio, &amp; Son, Florence,</td>
<td>Beatrice Cenci.</td>
</tr>
<tr>
<td>370</td>
<td>Sasso, Antonio, &amp; Son, Florence,</td>
<td>Madonna on the Throne (copy).</td>
</tr>
<tr>
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<td>Sasso, Antonio, &amp; Son, Florence,</td>
<td>Holy Family (copy).</td>
</tr>
<tr>
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<td>Sasso, Antonio, &amp; Son, Florence,</td>
<td>Carlo Dolci's Magadalene (copy).</td>
</tr>
<tr>
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<td>Accarisi, Lodovico, Florence,</td>
<td>Girl Bathing.</td>
</tr>
<tr>
<td>374</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Madame Vigée le Brun (copy).</td>
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<tr>
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<td>Accarisi, Lodovico, Florence,</td>
<td>Rembrandt (copy).</td>
</tr>
<tr>
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<td>Accarisi, Lodovico, Florence,</td>
<td>A Sweet Look.</td>
</tr>
<tr>
<td>377</td>
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<td>Titian's Bella (copy).</td>
</tr>
<tr>
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<td>Sasso, Antonio, &amp; Son, Florence,</td>
<td>Salvator Rosa's celebrated marine view (copy).</td>
</tr>
<tr>
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<td>Landscape.</td>
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<tr>
<td>381</td>
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<td>View near Naples.</td>
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<td>Raphael's Madonna.</td>
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<td>Radici, Pasquale, Naples,</td>
<td>A Neapolitan.</td>
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<td>Fra Angelico's Angels.</td>
</tr>
<tr>
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<td>Accarisi, Lodovico, Florence,</td>
<td>Neapolitan Family.</td>
</tr>
<tr>
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<td>Beatrice Cenci (copy of Guido Reni).</td>
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<td>Catena, Vincenzo,</td>
<td>Portrait of a Cardinal.</td>
</tr>
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</tr>
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<td>Raphael's Fornarina.</td>
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<td>Volterrano's Sleeping Cupid.</td>
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<td>Vanity (Venetian school).</td>
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<tr>
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<td>Accarisi, Lodovico, Florence,</td>
<td>Beginning of a Storm.</td>
</tr>
<tr>
<td>396</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Raphael's Madonna (copy).</td>
</tr>
<tr>
<td>397</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>A Sweet Look.</td>
</tr>
<tr>
<td>399</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Beginning of a Storm.</td>
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<tr>
<td>400</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Roman Shepherdess.</td>
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<tr>
<td>401</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>The Thorn.</td>
</tr>
<tr>
<td>402</td>
<td>Accarisi, Lodovico, Florence,</td>
<td>Domenichino's Sibylla.</td>
</tr>
<tr>
<td>403</td>
<td>Bourdan, Marquinta, Naples,</td>
<td>A Roman Poultry-Dealer.</td>
</tr>
</tbody>
</table>

(*Annex, Gallery No. 19.*)

<table>
<thead>
<tr>
<th>NO.</th>
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<th>TITLE</th>
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<tbody>
<tr>
<td>406</td>
<td>Spertini, Giovanni, Milan,</td>
<td>Love’s Messenger.</td>
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<tr>
<td>407</td>
<td>(Unknown),</td>
<td>Boy Gathering Grapes.</td>
</tr>
<tr>
<td>408</td>
<td>Barzagli, Francesco, Milan,</td>
<td>The First Ride.</td>
</tr>
<tr>
<td>409</td>
<td>Braga, Enrico, Milan,</td>
<td>A Faun.</td>
</tr>
<tr>
<td>410</td>
<td>Zocchi, 1st. of. Emilio, Florence,</td>
<td>Columbus in his Youth.</td>
</tr>
<tr>
<td>411</td>
<td>Barzaghi, Francesco, Milan,</td>
<td>Silvia.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST</td>
<td>TITLE</td>
</tr>
<tr>
<td>-----</td>
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<td>--------------------------------</td>
</tr>
<tr>
<td>412</td>
<td>Braga, Enrico, Milan</td>
<td>Boy's Playfellow.</td>
</tr>
<tr>
<td>413</td>
<td>Braga, Enrico, Milan</td>
<td>A Mountebank.</td>
</tr>
</tbody>
</table>

*(Memorial Hall, Gallery A.)*

### SCULPTURE.

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<thead>
<tr>
<th>NO.</th>
<th>ARTIST</th>
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<tbody>
<tr>
<td>414</td>
<td>Buzzi Giberto, Cav. Luigi, Milan</td>
<td>After School.</td>
</tr>
<tr>
<td>415</td>
<td>Pozzi, Egidio, Milan</td>
<td>The Youth of Michael Angelo.</td>
</tr>
<tr>
<td>416</td>
<td>Braga, E., Milan</td>
<td>Modesty.</td>
</tr>
<tr>
<td>417</td>
<td>Galli, Rizzardo, Milan</td>
<td>Beggars.</td>
</tr>
<tr>
<td>418</td>
<td>Buzzi Giberto, Cav. Luigi, Milan</td>
<td>First Sensation of Love.</td>
</tr>
<tr>
<td>419</td>
<td>Buzzi Giberto, Cav. Luigi, Milan</td>
<td>A Riddle.</td>
</tr>
<tr>
<td>420</td>
<td>(Unknown),</td>
<td>The Florist.</td>
</tr>
<tr>
<td>421</td>
<td>Cannone &amp; Gargiulo, Naples</td>
<td>Venus (bronze).</td>
</tr>
<tr>
<td>422</td>
<td>Tempra, Quirino, Milan</td>
<td>The Little Teacher.</td>
</tr>
<tr>
<td>423</td>
<td>Dal Negro, Pietro, Milan</td>
<td>Cain and Abel.</td>
</tr>
<tr>
<td>424</td>
<td>Albacini, Achille, Rome</td>
<td>Roman Costume.</td>
</tr>
<tr>
<td>425</td>
<td>Tantarini, Cav. A., Milan</td>
<td>The First Sorrow.</td>
</tr>
<tr>
<td>426</td>
<td>Coccio, Luigi, Milan</td>
<td>Spring.</td>
</tr>
<tr>
<td>427</td>
<td>Buzzi Giberto, Cav. Luigi, Milan</td>
<td>The World.</td>
</tr>
<tr>
<td>428</td>
<td>Braga, E., Milan</td>
<td>Peasant Girl (Lombard costume).</td>
</tr>
<tr>
<td>429</td>
<td>Zannoni, Cav. Ugo, Milan</td>
<td>A Wrong Blow.</td>
</tr>
<tr>
<td>430</td>
<td>Zannoni, Cav. Ugo, Milan</td>
<td>Affection and Envy.</td>
</tr>
<tr>
<td>431</td>
<td>Gentile, Chieti</td>
<td>And to-morrow?</td>
</tr>
<tr>
<td>432</td>
<td>Zannoni, Cav. Ugo, Milan</td>
<td>Study and Work.</td>
</tr>
<tr>
<td>433</td>
<td>Croff, Giuseppepe, Milan</td>
<td>Odalisque.</td>
</tr>
<tr>
<td>434</td>
<td>Romani, Francesco, Milan</td>
<td>The Coquette.</td>
</tr>
<tr>
<td>435</td>
<td>Pandiani, Signora Adelaide</td>
<td>Spring. (In the Women's Pavilion.)</td>
</tr>
<tr>
<td></td>
<td>Maraini, Milan</td>
<td>Aruns in the act of shooting the Virgin Camilla. (Virgil, Aeneid, book xi.)</td>
</tr>
<tr>
<td>437</td>
<td>Guarnierio, Pietro, Milan</td>
<td>Simplicity.</td>
</tr>
<tr>
<td>438</td>
<td>Villa, J. G., Milan</td>
<td>The Reader.</td>
</tr>
<tr>
<td>439</td>
<td>(Unknown),</td>
<td>Bashfulness.</td>
</tr>
<tr>
<td>440</td>
<td>Braga, E., Milan</td>
<td>Dante.</td>
</tr>
<tr>
<td>441</td>
<td>Buzzi Giberto, Cav. Luigi, Milan</td>
<td>Alessandro Manzoni (Italian poet and novelist).</td>
</tr>
<tr>
<td>442</td>
<td>Biganzoli, Filippo, Milan</td>
<td>Resignation.</td>
</tr>
<tr>
<td>443</td>
<td>Galli, Rizzardo, Milan</td>
<td>“Shall I see him again?”</td>
</tr>
<tr>
<td>444</td>
<td>Galli, Rizzardo, Milan</td>
<td>Ernest and Salamace.</td>
</tr>
<tr>
<td>445</td>
<td>Croff, Giuseppepe, Milan</td>
<td>Youthful Amusement.</td>
</tr>
<tr>
<td>446</td>
<td>Galli, Rizzardo, Milan</td>
<td>A Summer Day.</td>
</tr>
<tr>
<td>447</td>
<td>Marai, Luigi, Milan</td>
<td>Alexander von Humboldt.</td>
</tr>
<tr>
<td>448</td>
<td>Biganzoli, Filippo, Milan</td>
<td>Garibaldi.</td>
</tr>
<tr>
<td>449</td>
<td>(Unknown),</td>
<td>Meditation.</td>
</tr>
<tr>
<td>450</td>
<td>Fumei, Pietro, Milar</td>
<td>A Veiled Girl.</td>
</tr>
<tr>
<td>451</td>
<td>Galli, Rizzardo, Milan</td>
<td>The Slave.</td>
</tr>
<tr>
<td>452</td>
<td>Buonissegna, Milar</td>
<td>The Bride.</td>
</tr>
<tr>
<td>453</td>
<td>Galli, Rizzardo, Milan</td>
<td>The Daughter of Zion Weeping over Jerusalem.</td>
</tr>
<tr>
<td>454</td>
<td>Salomi, Florence</td>
<td>The Railway (bronze statue).</td>
</tr>
<tr>
<td>455</td>
<td>Rosetti, Antonio, Rome</td>
<td>A Marble Fountain (Bacchus).</td>
</tr>
<tr>
<td>456</td>
<td>Rosetti, Antonio, Rome</td>
<td>The Telegraph (bronze statue).</td>
</tr>
</tbody>
</table>

*(Gallery N.)*

### SCULPTURE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>458</td>
<td>Bottinelli, Ant., Rome</td>
<td>Hope.</td>
</tr>
<tr>
<td>459</td>
<td>Matteucci, Luigi, Milan</td>
<td>Gaping.</td>
</tr>
</tbody>
</table>
ITALY.

NO.  ARTIST.  TITLE.
460  Pessina, Carlo, Messina,  Costume of Marie Stuart.
461  Casetti, Turin,  Devotion.
462  Argenti, Giosué, Milan,  The Florist.
463  Corbellini, Quintilio, Milan,  Lucio.
464  Zocchi, E., Florence,  Youth of Michael Angelo.
465  Radius, Eugenio, Milan,  Faith.
466  Buzzi Giberto, Cav. Luigi, Milan,  Inspiration.
468  Argenti, Giosué, Milan,  Modesty.
469  Braga, E., Milan,  Weared with Play.
470  Veneroni, Milan,  Modesty.
471  Braga, E., Milan,  Bashfulness.
472  Troiani, G. B., Milan,  After Recreation.
473  Galli, Rizzardo, Milan,  Columbus.
474  Cambi, Ulisse, Florence,  Eve, with Cain and Abel.
475  Argenti, Giosué, Milan,  Sleep.
476  Conti, Alessandro, Milan,  Revery.
477  Lucca, Flaminio, Milan,  Modesty.
478  Lucca, Flaminio, Milan,  Candor.
479  Galli, Rizzardo, Milan,  The Little Savoyard.
480  Galli, Rizzardo, Milan,  The Devotee.
481  Calvi, P., Milan,  Michael Angelo.
482  Galli, Rizzardo, Milan,  St. John the Baptist.
483  Galli, Rizzardo, Milan,  Faith.
485  Galli, Rizzardo, Milan,  Hope.
486  Spertini, Giovanni, Milan,  General Garibaldi.
487  Bieta, Angelo, Milan,  The Reader.
488  Ramazzotti, Serafino, Rome,  Rome.
489  Argenti, Antonio, Milan,  Prayer.
490  Argenti, Angelo, Milan,  Devotion.
491  Dies, Emilio, Rome,  Innocence.
492  Spertini, Giovanni, Milan,  Giuseppe Mazzini.
493  Fessina, Carlo, Milan,  Youth.
495  Pessina, Carlo, Milan,  The Prayer.
496  Tantardini, Prof. Antonio, Milan,  The Pompeian Woman.
497  Radius, Eugenio, Milan,  “Ecce Homo.”
499  Spertani, Giovanni,  Giuseppe Dassi, Vice-President of the Italian Centennial Commission.
500  Brodzki, Rome,  Veiled Girl.

MOASCI WORK.

NO.  ARTIST.  TITLE.
501  Roccheggiani, Rome,  Collection of mosaics.
502  Moglia, Augusto, Rome,  Ruins of the Temple of Paestum, Naples.
503  Moglia, Augusto, Rome,  The same (smaller).
505  Moglia, Augusto, Rome,  The Roman Forum (an antique).
507  Moglia, Augusto, Rome,  Black antique table, inlaid in rococo style, with nine of the principal views of Rome, the centre piece being a view of the piazza of St. Peter’s; surrounding this is a circle of four large views, viz. : The Tomb of Cecilia Metella; The Ponte Lucano, or Lucan Bridge, on the road to Tivoli; The Forum; and the Colosseum. An outer circle consists of four minor views, viz. : Temple of the Sibyl, at Tivoli; Temple of Vesta, at Rome; The Pyramid of Caius Cestius, and the Pantheon—the whole forming a work which took a premium at Rome in 1870.
<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>508</td>
<td>Moglia, Augusto, Rome</td>
<td>Black antique table, carved and inlaid with campanelle (little flowers of the Campagna), birds, butterflies, bees, scrolls, etc.</td>
</tr>
<tr>
<td>509</td>
<td>Moglia, Augusto, Rome</td>
<td>Picture, the Piazza of St. Peter's (took a prize medal at the Roman Exposition, 1870).</td>
</tr>
<tr>
<td>510</td>
<td>Moglia, Augusto, Rome</td>
<td>The Bridge and Castle of St. Angelo (companion picture to No. 509).</td>
</tr>
<tr>
<td>511</td>
<td>Moglia, Augusto, Rome</td>
<td>View of the Fountain of Trevi, Rome.</td>
</tr>
<tr>
<td>512</td>
<td>Moglia, Augusto, Rome</td>
<td>The Campidoglio (companion picture to No. 511).</td>
</tr>
<tr>
<td>513</td>
<td>Roccheggiani, Rome</td>
<td>Collection of mosaics.</td>
</tr>
<tr>
<td>514</td>
<td>Roccheggiani, Rome</td>
<td>Bouquet (in mosaic).</td>
</tr>
<tr>
<td>515</td>
<td>Roccheggiani, Rome</td>
<td>Head of Washington (presented by the artist to the city of Philadelphia).</td>
</tr>
<tr>
<td>518</td>
<td>Gallandt, L. A., Rome</td>
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</table>

**THE CASTELLANI ANTIQUITIES.**

*(Memorial Hall, Gallery U.)*

<table>
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<th>EXHIBITOR</th>
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<th>OWNER</th>
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<tr>
<td>Castellani, A., Rome</td>
<td>Marbles and Bronzes.</td>
<td>A. Castellani.</td>
</tr>
</tbody>
</table>

*(Memorial Hall, Gallery V.)*

| Castellani, A., Rome | Majolica.               | A. Castellani. |

*(Memorial Hall, Gallery W.)*

| Castellani, A., Rome | Personal Ornaments.     | A. Castellani. |

**COLLECTION LOANED BY POPE PIUS IX.**

*(Memorial Hall, Gallery K.)*

<table>
<thead>
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<th>NO.</th>
<th>ARTIST</th>
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<th>OWNER</th>
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<tbody>
<tr>
<td>1</td>
<td>(Unknown)</td>
<td>Flowers in mosaic.</td>
<td>Pope Pius IX.</td>
</tr>
<tr>
<td>2</td>
<td>(Unknown)</td>
<td>Mosaic of a Madonna after Sasso-Ferrato.</td>
<td>Pope Pius IX.</td>
</tr>
<tr>
<td>3</td>
<td>(Unknown)</td>
<td>Mosaic of Raphael's Madonna del Seggiola.</td>
<td>Pope Pius IX.</td>
</tr>
<tr>
<td>4</td>
<td>(Unknown)</td>
<td>Tapestry — The Martyrdom of St. Agnes.</td>
<td>Pope Pius IX.</td>
</tr>
</tbody>
</table>
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J. B. LIPPINCOTT & CO.,
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Is printed and published every day in the year, at 166, 168, and 170 Nassau Street, New York City. Its regular edition on secular days now (April, 1876) averages about 140,000; its weekly edition over 88,000; and its Sunday issue is nearly 100,000. It thus prints and sells more than a million copies a week, which are read all over the United States. This is a circulation unprecedented in American journalism, and it is constantly on the increase. In proof of this, let the following figures testify. They show the number of copies of The Sun printed every week during the year ending March 11, 1876.

<table>
<thead>
<tr>
<th>WEEK ENDING</th>
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<th>WEEK ENDING</th>
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<td>March 20</td>
<td>849,382</td>
<td>September 18</td>
<td>860,358</td>
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<td>27</td>
<td>845,802</td>
<td>25</td>
<td>858,778</td>
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<tr>
<td>April 3</td>
<td>857,956</td>
<td>October 2</td>
<td>863,935</td>
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<tr>
<td>10</td>
<td>863,556</td>
<td>3</td>
<td>870,820</td>
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<tr>
<td>17</td>
<td>853,076</td>
<td>16</td>
<td>878,082</td>
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<tr>
<td>24</td>
<td>858,270</td>
<td>23</td>
<td>874,025</td>
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<tr>
<td>May 1</td>
<td>869,542</td>
<td>30</td>
<td>876,160</td>
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<tr>
<td>8</td>
<td>867,550</td>
<td>November 6</td>
<td>908,580</td>
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<tr>
<td>15</td>
<td>877,450</td>
<td>13</td>
<td>852,372</td>
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<tr>
<td>22</td>
<td>874,946</td>
<td>20</td>
<td>847,815</td>
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<tr>
<td>29</td>
<td>866,276</td>
<td>27</td>
<td>836,248</td>
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<tr>
<td>June 5</td>
<td>873,782</td>
<td>December 4</td>
<td>845,378</td>
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<tr>
<td>12</td>
<td>869,769</td>
<td>11</td>
<td>1,042,716</td>
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<td>19</td>
<td>880,348</td>
<td>18</td>
<td>956,294</td>
</tr>
<tr>
<td>26</td>
<td>883,846</td>
<td>25</td>
<td>933,864</td>
</tr>
<tr>
<td>July 3</td>
<td>898,882</td>
<td>January 1</td>
<td>933,987</td>
</tr>
<tr>
<td>10</td>
<td>867,574</td>
<td>8</td>
<td>952,202</td>
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<tr>
<td>17</td>
<td>877,400</td>
<td>15</td>
<td>953,019</td>
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<td>24</td>
<td>876,282</td>
<td>22</td>
<td>969,911</td>
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<tr>
<td>31</td>
<td>874,216</td>
<td>25</td>
<td>967,850</td>
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<tr>
<td>August 7</td>
<td>855,558</td>
<td>February 5</td>
<td>993,030</td>
</tr>
<tr>
<td>14</td>
<td>873,982</td>
<td>8</td>
<td>1,024,647</td>
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<tr>
<td>21</td>
<td>880,488</td>
<td>15</td>
<td>1,027,209</td>
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<tr>
<td>28</td>
<td>870,502</td>
<td>20</td>
<td>1,014,766</td>
</tr>
<tr>
<td>September 4</td>
<td>872,211</td>
<td>March 4</td>
<td>1,014,993</td>
</tr>
<tr>
<td>11</td>
<td>860,755</td>
<td>11</td>
<td>1,028,951</td>
</tr>
</tbody>
</table>

Total: 46,799,769

In printing these papers, no less than three million four hundred and twenty-six thousand six hundred and ten (3,426,610) pounds of paper were consumed.

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**DAILY AND SUNDAY**, 40 cents a line, ordinary advertising; large type, 80 cents; and preferred positions, 50 cents to $2.50, according to classification.

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### SCULPTURE

<table>
<thead>
<tr>
<th>No.</th>
<th>Artist</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bernardelli, Rio de Janeiro</td>
<td>Recollection of the Tribe (plaster).</td>
</tr>
<tr>
<td>3</td>
<td>Bernardelli, Rio de Janeiro</td>
<td>The Indian Peeping (plaster).</td>
</tr>
<tr>
<td>4</td>
<td>Almeida, Reis, Rio de Janeiro</td>
<td>The Crime (plaster).</td>
</tr>
<tr>
<td>5</td>
<td>Almeida, Reis, Rio de Janeiro</td>
<td>The Bishop of Chrysopolis (plaster).</td>
</tr>
</tbody>
</table>

### OIL PAINTINGS

<table>
<thead>
<tr>
<th>No.</th>
<th>Artist</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Lima, Victor Meirelles de, Rio de Janeiro</td>
<td>The Naval Battle of Riachuelo (Paraguayan War).</td>
</tr>
<tr>
<td>8</td>
<td>Lima, Victor Meirelles de, Rio de Janeiro</td>
<td>The First Mass in Brazil.</td>
</tr>
<tr>
<td>9</td>
<td>Figueredo, Pedro Americo de, Rio de Janeiro</td>
<td>Brazilian Army crossing Passo da Patria, led by Marshal Ozario (Paraguayan War).</td>
</tr>
<tr>
<td>10</td>
<td>Figueredo, Pedro Americo de, Rio de Janeiro</td>
<td>Defence of the Island of Cabrita (Paraguayan War).</td>
</tr>
<tr>
<td>11</td>
<td>Henschell, Rio de Janeiro</td>
<td>Portrait of the Emperor of Brazil.</td>
</tr>
<tr>
<td>13</td>
<td>(Unknown),</td>
<td>View of St. Peter’s Cathedral in Rome. Exhibited by the Academy of Fine Arts, Rio de Janeiro.</td>
</tr>
<tr>
<td>14</td>
<td>(Unknown),</td>
<td>Charity. Exhibited by the Academy of Fine Arts, Rio de Janeiro.</td>
</tr>
<tr>
<td>15</td>
<td>(Unknown),</td>
<td>Sunset on the Sea-Shore. Exhibited by H.R.H. the Count d’Eu.</td>
</tr>
</tbody>
</table>

### WATER COLORS

<table>
<thead>
<tr>
<th>No.</th>
<th>Artist</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Pacheco, I. Insley, Rio de Janeiro</td>
<td>Three paintings, representing views of the interior of Brazil.</td>
</tr>
<tr>
<td>17</td>
<td>Pacheco, I. Insley, Rio de Janeiro</td>
<td>Aquarelles, representing views of the interior of Brazil.</td>
</tr>
</tbody>
</table>

### LITHOGRAPHS, CRAYONS, ETC.

<table>
<thead>
<tr>
<th>No.</th>
<th>Artist</th>
<th>Title</th>
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<tbody>
<tr>
<td>19</td>
<td>Almeida, Marianno de, Rio de Janeiro</td>
<td>Sketches with pen and ink.</td>
</tr>
<tr>
<td>20</td>
<td>Pacheco, I. Insley, Rio de Janeiro</td>
<td>Two landscapes (crayons).</td>
</tr>
<tr>
<td>22</td>
<td>Damasceno, J. dos Passos, Rio de Janeiro</td>
<td>Pen-and-ink drawing—Dom Pedro II.</td>
</tr>
</tbody>
</table>
ARGENTINE REPUBLIC.

(Annex, Gallery No. 27.)

[Works of Art marked with an asterisk (*) are for sale. For information apply at the Office of the Argentine Republic, Main Building.]

OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Petrazzini, Buenos Ayres,</td>
<td>Fruit.</td>
</tr>
<tr>
<td>2</td>
<td>Gattinoni, Carlos, Buenos Ayres,</td>
<td>Child's Head.</td>
</tr>
<tr>
<td>3</td>
<td>Gattinoni, Carlos, Buenos Ayres,</td>
<td>Old Man's Head.</td>
</tr>
<tr>
<td>4</td>
<td>Marroig, G., Entre Ríos,</td>
<td>At the Fountain.</td>
</tr>
<tr>
<td>5</td>
<td>Diaz, Josefa, Santa Fé,</td>
<td>Argentine Gaucho.</td>
</tr>
<tr>
<td>6</td>
<td>Castillo, B. del, Buenos Ayres,</td>
<td>Peace.</td>
</tr>
<tr>
<td>7</td>
<td>Boneo, M. L., Buenos Ayres,</td>
<td>Native Scene.</td>
</tr>
<tr>
<td>8</td>
<td>Diaz, Josefa, Santa Fé,</td>
<td>The Chaco Indian.</td>
</tr>
<tr>
<td>9</td>
<td>Charton, E., Buenos Ayres,</td>
<td>Valparaiso, Chili.</td>
</tr>
<tr>
<td>10</td>
<td>Gattinoni, Carlos, Buenos Ayres,</td>
<td>Rustic Court.</td>
</tr>
<tr>
<td>11</td>
<td>Gattinoni, Carlos, Buenos Ayres,</td>
<td>A Difficult Answer.</td>
</tr>
<tr>
<td>12</td>
<td>Charton, E., Buenos Ayres,</td>
<td>Chilian Farmer.</td>
</tr>
<tr>
<td>13</td>
<td>Diaz, Josefa, Santa Fé,</td>
<td>Fruit.</td>
</tr>
<tr>
<td>14</td>
<td>Charton, E., Buenos Ayres,</td>
<td>View of Santiago, Chili.</td>
</tr>
<tr>
<td>15</td>
<td>Boneo, M. L., Buenos Ayres,</td>
<td>Native Scene.</td>
</tr>
<tr>
<td>16</td>
<td>Pasquinelli, A., Santa Fé,</td>
<td>The Watering-Place.</td>
</tr>
<tr>
<td>18</td>
<td>Gattinoni, Carlos, Buenos Ayres,</td>
<td>Giovanni Boccaccio visiting Beatrice Alighieri, daughter of Dante, in the Monastery of Ravenna.</td>
</tr>
<tr>
<td>20</td>
<td>Chiama, Epaminonda, Buenos Ayres,</td>
<td>At the Camp Store.</td>
</tr>
<tr>
<td>21</td>
<td>Charton, E., Buenos Ayres,</td>
<td>City and Harbor of Panama.</td>
</tr>
<tr>
<td>22</td>
<td>Charton, E., Buenos Ayres,</td>
<td>General View of Guayaquil.</td>
</tr>
<tr>
<td>23</td>
<td>Boneo, M. L., Buenos Ayres,</td>
<td>Native Scene.</td>
</tr>
<tr>
<td>24</td>
<td>Castillo, B. del, Buenos Ayres,</td>
<td>Fruit and Flowers.</td>
</tr>
<tr>
<td>25</td>
<td>Gattinoni, Carlos, Buenos Ayres,</td>
<td>Boy after a Bath.</td>
</tr>
<tr>
<td>26</td>
<td>Boneo, M. L., Buenos Ayres,</td>
<td>Native Scene.</td>
</tr>
<tr>
<td>27</td>
<td>Castillo, B. del, Buenos Ayres,</td>
<td>Burning of the Steam-Packet America on her Voyage from Buenos Ayres to Montevideo.</td>
</tr>
<tr>
<td>28</td>
<td>Diaz, Josefa, Santa Fé,</td>
<td>Black Servant.</td>
</tr>
<tr>
<td>29</td>
<td>Charton, E., Buenos Ayres,</td>
<td>Public Square in Córdoba.</td>
</tr>
<tr>
<td>30</td>
<td>Muratory, José, Buenos Ayres,</td>
<td>Naval Battle.</td>
</tr>
<tr>
<td>31</td>
<td>Muratory, José, Buenos Ayres,</td>
<td>Naval Battle.</td>
</tr>
<tr>
<td>32</td>
<td>Muratory, José, Buenos Ayres,</td>
<td>Naval Battle.</td>
</tr>
<tr>
<td>33</td>
<td>Muratory, José, Buenos Ayres,</td>
<td>Naval Battle.</td>
</tr>
<tr>
<td>34</td>
<td>Calzadilla, S., Santiago,</td>
<td>The Washerwoman going to her Work.</td>
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</table>
### MEXICO.

[Information concerning the sale of Works of Art may be obtained at the office of the Mexican Commission, Main Building.]

(Annex, Gallery No. 9.)

<table>
<thead>
<tr>
<th>NO.</th>
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<th>OWNER.</th>
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<tbody>
<tr>
<td>1</td>
<td>Sagredo, Ramon,</td>
<td>The Castle of Emaus.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>2</td>
<td>Hernandez, Ignacio,</td>
<td>Portrait of Mina, one of the heroes of Mexican Independence.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>5</td>
<td>Ramirez, Joaquin,</td>
<td>Noah's Ark.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>7</td>
<td>Velasco, José María,</td>
<td>The Valley of Mexico.</td>
<td>Artist.</td>
</tr>
<tr>
<td>8</td>
<td>Figueroa, Gregorio,</td>
<td>The Death of Abel.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>9</td>
<td>Velasco, José Maria,</td>
<td>Wood of Chapultepec.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>10</td>
<td>Jimenez, José,</td>
<td>Interior of the Convent of Loreto, City of Mexico.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>12</td>
<td>Flores, Rafael,</td>
<td>Dante.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>17</td>
<td>Cordero, Juan,</td>
<td>Columbus before the Court of Ferdinand and Isabella.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>19</td>
<td>Manchola, Juan,</td>
<td>Saint Peter Restoring a Child.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>20</td>
<td>Obregon, José,</td>
<td>Giotto and Cimabue.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>21</td>
<td>Clavé, Pelegrin,</td>
<td>Isabel of Portugal.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>22</td>
<td>Cordero, Juan,</td>
<td>The Family of the Artist Cordero.</td>
<td>Artist.</td>
</tr>
<tr>
<td>23</td>
<td>Gutierrez, Felipe,</td>
<td>Saint Sebastian.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>25</td>
<td>Vega, Federico de la</td>
<td>The Fall of Satan.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>27</td>
<td>Ferrando, Salvador,</td>
<td>Jacob Anointing a Rock</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>30</td>
<td>Escudero y Espronceda, José,</td>
<td>Portrait of Benito Juarez, late President of Mexico.</td>
<td>Artist.</td>
</tr>
<tr>
<td>46</td>
<td>Castro, José Antonio,</td>
<td>Spain (allegorical painting).</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>47</td>
<td>Paez, José,</td>
<td>Saint Rosalia.</td>
<td>The National Academy.</td>
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</table>
## DEPT. IV. — ART.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
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</thead>
<tbody>
<tr>
<td>51</td>
<td>Rodriguez, Juarez Juan</td>
<td>San Juan de Dios — seventeenth century.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>54</td>
<td>Ibarra, José</td>
<td>Scenes in the Life of the Virgin Mary — seventeenth century.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>56</td>
<td>Vega, Joaquin de la</td>
<td>Portrait — Professor Carcanio — seventeenth century.</td>
<td>The National Academy.</td>
</tr>
<tr>
<td>57</td>
<td>Alcibar, José</td>
<td>Portrait — Don Manuel Justo Bolea Sanchez</td>
<td>The National Academy.</td>
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</table>

## STATUARY.

<table>
<thead>
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<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>Dumaine</td>
<td>The Orphans (plaster).</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Fernandez, J.</td>
<td>A figure (plaster).</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Guerra, Gabriel</td>
<td>A Fisherman (plaster).</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>Sojo</td>
<td>Mercury and Argos (plaster).</td>
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</table>

(Annex, Gallery No. 29;)

## OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>Rebull, Santiago</td>
<td>Abraham</td>
<td>The National Academy Artist.</td>
</tr>
<tr>
<td>33</td>
<td>De Mayora, Mrs. Guadalupe C.</td>
<td>The Prayer.</td>
<td>Artist.</td>
</tr>
<tr>
<td>34</td>
<td>De Mayora, Mrs. Guadalupe C.</td>
<td>Savoyard Beggar-Boy.</td>
<td>Artist.</td>
</tr>
<tr>
<td>35</td>
<td>De Mayora, Mrs. Guadalupe C.</td>
<td>Fruit.</td>
<td>Artist.</td>
</tr>
<tr>
<td>36</td>
<td>De Mayora, Mrs. Guadalupe C.</td>
<td>Fruit.</td>
<td>Artist.</td>
</tr>
<tr>
<td>37</td>
<td>De Mayora, Mrs. Guadalupe C.</td>
<td>A Page.</td>
<td>Artist.</td>
</tr>
<tr>
<td>38</td>
<td>De Mayora, Mrs. Guadalupe C.</td>
<td>The Madonna (after Murillo).</td>
<td>Artist.</td>
</tr>
<tr>
<td>40</td>
<td>Morete, Patricio José</td>
<td>San Luis Gonzaga</td>
<td>The National Academy</td>
</tr>
</tbody>
</table>

OIL PAINTINGS.
PENNSYLVANIA RAILROAD

The celebrity attained by the scenic and historic attractions along the Main Line and various branches of this Railroad, has led to the publication, by the Company, of a volume entitled

THE PENNSYLVANIA RAILROAD,
HISTORICAL AND DESCRIPTIVE,

Embracing Historical, Descriptive, and Statistical Notices of Cities, Towns, Villages, Stations, Industries, and objects of Interest on its various Lines in Pennsylvania and New Jersey.

This book contains two Steel-plate Portraits and one hundred and nine Wood Engravings, executed in the highest style from original designs by eminent artists.

The design of the work is to faithfully portray the origin, progress, and present condition of the Pennsylvania Railroad, and to give such information of a historical, personal, and statistical character as will interest travelers and the general public.

The book contains three hundred pages, is printed in large, clear type, on heavy, tinted paper, and will compare favorably with any emanation from the American press. It is now for sale on all trains and at all principal ticket stations on the Pennsylvania Railroad and Branches, and at the book stores of J. B. Lippincott & Co. and Porter & Coates, Philadelphia.

VISITORS TO THE CENTENNIAL EXHIBITION

Will find this volume an interesting and valuable souvenir of Philadelphia and the great route connecting the East and West, as every station between, and including, New York and Pittsburg is illustrated and described in it.
# THE

## American Newspaper Union.

**A. J. Aikens, President.**

<table>
<thead>
<tr>
<th>Newspaper Union</th>
<th>Newspapers</th>
<th>$ per line, per week</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York Newspaper Union, 148 and 150 Worth St., New York</td>
<td>315</td>
<td>$3.00</td>
</tr>
<tr>
<td>Chicago Newspaper Union, 114 Monroe St., Chicago</td>
<td>350</td>
<td>$3.50</td>
</tr>
<tr>
<td>Milwaukee Newspaper Union, 365 East Water St., Milwaukee</td>
<td>120</td>
<td>$1.25</td>
</tr>
<tr>
<td>Aikens Newspaper Union, 143 Race St., Cincinnati</td>
<td>200</td>
<td>$2.00</td>
</tr>
<tr>
<td>Southern Newspaper Union, 277 Second St., Memphis, Tenn.</td>
<td>145</td>
<td>$1.50</td>
</tr>
<tr>
<td>St. Paul Newspaper Union, 77 Wabashaw St., St. Paul, Minn.</td>
<td>73</td>
<td>$.75</td>
</tr>
</tbody>
</table>

## THE ORIGIN OF CO-OPERATIVE NEWSPAPER ADVERTISING.

Co-operative newspaper printing, as now practised, originated in Wisconsin twelve years ago. It is termed *co-operative* for the reason that one side of each of the newspapers is printed at a central office, and the paper sent in its half-printed state to the home office, where it is completed with editorials, local news, and other matter prepared by the editor or publisher. In December, 1846, the idea of co-operation, with advertisements, occurred to Mr. Aikens, while yet serving his time as an apprentice, in printing the message of President Polk on one side of a country newspaper of New England at Boston, and the other half being printed at the local office.

Mr. A. J. Aikens, a practical printer and business man, conceived the idea of reducing the cost of ready-printed paper, as it is now termed, to country publishers, by making an agreement with them to use a certain space in each of their papers for advertisements that he might procure. This plan of co-operation he put into practice twelve years ago, at the office of Cramer, Aikens & Cramer, Milwaukee. It at once became successful, leading to the establishment of co-operative newspaper printing-offices in Chicago, New York, St. Louis, Cincinnati, Memphis, St. Paul, and other places. There are now over two thousand newspapers printed upon the co-operative plan in the United States and Canada, and the number is constantly increasing, it having more than doubled in the last five years. The enterprise is no longer an experiment, but an established success, and the system is one yielding manifold advantages to advertisers as well as to local publishers.

### The American Newspaper Union

Is essentially national. The papers represented in it are located in all the States of the Union and in nearly five hundred county seats. They circulate over the whole area of the country from Maine to Colorado, distributing at least one hundred copies every year to each square mile of the settled portions of the United States.

Although, as a whole, the Union List is national, covering all sections, it is so made up of different members as to be susceptible of easy division into sections—East, Middle, West, South. The distribution of the papers is as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>Number</th>
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</thead>
<tbody>
<tr>
<td>New England</td>
<td>78</td>
</tr>
<tr>
<td>New York</td>
<td>101</td>
</tr>
<tr>
<td>New Jersey</td>
<td>27</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>65</td>
</tr>
<tr>
<td>Virginia</td>
<td>24</td>
</tr>
<tr>
<td>No. and So. Carolina</td>
<td>24</td>
</tr>
<tr>
<td>Ohio</td>
<td>122</td>
</tr>
<tr>
<td>Indiana</td>
<td>81</td>
</tr>
<tr>
<td>Illinois</td>
<td>117</td>
</tr>
<tr>
<td>Michigan</td>
<td>86</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>98</td>
</tr>
<tr>
<td>Tennessee</td>
<td>29</td>
</tr>
<tr>
<td>Kentucky</td>
<td>29</td>
</tr>
<tr>
<td>Minnesota</td>
<td>79</td>
</tr>
<tr>
<td>Iowa</td>
<td>85</td>
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<td>Nebraska</td>
<td>15</td>
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<td>Missouri</td>
<td>17</td>
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<tr>
<td>Georgia</td>
<td>10</td>
</tr>
<tr>
<td>Alabama</td>
<td>32</td>
</tr>
<tr>
<td>Louisiana</td>
<td>11</td>
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<tr>
<td>Mississippi</td>
<td>29</td>
</tr>
<tr>
<td>Other States</td>
<td>46</td>
</tr>
</tbody>
</table>

## AGGREGATE CIRCULATION.

The circulation of these papers is large and constantly increasing. It is larger than the circulation of any other lists or combinations of country papers in the United States—the last aggregate weekly circulation being seven hundred thousand seven hundred and thirty copies (700,730).

SEND TO EITHER OFFICE FOR A CIRCULAR.
SPAIN.

[For information regarding the sale of Works of Art, apply at the office of the Spanish Commission, Main Building.]

(Memorial Hall, Gallery H.)

SCULPTURE.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Barcelona,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Talarn, Domingo,</td>
<td>Massacre of the Innocents (terracotta).</td>
<td>Artist.</td>
</tr>
<tr>
<td></td>
<td>Barcelona,</td>
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</table>

(Memorial Hall, Gallery H.)

OIL PAINTINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>OWNER.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jose, Barcelona,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40a</td>
<td>Navarrete, R.,</td>
<td>Choir of Capuchin Monks.</td>
<td>Museum of Fine Arts,</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>Madrid.</td>
</tr>
<tr>
<td>40b</td>
<td>Fierros, D.,</td>
<td>Fountain in Galicia.</td>
<td>Museum of Fine Arts,</td>
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<td></td>
<td></td>
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<td>Madrid.</td>
</tr>
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<td>40c</td>
<td>Agrassot, I.,</td>
<td>The Two Friends.</td>
<td>Museum of Fine Arts,</td>
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<td></td>
<td></td>
<td></td>
<td>Madrid.</td>
</tr>
<tr>
<td>40d</td>
<td>Maureta, G.,</td>
<td>Torquato Tasso retiring to the Monastery</td>
<td>Museum of Fine Arts,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of San Onofre.</td>
<td>Madrid.</td>
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<tr>
<td>40e</td>
<td>Muñoz, Degrain A.,</td>
<td>The Prayer.</td>
<td>Museum of Fine Arts,</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Madrid.</td>
</tr>
<tr>
<td>40f</td>
<td>Gonzalvo, P.,</td>
<td>The House of La Infanta at Saragossa.</td>
<td>Museum of Fine Arts,</td>
</tr>
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<td></td>
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<td></td>
<td>Madrid.</td>
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<tr>
<td>40g</td>
<td>Puebla, D.,</td>
<td>The Landing of Columbus.</td>
<td>Museum of Fine Arts,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Madrid.</td>
</tr>
<tr>
<td>40h</td>
<td>Domingo, F.,</td>
<td>A Duel in the Seventeenth Century.</td>
<td>Museum of Fine Arts,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Madrid.</td>
</tr>
<tr>
<td>40i</td>
<td>Cano, E.,</td>
<td>Christopher Columbus in the Monastery of</td>
<td>Museum of Fine Arts,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>La Rabida.</td>
<td>Madrid.</td>
</tr>
<tr>
<td>40j</td>
<td>Castellano, M.,</td>
<td>Death of the Count of Villamediana.</td>
<td>Museum of Fine Arts,</td>
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<td>Landing of the Puritans in America.</td>
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<td>Piñera, Juan de Seville,</td>
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<td>Cabral y Vejarano, Manuel,</td>
<td>A Water-Seller of the Alameda, in Seville.</td>
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<td>Velazquez,</td>
<td>Portrait.</td>
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(Annex, Gallery No. 31.)

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<td>Albazzi, José, Havana, Cuba</td>
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(Annex, Gallery No. 31.)

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<td>Moragas y Valero, Manuel, Barcelona,</td>
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<td>Damis y Cortés, Joaquin, Cadiz,</td>
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<td>Rodriguez Valcázar, Ramon, Cadiz,</td>
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<td>Wade, Carlos, Cadiz,</td>
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<td>Villamil, Leopoldo, Lugo,</td>
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<td>Villamil, Leopoldo, Lugo,</td>
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<td>Lucas, E.,</td>
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<td>Lucas, E.,</td>
<td>Saint John (child).</td>
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<td>Lucas, E.,</td>
<td>Holy Family.</td>
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<td>Gonzalvo, Pérez Pablo, Madrid,</td>
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<td>Sanchez Blanco, Pedro, Madrid,</td>
<td>View of the Sardineró, in Santander.</td>
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<td>Garcia Hispaleto, Manuel, Madrid,</td>
<td>Rosita’s Birthday.</td>
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<td>Garcia Hispaleto, Manuel, Madrid,</td>
<td>A Girl in Old Spanish Costume.</td>
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<td>Venus.</td>
<td>Ortiz y Campos, José, Seville.</td>
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<td>Ortiz y Campos, José, Seville.</td>
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<td>Piñera, Juan, Seville.</td>
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<td>Chartrand, Esteban S., Havana</td>
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<td>67</td>
<td>Argumosa, José, Havana</td>
<td>Collection of pictures</td>
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(Appendix, Gallery No. 31)

### WATER COLORS AND CRAYON

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<td>69</td>
<td>Sanchez, Pedro, Cadiz</td>
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<td>70</td>
<td>Guisasola, Federico, Pontevedra</td>
<td>Water color</td>
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<td>74</td>
<td>Lopez Valdemoro Ortiz de Lazcano, Señorita Ines</td>
<td>Crayon drawings</td>
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### OIL PAINTINGS

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<tr>
<td>200</td>
<td>Navarrete, Ricardo, Madrid</td>
<td>Las Hilanderas (&quot;The Carpet Weavers&quot;-copy after Velazquez)</td>
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<td>201a</td>
<td>(Unknown),</td>
<td>Saint Jerome</td>
<td>Ochoa, Bernardino, Madrid</td>
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<td>201b</td>
<td>(Unknown),</td>
<td>Holy Family</td>
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<td>201c</td>
<td>(Unknown),</td>
<td>Virgin and Child</td>
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<td>201d, e</td>
<td>(Unknown),</td>
<td>Two vases with flowers</td>
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<td>201f, g</td>
<td>(Unknown),</td>
<td>The Combat</td>
<td>Ochoa, Bernardino, Madrid</td>
</tr>
<tr>
<td>201h, i</td>
<td>(Unknown),</td>
<td>Still Life</td>
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<td>201j</td>
<td>(Unknown),</td>
<td>Picnic</td>
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<td>201k</td>
<td>(Unknown),</td>
<td>Pasturing Bulls</td>
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<td>201l</td>
<td>(Unknown),</td>
<td>A Bull's head</td>
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<td>202</td>
<td>Elorriaga, Ramon, New York</td>
<td>A Portrait (life size)</td>
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<td>203</td>
<td>Ortiz, D. J. de, New York</td>
<td>Portrait of the celebrated explorer Stanley</td>
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### SCULPTURE

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<td>Jocson, Crispulo, Manila, Philippine Islands</td>
<td>A bust (wood)</td>
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<td>251</td>
<td>Tampinco, Isabella, Manila</td>
<td>A bas-relief (wood)</td>
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### OIL PAINTINGS

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<td>Resurecion, Felix</td>
<td>Two landscapes</td>
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<td>254</td>
<td>Resurecion, Felix</td>
<td>A Canoe</td>
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<td>255</td>
<td>Resurecion, Felix</td>
<td>Woman selling Plants called &quot;Lanzones.&quot;</td>
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<td>256</td>
<td>Resurecion, Felix</td>
<td>Fisherman at Sacag</td>
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<td>Zaragosa, Miguel</td>
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<td>258</td>
<td>Zaragosa, Miguel</td>
<td>Old Policeman</td>
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<td>259</td>
<td>Garcia, Regino</td>
<td>The Laborer</td>
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<td>260-65</td>
<td>Villanueva, Esteban</td>
<td>Natives of Manilla (six paintings)</td>
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<td>266</td>
<td>Flores, Simon, Manila</td>
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<td>267-68</td>
<td>(Unknown),</td>
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<td>269</td>
<td>(Unknown),</td>
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**MOSAICS.**

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<td>124</td>
<td>Rodriguez, Desiderio,</td>
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**(Spanish Government Pavilion.)**

**COLLECTIVE EXHIBIT.**

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<td>Bibiloni, José, Barcelona,</td>
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<td>Pupils of the Provincial Academy of Fine Arts, Barcelona,</td>
<td>Drawings.</td>
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<td>Provincial Deputation, Cadiz.</td>
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<td>Gonzales y Montblanc, Modeste, Barcelona,</td>
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<td>Aramburu, Ricardo, Seville,</td>
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<td>Reynoso, Emilio, Havana,</td>
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<td>Gelabert y Her mano, R., Barcelona,</td>
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<td>Lemus, Eugenio, Madrid,</td>
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<td>Martinez, Espinosa, Juan, Madrid,</td>
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<td>Salcedo, Pedro, Morata, Province of Madrid,</td>
<td>Plan of the Escorial Royal Monastery, near Madrid.</td>
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<td>Arnanz, José, Havana,</td>
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<td>Vidal y Roger, Andres, Barcelone,</td>
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<td>Nobas, Narciso, Barcelona</td>
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<td>Moragas, Manuel Garcia, Province of Barcelona</td>
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<td>Casifó de Leopoldo, Xeres de la Frontera</td>
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<td>Rodriguez Cortes, Cesar</td>
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<td>Spreafico, José, Malaga</td>
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<td>Alviac y Ca., Madrid</td>
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<td>Laurent, J., y Ca., Madrid</td>
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<td>Diaz, Otero, Eduardo, Madrid</td>
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<td>Instituto de Segunda Enseñanza, Madrid</td>
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<td>Sociedad Económica de Amigos del País, Seville</td>
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<td>Almela y Vinet, Barcelona</td>
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<td>Mestres, O. José, Barcelona</td>
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<td>Guastavin, Rafael, Barcelona</td>
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<td>Garriga y Roca, Miguel, Barcelona</td>
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<td>Marin Baldo, José, Madrid</td>
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<td>Benito, Santiago de, Escorial, Province of Madrid</td>
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<td>Bustamente y Gallo, Madrid</td>
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<td>Fernandez Cuevas, Pascual, Bribiesca, Province of Burgos</td>
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<td>126a</td>
<td>Ruiz, Manuel, Cadiz</td>
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<td>126b</td>
<td>Ruiz, Manuel, Cadiz</td>
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<td>Serrano y Arenas, Havana</td>
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<td>Comacho de Diaz, Soledad, Havana</td>
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<td>Storm on the Black Sea, near the Crimean coast.</td>
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<td>Aivazovsky, John, Theodosia, Crimea</td>
<td>View of Constantinople, from the European shore.</td>
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<td>Tartar Women in the Crimea.</td>
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<td>Aivazovsky, John, Theodosia, Crimea</td>
<td>After the Storm (Sunset).</td>
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<td>Aivazovsky, John, Theodosia, Crimea</td>
<td>The Rising Moon, Black Sea.</td>
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<td>Aivazovsky, John, Theodosia, Crimea</td>
<td>Shower in the Crimean Mountains.</td>
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<td>The Hunter.</td>
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<td>The Morning Mist.</td>
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<td>Gerson, Wojciech, Warsaw</td>
<td>Summer Rain.</td>
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<td>Gerson, Wojciech, Warsaw</td>
<td>Knights of the Teutonic Order in Poland, in the Fourteenth Century.</td>
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<td>Horavsky, Apollinarius, St. Petersburg</td>
<td>Caucasian Landscape—View of the River Arva.</td>
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<td>Jooravleff, F., St. Petersburg</td>
<td>The Step-Mother.</td>
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<td>Jooravleff, F., St. Petersburg</td>
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<td>Korzoochin, Alexis, St. Petersburg</td>
<td>Sunday Tea-Party.</td>
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<td>Korzoochin, Alexis, St. Petersburg</td>
<td>Scene in the Wood.</td>
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<td>Kostrzewski, Francis, Warsaw</td>
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<td>Malyshof, ———, Sergievski-Possad,</td>
<td>Icons (painted images).</td>
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<td>Hamlet.</td>
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<td>Miller, Charles, Warsaw</td>
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<td>A Smoky Cottage.</td>
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<td>Lemoch, Charles, St. Petersburg</td>
<td>Peasant Girl Feeding Poultry.</td>
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<td>Lemoch, Charles, St. Petersburg</td>
<td>Peasant Girl Making her Toilet.</td>
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<td>The Amulet-Seller.</td>
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<td>Sokoloff, Peter, St. Petersburg</td>
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<td>Zagorsky, Nicolas, St. Petersburg</td>
<td>Family Scene.</td>
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<td>Gerimski, Alexander, Warsaw</td>
<td>A Tavern.</td>
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<td>37a</td>
<td>Gerimski, Alexander, Warsaw</td>
<td>A Game at Morro.</td>
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### RUSSIA.

<table>
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<td>Skirmunt, Simon de, Brindisi, Italy,</td>
<td>A Festival in the Palazzo Colonna, Rome (sixteenth century).</td>
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<td>Skirmunt, Simon de, Brindisi, Italy,</td>
<td>A Member of the Council of Ten, Venice.</td>
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<td>Skirmunt, Simon de, Brindisi, Italy,</td>
<td>Reflection.</td>
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<tr>
<td>41</td>
<td>Verestchaghin, Peter, Sestroretzk, near St. Petersburg,</td>
<td>Winter Palace Square.</td>
</tr>
<tr>
<td>42</td>
<td>Verestchaghin, Peter, Sestroretzk, near St. Petersburg,</td>
<td>The Alexander Column (Winter Palace Square).</td>
</tr>
<tr>
<td>43</td>
<td>Svetchkoff, Nicolas, Zarskoe-Selo, near St. Petersburg,</td>
<td>Carnival Week in the Country.</td>
</tr>
<tr>
<td>44</td>
<td>Silvanovitch, Nicolas, St. Petersburg,</td>
<td>The Prisoner.</td>
</tr>
<tr>
<td>46</td>
<td>Lindholm, B. A., St. Petersburg,</td>
<td>A Steamer in Floating Ice.</td>
</tr>
<tr>
<td>47</td>
<td>Munsterhelm, Magnus, St. Petersburg,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>48</td>
<td>Lagorio, Lewis, St. Petersburg,</td>
<td>The Kishaoor Valley, Caucasus.</td>
</tr>
<tr>
<td>49</td>
<td>Lagorio, Lewis, St. Petersburg,</td>
<td>Along the Road from Tiflis to Akhaltzik.</td>
</tr>
<tr>
<td>50</td>
<td>Skirmund, S. A., St. Petersburg,</td>
<td>A Family Party on the Balcony.</td>
</tr>
<tr>
<td>51</td>
<td>Clever, Julius, St. Petersburg,</td>
<td>The First Snow on a Ploughed Field.</td>
</tr>
<tr>
<td>52</td>
<td>Orlofsky, Wladimir, St. Petersburg,</td>
<td>Fishermen.</td>
</tr>
<tr>
<td>53</td>
<td>Tomashevsky-Bontcha, Julius, St. Petersburg,</td>
<td>Scene in Molière’s “Tartuffe.”</td>
</tr>
<tr>
<td>54</td>
<td>Pleshanoff, Paul, St. Petersburg,</td>
<td>An Italian.</td>
</tr>
<tr>
<td>55</td>
<td>Eckhorst, B., St. Petersburg,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>56</td>
<td>Eckhorst, B., St. Petersburg,</td>
<td>Landscape.</td>
</tr>
<tr>
<td>57</td>
<td>Karpoft, ——, St. Petersburg,</td>
<td>Young Girl Sleeping.</td>
</tr>
<tr>
<td>58</td>
<td>Krassofsky, Nicolas, St. Petersburg,</td>
<td>Study—a horse.</td>
</tr>
<tr>
<td>59</td>
<td>Krassofsky, Nicolas, St. Petersburg,</td>
<td>Study—a horse.</td>
</tr>
<tr>
<td>60</td>
<td>Titoff, Andrew, Rastoff, Yaroslav,</td>
<td>Enamed images (icons).</td>
</tr>
<tr>
<td>61</td>
<td>Marozoff, A. B., Moscow,</td>
<td>Portrait of the Emperor of Russia, and images.</td>
</tr>
<tr>
<td>62</td>
<td>Racotchi, Sidorsky &amp; Co.,</td>
<td>Images (icons).</td>
</tr>
<tr>
<td>63</td>
<td>Salabanoff, D. A., Nijni-Novgorod,</td>
<td>Painted images (imitations of ancient icons).</td>
</tr>
</tbody>
</table>

### STATUARY.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>Ryger, Theodore, Warsaw,</td>
<td>Bust of Washington (marble).</td>
</tr>
<tr>
<td>65</td>
<td>Ryger, Theodore, Warsaw,</td>
<td>Bust of Dr. Levitonx (plaster of Paris).</td>
</tr>
<tr>
<td>67</td>
<td>Zengler, F., Warsaw,</td>
<td>Bashfulness.</td>
</tr>
<tr>
<td>68</td>
<td>Zengler, F., Warsaw,</td>
<td>Sophia (Mickievicz’s poem).</td>
</tr>
<tr>
<td>69</td>
<td>Gojoff, Nicolas, Borovich, Novgorod,</td>
<td>Painted figures in terra-cotta, representing national subjects.</td>
</tr>
<tr>
<td>71</td>
<td>Ryger, Theodore, Warsaw,</td>
<td>Madonna and child Jesus (marble bas-relief).</td>
</tr>
</tbody>
</table>

### WOOD CARVINGS.

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>Bauman, Augustus, Moscow,</td>
<td>Images carved in wood.</td>
</tr>
<tr>
<td>75</td>
<td>Decamilly, St. Petersburg,</td>
<td>Ornamental carvings.</td>
</tr>
<tr>
<td>78</td>
<td>Tsyroolnikoff, P., Sergievsky-Possad, near Moscow,</td>
<td>Images carved in wood.</td>
</tr>
<tr>
<td>79</td>
<td>Kroostasheff, T. S., Sergievsky-Pos sad, near Moscow,</td>
<td>Images carved in wood.</td>
</tr>
<tr>
<td>80</td>
<td>Koznetzoff, ——, St. Petersburg,</td>
<td>Child’s head carved in wood.</td>
</tr>
<tr>
<td>81</td>
<td>Riabinin, ——, St. Petersburg,</td>
<td>Portrait.</td>
</tr>
</tbody>
</table>
**IVORY CARVINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>82</td>
<td>Alexieff, A., Vologda,</td>
<td>Carving in ivory.</td>
</tr>
</tbody>
</table>

**WATER COLORS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>83</td>
<td>Sokoloff, Peter, St. Petersburg,</td>
<td>Water colors.</td>
</tr>
<tr>
<td>84</td>
<td>Kostrzewsky, Francis, Warsaw,</td>
<td>The Dear Friend.</td>
</tr>
</tbody>
</table>

*(Memorial Hall, Gallery M)*

**OIL PAINTINGS.**

<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>85</td>
<td>Bogatsky,</td>
<td>Portrait of Prince Gortchakoff.</td>
</tr>
<tr>
<td>86</td>
<td>Groozintsky, F., St. Petersburg,</td>
<td>Welcome Home to the Bride.</td>
</tr>
<tr>
<td>87</td>
<td>Groozintsky, F., St. Petersburg,</td>
<td>Gypsy Festivities.</td>
</tr>
<tr>
<td>88</td>
<td>Jooravleff, F., St. Petersburg,</td>
<td>Dinner after a Funeral.</td>
</tr>
<tr>
<td>89</td>
<td>Jooravleff, F., St. Petersburg,</td>
<td>Take me Down.</td>
</tr>
<tr>
<td>90</td>
<td>Jooravleff, F., St. Petersburg,</td>
<td>Blessing the Bride before Marriage; a Russian Custom.</td>
</tr>
<tr>
<td>91</td>
<td>Naoomof, A., St. Petersburg,</td>
<td>Fair in Tiflis, Caucasus.</td>
</tr>
</tbody>
</table>

Other Russian Art Exhibits are installed in the Main Building, and enumerated in that volume of the Catalogue.
HEALTH! BEAUTY!!

Strong, Pure, and Rich Blood, Increase of Flesh and Weight, Clear Skin, and Beautiful Complexion secured to all through

DR. RADWAY'S SARSAPARILLIAN RESOLVENT

Every drop of the Sarsaparillian Resolvent communicates through the Blood, Sweat, Urine, and other fluids and juices of the system the vigor of life, for it repairs the wastes of the body with new and sound material. Scrofula, Consumption, Glandular Disease, Ulcers in the Throat, Mouth, Tumors, Nerves in the Glands and other parts of the system, Sores, Strumous Discharges from the Ears, and the worst forms of Skin Diseases, Eruptions, Fever Sores, Scald Head, Ring Worm, Salt Rheum, Erysipelas, Acne, Black Spots, Worms in the Flesh, Tumors, and all Weakening and Painful Discharges and Night Sweats are within the curative range of this wonder of Modern Chemistry, and a few days' use will prove to any person using it for either of these forms of disease, its potent power to cure them. If the patient, daily becoming reduced by the wastes and decomposition that are continually progressing, succeeds in arresting these wastes, and repairs the same with new material, made from healthy blood, and this the Sarsaparillian will and does secure, a cure is certain; for, when once this remedy commences its work of purification and success, it in a few minutes the vanishing of the losses, its repairs will be rapid, and every day the patient will feel himself growing better and stronger, the food digesting better, appetite improving, and flesh and weight increasing. Not only does the SARSAPARILLIAN RESOLVENT excel all known remedial agents in the cure of Chronic, Scrofulous, Constitutional, and Skin Diseases, but it is the only positive cure for Kidney, Bladder, and Urinary Diseases, Gravel, Diabetes, Dropsy, Stoppage of Water, Incontinence of Urine, Bright's Disease, Albuminuria, and in all cases where there are brick dust deposits, or the water is thick, cloudy, mixed, with substance like the white of an egg, or threads like white silk, or there is a morbid, dark, bilious appearance, and white bronzed deposits, and when there is a pricking, burning sensation when passing water, and pain in the Small of the Back along the Loins.

Tumor of 12 years' growth cured by Radway's Resolvent.

Beverly, Mass., July 8th, 1865.

Dr. Radway: I have had Ovarian Tumor in the ovaries and bowels. All the doctors said "there was no help for it." I tried everything that was recommended, but nothing helped me. I saw your Resolvent, and thought I would try it, but had no faith in it, because I had suffered for TWELVE YEARS. I took six bottles of the Resolvent, one box of Radway's Pills, and used two bottles of your READY RELIEF, and there is not a sign of a tumor to be seen or felt, and I feel BETTER, SMARTER, and happier than I have for twelve years. The worst tumor was in the left side of the bowels, over the groin. I write this to you for the benefit of others. You can publish if you choose.

* * * * *

Hannah P. Knapp.

E. R. R.

RADWAY'S READY RELIEF

Cures the worst pains in from one to twenty minutes. Not one hour after reading this advertisement need any one suffer with pain. Radway's Ready Relief is a cure for every pain. It was the first and is THE ONLY PAIN REMEDY that instantly stops the most excruciating pains, allays inflammations, and cures congestions, whether of the Lungs, Stomach, Bowels, or other glands or organs, by one application, in from one to twenty minutes. No matter how violent or excruciating the pain that Rheumatic, Bedridden, Infirm, Crippled, Nervous, Neuralgic, or prostrated with disease may suffer,

RADWAY'S READY RELIEF

Will afford instant ease. Inflammation of the Kidneys, inflammation of the Bladder, inflammation of the Bowels, congestion of the Lungs, sore throat, difficult breathing, palpitation of the Heart, Hysterics, Group, Diphtheria, Catarh, influenza, Headache, Toothache, neuralgia, rheumatism, cold chills, Ague Chills. The application of the READY RELIEF to the parts or parts of where the pain or difficulty exists will afford ease and comfort. Twenty drops in a half tablespoon of water will, in a few moments, cure Cramps, spasms, sour stomach, heartburn, sick headache, diarrhea, dysentery, colic, wind in the bowels, and all internal pains. Travelers should always carry a bottle of RADWAY'S RELIEF with them. A few drops in water will prevent sickness or pains from changes of water. It is better than French Brandy or BITTERS as a stimulant.

FEVER AND AGUE.

Fever and Ague cured for FIFTY CENTS. There is not a remedial agent in this world that will cure Fever and Ague and all other Malarious, Bilious, Scarlet, Typhoid, Yellow, and other FEVERS (aided by RADWAY'S PILLS) as quick as RADWAY'S READY RELIEF. Fifty cents per bottle.

Dr. Radway's PILLS,

Perfectly tasteless, elegantly coated, for the cure of all Disorders of the Stomach, Liver, Bowels, Kidneys, Bladder, Nervous Diseases, Headache, Constipation, Costiveness, Indigestion, Dyspepsia, Rhusiose, Bilious Fever, inflammation of the Bowels, Piles, and all Derangements of the internal viscera. Warranted to effect a Positive Cure. RADWAY'S PILLS will free the system from all the above-named disorders. Price, 25 cents per box.

Read FALSE AND TRUE. Send one letter stamp to Radway & Co., No. 32 Warren Street, New York. Information worth thousands will be sent you.
PHOTOGRAPHY.

No. 104.—PHOTORGAPHIC EXHIBITION BUILDING.

Architect, H. J. SCHWARZMANN.—Size, 242 by 77 feet.

Situated on the Avenue of the Republic, north of the Main Building, and east of Memorial Hall. It is a one-story building, containing a single large chamber, with screens projecting from the side walls and forming alcoves for exhibition purposes.

<table>
<thead>
<tr>
<th>No.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>LOCATION.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kurtz, W., New York,</td>
<td>Photographs, in pastel, oil, and crayon.</td>
<td>Screen 1, W.</td>
</tr>
<tr>
<td>3</td>
<td>Wenderoth &amp; Co., Philadelphia,</td>
<td>Plain and colored photographs.</td>
<td>Screen 1, E.</td>
</tr>
<tr>
<td>4</td>
<td>Brady, W. B., Washington,</td>
<td>Photographs, plain and India ink.</td>
<td>Alcove 2, wall.</td>
</tr>
<tr>
<td>5</td>
<td>Alman &amp; Co., New York,</td>
<td>Photographs, plain and colored, in pastel, oil, and India ink.</td>
<td>Screen 2, W.</td>
</tr>
<tr>
<td>7</td>
<td>Burrell, D. T., Brockton, Mass.,</td>
<td>Plain photographs.</td>
<td>Screen 2, S.</td>
</tr>
<tr>
<td>9</td>
<td>Robbins, F., Oil City, Pa.,</td>
<td>Photographer's dark tent.</td>
<td>Alcove 15, S. E.</td>
</tr>
<tr>
<td>10</td>
<td>Hazzard, W. B., Philadelphia,</td>
<td>Shade rollers.</td>
<td>Alcove 1.</td>
</tr>
<tr>
<td>12</td>
<td>Bierstadt, Ch., Niagara Falls, N. Y.,</td>
<td>Stereoscopic views.</td>
<td>Screen 2, E.</td>
</tr>
<tr>
<td>13</td>
<td>Delamater, R. S., Hartford, Conn.,</td>
<td>Photographs, collections of.</td>
<td>Screen 3, S.</td>
</tr>
<tr>
<td>14</td>
<td>Waller &amp; Schrader, Brooklyn, N. Y.,</td>
<td>Photographic views.</td>
<td>Screen 3, W.</td>
</tr>
<tr>
<td>15</td>
<td>Cremer, James, Philadelphia,</td>
<td>Improved metallic graphoscopes.</td>
<td>Main avenue.</td>
</tr>
<tr>
<td>16</td>
<td>Watkins, E. C., San Francisco,</td>
<td>Photographic views, California.</td>
<td>Screen 3, E.</td>
</tr>
<tr>
<td>17</td>
<td>Cox, W. A., Baltimore,</td>
<td>Porcelain miniatures.</td>
<td>Screen 4, W.</td>
</tr>
<tr>
<td>18</td>
<td>Edgar, Lydia, Philadelphia,</td>
<td>Photographs in crayon.</td>
<td>Screen 4, W.</td>
</tr>
<tr>
<td>19</td>
<td>Weston, N., San Francisco,</td>
<td>Photographs, enameled.</td>
<td>Screen 4, W.</td>
</tr>
<tr>
<td>20</td>
<td>Stoddard, S. R., Glenn's Falls, N. Y.,</td>
<td>Photographic views and illustrated guide-books.</td>
<td>Screen 4, W.</td>
</tr>
<tr>
<td>21</td>
<td>Reilly, J. J., San Francisco,</td>
<td>Stereoscopic views, Yosemite Valley.</td>
<td>Screen 4, W.</td>
</tr>
<tr>
<td>22</td>
<td>Berkman, O., Philadelphia,</td>
<td>Pyro-photographs, on porcelain.</td>
<td>Wall, alcove 3.</td>
</tr>
<tr>
<td>23</td>
<td>American Photo-Relief Printing Company, Philadelphia,</td>
<td>Transparencies, on glass, for magic lantern, by Woodbury process.</td>
<td>Window, alcove 3.</td>
</tr>
<tr>
<td>24</td>
<td>Bradley &amp; Rulofson, San Francisco,</td>
<td>Photographs, plain, in pastel, and crayon.</td>
<td>Wall and screen 4, E.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>LOCATION.</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>25</td>
<td>Melander &amp; Brother, Chicago,</td>
<td>Stereoscopic groups.</td>
<td>Screen 4, S.</td>
</tr>
<tr>
<td>26</td>
<td>Newell, R., &amp; Son, Philadelphia,</td>
<td>Photographic views.</td>
<td>Screen 5, W.</td>
</tr>
<tr>
<td>27</td>
<td>Tyson, I. G., Philadelphia,</td>
<td>Photograph in crayon.</td>
<td>Screen 5, S.</td>
</tr>
<tr>
<td>28</td>
<td>Kiloltz, B., Chicago,</td>
<td>Plain photographs.</td>
<td>Screen 5, S.</td>
</tr>
<tr>
<td>29</td>
<td>Sweeney, T.T., Cleveland,</td>
<td>Photographic views.</td>
<td>Screen 5, E.</td>
</tr>
<tr>
<td>30</td>
<td>Thorn, G. W., New York,</td>
<td>Photographic views.</td>
<td>Screen 5, E.</td>
</tr>
<tr>
<td>33</td>
<td>Anderson, D. H., Richmond,</td>
<td>Photographic portraits.</td>
<td>Screen 6, W.</td>
</tr>
<tr>
<td>34</td>
<td>Chase, W. M., Baltimore,</td>
<td>Stereoscopic views.</td>
<td>Screen 6, W.</td>
</tr>
<tr>
<td>35</td>
<td>Hardy, A. N., Boston,</td>
<td>Photographic portraits.</td>
<td>Screen 6, W.</td>
</tr>
<tr>
<td>36</td>
<td>Taylor, W. Curtis, Philadelphia,</td>
<td>Photographs, plain and colored, porcelain miniatures.</td>
<td>Screen 6, E.</td>
</tr>
<tr>
<td>38</td>
<td>Bass, P. F., Bangor, Maine,</td>
<td>Burnisher for photographs.</td>
<td>Main avenue.</td>
</tr>
<tr>
<td>41</td>
<td>Bigelow, L. G., Detroit, Mich.,</td>
<td>Photographs, single and in groups.</td>
<td>Screen 7, W.</td>
</tr>
<tr>
<td>42</td>
<td>Marcy, L. J., Philadelphia,</td>
<td>Improved oil and lime-light lanterns.</td>
<td>Screen 7, S.</td>
</tr>
<tr>
<td>43</td>
<td>Ryder, J. F., Philadelphia,</td>
<td>Photographs in clay, and chrono &quot;Yankee Doodle.&quot;</td>
<td>Screen 7, E.</td>
</tr>
<tr>
<td>44</td>
<td>Schriber &amp; Son, Philadelphia,</td>
<td>Photographs of animals.</td>
<td>Screen 8, W.</td>
</tr>
<tr>
<td>45</td>
<td>Kent, J. H., Rochester, N.Y.,</td>
<td>Large photographic portraits, direct from life.</td>
<td>Screen 8, E.</td>
</tr>
<tr>
<td>46</td>
<td>Gutekunst, F., Philadelphia,</td>
<td>Photographs, glass, clay, water color, and plain.</td>
<td>Screen 9, N. wall.</td>
</tr>
<tr>
<td>47</td>
<td>Root, M. A., Philadelphia,</td>
<td>Illustrations of photography from August, 1839, to May, 1876.</td>
<td>Screen 8, S.</td>
</tr>
<tr>
<td>48</td>
<td>Pattburg &amp; Bros., New York,</td>
<td>Passe-partouts and velvet cases.</td>
<td>Main avenue.</td>
</tr>
<tr>
<td>50</td>
<td>Butterfield, D. W., Boston,</td>
<td>Large landscape views.</td>
<td>Screen 9, E.</td>
</tr>
<tr>
<td>51</td>
<td>Rau, George, Philadelphia,</td>
<td>Photographic portraits.</td>
<td>Screen 9, E.</td>
</tr>
<tr>
<td>52</td>
<td>Clemens, J. R., Philadelphia,</td>
<td>Sample prints on his album and on plain paper.</td>
<td>Screen 9, E.</td>
</tr>
<tr>
<td>54</td>
<td>Fitzgibbon, J. H., St. Louis,</td>
<td>Collection of daguerreotypes, twenty-five years old.</td>
<td>Wall, alcove 10.</td>
</tr>
<tr>
<td>55</td>
<td>Landy, J., Cincinnati,</td>
<td>Collection of character photographs representing the Seven Ages of Man, laughing and crying babies, and large photographic portraits.</td>
<td>Screen 10, W.</td>
</tr>
<tr>
<td>56</td>
<td>Rocher, H., Chicago,</td>
<td>Photographs, single figures and compositions, in size from 17 by 20 plate to 11 by 14; imperial, boudoir, and promenade portraits.</td>
<td>Screen 10, E.</td>
</tr>
<tr>
<td>57</td>
<td>Sarony, N., New York,</td>
<td>Photographs, plain and in clay.</td>
<td>Wall, alcove 11.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>LOCATION.</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>58</td>
<td>Broadbent &amp; Philip, Philadelphia.</td>
<td>Photographs, plain, crayon, and water color.</td>
<td>Screen 11, W.</td>
</tr>
<tr>
<td>59</td>
<td>Root, Samuel, Dubuque, Iowa.</td>
<td>Photographs.</td>
<td>Screen 11, S.</td>
</tr>
<tr>
<td>61</td>
<td>Mosher, C. D., Chicago.</td>
<td>Photographic portraits and patent album.</td>
<td>Screen 11, E.</td>
</tr>
<tr>
<td>66</td>
<td>Allen &amp; Rowell, Boston.</td>
<td>Enlarged photographs in permanent pigments.</td>
<td>Screen 12, W.</td>
</tr>
<tr>
<td>67</td>
<td>Seiler, Carl, Philadelphia.</td>
<td>Micro-photographs.</td>
<td>Screen 12, S.</td>
</tr>
<tr>
<td>68</td>
<td>Hovey, E. F., Philadelphia.</td>
<td>Photographic views.</td>
<td>Screen 12, W.</td>
</tr>
<tr>
<td>69</td>
<td>Holyland, J., Baltimore.</td>
<td>Photographic groups.</td>
<td>Screen 12, E.</td>
</tr>
<tr>
<td>70</td>
<td>Gableman, Theo., Jersey City, N. J.</td>
<td>Photographs, plain and in pastel.</td>
<td>Screen 12, E.</td>
</tr>
<tr>
<td>74</td>
<td>Zimmerman, T., St. Paul, Minn.</td>
<td>Portraits of Indians, and views of Minnesota scenery.</td>
<td>Screen 13, W.</td>
</tr>
<tr>
<td>75</td>
<td>Schwind &amp; Kreuger, New York.</td>
<td>Photographic portraits.</td>
<td>Screen 13, W.</td>
</tr>
<tr>
<td>76</td>
<td>Train &amp; Bundy, Helena, Montana.</td>
<td>Photographic portraits.</td>
<td>Screen 13, S.</td>
</tr>
<tr>
<td>78</td>
<td>Marshall, W. I.</td>
<td>Views of Yellowstone Park.</td>
<td>Screen 16, E.</td>
</tr>
<tr>
<td>81</td>
<td>Broich &amp; Kreuger, Milwaukee, Wis.</td>
<td>Photographic portraits.</td>
<td>Screen 14, W.</td>
</tr>
<tr>
<td>82</td>
<td>Busey, N. H., Baltimore.</td>
<td>Photographic portraits.</td>
<td>Screen 14, W.</td>
</tr>
<tr>
<td>83</td>
<td>McIntyre &amp; Co., Alexandria, N. Y.</td>
<td>Stereoscopic views.</td>
<td>Screen 14, E.</td>
</tr>
<tr>
<td>84</td>
<td>Benerman &amp; Wilson, Philadelphia.</td>
<td>Photographic publications.</td>
<td>Screen 14, S.</td>
</tr>
<tr>
<td>85</td>
<td>Centennial Photograph Co., Philadelphia.</td>
<td>Views of Centennial Exhibition.</td>
<td>Screen 14, E.</td>
</tr>
<tr>
<td>88</td>
<td>Harring, J. C., Massillon, O.</td>
<td>Photographic portraits.</td>
<td>Wall, N.E.</td>
</tr>
<tr>
<td>89</td>
<td>Schlesinger, L., Philadelphia.</td>
<td>Photograph album of Philadelphia physicians.</td>
<td>Wall, S.E.</td>
</tr>
<tr>
<td>90</td>
<td>Gurney, J. J., New York.</td>
<td>Colored enameled photographs.</td>
<td>Wall, S.E.</td>
</tr>
<tr>
<td>91</td>
<td>Waterman &amp; Hall, New York.</td>
<td>Views of buildings.</td>
<td>Wall, S.E.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>LOCATION.</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>93</td>
<td>Semmendinger, A., Fort Lee, N.J.,</td>
<td>Photograph apparatus.</td>
<td>Alcove 15, S.E.</td>
</tr>
<tr>
<td>94</td>
<td>Seavey, L. W., New York,</td>
<td>Photographic backgrounds, papier mache, furniture, and accessories.</td>
<td>Wall, alcove 15, S.E.</td>
</tr>
<tr>
<td>95</td>
<td>Reid, J. J., Paterson, N.J.,</td>
<td>Views of mechanical constructions.</td>
<td>Screen 15, E.</td>
</tr>
<tr>
<td>96</td>
<td>Doremus, Paterson, N.J.,</td>
<td>Views of Mississippi, and portraits.</td>
<td>Screen 15, E.</td>
</tr>
<tr>
<td>97</td>
<td>De Silva, Abraham, Hartford, Conn.,</td>
<td>Interior views of students' rooms, Yale College.</td>
<td>Screen 15, N.</td>
</tr>
<tr>
<td>98</td>
<td>Howell, J. R., New York,</td>
<td>Artistic photographic portraits.</td>
<td>Screen 15, W.</td>
</tr>
<tr>
<td>100</td>
<td>Paulin, W. T., Philadelphia,</td>
<td>Photographic portraits.</td>
<td>Screen 16, E.</td>
</tr>
<tr>
<td>101</td>
<td>Gentile &amp; Co., Chicago,</td>
<td>Photographic portraits.</td>
<td>Screen 16, E.</td>
</tr>
<tr>
<td>103</td>
<td>Evans, E. D., Corn ing, N.Y.,</td>
<td>Photographic portraits.</td>
<td>Screen 16, N.</td>
</tr>
<tr>
<td>104</td>
<td>Lewis, T., Cambridgeport, Mass.,</td>
<td>Historical stereoscopic views.</td>
<td>Screen 16, W.</td>
</tr>
<tr>
<td>106</td>
<td>Bonine, E. A., Em porium, Pa.,</td>
<td>Stereoscopic views of Florida.</td>
<td>Screen 16, W.</td>
</tr>
<tr>
<td>107</td>
<td>Schluter, B., Kansas City,</td>
<td>Photographs in crayon.</td>
<td>Screen 16, W.</td>
</tr>
<tr>
<td>108</td>
<td>French, J. A., Keene, N.H.,</td>
<td>Stereoscopic portraits, colored.</td>
<td>Screen 16, S.</td>
</tr>
<tr>
<td>110</td>
<td>Freeman, A., Dallas, Texas,</td>
<td>Photographic portraits and views.</td>
<td>Screen 17, E.</td>
</tr>
<tr>
<td>111</td>
<td>Levy, Albert, New York,</td>
<td>Architectural views.</td>
<td>Screen 17, E.</td>
</tr>
<tr>
<td>112</td>
<td>Strong &amp; Dotterer, Philadelphia,</td>
<td>Views of the Holy Land.</td>
<td>Screen 17, E.</td>
</tr>
<tr>
<td>113</td>
<td>Wetherby, Mrs., Philadelphia,</td>
<td>Colored photographs.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>114</td>
<td>Payne, H. T., Los Angeles, Calif.,</td>
<td>Views of semi-tropical California.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>115</td>
<td>Meyers, J. W., New York,</td>
<td>Photograph of pen-drawing.</td>
<td>Screen 12, S.</td>
</tr>
<tr>
<td>116</td>
<td>Weaver, Mrs. A. K., Salem, O.,</td>
<td>Photograph—Fern-leaf mottoes.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>117</td>
<td>Folsom, J. H., Danbury, Conn.,</td>
<td>Cabinet and solar prints.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>118</td>
<td>Collins, G. W., Urbana, O.,</td>
<td>Cabinet photographs.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>119</td>
<td>Hall, —, Great Barrington, Mass.,</td>
<td>Stereoscopic views and portraits.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>120</td>
<td>Gaffield, Thomas, Boston,</td>
<td>Original designs of ferns, feathers, and mosses in photography.</td>
<td>Screen 17, S.</td>
</tr>
<tr>
<td>121</td>
<td>Graves, J. A., Delaware Water Gap, Pa.,</td>
<td>Landscape views.</td>
<td>Screen 18, E.</td>
</tr>
<tr>
<td>122</td>
<td>Bachrach Bros., Baltimore,</td>
<td>Portraits and enlargements.</td>
<td>Screen 18, E.</td>
</tr>
<tr>
<td>123</td>
<td>Robbins, F., Oil City, Pa.,</td>
<td>Views of the Oil Region.</td>
<td>Screen 18, E.</td>
</tr>
<tr>
<td>124</td>
<td>Bell &amp; Rau, Philadelphia,</td>
<td>Stereoscopic views from dry plates.</td>
<td>Screen 18, N.</td>
</tr>
<tr>
<td>126</td>
<td>Moran, John, Philadelphia,</td>
<td>Landscape views.</td>
<td>Screen 12, E.</td>
</tr>
<tr>
<td>No.</td>
<td>Artist</td>
<td>Title</td>
<td>Location</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------</td>
<td>--------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>127</td>
<td>Van Loo, Leon, Cincinnati</td>
<td>Photograph portraits, single and in groups</td>
<td>Screen 13, W.</td>
</tr>
<tr>
<td>129</td>
<td>Marshall, Aug., Boston</td>
<td>Vitrified photo enamels.</td>
<td>Screen 22, N.</td>
</tr>
<tr>
<td>130</td>
<td>Rice, J. D., Philadelphia</td>
<td>Improved stereoscope.</td>
<td>Screen 8, N.</td>
</tr>
<tr>
<td>131</td>
<td>Wallace, E., Jr., Philadelphia</td>
<td>Specimens of amateur photography.</td>
<td>Screen 17, W.</td>
</tr>
<tr>
<td>132</td>
<td>Rice Bros., Wash-</td>
<td>Specimens of glacé photographs.</td>
<td>Screen 7, N.</td>
</tr>
<tr>
<td></td>
<td>ington, D.C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>133</td>
<td>Morrow, J. H., Phil-</td>
<td>Microscopic photographs for charms.</td>
<td>Main avenue.</td>
</tr>
<tr>
<td></td>
<td>adelphia,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>134</td>
<td>Gaffield, Thomas,</td>
<td>Photographs illustrating the action of</td>
<td>Wall, alcove 18.</td>
</tr>
<tr>
<td></td>
<td>Boston,</td>
<td>sunlight on glass.</td>
<td></td>
</tr>
<tr>
<td>135</td>
<td>Newton, H. J., New York,</td>
<td>Photographs, from emulsion, dry</td>
<td>Wall, alcove N.W.</td>
</tr>
<tr>
<td>136</td>
<td></td>
<td>plate negatives.</td>
<td></td>
</tr>
</tbody>
</table>

**FOREIGN.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Artist</th>
<th>Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>138</td>
<td>Wilson, G. W., Aberdeen</td>
<td>Photograph album of Scottish scenery.</td>
<td>Wall, alcove 29.</td>
</tr>
<tr>
<td>139</td>
<td>Wilson, G. W., Aberdeen</td>
<td>Glass transparencies and enlarged views in carbon.</td>
<td>Wall, alcove 29.</td>
</tr>
<tr>
<td>141</td>
<td>Lee, E. P., &amp; Co., Cardiff</td>
<td>Enameled photographs, plain and colored.</td>
<td>Wall, W.</td>
</tr>
<tr>
<td>142</td>
<td>Baum, F., Manchester, England</td>
<td>Permanent photographs in carbon.</td>
<td>Wall, W.</td>
</tr>
<tr>
<td>143</td>
<td>Fradelle &amp; Marshall, London</td>
<td>Card portraits.</td>
<td>Wall, W.</td>
</tr>
<tr>
<td>144</td>
<td>Barnard, J., Bedford, England</td>
<td>Permanent photographs in carbon.</td>
<td>Wall, W.</td>
</tr>
<tr>
<td>145</td>
<td>Hanson, W., Leeds, England</td>
<td>Photographic portraits, card and cabinet.</td>
<td>Wall, S.W.</td>
</tr>
<tr>
<td>146</td>
<td>Bedford, W., England</td>
<td>Photographical landscapes.</td>
<td>Wall, S.W.</td>
</tr>
<tr>
<td>147</td>
<td>Brownrigg, T. M., Dublin</td>
<td>Photographical landscapes.</td>
<td>Wall, S.W.</td>
</tr>
<tr>
<td>148</td>
<td>Crawshay, Robert, Wales,</td>
<td>Photographical landscapes.</td>
<td>Wall, S.W.</td>
</tr>
<tr>
<td>149</td>
<td>Jennings, Payne, Dublin,</td>
<td>Photographical landscapes.</td>
<td>Wall, S.W.</td>
</tr>
<tr>
<td>151</td>
<td>Worthy, Stuart, London</td>
<td>Seascape, landscape, and portrait studies.</td>
<td>Wall, S. &amp; W.</td>
</tr>
<tr>
<td>152</td>
<td>Norman, Carl, Tunbridge Wells</td>
<td>Landscape and architectural photographs.</td>
<td>Wall, S.</td>
</tr>
<tr>
<td>153</td>
<td>Heath, Vernon, London</td>
<td>Landscape studies, enlarged and printed in carbon.</td>
<td>Screen 28, W.</td>
</tr>
<tr>
<td>154</td>
<td>Dallmeyer, J. H., London</td>
<td>Specimen of photographs made with Dallmeyer's lenses.</td>
<td>Screen 28, N.</td>
</tr>
<tr>
<td>155</td>
<td>Ross &amp; Co., London</td>
<td>Specimen of photographs made with Ross's symmetrical lenses.</td>
<td>Wall, W.</td>
</tr>
<tr>
<td>156</td>
<td>Hudson, F., Ventnor,</td>
<td>Landscape photographs.</td>
<td>Screen 28, E.</td>
</tr>
<tr>
<td>157</td>
<td>Stereoscopic Company, London</td>
<td>Portraits of celebrities.</td>
<td>Screen 28, E.</td>
</tr>
<tr>
<td>158</td>
<td>Hedges, David, Lytham, England</td>
<td>Portraits of animals.</td>
<td>Screen 28, E.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>LOCATION.</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------</td>
<td>---------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>159</td>
<td>Crawshay, Robert, Wales</td>
<td>Landscape studies.</td>
<td>Screen 28, E.</td>
</tr>
<tr>
<td>164</td>
<td>York, Frederick, London,</td>
<td>Photographs and lantern transparencies illustrating zoology.</td>
<td>Screen 27, W.</td>
</tr>
<tr>
<td>165</td>
<td>Crawshay, Robert, Wales</td>
<td>Landscape views.</td>
<td>Screen 27, W.</td>
</tr>
<tr>
<td>166</td>
<td>Cameron, Mrs.</td>
<td>Character portraits.</td>
<td>Screen 27, W.</td>
</tr>
<tr>
<td>167</td>
<td>Slingsby, R., Lincoln, England,</td>
<td>Large portraits from life.</td>
<td>Screen 27, W.</td>
</tr>
<tr>
<td>170</td>
<td>Hanson, W., Leeds,</td>
<td>Card, cabinet, and large portraits.</td>
<td>Wall, alcove 29.</td>
</tr>
<tr>
<td>171</td>
<td>Newman, J. H., N. S. Wales,</td>
<td>Large photograph portraits.</td>
<td>Screen 27, N.</td>
</tr>
<tr>
<td>172</td>
<td>Newman, J. H., N. S. Wales,</td>
<td>Cabinet photographs.</td>
<td>Screen 27, N.</td>
</tr>
<tr>
<td>173</td>
<td>Notman, W., Montreal, Canada,</td>
<td>Photographs in crayon and water color.</td>
<td>Screen 27, E.</td>
</tr>
<tr>
<td>174</td>
<td>Notman, W., Montreal, Canada,</td>
<td>Photographs in oil and water color.</td>
<td>Wall, alcove 27.</td>
</tr>
<tr>
<td>175</td>
<td>Notman, W., Montreal, Canada,</td>
<td>Composition groups and plain photographs.</td>
<td>Screen 26, W.</td>
</tr>
<tr>
<td>176</td>
<td>Barrow, R. W., Kingston, Canada,</td>
<td>Cabinet photographs and views.</td>
<td>Screen 26, N.</td>
</tr>
<tr>
<td>177</td>
<td>Grenier, N. N., Montreal, Canada,</td>
<td>Photographing on wood.</td>
<td>Screen 26, N.</td>
</tr>
<tr>
<td>178</td>
<td>Barrow, R. W., Kingston, Canada,</td>
<td>Photographs of buildings.</td>
<td>Screen 26, E.</td>
</tr>
<tr>
<td>179</td>
<td>Henderson, Alex., Montreal, Canada,</td>
<td>Photographic landscapes.</td>
<td>Screen 26, E.</td>
</tr>
<tr>
<td>180</td>
<td>Adams, Owen, Sound, Canada,</td>
<td>Photographic landscapes.</td>
<td>Screen 26, E.</td>
</tr>
<tr>
<td>181</td>
<td>Anderson, R. W., Toronto, Canada,</td>
<td>Photographic landscapes.</td>
<td>Screen 26, E.</td>
</tr>
<tr>
<td>182</td>
<td>Climo, J. S., St. John,</td>
<td>Stereoscopic views.</td>
<td>Screen 26, E.</td>
</tr>
<tr>
<td>183</td>
<td>Bruce, J., &amp; Co., Toronto, Canada,</td>
<td>Photographic portraits.</td>
<td>Screen 26, E.</td>
</tr>
<tr>
<td>184</td>
<td>Henderson, Alex., Montreal, Canada,</td>
<td>Composition picture of skating scene.</td>
<td>Screen 24, W.</td>
</tr>
<tr>
<td>185</td>
<td>Frith, F., Reigate, Eng.,</td>
<td>Interior of Canterbury Cathedral.</td>
<td>Screen 24, W.</td>
</tr>
<tr>
<td>186</td>
<td>Blanchard, Val., London,</td>
<td>Photographic portrait.</td>
<td>Screen 25, W.</td>
</tr>
<tr>
<td>188</td>
<td>Valentine, James, Dundee,</td>
<td>Photograph, Balmoral Castle, and other views.</td>
<td>Screen 25, W.</td>
</tr>
<tr>
<td>189</td>
<td>Delden, E., Breslau,</td>
<td>Photo portraits.</td>
<td>Wall, alcove 24.</td>
</tr>
<tr>
<td>191</td>
<td>Kiepert, H., St. Petersburg,</td>
<td>Photo portrait of Emperor William.</td>
<td>Screen 23, N.</td>
</tr>
<tr>
<td>192</td>
<td>Kiepert, H., St. Petersburg,</td>
<td>Photo portrait of Prince Bismarck.</td>
<td>Screen 24, N.</td>
</tr>
</tbody>
</table>
PHOTOGRAPHY.

No.  ARTIST.  TITLE.  LOCATION.
183  Mischenski, Dantz-  Variety of artistic photographs from life.  Screen 25, N.
   zic,   
194  Schaarwachter, J.  Variety of artistic photographs.  Screen 25, E.
   C., Berlin, 
195  Buckwardt, H.  Architectural views.  Screen 25, E.
   Berlin, 
196  Loescher & Petsch,  Variety of composition portraits.  Screen 23, W.
   Berlin, 
197  Kosler, J., Bad Lan-  Architectural photographs.  Screen 23, W.
   deck, 
198  Jacob, C. H.,  Landscape views.  Screen 23, W.
   Coblenz, 
199  Jacob, C. H.,  Views in painting-ink.  Screen 23, W.
   Coblenz, 
200  Schulte, Robert,  Landscape photographs.  Screen 23, W.
   Goeritz, 
201  Ritschel, G. A.,  Photographic portraits.  Screen 23, N.
   Warbrunn, 
202  Kiewning, E., Stett-  Photographic portraits.  Screen 23, W.
   tin, 
203  Adele, Vienna,  Photographic portraits.  Screen 23, N.
204  Adele, Vienna,  Photographic portraits.  Screen 24, N.
205  Schulz & Suck,  Photographic portraits.  Screen 24, E.
   Carlsruhe, 
206  Reichard & Lind-  Photographic portraits.  Screen 24, E.
   ner, Berlin, 
207  Schwier, K., Weimar,  Copies of paintings.  Screen 24, E.
208  Heiter, E.,  Life-studies of the Cayuganga Indians.  Screen 24, E.
209  Brauneck & Mey-  Photo mechanical prints.  Screen 24, E.
   ers, Mayence, 
   lin, 
211  Hertzog, J., Bre-  Photo chemicals.  Wall, alcove 24.
   men, 
212  Obernetter, J. B.,  Photo mechanical prints, bound in albums.  Wall, alcove 24.
   Munich, 
213  Romeli, P., Ber-  Photographs illustrating the expedition in Africa, 1873 and 1874.  Wall, alcove 24.
   lin, 
215  Trapp & Munch,  Exhibitors of photographs and photograph papers.  Wall, alcove 25.
   Friedberg, 
216  Albert, J., Munich,  Photographs in painting-ink.  Screen 25, W.
217  Geldmacher, F.W.,  Permanent photographs on various materials.  Screen 25, E.
   Frankfort, 
218  Angerer, Munich,  Family groups.  Alcove 25.
219  Braun, A., Dornach,  View in the Alps.  Screen 24, W.
220  Naya, E., Venice,  View of Rome.  Screen 24, W.
221  Heid, Dr., Vienna,  Interior View of Horticultural House.  Screen 24, W.
222  Charnaux, F., Ge-  View in the Alps.  Screen 25, W.
   neva, 
223  Liebert, A., Paris,  Photographic portrait.  Screen 25, W.
224  Albert, J., Munich,  Oberammergauer or Passionsspiele.  Screen 25, W.
225  Delden, E., Ereslau,  Photographic portraits.  Screen 25, E.
226  Reitmeyer, J., Mu-  Large photographs from life.  Screen 24, W.
   nich, 
   burg, 
228  Trapp & Munch,  Photographs on their make of albumen paper.  Screen 24, W.
   Friedberg, 
229  Cremer, J., Glad-  Photographs in carbon.  Wall, alcove 25.
   bach, 
230  Schwier, K., Weimar,  Photograph of cartoon.  Wall, alcove 25.
231  Vidal, Leon, Paris,  Photo chromic prints.  Screen 23, E.
232  Walery, Paris,  Photographic portraits.  Screen 22, W.
<table>
<thead>
<tr>
<th>NO.</th>
<th>ARTIST.</th>
<th>TITLE.</th>
<th>LOCATION.</th>
</tr>
</thead>
<tbody>
<tr>
<td>234</td>
<td>Bray, J. W., de, Nice</td>
<td>Landscape views.</td>
<td>Alcove 23.</td>
</tr>
<tr>
<td>236</td>
<td>Gillott, Paris</td>
<td>Specimens of photo engraving.</td>
<td>Screen 23, E.</td>
</tr>
<tr>
<td>237</td>
<td>Außerer, V., Vienna</td>
<td>Large interior photographs.</td>
<td>Screen 22, E.</td>
</tr>
<tr>
<td>238</td>
<td>Stillfried, R. B., Yokohama</td>
<td>Views in Japan.</td>
<td>Screen 22, E.</td>
</tr>
<tr>
<td>239</td>
<td>Largarjoli, F., Me- ran, Tyrol</td>
<td>Views in the Tyrol.</td>
<td>Screen 22, E.</td>
</tr>
<tr>
<td>240</td>
<td>Wasservogel, S., Olmütz</td>
<td>Studies of animals.</td>
<td>Screen 21, W.</td>
</tr>
<tr>
<td>241</td>
<td>Schodisch, Lud., Oberwarth</td>
<td>Studies of animals.</td>
<td>Screen 21, W.</td>
</tr>
<tr>
<td>242</td>
<td>Luckhardt, F., Vi- enna</td>
<td>Photographic portraits.</td>
<td>Screen 21, W.</td>
</tr>
<tr>
<td>243</td>
<td>Gertinger, J., Vi- enna</td>
<td>Photographic portraits.</td>
<td>Screen 21, W.</td>
</tr>
<tr>
<td>244</td>
<td>Burckman, F., Mu- nich</td>
<td>Colored transparencies on glass.</td>
<td>Screen 21, W.</td>
</tr>
<tr>
<td>245</td>
<td>Luckhardt, F., Vi- enna</td>
<td>Colored stereoscopic portraits.</td>
<td>Alcove 22, W.</td>
</tr>
<tr>
<td>246</td>
<td>Bogner, A., Mu- nich</td>
<td>Venus and Tannhauser.</td>
<td>Screen 22, N.</td>
</tr>
<tr>
<td>247</td>
<td>Ungar, J., Vienna</td>
<td>Children’s portraits.</td>
<td>Screen 21, E.</td>
</tr>
<tr>
<td>248</td>
<td>Rupprecht, M., Oldenburg</td>
<td>Groups from life.</td>
<td>Screen 21, E.</td>
</tr>
<tr>
<td>249</td>
<td>Aubert, E., Chris- tania</td>
<td>Photographic portraits.</td>
<td>Wall, alcove 22.</td>
</tr>
<tr>
<td>250</td>
<td>Knudsen, K., Ber- gen</td>
<td>Landscape views.</td>
<td>Wall, alcove 22.</td>
</tr>
<tr>
<td>251</td>
<td>Knudsen, C., Chris- tania</td>
<td>Portraits of ladies.</td>
<td>Wall, alcove 22.</td>
</tr>
<tr>
<td>252</td>
<td>Beernaert Frères, Gent</td>
<td>Photographic portraits.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>253</td>
<td>Pacheco, I., Rio de Janeiro</td>
<td>Plain and colored photographs.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>254</td>
<td>Fidanza, F. A., Pa- ra, Brazil</td>
<td>Photographic portraits.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>255</td>
<td>Satyro, Pedro</td>
<td>Colored miniatures.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>256</td>
<td>Sabino, J. T., Pará, Brazil</td>
<td>Card photographs.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>257</td>
<td>Christiano, Jr., Buenos Ayres</td>
<td>Card and cabinet photographs.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>258</td>
<td>Monzon, T. B., Buen- nos Ayres</td>
<td>Card and cabinet photographs.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>259</td>
<td>Petre, F., Buenos Ayres</td>
<td>Colored photograph.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>260</td>
<td>Aguila, C. de, Buen- nos Ayres</td>
<td>Photographic views.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>261</td>
<td>Proa, C., Buenos Ayres</td>
<td>Photographic portraits.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>262</td>
<td>Pozzo, Aug., Oestl</td>
<td>Photographic portraits.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>263</td>
<td>Bunge, E., Buenos Ayres</td>
<td>Photographs of public buildings.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>263</td>
<td>Souza, Silveira, Rio de Janeiro</td>
<td>Colored miniatures.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>263</td>
<td>Frerrez, M., Rio de Janeiro</td>
<td>Geological photographs.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>263</td>
<td>Verranzo, L., Rio de Janeiro</td>
<td>Portraits and views.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>264</td>
<td>Geologica, C., Rio de Janeiro</td>
<td>Photographic portraits.</td>
<td>Screen 20, W.</td>
</tr>
<tr>
<td>265</td>
<td>Wiklund, O., West- teras, Sweden</td>
<td>Composition groups and views.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>266</td>
<td>Bergh, E., Stock- holm, Sweden</td>
<td>Landscape.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>267</td>
<td>Winge, M. E., Stockholm, Sweden</td>
<td>Copies of cartoons.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>268</td>
<td>Jager, J., Stock- holm, Sweden</td>
<td>Photographs of sculpture and paintings.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>NO.</td>
<td>ARTIST.</td>
<td>TITLE.</td>
<td>LOCATION.</td>
</tr>
<tr>
<td>-----</td>
<td>---------</td>
<td>--------</td>
<td>-----------</td>
</tr>
<tr>
<td>269</td>
<td>Lundberg, W., Stockholm,</td>
<td>Photographic portraits.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>270</td>
<td>Osti, Henry, Upsala, Sweden,</td>
<td>Photographic portraits.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>271</td>
<td>Sophje, L., Upsala, Sweden,</td>
<td>Photographic portraits.</td>
<td>Screen 20, E.</td>
</tr>
<tr>
<td>272</td>
<td>Campa, C. Y., Mexico,</td>
<td>Photographic portraits.</td>
<td>Screen 19, W.</td>
</tr>
<tr>
<td>273</td>
<td>Stillfried &amp; Anderson, Yokohama, Japan,</td>
<td>Native portraits and views.</td>
<td>Wall, alcove 20, S.</td>
</tr>
<tr>
<td>274</td>
<td>Tyszkievicz, Count, Russia,</td>
<td>Portraits and views illustrating his travels in Africa, and taken there by his artist.</td>
<td>Wall alcove 19.</td>
</tr>
<tr>
<td>275</td>
<td>Bergomasco, St. Petersburg,</td>
<td>Photographic portraits.</td>
<td>Screen 18, W.</td>
</tr>
<tr>
<td>276</td>
<td>Meczkowski, Warsaw,</td>
<td>Photographic portraits.</td>
<td>Screen 18, W.</td>
</tr>
<tr>
<td>277</td>
<td>Brandel, Warsaw,</td>
<td>Photographic portraits.</td>
<td>Screen 18, W.</td>
</tr>
<tr>
<td>278</td>
<td>Kostra, Warsaw,</td>
<td>Photographic portraits.</td>
<td>Screen 18, W.</td>
</tr>
<tr>
<td>279</td>
<td>Karelín, Warsaw,</td>
<td>Photographic portraits.</td>
<td>Screen 18, W.</td>
</tr>
<tr>
<td>280</td>
<td>Carbutt, John, Philadelphia,</td>
<td>Photo-lithograph reproductions.</td>
<td>Screen 13, E.</td>
</tr>
<tr>
<td>281</td>
<td>Bierstadt, E., New York,</td>
<td>Photographs, in printing-ink, by Albert's process.</td>
<td>Wall, N.W.</td>
</tr>
<tr>
<td>282</td>
<td>Mason, O. G., New York,</td>
<td>Photographs of the moon.</td>
<td>Wall, alcove 1, N.W.</td>
</tr>
<tr>
<td>283</td>
<td>Hirsh, J. M., Chicago,</td>
<td>Specimens of relief plate engraving.</td>
<td>Wall, N.</td>
</tr>
<tr>
<td>284</td>
<td>Wenderoth, F. A., Philadelphia,</td>
<td>Specimens of photo engraving.</td>
<td>Screen 13, E.</td>
</tr>
<tr>
<td>285</td>
<td>Photo-Lithograph Co., New York,</td>
<td>Specimens of photo lithography.</td>
<td>Wall, N.</td>
</tr>
<tr>
<td>286</td>
<td>Osgood, J. R., &amp; Co., Boston,</td>
<td>Photographs in printing-ink, by heliotype process.</td>
<td>Screen 13, E.</td>
</tr>
</tbody>
</table>

No. 110.—CENTENNIAL PHOTOGRAPHIC ASSOCIATION BUILDING,

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 150 feet by 30 feet.

The Photographic Association have erected a one-story frame building, located north of the Main Exhibition Building, on the east side of Belmont Avenue. It contains one room for the exhibition of photographs, and three rooms for photographers, for working purposes.
OUT-DOOR WORKS OF ART.

WINGED HORSES.

Owned by the FAIRMOUNT PARK COMMISSION.

In front of Memorial Hall are situated two bronze groups, each representing the mythological winged horse Pegasus; by the side of the one stands a figure emblematic of Music, and by the other a figure representing History. They were cast in Vienna, and purchased by the Park Commission.

No. 12.—BARTHOLDI'S FOUNTAIN.

Architect, A. BARTHOLDI, of Paris.—Size, basin, 26 feet in diameter; height, 30 feet; statue, 11 feet.

Situated in the Esplanade, in front of the main entrance to the grounds; constructed of iron, bronzed, and was cast in Paris by A. Durene. In the centre of the basin is erected a triangular pedestal, on the faces of which are aquatic monsters, and fishes spouting water. Upon the pedestal are three female Caryatides, supporting a basin thirteen feet in diameter, which receives the water from an upper basin upheld by three infant Tritons; the whole surmounted by a Mural Crown, through which the water flows. An illuminating apparatus is attached, in order to combine the effects of light and water. This fountain is intended to embody an allegorical representation of the elements Water and Light.

No. 13.—CATHOLIC TOTAL ABSTINENCE FOUNTAIN.

Architect, HERMAN KIRN, Philadelphia.

Situated at the junction of Fountain Avenue and the Avenue of the Republic, at the northwestern corner of Machinery Hall. In design it is a circular platform, with four arms projecting at right angles, terminating in four smaller circular platforms. From the centre of the large circle rises a marble rockwork, sixteen feet high, with a diameter of eighteen feet at base, on which stands a statue of Moses smiting the rock. The water descends from numerous fissures into a basin forty feet in diameter. On each of the circular platforms is a drinking-fountain, twelve feet in height and eight feet eight inches in diameter, surrounded with statues, nine feet high. These represent Father Mathew, Charles Carroll, Archbishop John Carroll, and Commodore John Barry. It has been erected by contributions made by the numerous societies forming the Catholic Total Abstinence Union of America.

No. 24.—THE AMERICAN SOLDIER.

Exhibitors, NEW ENGLAND GRANITE COMPANY, Hartford, Conn.

A granite statue, designed for the Antietam Soldiers' Monument; is twenty-one feet six inches high, exclusive of the pedestal, and weighs thirty tons; it represents a soldier in the United States uniform, standing at rest, and is located in front of the north-central entrance of the Main Building, and opposite Memorial Hall.
No. 29a.—RUSTIC MONUMENT.
Exhibitors, New England Granite Company, Hartford, Conn.
A granite column, entwined with polished ivy, and surmounted by a cross; is situated southeast of Machinery Hall.

No. 29b.—MONUMENT.
Exhibitors, New England Granite Company, Hartford, Conn.
A small polished granite monument, surmounted by an urn; is located in front of the Board of Finance Office.

No. 29c.—GOTHIC MEMORIAL.
Exhibitors, New England Granite Company, Hartford, Conn.
Made of Westerly granite, thirteen feet high, surmounted by a cross; is placed between the Bartholdi Fountain and the Board of Finance Office.

No. 29d.—MEMORIAL.
Exhibitors, New England Granite Company, Hartford, Conn.
Built of granite, with polished tracery; is located southeast of Machinery Hall.

No. 29e.—POLISHED SCOTCH GRANITE MONUMENT.
Exhibitors, New England Granite Company, Hartford, Conn.
Is seventeen feet high, surmounted by a circular dome, and placed between the Bartholdi Fountain and Machinery Hall.

No. 29f.—GOTHIC COLUMN AND PEDESTAL.
Exhibitors, New England Granite Company, Hartford, Conn.
Granite work, with richly ornamented capitals, surmounted by a spire; is located in front of the Board of Finance Office.

No. 29g.—THE MINUTE-MAN OF '76.
Exhibitors, New England Granite Company, Hartford, Conn.
A marble statue, life size, on a pedestal seven feet high; situated southeast of Machinery Hall.

No. 29h.—GOTHIC FOUNTAIN.
Exhibitors, New England Granite Company, Hartford, Conn.
Built of granite, seventeen feet high, surmounted by a cross, with four columns representing angels, with polished traceries; is located between the Board of Finance Office and Machinery Hall.

No. 29i.—CANOPY MONUMENT.
Exhibitors, New England Granite Company, Hartford, Conn.
Is built of granite, forty feet high, crowned with a spire and cross; within is seated a figure representing Memory; is situated southeast of Machinery Hall, between it and the Board of Finance Office.
No. 29k.—CORINTHIAN MONUMENT.
Exhibitors, NEW ENGLAND GRANITE COMPANY, Hartford, Conn.
Is located between Machinery Hall and the Board of Finance Office, southwest of the Bartholdi Fountain; is constructed of granite, forty-six feet high, and crowned with a statue of Hope.

No. 50.—WASHINGTON.
Exhibitor, M. DICKERSON EYRE, Florence, Italy.
This statue is designed after Leutze's painting of "Washington Crossing the Delaware." It is of marble, heroic in size, being twelve feet high, and standing on a pedestal built of wood and Portland cement. It is situated south of, and directly in front of Judges Hall.

No. 52½.—THE HOWE MONUMENT.
A bronze statue, life size, on a sandstone pedestal, erected by the Howe Sewing Machine Company to the memory of the late Elias Howe; situated near the western end of the lake.

No. 80.—CHRISTOPHER COLUMBUS MONUMENT.
A brown-stone statue of the discoverer; is located on the corner of Belmont and Fountain Avenues.

No. 81.—DRINKING-FOUNTAIN.
Exhibitors, SINGER & TALCOTT.
Constructed of limestone, with four pillars, square top, surmounted by an acorn; is situated on Fountain Avenue, between the Pennsylvania State Building and the Tunisian Café.

No. 91.—BISHOP RICHARD ALLEN'S MONUMENT.
Size, base, 6 feet by 6 feet; height, 16 feet.

No. 145.—THE NAVY.
Exhibitors, AMES MANUFACTURING COMPANY, Chicopee, Mass.
LARKIN G. MEAD, Sculptor.
A bronze group, for the Lincoln Monument, Springfield, Illinois; located in front of Memorial Hall.

No. 146.—THE DEAD LIONESS.
 Owned by the FAIRMOUNT PARK COMMISSION.
A bronze group, cast by F. v. Müller, Munich; modeled by Prof. Wolf, Berlin; is situated between Memorial Hall and Photographic Hall.
No. 180.—THE MOTT FOUNTAIN.


Constructed of iron, forty-five feet in diameter, and twenty-six feet high, with four figures at the base; the top is surmounted by "Venus rising from the Sea;" is situated east of Horticultural Hall.
### INDEX OF EXHIBITORS.

#### DEPARTMENT IV.

**A.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolon, J.</td>
<td>Water color, 65</td>
</tr>
<tr>
<td>Academy of Fine Arts</td>
<td>Rio de Janeiro, Paintings, 121</td>
</tr>
<tr>
<td>Accard, E.</td>
<td>Painting, 74</td>
</tr>
<tr>
<td>Accarisi, Lodovico</td>
<td>Paintings, 113, 114, 115</td>
</tr>
<tr>
<td>Adenbach, A.</td>
<td>Painting, 85</td>
</tr>
<tr>
<td>Adams-Acton, John</td>
<td>Sculpture, 60</td>
</tr>
<tr>
<td>Adams, Miss E.</td>
<td>Water colors, 49</td>
</tr>
<tr>
<td>Adams, O.</td>
<td>Photographs, 142</td>
</tr>
<tr>
<td>Adan, J.</td>
<td>Emile, Painting, 19</td>
</tr>
<tr>
<td>Adele, Photographs</td>
<td>143</td>
</tr>
<tr>
<td>Adeline, Jules</td>
<td>Water color, 81</td>
</tr>
<tr>
<td>Adelsköld, C.</td>
<td>Paintings, 105</td>
</tr>
<tr>
<td>Agnew, A. Mcl.</td>
<td>Loans Painting, 20</td>
</tr>
<tr>
<td>Agnew &amp; Sons</td>
<td>Loan Paintings, 62, 63, 64, 65</td>
</tr>
<tr>
<td>Aguila, C. de</td>
<td>Photographs, 144</td>
</tr>
<tr>
<td>Ahrenberg, J.</td>
<td>Water color, 107</td>
</tr>
<tr>
<td>Aligner, J. M.</td>
<td>Painting, 89</td>
</tr>
<tr>
<td>Aitken, Photographs</td>
<td>138</td>
</tr>
<tr>
<td>Aivazovsky, J.</td>
<td>Paintings, 134</td>
</tr>
<tr>
<td>Akroyd, John</td>
<td>Loans Painting, 62</td>
</tr>
<tr>
<td>Albcaini, Achilles</td>
<td>Sculpture, 118</td>
</tr>
<tr>
<td>Albazzi, Jose</td>
<td>Bas-relief, 127</td>
</tr>
<tr>
<td>Albert, J.</td>
<td>Photographs, 143</td>
</tr>
<tr>
<td>Albertson, J. M.</td>
<td>Glass, 9</td>
</tr>
<tr>
<td>Alcibar, Jose</td>
<td>Painting, 124</td>
</tr>
<tr>
<td>Alden, A. C.</td>
<td>Loans Painting, 37</td>
</tr>
<tr>
<td>Alexander, P.</td>
<td>Painting, 22</td>
</tr>
<tr>
<td>Alexander, Fanny</td>
<td>Painting, 41 [Drawings, 48, 49, 54]</td>
</tr>
<tr>
<td>Alcubierre, Mrs.,</td>
<td>Loans Painting, 23</td>
</tr>
<tr>
<td>Alexieff, A.</td>
<td>Carving, 136</td>
</tr>
<tr>
<td>Allebe, Aug.</td>
<td>Painting, 102</td>
</tr>
<tr>
<td>Allemand, G.</td>
<td>Painting, 77</td>
</tr>
<tr>
<td>Allen, G. W.</td>
<td>Loans Painting, 69, 70</td>
</tr>
<tr>
<td>Allen &amp; Rowell</td>
<td>Photographs, 139</td>
</tr>
<tr>
<td>Allston, W. (dec'd)</td>
<td>Paintings, 18, 19, 41, 42</td>
</tr>
<tr>
<td>Alman &amp; Co.</td>
<td>Photographs, 137</td>
</tr>
<tr>
<td>Almeida, Mariano de</td>
<td>Pen sketches, 121</td>
</tr>
<tr>
<td>Almeida, Reis</td>
<td>Sculpture, 121</td>
</tr>
<tr>
<td>Almela y Vinet, F.</td>
<td>Photographs, 132</td>
</tr>
<tr>
<td>Alt, Francis</td>
<td>Water colors, 90</td>
</tr>
<tr>
<td>Alt, Ralph</td>
<td>Water colors, 90</td>
</tr>
<tr>
<td>Alt, W. J.</td>
<td>Loans Painting, 64</td>
</tr>
<tr>
<td>Altamura, Prof.</td>
<td>Painting, 114</td>
</tr>
<tr>
<td>Atnmann, S.</td>
<td>Paintings, 102, 103</td>
</tr>
<tr>
<td>Alvarez y Espino,</td>
<td>Gonzalez, Painting, 126</td>
</tr>
<tr>
<td>Alviac &amp; Co.</td>
<td>Photographs, 132</td>
</tr>
<tr>
<td>Amberg, W.</td>
<td>Painting, 85</td>
</tr>
<tr>
<td>American Bank Note Co.</td>
<td>Engraving, 59</td>
</tr>
<tr>
<td>American Photo Relief</td>
<td>Printing Co., 137, 139, 140</td>
</tr>
<tr>
<td>Amerling, Fred.</td>
<td>Painting, 88, 89</td>
</tr>
<tr>
<td>Ames, Joseph</td>
<td>Paintings, 41, 42</td>
</tr>
<tr>
<td>Anderson, A.</td>
<td>Paintings, 104</td>
</tr>
<tr>
<td>Anderson, A. A.</td>
<td>Paintings, 19</td>
</tr>
<tr>
<td>Anderson, D. H.</td>
<td>Photographs, 138</td>
</tr>
<tr>
<td>Anderson, R. W.</td>
<td>Photographs, 142</td>
</tr>
<tr>
<td>Andressen, E.</td>
<td>Sculpture, 86</td>
</tr>
<tr>
<td>Andrews, E. F.</td>
<td>Paintings, 30, 40, 43</td>
</tr>
<tr>
<td>Andrews, Joseph (dec'd)</td>
<td>Engraving, 59</td>
</tr>
<tr>
<td>Angell, H. C.</td>
<td>Loans Painting, 39</td>
</tr>
<tr>
<td>Angell, Henry von</td>
<td>Paintings, 91</td>
</tr>
<tr>
<td>Angerer, Photographs</td>
<td>143</td>
</tr>
<tr>
<td>Angus, W.</td>
<td>Loans Painting, 71</td>
</tr>
<tr>
<td>Ankarkrona, H.</td>
<td>Paintings, 105</td>
</tr>
<tr>
<td>Anker, Herman</td>
<td>Paintings, 109</td>
</tr>
<tr>
<td>Ansell, Richard</td>
<td>Paintings, 60</td>
</tr>
<tr>
<td>Anthony, E. &amp; H. T.,</td>
<td>&amp; Co., Graphoscopes, 137</td>
</tr>
<tr>
<td>Anthony, Mark</td>
<td>Painting, 65</td>
</tr>
<tr>
<td>Antigua, I. P. A.</td>
<td>Paintings, 72, 79</td>
</tr>
<tr>
<td>Apol, L.</td>
<td>Painting, 100, 102</td>
</tr>
<tr>
<td>Appleton, I.</td>
<td>Emile, Painting, 19</td>
</tr>
<tr>
<td>Appleton, William</td>
<td>Loans Painting, 42</td>
</tr>
<tr>
<td>Appleton, W. H.</td>
<td>Loans Painting, 19</td>
</tr>
<tr>
<td>Aragones, Severina J.</td>
<td>Paintings, 129</td>
</tr>
<tr>
<td>Aramburu, R.</td>
<td>Drawings, 131</td>
</tr>
<tr>
<td>Arleo, P. M.</td>
<td>Painting, 108</td>
</tr>
<tr>
<td>Arborelius, O. P.</td>
<td>Paintings, 105</td>
</tr>
<tr>
<td>Arce, I.</td>
<td>Lithographs, 132</td>
</tr>
<tr>
<td>Archer, J.</td>
<td>Paintings, 63</td>
</tr>
<tr>
<td>Ardi, Bartolomeo</td>
<td>Sculpture, 117</td>
</tr>
<tr>
<td>Argenti, Antonio</td>
<td>Sculpture, 111, 113, 119</td>
</tr>
<tr>
<td>Argenti, Giosué</td>
<td>Sculpture, 110, 116, 119</td>
</tr>
<tr>
<td>Argles, F. A.</td>
<td>Loans Water colors, 65, 66</td>
</tr>
<tr>
<td>Argumosa, J.</td>
<td>Painting, 130</td>
</tr>
<tr>
<td>Ariza y Campauno, J.</td>
<td>Typographs, 131</td>
</tr>
<tr>
<td>Armitage, Edward</td>
<td>Painting, 60</td>
</tr>
<tr>
<td>Armstrong, D. M.</td>
<td>Paintings, 22, 31</td>
</tr>
<tr>
<td>Arnaz, J.</td>
<td>Engravings, 131, 132</td>
</tr>
<tr>
<td>Arrau, Vinda de</td>
<td>Paintings, 127</td>
</tr>
<tr>
<td>Arsenio, A.</td>
<td>Monuments, 132</td>
</tr>
<tr>
<td>Arsenius, J.</td>
<td>Painting, 105</td>
</tr>
<tr>
<td>Arson, A.</td>
<td>Sculpture, 76 [Bronze, 81]</td>
</tr>
<tr>
<td>Art Association</td>
<td>Montreal, Loans Painting, 70</td>
</tr>
<tr>
<td>Artillery Museum</td>
<td>Madrid, Engravings, 131</td>
</tr>
<tr>
<td>Arzadun, J. de Villa</td>
<td>Garcia, Bas-reliefs, 127</td>
</tr>
<tr>
<td>Ashburnton, Lady Louisa</td>
<td>Loans Painting,62,63</td>
</tr>
<tr>
<td>Ashton, Federico</td>
<td>Paintings, 114, 115</td>
</tr>
<tr>
<td>Ashton, Prof. Luigi</td>
<td>Painting, 115</td>
</tr>
<tr>
<td>Askevold, A.</td>
<td>Paintings, 108</td>
</tr>
<tr>
<td>Asselfelgers, Alphonse</td>
<td>Painting, 93</td>
</tr>
<tr>
<td>Astor, J. Jacob</td>
<td>Loans Painting, 25</td>
</tr>
<tr>
<td>Astor, William</td>
<td>Loans Painting, 50</td>
</tr>
<tr>
<td>Aubert, E.</td>
<td>Photographs, 144</td>
</tr>
<tr>
<td>Audubon, J. (decayed)</td>
<td>Painting, 18, 45</td>
</tr>
<tr>
<td>Auzerer, V.</td>
<td>Photographs, 144</td>
</tr>
</tbody>
</table>

**B.**

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baede, Knud</td>
<td>Painting, 108</td>
</tr>
<tr>
<td>Babbitt, P. D.</td>
<td>Transparencies, 139</td>
</tr>
<tr>
<td>Bachman, H. G.</td>
<td>Ivory carvings, 55</td>
</tr>
<tr>
<td>Bachrach Bros.</td>
<td>Photographs, 140</td>
</tr>
<tr>
<td>Bacon, Henry</td>
<td>Painting, 43</td>
</tr>
<tr>
<td>Bade, Garcia</td>
<td>Painting, 114</td>
</tr>
<tr>
<td>Baiger, R.</td>
<td>Painting, 63</td>
</tr>
<tr>
<td>Bailey, Edward Hodgts</td>
<td>Sculpture, 60</td>
</tr>
<tr>
<td>Bailly, J. A.</td>
<td>Sculpture, 51</td>
</tr>
<tr>
<td>Bailly, J. W.</td>
<td>Sculpture, 21</td>
</tr>
<tr>
<td>Baird, Matthew</td>
<td>Loans Painting, 47</td>
</tr>
<tr>
<td>Baker, G. A.</td>
<td>Paintings, 17, 21, 24</td>
</tr>
</tbody>
</table>
Baker, Miss M. K., Painting, 41.
Baldwin, Captain, loans Water color, 65.
Baldwin, Hon. H. P., loans Painting, 40.
Ballaione, J. F., Painting, 74.
Ballot, Mrs. A. P., Painting, 79.
Bannister, E. M., Painting, 42.
Bar, A. de, Paintings, 76, 77, 79.
Barber, W. & C., Medals, 55.
Barcaglia, D., Sculpture, 110, 113, 114, 116.
Barlow, H. N., Painting, 43.
Barlow, J. H., Penmanship, 56.
Barlow, T. O., Engravings, 67.
Barnaba, drawers, 122.
Barnard, G. T., Painting, 93.
Barnes, D., loans Painting, 53.
Barnes, Demas, loans Painting, 38.
Baron S., Painting, 76.
Barr, E. G., loans Painting, 62.
Barras, J., Painting, 79.
Barras, F. J., Painting, 77.
Barrias, H., S., loans Water color, 66.
Baria, E. H., Photograves, 79.
Barlow, L., Paintings, 93, 95.
Barlett, J., Paintings, 76.
Bartholomew, H., Painting, 115.
Barthold, sculpture, 49.
Barzhagi, F., Carving, 86.
Bartholdi, H., M., paintings, 83.
Bartholdi, J., Painting, 79.
Barraud, C., Painting, 76.
Batchelder, S., loans Painting, 42.
Bates, E. L., paintings, 43.
Bates, W. J., loans Painting, 38.
Bauer, F., Painting, 74.
Bauer, C. W., Photographs, 103.
Baum, F., Photographs, 141.
Baumia, A., Carving, 135.
Baux, Miss, Painting, 79.
Bavarian Museum, Art, Galvanoplastic, 86.
Baxter, C., loans Painting, 29.
Bayley, James, paintings, 47.
Beard, J. H., Paintings, 22, 29, 55.
Beard, W. H., Paintings, 24, 29.
Beau, A., Photographs, 142.
Beavis, R., Water color, 65.
Belkofs, G., Painting, 84.
Becker, A., Painting, 135.
Becker, C., Painting, 83.
Becker, G., Painting, 73.
Becker, Q., Paintings, 54, 84.
Beckers, A., Stereoscopes, 139.
Beccacchi Bros., Sculpture, 110, 111.
Bedford, W., Photographs, 141.
Beeckman, Marie F. de, Water colors, 99.
Beeler, J., Design, 56.
Beeler, J. C., Ornamental painting on glass, 56.
Beernaert Bros., Photographs, 144.
Beernaert, Miss Euphrosyne, Painting, 93.
Beeson, Miss E. L., Painting, 18.
Begas, O., Painters, 48.
Behmer, H., Paintings, 85.
Bell, J., Sculpture, 60.
Bellege, E., Painting, 75.
Bell, M., Painting, 74.
Bellée, L. G. de, Painting, 73.
Bellée, J. J., Paintings, 72, 75, 78, 80, 87.
Bellemans, Joseph, Painting, 93, 95.
Bellemann, F., Fr., Painting, 83.
Bellemans, J. A. F., 17, 22, 28.
Bell & Rau, Photographs, 149.
Belmarcelli, Sculpture, 121.
Benavent, C., Painting, 127.
Benecke & Scott, Chromolithograph, 55.
Benedict, Judge, loans Painting, 18.
Benerman & Wilson, Photographs, 137, 139.
Benham, C. M., Drawings, 49.
Benham, J. H., Jr., loans Drawing, 49.
Benito, S. de E., Locks, 132.
Bennett, C. P., Painting, 105.
Bennett, J. T., Paintings, 108.
Benouville, A., Paintings, 72, 74.
Benson, Eugene, Paintings, 17, 19, 21, 39, 40.
Benton, A. Dean, Sculpture, 53.
Berchère, N., Painting, 77.
Berg, A., Paintings, 105.
Bergh, Anton, Painting, 109.
Bergh, E., Paintings, 105, 144.
Bergman, Miss E., Painting, 105.
Bergamasco, Photographs, 145.
Bergonzoli, Giulio, Sculpture, 110.
Bergsien, Painting, 110.
Bergstedt, Miss A., Painting, 105.
Berkan, O., loans Photographs, 137.
Berlin, J. L., Paintings, 93, 95.
Berlin Photograph Co., Photographs, 86.
Bemascioni, Pietro, Sculpture, 110, 113.
Bernez, J., von, Paintings, 88, 89, 92.
Bensini, Ferdinando, Painting, 115.
Bertaux, Miss L., Sculpture, 79.
Bertaux, Mrs. S., Bronze, 91.
Berthelotet, E., Painting, 76.
Betheen, G. T., Painting, 93.
Bertrand, E., Painting, 70.
Betti, Francesco, Mosaic tables, 112.
Betti, Telemaco, Mosaic pictures, 112.
Bevington & Co., Decorated china, 58.
Bianchi, J., Drawings, 131.
Bichot, Felix, Etchings, 59.
Bijara, C. F., Painting, 111.
Bilders, J. W., Paintings, 100, 101, 102.
Bilard, E., Painting, 77.
Billing, T., Painting, 105.
Billings, Dr. H., loans Painting, 38.
Billings, E. T., Paintings, 41, 42.
Bing, Dr. B. J., loans Painting, 40.
Biout, Gustave, Engravings, 98.
Blach, T. (deceased), Paintings, 18, 39, 43.
Bishop, C., Painting, 100.
Bishop, D. W., loans Painting, 31.
Bisi, Prof. Luigi, Painting, 111.
Bisthams, H. C., Painting, 29.
Bischoff, C., Painting, 101.
Blaas, C., Paintings, 89, 90.
Blanc, C. L., Painting, 72.
Blanchard, C., loans Painting, 23.
Blanchard, L., Bronze, 81.
Blanchard, V., Photographs, 142.
Blankfield, H. R., Painting, 49.
Blas, C., Painter colors, 48.
Bloomer, H. B., Painting, 39.
Bloor, A. J., Designs, 35.
Blossom, J. B., loans Painting, 22.
Blum, M., Painting, 77.
Blume, E., Painting, 89.
Bocks, M., Painting, 103.
Bocock, S. W., Loans Painting, 26.
Boechman, Silhouettes, 86.
Bogner, A., Painting, 144.
Bogoliuboff, A., Paintings, 134.
Boklund, J. C., Paintings, 105.
Boks, M., Painting, 102.
Bollans, E., loans Painting, 63.
Bompianti, Roberto, Painting, 115.
INDEX.

Bonne, M. L., Painting, 122.
Bonet, Louis, Cameos, 55.
Bonfeld, W. V. der V., Painting, 47.
Bonheur, Rosa, 118.
Bonine, E. A., Photographs, 140.
Bonfeyo, H., Painting, 77.
Boott, Eliz., Painting, 41.
Borch, C., Sculpture, 110, 109.
Borden, E. P., loans Painting, 27.
Borden, M. D. C., loans Painting, 22.
Borgi, A., Sculpture, 114, 115.
Börjesson, S., 105.
Börjeson, Miss A., Paintings, 105.
Borselen, I. W., van, Painting, 101.
Bosboom, J., Paintings, 100, 102, 103.
Bosch, E., Painting, 14.
Boser, F., Painting, 84, 85.
Bosniet, F. A., Painting, 95.
Boston Athenæum, loans Paintings, 22, 41, 42.
Boston, Citizens of, loan Painting, 45.
Bottinelli, A., Sculpture, 110, 113, 114, 116, 118.
Bottinelli, C., Sculpture, 111.
Boothe, G. H., Paintings, 17, 25, 26, 28, 29, 61, 62.
Bouliard, A. M. L., Painting, 75.
Bourdon, Marquinta, Sculpture, 117.
Bouré, Antoine Felix, Statuary, 66.
Bouvier, A., Brussels, Painting, 94.
Boymen, O. y Gw., Paintings, 64.
Boyle, F. T. L., Painting, 44.
Bracket, W. M., Painting, 41.
Braccony, Guglielmo, Sculpture, 110.
Bradley & Rolleston, Photographs, 137.
Bradly, A. E., Engravings, 137.
Braja, E., Sculpture, 110, 117, 118, 119.
Brandard, E. P., Engraving, 67.
Brandel, Photographs, 145.
Brandelius, P., Painting, 105.
Braun, A., Photograph, 143.
Braun, L., Painting, 85.
Brauneck & Meyers, Prints, 143.
Bray, J. W. de, Painting, 144.
Bremer, C. C., Painting, 20.
Brest, F., Paintings, 72, 73.
Bretó, E., Painting, 73, 79.
Brett, John, Painting, 61.
Breuck & Kessel, Engraving, 58.
Brewer, Caroline, Design, 49.
Bricher, A. T., Paintings, 26, 27, 31.
Bridges, Fidelia, Paintings, 27, 28.
Bridgman, L., 70.
Bridgman & Foster, Paintings, 71.
Brieler, O. W., Water color, 65.
Brion, G., Painting, 38.
Briggs, F. D., Paintings, 21, 46.
Brisset de Warville, Painting, 75.
Bristol, J. B., Painting, 21.
Broadbent & Phillips, Photographs, 139.
Brooklé, Sculpture, 119.
Brogden, A., loans Paintings, 62, 65.
Broich & Kreuger, Photographs, 139.
Bronnikoff, T., Painting, 134.
Brooke, T. F., loans Painting, 41.
Brooks, S., Painting, 31.
Brooks, T., Photographs, 140.
Broome, Isaac, Sculpture, 59.
Brown, C. V., Painting, 24.
Brown, G. L., Paintings, 20, 42, 43; Drawings, 491; Etchings on copper, 59.
Brown, H. B., Painting, 39.
Brown, J. G., Paintings, 19, 26, 27.
Brown, H., Paintings, 21.
Brown, W., loans Painting, 27.
Brown, W. W., Painting, 60.
Brownrigg, T. M., Photographs, 141.
Bruce, J., & Co., Photographs, 142.
Brücke, G., Painting, 84.
Bruckner, H., Drawings, 18, 56.
Brulle, G., Painting, 75.
Brunacci, Pietro, Mosaic tables, 112.
Brunet, D. A., Etchings, 80.
Brunet-Hourdard, P. A., Paintings, 72, 73.
Brunin, Charles, Statuary, 96.
Brunner, J., Painting, 16.
Browning, L., Bronzes.
Brush, G. S., loans Painting, 71.
Bryant & Rogers, Designs, 32.
Bryce, Gray, loans Painting, 23.
Bryer, Giovanni, Painting, 116.
Buchner, R., Painting, 69.
Buffalo Fine Art Gallery, loans Paintings, 24, 29.
Buhlmann, Conrad, Painting, 88.
Bullard, Mrs. J., loans Painting, 18.
Bunge, E., Photographs, 144.
Runner, A. F., Painting, 17.
Buoninasca, Sculpture, 118.
Burckhart, F., Painting, 144.
Burdie, H. R., Drawing, 54.
Burk, J. M., Drawing, 49.
Burnside, J. M. T., loans Paintings, 69, 70.
Burrell, D. T., Photographs, 137.
Burt, J. M., loans Paintings, 19, 31.
Burt, Martha, Painting, 26.
Burt & Hardwood, Engravings on steel, 58.
Busey, N. H., Photographs, 139.
Busio, Prof. Luigi, Painting, 116.
Busson, C., Painting, 75.
Butzmann, Gally, Mosaic, 132.
Buder, D., loans Painting, 79.
Bueller, R., loans Painting, 30.
Butti, Enrico, Sculpture, 114.
Butzoni, E., Engravings, 61.
Buzzi, Giberto C. L., Sculpture, 118, 119.

C.

Caballot, L., Painting, 78.
Caballero, N., Painting, 123.
Caballero y Fiallo, M., loans Painting, 129.
Cabanal, Alex., Painting, 37.
Cabot & Chandler, Designs, 32, 37.
Cabott, Mrs. S., loans Painting, 40.
Cabra, Manuel, Painting, 126.
Cabuzel, A. H., Painting, 75.
Cadiz, Prov. Deputation of, Calligraphs, 131.
Cady, J. C., Designs, 33, 34.
Cain, A., Painting, 78; Bronze, 81.
Calderon, Philip H., Painting, 61.
Calliott, Sir Augustus Wall, Painting, 61.
Callias, H., Painting, 78.
Callow, W., Water colors, 65.
Calofagra, N., Lithographs, 131.
Calverly, C., Sculpture, 44, 52.
Calvi, P., Sculpture, 110, 119.
Calzadilla, S., Painting, 122.
Campos, J., Bronze, 81.
Cameron, Hugh, Painting, 61.
Cameron, Miss K., Painting, 20.
Cammarano, Michelangelo, Painting, 114.
Canonné, L., Painting, 78.
Campa, C. Y., Photographs, 145.
Candeló, Alfredo, Painting, 116.
Cannella, Carlo, Sculpture, 117.
Cannone & Gargiulo, Sculpture, 18.
Canon, J., Paintings, 88, 90.
Cantalaressa, P., Capoito, Sculpture, 113.
Cantaler, G., Paintings, 103.
Carballo, J. F., 93, 94, 95.
Carbutt, J., Photographs, 145.
Carderera y Solano, V., Iconography, 131.
Carrion, Charles Leon, Painting, 92.
Cariss, H. T., Painting, 21.
Carlier, Modeste, Painting, 93.
Carmick, Louis, loans Painting, 50.
Caroni, Prof. E., Sculpture, 110, 113, 114, 116.
Carpenter, F., loans Painting, 30.
Carrier, B. P., Paintings, 77, 78.
Carter, E., loans Paintings, 69, 70.
Carter, W. T., loans Paintings, 43.
Cary, Mrs. H. W., loans Painting, 40.
Cass, W. H., Hairwork, 133.
Casset, Sculpture, 119.
Casellino, Leopoldo de, Chromo, 132.
Castagni, Drawings, 77, 78, 79.
Cassinelli, H., Painting, 79.
Casilli, Annibale, Painting, 116.
Castelnuovo, P. de, Painting, 77.
Castiglione, E., Oil Painting, 122.
Castro, José Antonio, Painting, 123.
Català, Federico, Painting, 127.
Catena, Vincenzo, Sculpture, 117.
Catlin, George, Drawings, 49.
Cattermole, George, Water color, 65.
Caudwell, J. B., loans Painting, 30.
Caudwell, W. A., loans Painting, 22.
Cauty, H. H., Painting, 61.
Cayley, W., loans Painting, 70.
Cecioni, S., Sculpture, 78.
Cedergren, A., Painting, 105.
Cederström, G., Painting, 105.
Centennial Commission, Competitive designs of Centennial buildings, 576.
Centennial Photographic Company, 139.
Century Club, loans Paintings, 23, 31.
Cetner, A. de, Painting, 76.
Cetner, A., paintings, 76.
Chagot, E., Paintings, 74, 77.
Chag, T. E., Water colors, 81.
Chaillon, N., Paintings, 73, 75.
Champney, B., Paintings, 41, 42.
Champney, J. W., Painting, 20, 22, 42, 43.
Chantrey, Sir Francis L., Sculpture, 60.
Chapman, A., loans Painting, 70.
Chapman, Estate of Dr., loans Painting, 38.
Charmaux, F., Photograph, 143.
Chartant, E., Painting, 122.
Chartreux, E., Painting, 130.
Chartreux, E., Bronze, 81.
Chase, W. M., Painting, 39; Views, 138.
Chaves, Pinheiro, Sculpture, 121.
Cheffins, C. R., loans Water colors, 65.
Cheney, Mr., loans Painting, 22.
Cherezm, L., Painting, 77.
Chesterman, G., loans Paintings, 17, 18.
Chevrier, J., Paintings, 73, 74, 75.
Chiama, Epaminonda, Painting, 122.
Chickering, G. H., loans Painting, 43.
Chickering, Mrs. L. P., loans Painting, 42.
Christiano, J., Photographs, 144.
Church, F. E., Painting, 30.
Cicconi, F., Paintings, 115, 116.
City Hall, New York, loans Paintings, 40, 50.
Civita, Angelo, Mosaic tables, 112.
Claghorn, J. L., loans Painting, 40.
Claghorn, J. Raymond, loans Painting, 38.
Clairval, Mrs. M. T., Painting, 76.
Clare, W., loans Painting, 71.
Clark, F. M., loans Painting, 25.
Clark, H. P., Design, 32.
Clark, J., Paintings, 61.
Clark, Latimer, loans Water colors, 66.
Clara, J. J., Jr., loans Paintings, 12, 54.
Clave, Pelegrin, Painting, 123.
Clément, A. F., Paintings, 73.
Clément, H., Painting, 75.
Clément, Charles G., loans Painting, 65.
Clemens, J. F., Paintings, 118.
Clever, J., Painting, 135.
Cleynhens, Theodore, Painting, 93.
Clift, Smith, loans Painting, 22.
Climo, J. S., Views, 142.
Clint, Alfred, Paintings, 61.
Clinton, Chas., Designs, 33.
Clinton, C. W., Designs, 33.
Oliver & Elway, Frame, 55.
Close, S. L., loans Painting, 30.
Clowes, Miss C. M., Painting, 22.
Cobb, Cyrus, loans Painting, 43.
Cobb, Darius, Painting, 43.
Cocchio, Luigi, Sculpture, 118.
Coe, Felix, Painting, 92.
Cohen, E., loans Water colors, 66.
Cohen, T. T., Drawings, 40.
Cohn, Louis H., & Co., Wall Paper, 55.
Conder, G. J., Etchings, 80.
Coll, David, Paintings, 123.
Cole, J. Foxcroft, Painting, 41.
Cole, J. G. (deceased), Painting, 43.
Cole, Thomas (deceased), Paintings, 18, 23, 29.
Cole, Vicat, Paintings, 61.
Colman, C. C., Paintings, 30, 39, 49, 44, 45.
Coleman, J. H., loans Painting, 39.
Collette, A., Paintings, 75, 78.
Collins, G. W., Photographs, 140.
Colman, S., Paintings, 17, 25, 26, 27, 28, 30.
Colton, Zamh, & Roberts, Chromos, 56.
Colyer, Mrs. Laird, loans Sculpture, 47.
Colyer, V., Paintings, 24.
Colyer, Vincent, loans Paintings, 29.
Celmazz, M., Paintings, 73, 74.
Comacho de Diaz, S., Scissor work, 133.
Commiss, Mrs. C. B., Painting, 40.
Comin, Polydore, Statuary.
Comte, P. C., Paintings, 73.
Connaroe, G. W., Painting, 18.
Condon, H. M., Designs, 34, 35.
Conner, P., Painting, 72.
Connelly, P. F., Sculpture, 21, 51, 52.
Connor, E. S., loans Paintings, 38.
Conrad, A., Painting, 83.
Constant, John (deceased), Painting, 61.
Constant Rebque, W. C. de, Painting, 103.
Conti, Alessandro, Sculpture, 119.
Continental Bank Note Co., Engraving, 59.
Cook, Edward Williams, Paintings, 61.
Cookson, W. S., loans Water color, 66.
Cooper, P. F., Painting, 21; loans Painting, 38.
Coosemans, Joseph Theodore, Painting, 92.
Cope, C. W., Paintings, 67; Engraving, 67.
Copley, J. S. (deceased), Portraits, 19.
Corbellini, Quintullo, Sculpture, 119.
Cordiano, Juan, Painting, 123.
Cordier, C. Bronzino, 74, 76, 79.
Corbellini, Cherubino, Painting, 111.
Coronec, H., Painting, 74.
Correa, Nicolas, Painting, 123.
Corrado, O., Painting, 55.
Coultre & Cordero, Painting, 129.
Corti, Sculpture, 110.
Cosens, F. W., loans Painting, 63.
Costenoble, Charles, Sculpture, 90.
Coto, Luis, Painting, 123.
Coustey, E. G., Painting, 77.
Courbet, Gustave, Painting, 38.
Courodou, V., Painting, 74; Pastel, 79; Water color, 81.
Cox, David, Jr., Water colors, 65.
Cox, Townsend, loans Painting, 26.
Cox, W. A., Miniatures, 137.
Coykendall, S. D., loans Painting, 31.
Creaven, R., Painting, 102.
Craig, T. W., B., Painting, 46.
Crane, D. A., loans Painting, 70.
Cruik, G., Sculpture, 76.
Crawshay, R., Photographs, 141, 142.
Cremer, J., Photographs, 137, 143.
Crepeau, Designs, 82.
Cresswell, W. N., Paintings, 60, 70, 71.
Creswick, Thomas (deceased), Painting, 61.
Crof, Giuseppe, Sculpture, 118.
Crof & Camp, Designs, 34.
Crofts, E., Painting, 61.
Cromer, J., loans Painting, 50.
Cromey, J. F., Paintings, 18, 29, 31.
Cross, J. K., loans Painting, 64.
Crowe, Eyre, Paintings, 61.
INDEX.

Crowley, Henry, loans Water color, 66.
Cummings & Sears, Designs, 35, 33, 37.
Cuaneus, C., Paintings, 103.
Curzon, A. de, Painting, 75.
Curzon, A. F. de, Painting, 72.
Curzon, P. A. C., Painting, 72.
Cusachs, P., Sculpture, 32.
Cuyppers & Stolzenberg, Engravings, 103.

D.
Dallmeyer, J. H., Photographs, 141.
Dal Negro, Pietro, Sculpture, 118.
Daly, J., Sculpture, 60.
Damasco, J. dos Passos, Drawing, 121.
Dameron, E., Painting, 74.
Dameron, E. C., Painting, 77.
Dannis y Cortés, Joaquin, Paintings, 128.
D'Amore, Sculpture, 117.
Dandy, Armand, Painting, 92.
 Daniell, William (deceased), Painting, 61.
Danieels, G. F., Painting, 40.
Dance, Auguste, Engravings, 98.
 Darley, F. O. C., Water color, 28; Drawings, 54.
 Darley, Mrs., loans Painting, 21.
 Darrah, Mrs. S. T., Paintings, 39, 42; Drawings, 49.
 Dash, M. B., loans Painting, 29.
 Daubigny, Karl, Paintings, 74, 79.
 Daubigny, K. P., Painting, 75.
 Dauge, Franz, Decorative art, 97.
 Daumier, Henry, Painting, 92.
 Davis, James, loans Painting, 41.
 Day, F., Paintings, 69, 70, 71.
 Day, F. O., loans Painting, 38.
 De Baerdemaker, E., Paintings, 94, 95.
 Debat, P. E., Painting, 78.
 De Beughem, Count Chas., Paintings, 93, 94.
 De Biseau, Aristide, Paintings, 95, 93.
 De Blas del Prado, Paintings, 128.
 Deblois, Ch., Engraving, 80.
 De Blois, F. B., Paintings, 41, 43.
 De Burbeck, L., Paintings, 93, 95.
 De Bylandt, Count Alfred, Painting, 92.
 Decamilly, Carving, 66.
 De Crano, F. F., Painting, 20.
 De Curte, Louis, Architectural drawing, 98.
 De Forest, H. G., loans Painting, 20.
 De Franchinouille, Painting, 94.
 De Gollier, Miss, Painting, 25.
 De Groot, Guillaume, Statue, 66.
 De Groux, Charles (deceased), Painting, 95.
 De Haas, J. H. L., Painting, 38.
 De Haas, F. H., Paintings, 17, 39, 31.
 De Heuvel, Theodore, Painting, 92.
 Deiker, J., Painting, 84.
 Deizinger, C. H., Portrait, 86.
 De Jong, G., Photographs, 103.
 De Keeghel, Jules, Paintings, 93, 95.
 De Keyser, Albert, Painting, 93.
 De Keyser, Nicaise, Paintings, 92, 94.
 Delamater, R. S., Photographs, 137.
 Delaunay, A., Engraving, 81.
 Delavan, J. S., loans Painting, 39.
 Delenda, E., Photographs, 142, 143.
 Della Valle, N., Painting, 113.
 Delobbe, F. A., Painting, 74.
 De Loose, Basile, Painting, 93.
 Del Panta, E., Sculpture, 114.
 Del Sarto, Andrea, Painting, 38.
 De Luco, F., Painting, 24.
 Demanzez, Joseph, Drawings, 98.
 De Martino, Painting, 121.
 De Mayor, Mrs., Painting, 124.
 De Meester, Raymond, Paintings, 92, 94.
 De Mol, Adolphe, Decorated glass, 97.
 Demorest, W. J., Chromos, 56.
 D'Epinay, Prosper, Sculpture, 65.
 De Fraterre, Edmond, Painting, 92.
 De Rose, A. L., Drawings, 49.
 De Santis, Guglielmo, Paintings, 114, 115.
 De Schampheleer, E., Painting, 92, 93.
 Deshayes, C., Paintings, 75, 78.
 De Silva, A., Photographs, 140.
 De Simpel, Bruno Alphonse, Painting, 94.
 De St. Cyr, Georges, Painting, 92.
 De Streefe, J. J., Painting, 102.
 Deutsch, R. von, Paintings, 83.
 Deyvaux, F. A., Sculpture, 75.
 Deventer, J. F. van, Painting, 102.
 Deventer, W. A., Painting, 102.
 De Vigne, Miss Emma, Painting, 93.
 De Vigne, Miss Malvina, Painting, 93.
 De Villez, Louis Henri, Statuary, 96.
 Devrez, D. H. L., Designs, 82.
 De Worte, P., Painting, 104.
 De Woemelt, Gustave, Statuary, 96.
 De Wolf, J. L., loans Painting, 42.
 Dexter, T. C. A., loans Painting, 38.
 Diaz, Josefa, Paintings, 122.
 Diaz, O., Photographs, 132.
 Dibley, George, loans Painting, 65.
 Di Chierico, Sculpture, 117.
 Dickinson, Mrs. M. L., loans Paintings, 21, 23.
 Dielitz, K., Painting, 84.
 Dies, Cesare, Painting, 81.
 Dies, Emilio, Sculpture, 119.
 Dietrich, A., Painting, 85.
 Dietrichson, Mrs. M., Painting, 105.
 Dietz, Th., Painting, 83.
 Diez, J., Painting, 129.
 Dillens, Adolphe, Painting, 94.
 Dingier, F., Engraving, 86.
 D'Inguem, Le Baily, Engraving, 99.
 Dini, Ernesto, Sculpture, 111, 114, 115.
 Dix, C. Templeton, Painting, 23.
 Dixon, Chief Justice, loans Sculpture, 44.
 Dobbe, R. J., Copper, 87.
 Dobson, William C. T., Painting, 61.
 Dodd, Miss Belle, loans Painting, 46.
 Dodd, S. M., loans Painting, 39.
 Dolan, Thomas, loans Painting, 44.
 Doll & Richards, loans Painting, 41.
 Dolph, J. H., Painting, 17, 29.
 Domenichino, Painting, 37.
 Donaldson, Andrew B., Painting, 61; Water color.
 Doolin, Walter, Sculpture, 60.
 Doolittle & Cortelyn, Drawings, 49.
 Doolittle, E. S., Illumination, 49.
 Doreau, Photographe, 140.
 Doubleaire, A. Bronzes, 77, 81.
 Douglas, James, loans Sculpture, 51, 52.
 Doulton, Henry, & Co., Sculpture, 60.
 Doux, Mrs. L., Painting, 78.
 Douzette, L., Painting, 83.
 Dowager Countess of Westmoreland, loans Painting, 65.
 Drake, H., loans Water color, 66.
 Drungendo, C. A., loans Painting, 70.
 Du Bois, L. E., Paintings, 17, 29.
 Dubos, Miss A., Paintings, 74, 78.
 Dubouchet, H., Painting, 74; Engravings, 80, 81.
 Dubucand, A., Sculpture, 78.
 Dubufe, E., Painting, 38.
 Dudley, H., Designs, 32, 33, 34.
 Dumaine, Gregorio, Painting, 123; Statuary, 124.
 Dumaresque, A., Painting, 74, 75.
 Dumas, Em., Water color, 79.
 Dunbar, A., loans Water color, 66.
 Duncan, David, loans Water colors, 65.
 Duncker, A., Engraving, 86; Chromo, 86.
 Dunlap, William, Painting, 50.
 Dupes, L. Victor, Painting, 72.
 Dupré, Victor, Painting, 75.
 Duque, E., Photographs, 131, 132.
 Durand, Carolus, Painting, 73.
 Durand, A. B., Paintings, 17, 18, 20, 31; Engravings, 59.
 Durand, F. P., Painting, 27.
Durand, John, Water color, 49.
Dürer, Albert, Painting, 38.
Durst, A., Paintings, 61.
Durst, M., Sculpture, 77.
Duval, J., Painting, 77.
Duval, V., Painting, 38.
Duverger, T. E., Paintings, 75.
Dwyer, Edward, Inlaid work, 56.

E.
Eakins, Thos., Painting, 18, 24, 46; Drawings, 49.
Earle & Fuller, Design, 33, 36, 37.
Earle & Sons, loam Painting, 17.
Eaton, Mrs. J. O., loam Painting, 26.
Eberhardt, W., Painting, 45.
Ebersbach, J. E., Painting, 102.
Eckardt, C., Paintings, 104.
Eckhart, B., Paintings, 135.
Eddy, G. F., Painting, 48; Drawings, 49.
Eder, F., Paintings, 129.
Edgar, Lydia, Photographs, 137.
Edge Moor Iron Co., Iron work, 9.
Edson, Paintings, 70, 71.
Eelhelm, O., Painting, 100.
Eggenberger, J. H., Painting, 100.
Eggert, S., Painting, 85.
Eichelberg, W. H., Painting, 102.
Eisenbrey, W. H., loams Painting, 21.
Ekström, P., Painting, 105.
Elias y Mascaro Ramon, Statuary, 127.
Elliot, C. W., loams Painting, 18.
Elliot, G., Pastels, 81.
Elliot, Mrs. S. A., loams Painting, 18.
Elkins, H. R., Painting, 45.
Elliot, C. L. (died), Paintings, 21, 24, 39, 46.
Ellis, J. C., Drawing, 54.
Elmore, Alfred, Paintings, 61.
Elorriaga, R., Painting, 130.
Elwell, D. J., Painting, 41.
Elwes, H. T., loams Painting, 64.
Engl, Hugh, Painting, 85.
England, W., Photographs, 141.
Engström, W. O., Paintings, 103.
Enneking, J. E., Painting, 41.
Enriquez, Nicolas, Sculpture, 123.
Ens & Greiner, Porcelain paintings, 86.
Epinay, Cav., Sculpture, 110.
Epp, K., Painting, 54.
Eppinghausen, C., Designs, 35.
Erdmann, M., Painting, 84.
Eripikum, Painting, 37.
Eschke, H., Painting, 84.
Escudero y Esprandea, José, Painting, 123.
Essen, J. C., van, Painting, 103.
Este, Mary Goddard, Sculpture, 50.
Etching Club, Etchings, 67.
Etnet, Antoine, Photographs, 82.
Evered, William (deed), Painting, 61.
Evans, E. D., Photographs, 149.
Evans, G. & W. P., Chairs, 139.
Everdingen, A. van, Painting, 101.
Eversen, A., Painting, 103.
Ewan, Jas., loams Painting, 71.
Ewers, H., Painting, 84.
Excelsior Brick Company, Stone work, 9.
Eyre, M. Dickerson, Sculpture, 53.
Ezekiel, M., Plaster, 86; Sculpture, 40.

F.
Faas, Frederick, Engraving, 58.
Faber du Faur, Otto von, Painting, 85.
Faber, Herrmann, Drawings, 49.

Fabronius, D. C., Drawing, 54.
Facciochi, Raffaello, Painting, 115.
Fadde, Thomas, Paintings, 61.
Fagerlin, F. T., Paintings, 105, 106.
Fahy, E. H., Water color, 66.
Fahrn of, C. A., Painting, 106.
Fahnstock, H. C., loams Painting, 17.
Fainfis, J. S., Designs, 36.
Faiivre-Dufler, L. S., Painting, 73.
Falchini, Andrea, Mosaic tables, 112.
Falconer, J. M., loams Paintings, 19, 20, 25, 77.
Fantaciotti, Cesare, Sculpture, 113.
Farbarius, F. W., Painting, 83.
Farmers' and Mechanics' Bank, loams Painting, 23.
Farrer, H., Paintings, 25, 26, 27.
Farrer, M. M., loams Painting, 40.
Fassett, Mrs. C. Adele, Painting, 46.
Fassin, Adolphe, Statuary, 95, 96.
Fattori, Giovanni, Paintings, 113, 114, 115.
Faull, John A., loams Painting, 44.
Faustini, Modesto, Painting, 113.
Fechner, Carl, Design, 37.
Felix, Eugene, Painting, 89.
Fell, J. G., loams Painting, 40.
Felon, Joseph, Sculpture, 74, 76, 77; Engravings, 59.
Fenius, R., Monuments, 132.
Fenn, H., Paintings, 24, 26, 27, 98.
Fenton, Joseph, loams Painting, 65.
Fernandez Cuevas, P., Painting, 133.
Fernandez, J., Statuary, 124.
Fernbach, Henry, Designs, 33, 34.
Fernbach & Kendall, Design, 34.
Ferrando, Salvador, Painting, 123.
Ferraro, Filippo, Sculpture, 111.
Ferras, Photographs, 144.
Ferris, S. J., Drawing, 54; Etchings, 59.
Ferry, G., Painting, 78.
Ferry, Miss L., Painting, 78.
Ferry, Miss V., Painting, 74.
Fettweis, C. L., jr., Sculpture, 52.
Feyen, Eugène, Painting, 72.
Feyen, Perrin, Paintings, 72, 76.
Fichel, E., Painting, 54.
Fitch, Frederick, Monument, 59.
Fidanza, F. A., Photographs, 144.
Field, B., loams Painting, 29.
Field, R. (deceased), Drawings, 49.
Field, W., Painting, 61.
Figueroa, Pedro America de, Paintings, 121.
Figueroa, Gregorio, Painting, 123.
Fillans, Miss W., Sculpture, 44, 52.
Fine Arts, Provincial Academy of, Barcelona Drawings, 131.
Fine Arts, Academy of Manilla, loams Paintings, 130.
Fine Arts, Academy of Seville, loams Paintings, 132.
Fisher, Helene von, Painting, 83.
Fisher, Ellen T., Painting, 26.
Fitch, J. L., Painting, 20.
Fitzgibbon, J. H., Daguerreotypes, 138.
Flagg, J. B., Painting, 29.
Flameng, Leopold, Etchings, 80, 81.
Flores, Rafael, Painting, 123.
Fonseca, Painting, 170.
Foerster, Edmund, & Co., Chronos, 56.
Foley, Miss M., Sculpture, 50, 51, 52.
Folingsby, G. F., Painting, 85.
Folsom, J. H., Photograph, 140.
Fontana, Roberto, Painting, 113.
Foot, S. A., loams Painting, 30.
Forbes, Edwin, Drawing, 54.
Forbes, J. C., Paintings, 69, 71; loams Painting, 70.
Formis, Achille, Paintings, 113, 115.
Formis, Augusto, Painting, 115.
Gower, Lord Ronald Leveson, Sculpture, 60;
loans Water-color Painting, 60.
Grabowski, Andrew, Painting, 89.
Graf, Jose, Sculpture, 52.
Graf Bros., Chrono-lithographs, 56.
Graf, C., Engravings, 86.
Graf, G. W., Painting, 109.
Graf, Lewis, Paintings, 88, 89, 90.
Graham, Peter, Paintings, 62.
Graham, W., Painting, 39.
Granberry, Miss V., Painting, 29.
Granberry, Miss V., Painting, 20.
Grandschamp, P. de, Painting, 77.
Grant, Sir Francis, Paintings, 62.
Graves, J. A., Photographs, 140.
Gray, G. A., loans Painting, 70, 71.
Greaterex, Mrs. Eliza, Drawings, 49.
Greene, E. D. E., Painting, 19.
Greenough, Mrs. H., Loans Painting, 42.
Gregory, J. Elliot, Painting, 39.
Greive, J. C., Jr., Paintings, 101, 102.
Grenier, N. N., Photographs, 142.
Griffin, Julia, Sculpture, 39.
Grosbeck, David, loans Painting, 17.
Groscillier, M. de, Painting, 73.
Groot, J. de, Painting, 102.
Grozinsky, F., Painting, 134.
Gruber, Pearl Re, Marble work, 56.
Gruijiter, W. jr., Painting, 100.
Grund, J., Paintings, 85.
Guarnerio, Pietro, Sculpture, 113, 116, 118.
Guastavini, R., Monuments, 131.
Gubelmann, T., Photographs, 139.
Gude, Hans, Paintings, 108.
Gudin, T., Paintings, 37, 78.
Guerber, Miss S. L., loans Painting, 38.
Guerra, Gabriel, Sculpture, 174.
Guffens, Godofred, Painting, 94.
Gugler, H., Engraving on steel, 59.
Guillon, A., Paintings, 72, 75.
Guissosa, F., Painting, 139.
Gummis, Miss M., Painting, 44.
Gurney, J. N., Photographs, 139.
Gutekunst, F., Loans Painting, 18; Photographs, 138.
Gutsebo, R., Painting, 83.
Guthers, Carl, Paintings, 43, 45.
Gutierrez, Felipe, Painting, 123.
Gutierrez, Rodrigo, Painting, 123.
Guy, S. J., Paintings, 19, 20, 22.
Uzowski, C. S., loans Painting, 69, 70.
Hamilton, W. A., loans Painting, 30.
Hammon, T., Painting, 104.
Hammer, W., Paintings, 104.
Hancock, H., Painting, 71; loans Painting, 70.
Handley, M., Sculpture, 51.
Hanedoed, L., Painting, 101.
Hanley, E., Painting, 109.
Hanoteau, H., Painting, 72.
Hanrath, T., Painting, 100.
Hansch, Anthony, Paintings, 89, 90.
Hanse, A., Chemicals, 139.
Harram, W., Photographs, 141; Paintings, 142.
Harach, Count von, Paintings, 84, 85.
Harding, Painting, 42.
Harding, Viscount, loans Painting, 62.
Hardy, A. N., Photographs, 138.
Hardy, Heywood, Painting, 62.
Hargit, E., Water color, 66.
Harley, J. S., Engraving, 58.
Harling, E. von, Painting, 84.
Harmon, Amelia, Painting, 28.
Harnisch, A. E., Sculpture, 52.
Harpinx, A. X., Painting, 73.
Harrah, C. J., loans Painting, 47.
Harring, J. C., Photographs, 139.
Harras, S. J., loans Painting, 20.
Harris, Edward, loans Paintings, 18, 75.
Harrison, Henry, Painting, 46.
Harrison, Mrs. Joseph, loans Paintings, 24, 46.
Hart, Jas., M., Painting, 54, 37.
Hart, Wm., Paintings, 24, 25.
Hartley, J. S., Sculpture, 53.
Hartwick, Hermann, Drawings, 49.
Harvard University, loans Paintings, 42, 43.
Haseltine, J. H., Sculpture, 51.
Haseltine, W. S., Paintings, 24, 46.
Hatch, Walter, loans Painting, 24.
Hatzen, Gabriel, Stencil, 35, 36.
Hawk, S., loans Painting, 39.
Hawkins, Rush D., Painting, 27.
Hayden, Albert, loans Painting, 29.
Hays, W. J. (deceased), Painting, 30.
Hays, Mrs. W. J., loans Painting, 30.
Hayter, Sir George, Painting, 62.
Hazu, A. C., Painting, 101.
Hazzard, R. T., Decorations, 55.
Hazzars, W. D., Rollers, 137.
Heade, M. J., Painting, 24.
Healy, G. P. A., Paintings, 17, 22, 23, 39, 44, 46.
Heath, S. D., Painting, 85.
Heath, V., Photographs, 141.
Heath & McKendrick, Plaster figures, 59.
Heaton, A. G., Painting, 46.
Heck, R., Painting, 85, 85.
Hecker, C. V., loans Painting, 25, 29.
Hedges, D., Photographs, 141.
Heemskerk, V. B. E. v., Paintings, 100, 102.
Heegar, H., Painting, 84.
Heinemann, Dr., Photograph, 143.
Heng, H., Painting, 102.
Heijl, M., Painting, 102.
Heller, E., Studies, 143.
Hemstreet, M. G., C., loans Painting, 25.
Henderson, A., Photographs, 142.
Henderson, A. L., Photographs, 141.
Hening, R., Cards, 143.
Henkes, Gerke, Painting, 101.
Hennepin, A., Paintings, 25.
Henning, H. D. A., Sculpture, 50.
Henry, E. L., Painting, 20, 24, 29.
Henschell, Painting, 121.
Herzberg, R., Painting, 52.
Herzig, E. G., Painting, 62.
Her Majesty the Queen of England, loans Paintings, 62, 62, 65.
Hermelin, Baron O., Paintings, 106.
Hernandez, Ignacio, Painting, 193.
Herpin, L., Paintings, 76, 78.
Herrick, H. W., Drawings, 48.
INDEX.

Herring, Chas. P., Loans Painting, 47.
Hersz, A., Paintings, 77; Water colors, 79, 81.
Hertel, A., Painting, 84.
Herrter, E., Bronzes, 85.
Hertzog, J., Chemicals, 143.
Herzberg, A. G., Painting, 106.
Herzog, H., Paintings, 23, 45.
Hesler, A., Photographs, 139.
Hesse, G., Sculpture, 32, 35, 47.
Hess, Julius, Design, 35.
Hetzel, Geo., Painting, 22.
Hewett, P. G., Loans Water color, 66.
Hicks, G. E., Painting.
Hicks, Thomas, Paintings, 17, 24, 30.
Hiddemann, F., Paintings, 84.
Higgins, A. Foster, Loans Painting, 26.
Higgins, Geo. F., Painting, 40.
Hildebrandt, E., Paws, 84.
Hildebrandt, H., Engravings, 80.
Hill, Capt., Loans Painting, 63.
Hill, J. W., Paintings, 26, 27, 28.
Hill, Thomas, Paintings, 22, 44, 45.
Hillemacher, E. E., Painting, 72.
Hillemacker, E., Painting, 75.
Hills, Thos. H., Loans Paintings, 62, 63.
Hilton, William (deceased), Painting, 62.
Hilverdink, P. A., Painting, 102.
Hilverdink, J., Painting, 101.
Hinckley, T. H., Painting, 41.
Hirrlinger, C. W., Enamels, 55.
Hirsch, Alphonse, Paintings, 74, 75.
Hirschfelder, S., Painting, 84.
Hirsh, J. M., Photographs, 145.
Hlavaeck, Anthony, Paintings, 88, 90.
Hoadley, J. H., & Son, Designs, 35, 35.
Hoch, I., Painting, 70.
Höckert, J., Painting, 106.
Hodges, Jane M., Loans Painting, 29.
Hodgson, J. E., Painting, 62.
Hoel, R., Loans Paintings, 37, 31.
Hoel, Ferd., Painting on glass, 56.
Hoegel, Minna, Painting, 88.
Hoffman, J., Painting, 83; Water colors, 90.
Holl, F., Paintings, 62.
Hollander, H., Painting, 101.
Holler, H., Photography, 130.
Hollerbach & Duffenbach, Mouldings, 56.
Hollis, G. W., Loans Painting, 29.
Holly, H., Hudson, Design, 35.
Holzer, Samuel, Engravings, 58, 59.
Holm, P. D., Paintings, 106.
Holmes, P. H., Painting, 43.
Holmquist, Miss J., Painting, 106.
Holst, J. G. von, Paintings, 106.
Holtyland, J., Views.
Homer, Winslow, Paintings, 22, 25, 26, 28.
Hook, James Clarke, Painting, 62.
Hoover, Jos., Chromo-lithographs, 56.
Hoppin, W. J., Loans Painting, 19.
Hopson, Wm., Imitation of woods, 56.
Horavsky, A., Painting, 134.
Hore, Wm., Inlaid work, 55.
Horsfall, James, Loans Water color, 66.
Horsley, John Collins, Engravings, 62.
Horst, L., Painting, 84.
Houseworth, T., Photographs, 138.
Houze, Florentin, Painting, 94.
Hove, B. J. W., Painting, 102.
Hovey, E. F., Photographs, 139.
Howard-Brunet, P. A., Painting, 75.
Howe, E., Design, 32.
Howe, Frank M., Designs, 35, 37.
Howe, J. C., Painting, 41.
Howell, J. R., Photographs, 140.
Howells, H. C., loans Painting, 64.
Howland, W. H., loans Painting, 70.
Huss, P. A., Paintings, 77-78.
Hubbard, R. W., Paintings, 17, 18, 20.
Huber, Ralph, Painting, 90.
Hudson, F., Photographs, 141.

Hugard, C., Painting, 78.
Hughes, Arthur, Painting, 62.
Hughes, Mrs. A. S., loans Painting, 47.
Hunt, Holman, Painting, 62.
Hunt, H. A., Loans Water color, 66.
Hunt, William, Painting, 24.
Hunt, W. M., Painting, 42.
Hunter, Colin, Painting, 62.
Hunter, Thomas, Chromo-lithographs, 56.
Huntingdon, D., Paintings, 18, 22, 39, 31.
Hurtel, P., Drawings, 49.
Hutchin, J. D., Photographers' cards, 144.
Huyners, J. D., Painting, 100.
Huynen, Francois J., Paintings, 92, 94.
Hyatt, Mrs. A., loans Painting, 49.
Hyatt, Mrs. Delta, Drawings, 49.

I.

Ibarra, José, Painting, 124.
Inman, Henry, Paintings, 24, 39.
Instituto de Segunda Enseñanza, Photographs, 132.
Irving, J. B., Paintings, 20, 23, 24.
Iribe, J., Painting, 100, 101.
Itasce, A., Sculpture, 76, 81.
Ives, C. B., Sculpture, 32.

J.

Jacobi, Paintings, 69, 70, 71.
Jacobi, C., Prints, 143.
Jacobs, Jacob, Painting, 94.
Jacomin, A. L., Paintings, 73, 79.
Jacquemart, E., Painting, 106.
Jacquier, Ell, Sculpture, 59.
Jadin, E., Painting, 78.
Jaeckel, H., Painting, 83.
Jager, J., Photographs, 144.
James, Frederick, Painting, 23.
James, H., loans Painting, 29.
Jameson, R. C., Loans Painting, 71.
Japy, L., Painting, 77.
Jaudy, H., Photography, 130.
Jacquemard, J., Etchings, 80, 81.
Jarvis, J. W., Paintings, 59.
Jarvis, J., Mercier, Painting, 43.
Jay, J. t., loans Portrait, 19.
Jean, A., Engraving, 67.
Jenkins, J. J., Water color, 66.
Jennings, A. B., Desings, 13, 34.
Jennings, P., Photographs, 141.
Jernberg, A., Paintings, 106.
Jernberg, O., Painting, 106.
Jessup, M. K., loans Painting, 30.
Jessup, Thomas, J. P., loans Painting, 62.
Jewett, Geo. W., Loans Painting, 47.
Jimenez, José, Painting, 123.
Jocelyn, N., Loans Painting, 21.
Jocson, C., Sculpture, 139.
John, Joseph, Painting, 47.
Johns, C. M., Illustrations, 46.
Johnson, C. E., Painting, 62.
Johnson, David, Paintings, 18, 20, 23, 24.
Johnson, Eastman, Paintings, 18, 19, 20, 21, 22, 23, 25, 26.
Johnson, F., Paintings, 20, 29.
Johnson, H., Water color, 66.
Johnson, Mrs. J. H., Loans Sculpture, 47.
Johnson, Mrs. K., Loans Painting, 22.
Johnston, A., Painting, 62.
Johnston, J. T., Loans Paintings, 18, 19, 21, 22.
Jones, J., Painting, 25.
Jones, H. Belton, Painting, 21.
Jones, Miss, loans Painting, 21.
Jones, T. A., Painting, 62.
INDEX.

Lawrie, Alex., Paintings, 20, 31.
Lays, J. P., Painting, 74.
Lazzarini, Pietro, Sculpture, 110.
Lea, A. C. M., Paintings, 83, 146, 47.
Leach, A., Loans Painting, 63.
Lebel, Edmond, Paintings, 72, 73, 76.
Lebreton, Jules, Cameos and medallions, 55.
Le Brun, N., Designs, 35.
Lecheine, A. J. B., Bronzes, 79.
Le Clear, Thomas, Painting, 23.
Lecointe de, Engravings, 58.
Lehmann, Rudolph, Paintings, 63.
Leighton, Frederick, Painting, 63; loans Paintings, 63, 65.
Leighton, J., Engravings, 67.
Leland, C. M., Loans Painting, 46.
Leland, Henry, Paintings, 43, 46.
Leleux, Armand, Paintings, 73, 75.
Lelli, Giovanni, Painting, 114.
Leli, Giovanni Batt, Sculpture, 171.
Ley, Sir Peter, Paintings, 71.
Leonard, Valewski, Mosaics, 52.
Leonhardt, Theo., & Edmond, Engraving, 58.
Lemere, Bedford, & Co., Photographs, 141.
Lemoch, C., Paintings, 134.
Lemus, E., Engravings, 131.
Lepesqueur, H., Paintings, 74.
Leschesne, Bronze, 51.
Leslie, C. R. (dec'd), Painting, 63.
Leslie, George D., Painting, 63.
Lesrel, A. A., Paintings, 79, 76.
Lessi, Luigi, Painting, 113.
Lestang, P., de, Water color, 79.
Leutz, E., Painting, 23.
Leutzinger & Scharf, Photo-lithographs, 121.
Levasseur, J. G., Engravings, 82.
Leveux, Engravings, 80.
Levy, A., Photographs, 140.
Levy, Gustave, Engravings, 88, 81.
Levy, A. & Co., photograph agencies, 142.
Levy, T. S., Designs, 32.
Lewis, A. J., Sculpture, 30.
Lewis, Chas. G., Engravings, 67.
Lewis, C. G., Painting, 63.
Lewis, E. D., Paintings, 63.
Lewis, Miss Edmonia, Sculpture, 52, 59.
Lewis, J. Delaware, loans Painting, 52, 64.
Lewis, John, loans Painting, 62.
Lewis, John Frederick, Painting, 70, 63.
Lewis, Juan, loans Painting, 22.
Lewis, T., Photographs, 140.
Leyendecker, F. M., Painting, 72.
L'Heureux, Designs, 82.
Lichtenfels-Edward, Chev., Paintings, 88, 89.
Liebert, Photographs, 143.
Liebert, A., Photograph, 143.
Lier, A., Painting, 54.
Lima, Victor slide de, Paintings, 121.
Lindegren, Miss A., Paintings, 106.
Lindholm, B. A., Painting, 135.
Lindman, A., Painting, 106.
Lindstrom, C., Painting, 106.
Lingeman, J., Paintings, 100, 102.
Linn, Dr. S. H., loans Painting, 39.
Linton, J. D., Water color, 66.
Lippincott, W. H., Paintings, 24.
Liverpool, Corpse, loans Painting, 65.
Llanos y Keats, Juan, Painting, 126.
Lockwood, Randolph, & Co., Boxwood, 56.
Lodigiani, Scipione, Painting, 111.
Loesch & Petsch, photographs, 143.
Loison, P., Sculpture, 76.
Lombardi, Giovanni, Sculpture, 110, 111.
Painting, 115.
London, Royal Academy of, loans Painting, 63.

Longfellow, E. W., Painting, 42.
Loomis, F., Painting, 106.
Loop, H. A., Painting, 18.
Loop, Mrs. H. A., Painting, 23.
Lopez de Herrera, Painting, 123.
Lopez Valdemora Ortiz de Lascano, Senorita I., Drawings, 133.
Lorck, Carl J., Painting, 109.
Lord, Samuel, loans Painting, 64.
Lorne, Marchioness of, loans Water color, 67.
Lortet, L., Painting, 72.
Lost, A., loans Painting, 24.
Loyd, Lewis, loans Painting, 62.
Lozano y Villarejo, M., Albums, 133.
Lucas, E., Paintings, 126, 128.
Lucas, Flamiano, Sculpture, 119.
Lucardi, Prof., Sculpture, 111.
Luce, C. S., Designs, 36, 37.
Luckhardt, F., Photographs, 144.
Lugo, Provincial Com'n of, Photographs, 132.
Luminais, E. V., Paintings, 73, 74.
Lundberg, W., Photographs, 145.
Lumbrand, A., Wood carvings, 105.
Luttrell, A., Painting, 83.
Lutyns, C., Painting, 63.
Lynam, Tho., loans Painting, 38.

M.

Maarten, J. J. van der, Painting, 101.
Macalister, W. E., loans Painting, 49.
Macfay, F., loans Painting, 44.
MacCallum, A., Painting, 63.
Maccari, C., Paintings, 38.
Machen, W. H., Paintings, 29, 46.
Machin, Mrs. E. V., loans Painting, 38.
Mackeprang, A., Painting, 104.
Macknight, Mrs. S., Paintings, 18, 29.
Machlen, W., Painting, 63.
Mack, Daniel (dec'd), Paintings, 63.
MacWhirter, J., Painting, 63.
Madiol, Adrien Jean, Paintings, 93, 95.
Madrazo, Painting, 37.
Maghee, J. Holme, loans Painting, 25.
Magini, Rovira, Terra cotta, 126.
Magni, Prof., Sculpture, 110.
Magni, Prof. Enrico, Sculpture, 115.
Magrath, W., Paintings, 26, 26, 27, 28.
Maigman, Albert, Painting, 72, 73.
Mailart, D., Paintings, 73, 78.
Makart, Hans, Paintings, 38, 88.
Malatesta, Cav. Prof. Narciso, Painting, 113.
Maldarelli, Federico, Paintings, 114.
Malatti, Andrea, Sculpture, 119, 114.
Mali, C., Painting, 83.
Mallet, Joseph, Paintings, 79.
Malmstrom, C., Painting, 106.
Malsyhoft, Painting, 134.
Manchester, City of, loans Painting, 48.
Manchester, Duke of, loans Paintings, 63, 64, 64.
loans Water color, 66.
Manchofa, Juan, Painting, 123.
Manielli, Prof., Painting, 115.
Mancini, Carlo, Painting, 115.
Manger, H., Bronze statue, 87.
Manufacturers' Ins. Co., loans Painting, 42.
Mara, Luigi, Sculpture, 110, 118.
Marais, Adelaide, Sculpture, 110, 111.
Marc, W., Painting, 84.
Marcelli, E., Sculpture, 76.
Marchant, E. D., Painting, 49.
March, D., loans Painting, 114.
Marie-Currena, H., Photographs, 132.
Marin Rialto, J., Monuments, 132.
Maric, W., Painting, 201.
Markham, C. C., Painting, 25.
Marks, H., loans Painting, 31.
Marks, Henry Stacy, Paintings, 63.
Marozoff, A. B., Painting, 135.
DEPT. IV.—ART.

Paine, George, loans Painting, 64.
Palazi, Gaetano, Painting, 113.
Paling, John J., Painting, 102.
Paling, J., Painting, 72.
Palm, Chas., & Co., Transfers on glass, 56.
Palm, G. W., Painting, 106.
Palmers, E. D., Sculpture, 51.
Pandiani, Sigmonda A., Sculpture, 118.
Pandiani, Costantino, Sculpture, 110, 114.
Pandiani, Giovanni, Sculpture, 111.
Pandiani, Innocente, Sculpture, 110.
Paquet, A. C., Medals, 55.
Paratessus, E., Sculpture, 30.
Park, R. H., Sculpture, 50, 51.
Parker, E., Painting, 42.
Parker, J. A., Painting, 29.
Parker, S. H., Painting, 39.
Parker, R. E., Painting, 135, 57.
Parmentier, Louisa von, Paintings, 85, 90.
Parmentier, Mary von, Painting, 89, 90.
Parra, Felix, Painting, 123.
Parrot, R. P., loans Painting, 23.
Parsons, C., loans Painting, 71.
Parton, A., Paintings, 20, 23.
Pasquinelli, A., Painting, 122.
Passage, A. du, Sculpture, 47.
Patton, F. H., Painting, 64.
Paulin, W. T., Photographs, 149.
Pausinger, Frances von, Painting, 89.
Paurot, E., Bronze, 41.
Pauwels, Ferdinand, Paintings, 38, 93.
Pawle, F. C., loans Painting, 62.
Paxson Bros., Photographs, 139.
Payne, H. T., Photographs, 140.
Pezzi, Prof. Sculpture, 110.
Pecon, W. V., Penmanship, 49.
Peake, W. J., loans Painting, 22.
Peale, C. Wilson, Paintings, 48, 50.
Peale, Rembrandt (dec'd), Paintings, 45, 47.
Peale, Mrs. R., loans Painting, 45.
Pearce, Charles S., Painting, 22.
Peele, A., Painting, 31.
Peele, J. Ives, Engravings, 58.
Peeck, S. M., & Co., Apparatus, 139.
Peduzzi, Renato, Sculpture, 111, 113, 114.
Peele, J. T., Painting, 64.
Pell, A. I., loans Paintings, 70, 71.
Pen, A. I., loans Painting, 70.
Pennovio de las, Statuette, 127.
Pencyod Rolling Mills, Iron work, 9.
Pender, John, loans Painting, 62.
Penel, Jules, Engravings, 82.
Penn, F. G., loans Painting, 71.
Pennsylvania, Statue, loans Painting, 22.
Penther, Daniel, Paintings, 89.
Perdicaris, I., Painting, 17; loans Design, 49.
Pereda, Raimondo, Sculpture, 113, 114, 116.
Perine, George E., Engravings, 58.
Perkins, C. C., loans Painting, 41.
Perkins, E. N., loans Painting, 19.
Perkins, Stephen H., loans Sculpture, 52.
Perrault, A., Painting, 78.
Perrault, L., Painting, 73.
Perré, H., Paintings, 69.
Perrey, N. A., Sculpture, 75.
Perrine, W. H., Chromos, 56.
Perry, E. Wood, Paintings, 18, 19, 20, 25, 26, 27.
Perugini, Charles Edward, Painting, 64.
Pesenti, Domenico, Painting, 114.
Pessina, Carlo, Sculpture, 111, 129.
Petersen, J. E. C., Painting, 42.
Petit, Eugene, Painting, 74.
Petrazzini, Painting, 122.
Petre, E., Painting, 144.
Pettie, loans Painting, 64.
Pettit, G. W., Painting, 47.
Pezzicar, F., Sculpture, 91.
Pfeiffer, Carl, Designs, 35.
Philippeau, C. F., Painting, 102.
Photo Lithograph Co., Lithographs, 145.

Picchi, Andrea, Paintings, 115, 116, 117.
Piehl, H., Design, 82.
Pierce's Business College, Penmanship, 57.
Pierce & Policy, Painting, 43.
Pilgeram & Lefevre, loan Paintings, 62, 64, 66.
Pilz, Vincenz, Sculpture, 90.
Pin, Salome, Painting, 123.
Pincot, J. W., loans Paintings, 20, 29.
Pine, Theodore, Painting, 17.
Pinera, Juan de, Paintings, 126, 129.
Pitarra, Cav. Carlo, Painting, 115.
Pirner, Francis, Water colors, 90.
Pivis, Theodor, Painting, 83.
Plantou, Miss, loans Painting, 48.
Plantou, Mrs., Painting, 48.
Plassan, A. E., Painting, 73.
Platteel, Jean David, Painting, 94.
Plenck, M. F., Painting, 85.
Plockhorst, B., Painting, 84.
Plockhorst, Prof., Painting, 85.
Plumot, A., Paintings, 94, 95.
Pohl, G. R., Designs, 36.
Pohle, H., Paintings, 17, 84.
Poncet, B., Painting, 70.
Poncet, J. B., Painting, 78.
Fonninger, Miss C., Water colors, 91.
Postan, F. H., Painting, 64.
Poppe Pius IX., loans Paintings, 120.
Porcinai, Antonio, Sculpture, 111.
Porpora, Painting, 38.
Portas, J., Painting, 92, 94.
Porter, B. C., Painting, 41.
Porter, S. C., Painting, 46.
Poschinger, R. von, Painting, 84.
Post, Mrs. Charles, loans Painting, 25.
Post, Miss Christine, Painting, 107.
Post, Geo. B., Designs, 34.
Postma, G., Painting, 100.
Potemont, M., Engraving, 80.
Potting & Co., Engravings, 58.
Pott, L. G., Painting, 64.
Potter, Mrs., loans Painting, 23.
Potter, E., Designs, 34, 35.
Potter, W. A., Designs, 34.
Potter & Robertson, Designs, 34.
Powars, Preston, Sculpture, 51.
Poynter, Edward J., Paintings, 64.
Pozzi, Egidio, Sculpture, 118.
Pozez, Aug., & Co., Engravings, 144.
Preller, L., Painting, 83.
Preller, N., Painting, 84.
Prime, W. C., loans Painting, 39.
Princeteau, R., Paintings, 78, 79.
Prinsep, Val. C., Paintings, 64.
Prion, Louis, Painting, 73.
Pros, C., Photographs, 144.
Probst, Charles, Painting, 89.
Protails, P. A., Paintings, 72, 73.

Q.
Queriu, Luigi, Painting, 113.
Quick, W. M. R., Engraving, 67.

R.
Rabada y Valiere, Juan, Paintings, 127.
Rabillon, J., loans Painting, 38.
Raduchi, Sidersky & Co., Painting, 135.
Radlice, Cav. P., Painting, 115; Sculpture, 117.
Radius, Eugenio, Sculpture, 119.
Raeburn, Sir Henry, Paintings, 64.
Raff, Susie J., Painting, 22.
Ragus, Vincenzio, Sculpture, 110, 111.
Rajon, P. A., Etchings, 80, 81.
St. Paul’s Church, loans Painting, 29.
St. Thomas’ College, loans Paintings, 131.
Sabin, J. T., Photographs, 144.
Saddler, J., Engravings, 68.
Sadee, T., Paintings, 131.
Sagredo, Ramon, Painting, 25.
Sain, E. A., Paintings, 38, 72, 73.
Sainin, Jules, Paintings, 73, 74, 87.
Saintin, D. A., Painting, 135.
Sahibert, F., Painting, 91.
Salamon, Miss E., Painting, 77.
Salcedo, P., Design, 131.
Sallebury, E. E., loans Painting, 40.
Salisburg, Mrs. H. L., Architect, 9.
Salles, J., Paintings, 77.
Salles-Wagner, Mrs. A., Paintings, 74, 75.
Salmon, Hugo, Painting, 107.
Salman, Geksel, Paintings, 107.
Salomi, Sculpture, 107.
Salts, L., Painting, 38.
Salt, John, loans Painting, 69.
Saltus, Nicholas, loans Painting, 25.
Sampson, H., loans Painting, 39, 46.
Sanchez, B., Paintings, 128.
Sanchez, Blanco Pedro, Painting, 128.
Sanchez, P., Painting, 130.
Sandor, S., H., Paintings, 70, 71.
Sandrin, Antonio, Mosaic tables, 112.
Sands, Philip J., loans Painting, 28.
Sant, James, Paintings, 64.
Santigosa, Francisco, Statuettes, 127.
Sargent, Henry, Painting, 48.
Saron, loans Painting, 29.
Sarony, N., Photographs, 138.
Sarrochio, Tito, Sette, 102.
Sartain, Emily, Painting, 24.
Sartain, John, Engravings, 58.
Sartain, Samuel, Engravings, 58.
Sasso, Antonio, & Son, Sculpture, 117.
Satterlee, W., Painting, 24, 25, 28.
Satyro, Pedro, Miniatures, 144.
Saul, Giorgio, Sculpture, 111.
Saunders, G., Engraving, 68.
Savrij, H., Painting, 100.
Savry, H., Painting, 100.
Sawyer, E. S., loans Painting, 41.
Sayles, J., loans Painting, 41.
Scappini, G., Mosaic tables, 112, 113.
Sayerselli, Nicola, Mosaics, 112.
Scattergood & Hammam, Engraving, 58.
Schaarwachter, J., Photographs, 143.
Scheaffer, A., Paintings, 88, 89.
Schafer, S. M., loans Painting, 18.
Schams, Francis, Painting, 24.
Schanche, Herm. G., Painting, 108.
Scharff, Anthony, Medals, 91.
Schaus, F., Paintings, 83, 84.
Schell, F. B., Drawing, 54.
Scheneck, A. F., Paintings, 73.
Schenkel, K. H., Paintings, 101, 102.
Schidone, Painting, 38.
Schilcher, Fred., Paintings, 88.
Schile, Henry, loans Painting, 48.
Shipper, P. A., Painting, 102.
Schive, Jacob, Painting, 108.
Schlesinger, E., Painting, 84.
Schlesinger, Henry, loans Painting, 63.
Schlesinger, L., Photographs, 139.
Schlesinger, Mr., loans Painting, 24.
Schlutter, E., Photographs, 140.
Schmertz, W. E., loans Painting, 47.
Schmidt, George S., Studioli, 36.
Schneider, G. H., loans Painting, 37; loans Sculpture, 57.
Schöldi, Max, Paintings, 88.
Schodich, Lud., Studies, 144.
Scholten, J. A., Painting, 102.
Scholten, J. H., Painting, 100.
Scholtz, R., Photographs, 143.
Schönén, Aloysius, Painting, 90.
Schörschneider, K., Engraving, Painting, 89.
Scholven, A., Painting, 104.
INDEX.

167

Slingeneyer, Ernest, Painting, 92.
Slocombe, C. P., Engravings, 68.
Slujter, H. D., Engravings, 103.
Smallfield, F., Water colors, 66.
Smargassi, Giovanni, Painting, 116.
Smart, J., Painting, 45.
Smart, T. L. & R. M., Engravings, 58.
Smibert, John, Painting, 48.
Smibert, J. S., Painting, 19.
Smilie, G., Painting, 23, 27, 28.
Smillie, James, loans Painting, 27.
Smillie, J. D., Paintings, 25, 26; loans Painting, 25.
Smith, B. H., loans Painting, 25.
Smith, C. S., loans Paintings, 18, 20, 22, 23, 25.
Smith, F. H., Paintings, 26, 27, 28; loans Paintings, 27, 28, 40.
Smith, G. B., Shield, 27.
Smith, H. B., loans Painting, 28.
Smith, H. P., Painting, 27.
Smith, J., loans Paintings, 70, 71.
Smith, J. T., loans Painting, 25.
Smith, Levi, Chromo-lithograph, 56.
Smith, Miss Mary, Painting, 43.
Smith, M. L., Design, 34.
Smith, R. C., Sculpture, 52.
Smith, Russell, Painting, 47.
Smith, T. Henry, Paintings, 23, 45, 46.
Smith, T. L., Paintings, 29, 31.
Smith, W. B., loans Paintings, 23, 30.
Smith, W. H., loans Painting, 64.
Smith, G. Xanthus, Engravings, 45, 46.
Smith-Hald, F., Painting, 108.
Smits, F., Paintings, 93, 94, 95.
Sneff, C. H., loans Painting, 19.
Snowden, T. W., Woodcarvings, 59.
Snowe, Francis, Painting, 43.
Soanes, Temple, loans Painting, 65.
Sociedad Economico de Amigos del Pais, Photographs, 132.
Soder, F. J., Painting, 92, 94.
Sodergren, Miss Sofia, Painting, 107.
Soeterick, T., Painting, 100.
Sojo, Statuary, 124.
Sokoloff, F., Painting, 131; Water colors, 136.
Sola y Roca, R., Lithographs, 131.
Soler, F., Monuments, 132.
Solmi, Prof. V., Paintings, 114, 115, 116.
Sommaruga, Napoleon, Paintings, 115.
Sonntag, W., 24.
Sophie, L., Photographs, 145.
Sgrensen, C. F., Painting, 104.
Soria, Ferrando Ricardo, Statuary, 127.
Soulard, Charles, Engravings, 92.
Souchon, W., Paintings, 83, 85.
Southwick, M., loans Painting, 18.
Souza, Silveira, Miniatures, 144.
Spangenberg, G., Painting, 84.
Spangenberg, L., Water colors, 86.
Spanish National Mint, loans Medals, 131; Photographs, 132.
Speeckart, Gustave, Painting, 95.
Spencer, Mrs. Lily M., Paintings, 39, 44.
Speroni, J. L., Engravings, 55.
Spretini, Giovanni, Sculpture, 113, 117, 119.
Spreafico, J., Album, 132.
Springer, C., Painting, 107.
Stacpoole, F., Engravings, 68.
Staig, R. M., Paintings, 23, 40, 41.
Stainer-Knittl, Anne, Painting, 90.
Stainton, L., Water colors, 94, 95.
Stanfield, Clarkson (dec'd), Painting, 64.
Stanford, L., loans Painting, 22.
Stanghi, Carolina, Painting, 115.
Stanley, D. M., Painting, 45.
Staples, Mrs. M., loans Painting, 64.
Starck, Jules, Painting, 92.
Starkenborg, I. N. T. von, Paintings, 84, 85.
Starr, Miss Louis, Painting, 64.
Stayner, G. N., loans Painting, 31.
Stearns, J. M., loans Paintings, 24.
Steele Bros., China and glass, 58.

Steens, Edmond, Painting, 92.
Steffeck, C., Paintings, 84.
Steffelh, J., Painting, 102.
Stechlin, Jos., Altar carving, 57.
Stehmann, William, Drawings, 48.
Stengel, O. A., Drawings, 45.
Stereoscopic Co., Photographs, 141.
Sterling, Mrs. C. H., Drawings, 49.
Sterling, W. L., loans Painting, 71.
Stevenson, A. P., Paintings, 62, 64.
Stewart, J. L., Paintings, 20, 46.
Stewart, W. S., loans Paintings, 20, 38, 46.
Stillfried, R. B., Photographs, 144.
Stillfried & Anderson, Photographs, 145.
Stillman, Mrs. M., Water color, 66.
Stock, J. & Bro., Apparatus, 139.
Stocker, Francis, Paintings, 88.
Stockler, Emmanuel, Water colors, 90.
Stockwell, N., Camera, 141.
Stoddard, S. K., Photographs, 137.
Stokes, A. P., loans Painting, 22.
Stokes, John, Drawing, 54.
Stoll, A., Decorative bas-reliefs, 55.
Stone, M. A. B., loans Painting, 28.
Stone, Dr Horatio (deceased), Sculpture, 51.
Stone, Marcus, Painting, 64.
Stone, W. O. (dec'd), Paintings, 19, 29.
Storey, George A., Paintings, 64.
Sorrow, Mrs. C., loans Painting, 54.
Sorrow, T. W., loans Portrait, 19.
Stormecker, P., Painting, 100.
Story, Annie E., Drawings, 45.
Story, G., Engravings, 12, 23.
Story, W. W., Sculpture, 50, 51.
Stroebel, J. A. B., Paintings, 100, 102.
Stroeder & Kitchener, loans Paintings, 54.
Stroedter, & Dotterer, Photographs, 140.
Stroobant, F., Paintings, 92, 93.
Strugnell, F. W., loans Water color, 66.
Strutt, A. T., Painting, 116.
Struzzi, Giovanni, Sculpture, 111.
Stuart, G. (dec'd), Paintings, 18, 19, 42, 52, 64.
Stuart, R. L., loans Paintings, 17, 18, 20, 25, 29.
Sturgis, Mrs. D. C., loans Painting, 21.
Sturigs & Brigham, Designs, 32.
Sturm, F., Paintings, 85.
Subirat, Ramon, Wood carving, 127.
Sully, Miss, loans Paintings, 23, 39.
Sully, Thomas, Portraits, 21, 23, 39, 50.
Suhel, G., Bronze, 126.
Suydam, J., loans Painting, 31.
Suydam, E. C. (dec'd), Drawings, 22, 23, 30.
Svenson, F., Painting, 107.
Sverchkoff, N., Painting, 135.
Swain, Drawing, 54.
Swain, Jos., Engravings, 68.
Swank, J. W., Penmanship, 56.
Swayne, W. M., Sculpture, 45.
Sweeny, T. T., Photographs, 138.
Sweissweiz, A. von, Painting, 83.
Swoboda, Edward, Painting, 89.
Sword, J. B., Painting, 45.
Symington, J., Painting, 26.

T.

Taamman, J., Painting, 100, 102.
Tadeo, L., Alma, Water colors, 64, 66.
Taft, Mr., loans Painting, 23.
Tait, A. F., Painting, 22.
Tait, J. R., Painting, 40.
Talarn, A., Sculpture, 125.
Talarn, D., Sculpture, 128.
Tampinco, Isabello, Sculpture, 130.
Tassara, Sculpture, 52.
Taylor, F., Water colors, 66.
Taylor, Fred., Engraving, 68.
Taylor, Thomas, loans Painting, 62.
Taylor, W., Photographs, 138.
Tedesco, Prof. Michele, Painting, 111.
Telford, J. M., loans Painting, 23.
Temple, G., Cowper, Hans Water color, 66.
Tempra, Quirino, Sculpture, 118.
Tenney, U. D., Painting, 48.
Tepa, Francis, Water colors, 90, 91.
Teslas, W. de Famars, Painting, 101.
Thadlow, Fritz, Painting, 108.
Thayer, S., Designs, 32.
Thiersch, L., Painting, 83.
Thom, J. C., Paintings, 19, 31.
Thompson, Mrs., Painting, 26.
Thurston, Emile, Wood engravings, 80.
Thomas, Percy, Engravings, 68.
Thomas, W. L., Water color, 66.
Thompson, A., Painting, 19.
Thompson, A. Wordsworth, Paintings, 19.
Thompson, H. I., Painting, 22.
Thompson, Harry, Painting, 21.
Thompson, J., Painting, 29.
Thompson, J. C., Engravings, 58.
Thomson, A. W., Painting, 30.
Thorburn, A., Water color, 66.
Thoren, Otto von, Painting, 88.
Thouron, H., Painting, 39: loans Painting, 43.
Thurman, P., Painting, 108.
Tuurston, J. O., loans Painting, 27.
Tidemand, A., Painting, 108.
Tiffany, L., loans Painting, 20.
Tiffany, L. C., Paintings, 25, 28.
Tilden, G. T., Designs, 32.
Tilton, J. R., Paintings, 39, 40.
Tiff, A., Painting, 105.
Toberenz, R., Sculpture, 86.
Tom, J. B., Painting, 101.
Tommashefky-Bontcha, J., Painting, 135.
Tomkins, Chas. A., Painting, 68.
Tompkins, Clementina, Painting, 39.
Topham, F. W. W., Paintings, 63, 67.
Torelli, Lot, Sculpture, 113, 114.
Torna, O., Paintings, 107.
Torrecassana, Francisco, Painting, 128.
Torrini, Giocondo, Mosaic tables, 112.
Tortez, V., Painting, 78.
Totti, Prof. Carlo, Painting, 114.
Tourteau, E., Decorated faience, 97: Decorated carthenware, 98.
Tovar, Manuel, Models, 127.
Townsend, Chas. E., Painting, 17.
Townsend, John C., loans Painting, 27.
Tracey, C., loans Painting, 30.
Train & Bundy, Photographs, 139.
Trapp & Munch, Photographs, 143.
Travers, W. T. K., Painting, 52.
Trenti, Girolamo, Paintings, 111, 116.
Tresling & Co., Chrome-Lithographs, 103.
Trezzini, Angelo, Painting, 116.
Trinity Chapel, N. Y., loans Painting, 39.
Trist, George, loans Painting, 30.
Trombetta, Sculpture, 110.
Trotter, N. H., Painting, 46.
Trouillebert, P. D., Painting, 74, 78.
Truman, E., Painting, 49.
Trumbull, G., Painting, 30.
Trumbull, John, Painting, 50.
Truphine, A. J., Painting, 73.
Tschaggeny, Charley, Paintings, 92, 93.
Tuckerman, S. S., Paintings, 41, 42.
Turini, G., Sculpture, 32.
Turner, H. J., loans Painting, 62, 63.
Turner, J. M. W., Painting, 65.
Turner, J. V. P., Painting, 43.
Turner, W. G., Sculpture, 51, 52.
Twibill, G. W., Painting, 19.
Tyson, I. G., Photographs, 138.
Tyszkiewicz, Count, Photographs, 145.
Tyrrodnikoff, P., Carving, 135.
U.
Uglioni, Giov., & Co., Mosaic tables, 112.
Uhlrich, H. S., Engraving, 68.
Ulke, Henry, Paintings, 43.
Ullman, B., Painting, 72.
Unger, J., Photographs, 144.
Unger, W., Etchings, 91.
Union Club, N. Y., loans Paintings, 19, 29.
Union League Club, Loans Sculpture, 44.
(Unknown) Paintings, 38, 48, 126, 128: Sculpture, 117, 118.
Unterberger, F. R., Paintings, 92, 94.
Urgell, Modesto, Painting, 128.
V.
Vaini, P. (deceased), Painting, 29.
Valadon, J. E., Painting, 77.
Valandon, I., Painting, 78.
Valaperta, Francesca, Sculpture, 117.
Valentine, J., Photographs, 142.
Valera, J. D., Painting, 129.
Valkenburg, H., Painting, 100.
Van Brockling, Paintings, 93, 95.
Vanderbilt, W. H., loans Painting, 29.
Vanderwede, Painting, 77.
Vanderlyn, J., Paintings, 21, 50.
Van Deventer, J. H., Painting, 100.
Vandusen, R., Chromolithographs, 56.
Vandyck, Paintings, 70.
Vandyke, Anthony, Painting, 37.
Van Elen, K., Paintings, 17, 18, 24, 27, 28.
Van Everdingen, Anthony, Painting, 101.
Van Hove, J. H., Painting, 100.
Van Hove, Victor, Painting, 93.
Van Keirsbick, Jules, Paintings, 92, 94, 95.
Van Lil, Joseph, Painting, 93.
Van Lockhorst, D., Painting, 100.
Van Loo, L., Photographs, 141.
Van Luppens, G. Joseph, Paintings, 92, 94.
Van Reuth, E., Painting, 52.
Van Schendel, F., Painting, 38.
Van Seben, Henry, Paintings, 94, 95.
Varin, Eugene, Engravings, 80.
Vasselot, A. de, Sculpture, 75, 76.
Vazquez, Painting, 124.
Vazquez, Ignacio, Painting, 124.
Vedder, Elihu, Painting, 39.
Velay, A., Painting, 78.
Veneroni, Sculpture, 111, 119.
Venino, Franz, Drawings, 49.
Verboekhoven, E., Painting, 38.
Verestchagin, P., Paintings, 135.
Verhas, Jean, Painting, 92.
Verheyden, Francois, Painting, 95.
Von Huysden, Isidore, Painting, 95.
Vorhoeven-Ball, Paintings, 92, 95.
Verner, F. A., Paintings, 69, 71.
Vernet, J., Painting, 38.
Vernon, A. R., Paintings, 72, 75, 77.
Verrall, L., Photographs, 144.
Verschueren, J., Painting, 101.
Verschueren, J., Painting, 101.
Verveer, Elchanon, Painting, 101.
Vester, W., Painting, 101.
Vichi, Ferdinando, Mosaic tables, 112.
Vidal, L., Prints, 143.
Vidal y Roger, A., Music, 131.
Vigial, A. G., Water color, 79, 73.
Villa, E., Painting, 77.
Villa, Federico Gaetano, Sculpture, 114.
Villa, J. G., Sculpture, 128.
Villalpando, Carlos de, Painting, 123.
Villamil, Leopoldo, Paintings, 128.
INDEX.

169

Willebesseys, G., Painting, 74.
Vieck, Franz, Paintings, 92, 94.
Vincende, Thomas, Statuary, 93.
Virgin, J. G., Paintings, 107.
Virtue, Jas., loans Paintings, 62, 64.
Vogel, J. G., Paintings, 101, 102.
Vogt, A., Paintings, 69.
VolkmAnn, Messrs., loan Water colors, 65.
Volk, Douglas, Paintings, 38, 47.
Volkaerts, F. X., Earthenware, 98.
Volkenburg, P. van, loans Painting, 24.
Volkmer, Charles, paintings, 59.
Volkmer, Charles, jr., painting, 44.
Vos, Miss M., Paintings, 100, 101.
Vosnaght, F., Painting, 75.

W.

Wade, Carlos, Painting, 128.
Wagner, A., Painting, 51; Sculpture, 90.
Wagner, Jules, Paintings, 92, 94.
Wagner, S., loans Painting, 48.
Walshberg, H. L., Painting, 107.
Walshquist, E., Paintings, 57.
Walckiers, W., loans Painting, 54.
Walker, Major, loans Paintings, 69, 70.
Wallander & Torslow, Paintings, 107.
Wallander, W., Painting, 107.
Wallyr, Achenbruch, Engravings, 137.
Waller, Frank, Painting, 23.
Waller, Mrs. M., loans Painting, 23.
Wallis, H., Paintings, 65.
Wahraven, Jean, Painting, 92.
Walton, H. F., Painting, 76.
Ward, Geo. R., Engraving, 65.
Ward, Mrs. Henri, Paintings, 65.
Ward, James, Painting, 65.
Wardell, J., loans Paintings, 63, 64.
Ware & Van Brunt, Designs, 92.
Warner, A., loans Painting, 37.
Warner, Miss W., Painting, 39.
Warren, J. H., loans Painting, 49.
Warren, O. L., Sculpture, 82.
Wassenvogel, S., Photographs, 144.
Wastlish, C., paintings, 105.
Waterman & Hall, Photographs, 139.
Waterman, M., Painting, 21.
Waters, Horace, loans Painting, 57.
Waters, Mrs. Horace, loans Painting, 26.
Wright, B., loans Painting, 39.
Watkins, E. C., Photographs, 137.
Watts, George F., Paintings, 65.
Wright, E. C., Paintings, 18, 21, 24, 45, 47.
Way, Paintings, 79.
Way, A. J. H., Painting, 47.
Way, C. Granville, Painting, 43.
Way, E. W., Paintings, 70, 71.
Weaver, Mrs. A., Photograph, 47.
Weber, Carl, Painting, 43.
Wemer, Philip, Painting, 24.
Weber, Theodore A., Paintings, 93, 95.
Webster, W. P., loans Painting, 35.
Wells, Mrs. A., paintings, 93.
Weeks, E. L., Painting, 41.
Weigall, Henry, Paintings, 65.
Weir, J. F., Paintings, 23, 3, 49, 47.
Weir, R. W., Painting, 51.
Weisman, W. H., Painting, 18.
Weissenbruch, Jan, Painting, 101.
Welling, H. J., loans Painting, 28.
Wells, Henry Tanworth, paintings, 65.
Welch, John, loans Painting, 38.
Wenderoth & Co., Photographs, 137.
Wenderoth, F. A., Photographs, 145.
Weir, G., Painting, 107.
Wettkamm, Gustave, Painting, 99.

Wertmuller (dec'd), Painting, 48.
West, Benjamin, Paintings, 39, 59, 65.
West, E. F., Painting, 5.
West, Samuel, Stained glass, 53, 57.
Westham Granite Co., Stonework, 9.
Westminster, Duke of, loans Water color, 66.
Westminster, Duke of, loans Water color, 66.
Weston, L., Paintings, 70, 71.
Weston, N., Photographs, 137.
Wetherby, Mrs., Photographs, 140.
Wexelton, Chr., Painting, 108.
Wharncke, Earl of, loans Painting, 64.
Wharton, P. F., Painting, 24.
White, Edwin, Paintings, 18, 20.
White, G. H., Painting, 63.
Whitechurch, R. (dec'd), Engravings, 58, 59.
Whitney, Annie, Sculpture, 42, 44.
Whitney, George, loans Paintings, 22, 23, 25.
Whitney, L. W., Design, 37.
Whitten, Charles V., loans Painting, 28.
Wittredge, W., Paintings, 17, 18, 22, 23, 39.
Wider, W., Paintings, 84, 85.
Wieners, Charles, Medals, 26, 97.
Wieschuch, F. W. H., Penmanship, 59.
Wiggleworth, T., loans Paintings, 20, 43.
Wilkinson, O., Photographs, etc., 144.
Wilberg, C., Painting, 83.
Wilcox, H., Painting, 45.
Wild, H. G., Painting, 43.
Wilde, Joseph, loans Painting, 25.
Wilde, Samuel, loans Paintings, 26, 28.
Wilkeson, Mrs. W., loans Paintings, 39, 45.
Wilkie, Sir David, Paintings, 65.
Willard, A. M., Painting, 40.
Willard, W., Painting, 43.
Willet, W. H., Painting, 44.
Willetk, M., Paintings, 76.
Williams, I. L., Paintings, 22, 47.
Williams, I. T., loans Paintings, 26, 27, 28.
Willich, C., Painting, 83.
Wills, H. M., loans Paintings, 67.
Willmore, A., Engravings, 68.
Wilson, G. W., Photographs, 141; Album, 141.
Wilson, Hood, & Co., Lenses, 139.
Wilson, J. J., Magic lantern, 137.
Wilson, Oregon, Paintings, 43, 45.
Wilson, Richard, Painting, 65.
Wilson, W. A., loans Paintings, 43, 45.
Windsor, Henry, Painting, 101.
Winge, E., paintings, 57.
Winge, Mrs. H., Paintings, 107.
Winge, M. E., Cartoons, 144.
Winner, W. E., Paintings, 22, 47.
Winters, Miss Anna, Paintings, 44.
Wittman & Bros., Co., Centennial memorial, 55.
Wittkamp, Jean Bernard, Paintings, 95, 99.
Wolf, G., Painting, 38; Photographs, 143.
Wollrabe, H. W., Photographs, 103.
Wood, G. B., jr., Painting, 47; Drawings, 43.
Wood, Marshall, Sculpture, 60.
Wood, T. W., Paintings, 18, 23, 28.
Woodgate, T., loans Water color, 66.
Woods, R. S., loans Painting, 71.
Wollman, A., loans Painting, 19, 21.
Woodward, D. A., Photographs, 140.
Workum, L. J., loans Sculpture, 49.
Worthington Sons, Pedestal, 59.
Wortley, M., Duke of, loans Paintings, 40.
Wouwermans, Painting, 38.
Wright, Geo., Painting, 20.
Wright, H. Smith, loans Painting, 63.
Wright, J. M., loans Painting, 42.
Wulffart, Hippolyte, Painting, 95.
Wyant, A. H., Painting, 28.
Wynfield, D. W., Paintings, 65.
Wyon, J. S. & A. B., Sculpture, 60.

X.

Xylander, W., Painting, 54.
Y.
Yeames, Wm. F., Paintings, 65.
Yon, Edmond C., Paintings, 72, 84.
Yooravleff, F., Paintings, 134.
York, F., Photographs, 142.
Young, Alfred, loans Sculpture, 50.
Yvon, A., Paintings, 75, 78.

Z.
Zagorsky, N., Painting, 134.
Zannoni, Cav. Ugo, Sculpture, 118.

Zetterström, Mrs. M., Painting, 107.
Zettler, F. X., Chromos, 86; Stained glass, 87.
Zier, Edouard, Painting, 79.
Zimmerman, T., Photographs, 139.
Zengler, F., Statuary, 135.
Zoellner, L., Cameos, 55.
Zoffany, Johann, Painting, 65.
Zuber, Buhler, Painting, 77.
Zuber, H. J., Painting, 74.
Zuccoli, Luigi, Paintings, 113, 114.
Zumbusch, Caspar, Sculpture, 90.
Zurbaran, F., Painting, 128.
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INTERNATIONAL EXHIBITION.

1876

Official Catalogue.

PART III.

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## CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Buildings and Special Exhibits</td>
<td>6</td>
</tr>
<tr>
<td>Subject Index, National Exhibits</td>
<td>8</td>
</tr>
<tr>
<td>Machinery Hall</td>
<td>9</td>
</tr>
<tr>
<td>Key to the Notation</td>
<td>10</td>
</tr>
<tr>
<td>Ground Plan of Machinery Hall</td>
<td>11</td>
</tr>
<tr>
<td>Synopsis of the Classification</td>
<td>12</td>
</tr>
<tr>
<td>Classification of Department V., Machinery</td>
<td>13</td>
</tr>
<tr>
<td>Catalogue of the Department of Machinery</td>
<td>17</td>
</tr>
<tr>
<td>United States Government Buildings</td>
<td>71</td>
</tr>
<tr>
<td>Catalogue of the United States Government Exhibition</td>
<td>73</td>
</tr>
<tr>
<td>Women's Pavilion</td>
<td>84</td>
</tr>
<tr>
<td>Catalogue of the Women's Exhibition</td>
<td>87</td>
</tr>
<tr>
<td>Shoe and Leather Exhibition Building</td>
<td>104</td>
</tr>
<tr>
<td>Catalogue of the Shoe and Leather Exhibition</td>
<td>105</td>
</tr>
<tr>
<td>Special Buildings and Exhibits, Descriptions and Catalogues</td>
<td>117</td>
</tr>
</tbody>
</table>
BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[Note.—The buildings bear the numbers prefixed to them in this table, being the numbers adopted by the Centennial Guide Book Co. (Limited).]

### Buildings South of the Avenue of the Republic.

<table>
<thead>
<tr>
<th>No.</th>
<th>Building</th>
<th>Part</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Main Exhibition Building</td>
<td>I.</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>Machinery Hall</td>
<td>III.</td>
<td>9</td>
</tr>
<tr>
<td>3.</td>
<td>Machine Shop</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>4.</td>
<td>American Boiler House</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>5.</td>
<td>Corliss Boiler House</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>6.</td>
<td>British Boiler House</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>7.</td>
<td>Shoe and Leather Exhibition Building</td>
<td>III.</td>
<td>105</td>
</tr>
<tr>
<td>8.</td>
<td>Office Centennial Board of Finance</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>9.</td>
<td>Office U. S. Centennial Commission</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>10.</td>
<td>Centennial National Bank</td>
<td>III.</td>
<td>117</td>
</tr>
<tr>
<td>11.</td>
<td>Weimer Machine Works</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>12.</td>
<td>Bartholdi Fountain</td>
<td>III.</td>
<td>146</td>
</tr>
<tr>
<td>13.</td>
<td>Catholic Total Abstinence Union Fountain</td>
<td>III.</td>
<td>146</td>
</tr>
<tr>
<td>15.</td>
<td>Gillender &amp; Sons, Glassware Manufactory</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>16.</td>
<td>Camp of West Point Cadets</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>17.</td>
<td>Iron Pipe</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>18.</td>
<td>Liberty Store Works</td>
<td>III.</td>
<td>118</td>
</tr>
<tr>
<td>19.</td>
<td>Annex, Saw Mill</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>20.</td>
<td>Boiler House</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>21.</td>
<td>Railway Engine House</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>22.</td>
<td>St. Cecilia Organs</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>23.</td>
<td>Automatic Railway</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>24.</td>
<td>Monument—American Soldier</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>25.</td>
<td>Gunpowder Pile-Driven</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>27.</td>
<td>West End Railway Offices</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>28.</td>
<td>Pneumatic Tubes</td>
<td>III.</td>
<td>119</td>
</tr>
<tr>
<td>29.</td>
<td>New England Granite Co.'s Exhibit</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>30.</td>
<td>Railroad Crossings</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>31.</td>
<td>State of Nevada Quartz Mill</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>32.</td>
<td>Store House</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>33.</td>
<td>Friction Drum</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>34.</td>
<td>Stokes &amp; Parrish, U. S. Hoisting Machine</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>35.</td>
<td>Chilean Amalgamating Machinery</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>36.</td>
<td>Campbell Printing Press</td>
<td>III.</td>
<td>120</td>
</tr>
<tr>
<td>37.</td>
<td>Old Locomotive and Car</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>38.</td>
<td>Car House</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>39.</td>
<td>Police Station</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>40.</td>
<td>Averill Paint Co.</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>41.</td>
<td>Centennial Catalogue Co.</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>42.</td>
<td>Stokes &amp; Parrish, Boiler House</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>43.</td>
<td>Ehret's Waterproof Roofing</td>
<td>III.</td>
<td>121</td>
</tr>
<tr>
<td>44.</td>
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<td>Fireproof Ventilated Buildings</td>
<td>III.</td>
<td>122</td>
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<td>Swings</td>
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<td>Ornamental Stone Work</td>
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### Buildings North of the Avenue of the Republic, and West of Belmont Ave.

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<th>No.</th>
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<td>Tunisian Café and Bazaar</td>
<td>III.</td>
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<td>World's Ticket Office, Cook, Son, &amp; Jenkins,</td>
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<td>85.</td>
<td>Loiseau's Pressed Fuel Company</td>
<td>III.</td>
<td>132</td>
</tr>
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<td>86.</td>
<td>Spanish Government Buildings</td>
<td>III.</td>
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<td>87.</td>
<td>United States Signal Office</td>
<td>III.</td>
<td>141</td>
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<td>88.</td>
<td>Tennessee State Building</td>
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<td>III.</td>
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<td>91.</td>
<td>Bishop Allen Monument</td>
<td>III.</td>
<td>142</td>
</tr>
</tbody>
</table>
BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[Note.—Descriptions of the Buildings will be found at the indicated part and page of the Official Catalogue.]

Buildings North of the Avenue of the Republic, and West of Belmont Av.

No.  Part Page
92. Office of the Boston "Advertiser" and Boston " Herald,"  III. 142
93. Rowell's Newspaper Exhibition Building,  III. 142
94. California State Building,  III. 142
95. Centennial Fire Patrol, No. 1,  III. 142
96. Turkish Café,  III. 143
97. Office Frank Leslie’s Publications,  III. 143
98. Iowa State Building,  III. 143
99. Rhode Island State Building,  III. 143
100. Vermont State Building,  III. 143

Buildings East of Belmont Avenue, and South of Fountain Avenue.

101. Art Gallery,  II. 9
102. Art Gallery Annex,  II. 10
103. E’mai B’rith Monument of Religious Liberty,  III. 143
104. Photographic Art Building,  II. 137
105. Vienna Bakery and Coffee House,  III. 143
106. Principal Annex to Main Exhibition Building,  I. 374
107. Swedish Government Building,  III. 144
108. Japanese Bazaar,  III. 144
109. The Judges’ Hall,  III. 144
110. Centennial Photographic Co.,  III. 144
111. Sheet-metal Pavilion,  III. 144
112. German Government Building,  III. 144
113. Railroad Ticket Office,  III. 144
114. Office United States Centennial Commission,  III. 145
115. Brazilian Government Buildings,  III. 145
116. The Dairy,  III. 145
117. Restaurant “La Fayette,”  III. 145
118. House of Public Comfort,  III. 145
119. Empire Transportation Co.,  III. 145
120. French Government Building,  III. 145
121. Centennial Fire Patrol, No. 2,  III. 145
122. Penn’a Educational Building,  III. 146
123. Telegraph Office,  III. 147
124. American Fusee Company,  III. 147
125. Klautscheck, Thomas, & Stewart’s Glass Magazine,  III. 147
126. Moorish Villa,  III. 147
127. American Bible Society,  III. 147
128. Hunter’s Camp,  III. 147
129. Office Water Department,  III. 148
130. Soda Water Stands,  III. 148
131. Cigar Stands,  III. 148
132. Singer’s Sewing Machines,  III. 148
133. Centennial Medical Department,  III. 148
134. Portugal Government Building,  III. 148
135. Bankers’ Building,  III. 148
136. French Glass Exhibit,  III. 149
137. Kindergarten,  III. 149
138. Centennial Police Station,  III. 149
139. Philadelphia City Building,  III. 149
140. Music Pavilion,  III. 149
141. Burial Caskets,  III. 149
142. Perforated Metal Building,  III. 149
143. Rubber Roofing,  III. 149
144. Cuban Acclimation Office,  III. 149
145. Naval Group,  III. 149
146. The Dying Lioness,  III. 149

Buildings East of Belmont Avenue, and North of Fountain Avenue.

151. Horticultural Hall,  IV. 147
152. Agricultural Hall,  IV. 9
153. The Women’s Pavilion,  III. 85
154. The Women’s School House,  III. 150
155. New Jersey State Building,  III. 150
156. Restaurant of the South,  III. 150
157. Kansas and Colorado State Building,  III. 150
158. New England Farmer’s Home 100 years ago, and Modern Kitchen,  III. 150
159. Great American Restaurant,  III. 150
160. German Restaurant,  III. 151
161. Tea and Coffee Press,  III. 151
162. Butter and Cheese Factory,  III. 151
163. Soda Water Stand,  III. 153
164. Cigar Stand,  III. 151
165. Farm Wagon Building,  IV. 135
166. Pomological Building,  IV. 135
167. Brewers’ Building,  IV. 136
168. Model House Apiary,  IV. 140
169. Guano Company,  III. 151
170. Special Flower Exhibit Building,  III. 170
171. Wind Mills,  IV. 140
172. Office “Ohio Farmer,”  IV. 140
173. Hay Press,  III. 152
174. Police Station,  III. 152
175. Elevated Railroad,  III. 152
176. Boiler House,  III. 152
177. Virginia State Building,  III. 152
178. Protective Fire Apparatus,  III. 152
179. Pop-corn Stands,  III. 152
180. J. L. Mott Co. Fountain,  III. 152
### SUBJECT INDEX, NATIONAL EXHIBITS.

#### DEPARTMENT V.—MACHINERY.

<table>
<thead>
<tr>
<th>NATIONS</th>
<th>Machinery, Tools, etc. of Mining, Chemistry, etc.</th>
<th>Machines and Tools for Working Metal, Wood, and Stone</th>
<th>Machines, Tools, Implements of Spinning, Weaving, etc.</th>
<th>Machines, etc. used in Sewing, etc.</th>
<th>Machines, etc. for Printing, etc.</th>
<th>Repairing, etc.</th>
<th>Hydraulic and Pneumatic Apparatus</th>
<th>Railway Plant, Rolling-Stock, etc.</th>
<th>Machinery used in Preparing Agricultural Products</th>
<th>Aerial, Pneumatic, and Water Transportation</th>
<th>Machinery especially adapted to Special Requirements of the Exhibition</th>
<th>Shoe and Leather Exhibition</th>
<th>Women's Work</th>
<th>Special Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>17</td>
<td>19</td>
<td>28</td>
<td>30</td>
<td>32</td>
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* Railway plant, cars, etc., are largely exhibited in the Annex (No. 106) to the Main Building, Catalogue, Part I., page 374.

Note.—The Machinery of the following countries is installed wholly or in part in the Main Building, and catalogued in Part I., viz.:

<table>
<thead>
<tr>
<th>Country</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>246</td>
</tr>
<tr>
<td>Victoria</td>
<td>162</td>
</tr>
<tr>
<td>Bermuda</td>
<td>174</td>
</tr>
<tr>
<td>Gold Coast</td>
<td>177</td>
</tr>
<tr>
<td>Queensland</td>
<td>170</td>
</tr>
<tr>
<td>Tasmania</td>
<td>182</td>
</tr>
<tr>
<td>India</td>
<td>186</td>
</tr>
<tr>
<td>Canada</td>
<td>191</td>
</tr>
<tr>
<td>Austria</td>
<td>211</td>
</tr>
<tr>
<td>Denmark</td>
<td>224</td>
</tr>
<tr>
<td>Netherlands</td>
<td>361</td>
</tr>
<tr>
<td>Norway</td>
<td>230</td>
</tr>
<tr>
<td>Hawaii</td>
<td>251</td>
</tr>
<tr>
<td>Chili</td>
<td>262</td>
</tr>
<tr>
<td>Mexico</td>
<td>267</td>
</tr>
</tbody>
</table>
No. 20. MACHINERY HALL.

Size, 360 by 1402 feet; annex, 208 by 210 feet.

Engineers and Architects, HENRY PETTIT, JOSEPH M. WILSON, Philadelphia.

Contractor, PHILIP QUIGLEY, Wilmington, Del.

Wrought and cast iron furnished by PUSEY, JONES, & Co., Wilmington, Del.

MACHINERY HALL is located west of the intersection of Belmont and Elm avenues, at a distance of 542 feet from the west front of the Main Exhibition Building, and 274 feet from the north side of Elm avenue. The north front of the building is upon the same line as that of the Main Exhibition Building, thus presenting a front-age of 3824 feet from the east to the west ends of the exhibition buildings upon the principle avenue within the grounds.

The principal portion of the structure is one story in height, showing the main cornice upon the outside at 40 feet from the ground, the interior height to the top of the ventilators in the avenues being 70 feet, and in the aisles 40 feet. To break the long lines upon the exterior, projections have been introduced upon the four sides, and the main entrances finished with facades, extending to 78 feet in height. The east entrance forms the principal approach from street-cars, from the Main Exhibition Building, and from the Pennsylvania Railroad depot. Along the south side are the boiler houses and other buildings for special kinds of machinery. The west entrance affords the most direct communication with George’s Hill, which point affords the best view of the entire exhibition grounds.

The arrangement of the ground plan shows two main avenues 90 feet wide by 1360 feet long, with a central aisle between, and an aisle on either side. Each aisle is 60 feet in width; the two avenues and three aisles making the total width of 360 feet. At the centre of the building is a transept of 90 feet in width, which at the south end is prolonged beyond the Main Hall. This transept, beginning at 36 feet from the Main Hall and extending 268 feet, is flanked on either side by aisles of 60 feet in width, and forms the annex for hydraulic machines. The promenades in the avenues are 15 feet in width, in the transept 25 feet, and in the aisles 10 feet. All other walks extending across the building are 10 feet in width, and lead at either end to exit doors.

The foundations consist of piers of masonry. The superstructure consists of solid timber columns supporting roof trusses, constructed with straight wooden principals and wrought iron ties and struts. As a general rule, the columns are placed lengthwise of the building, at the uniform distance apart of 16 feet. The columns are 40 feet high to the heel block of the 90 feet span roof trusses over the avenues, and they support the heel of the 60 feet spans over the aisles at the height of 20 feet. The outer walls are built of masonry to a height of five feet, and above that are composed of glazed sash placed between the columns. Portions of the sash are movable.
for ventilation. Louvre ventilators are introduced in continuous lengths over both the avenues and the aisles. The building is lit entirely by side light.

The motive power is furnished by a Corliss engine of 1400 horse power. There are eight main lines of shafting, extending almost the entire length of the structure, and countershafts are introduced into the aisles where needed. The hangers are attached at the height of 20 feet from the floor.

The annex for hydraulic machines contains a tank 60 feet by 160 feet, with depth of water 10 feet. In this hydraulic machinery is exhibited in full operation. At the south end of this tank is a waterfall 35 feet high by 40 feet wide, supplied from the tank by the pumps upon exhibition.

The contract in the erection of Machinery Hall was made January 27th, 1875, and the building was begun forthwith, and finished October 1st, 1875. The cost was $542,300. The exhibition area covers about 14 acres.

KEY TO THE NOTATION.

The location of objects in the Machinery Building is shown by a letter and figure, indicating the nearest column of the building. The letters—A, B, C, to F—designate the successive ranges of columns, proceeding northward from the southern wall across the width of the building; the figures, the number of the column in each range, counting westwardly from the eastern wall, the entire length of the building, from 1 to 88. Thus C 5 is the column in the third range from the south, and the fifth from the eastern end of the building. The northwesternmost column is F 88.

The class of the classification (see page 13) to which each exhibit belongs is indicated by the small figures at the end of the line.
MACHINERY HALL.

Scale, 320 ft. to 1 in.

Length, 1402 ft. Width, 380 ft. Height of Avenues, 70 ft. Height of Aisles, 40 ft.
## SYNOPTIC OF THE CLASSIFICATION.

<table>
<thead>
<tr>
<th>LOCATION.</th>
<th>DEPARTMENTS.</th>
<th>CLASSES.</th>
<th>GROUPS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Mining and Metallurgy.</td>
<td></td>
<td>100—109</td>
<td>Minerals, Ores, Stone, Mining Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>110—119</td>
<td>Metallurgical Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120—129</td>
<td>Mining Engineering.</td>
</tr>
<tr>
<td>Main Building.</td>
<td></td>
<td>200—205</td>
<td>Chemical Manufactures.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>206—216</td>
<td>Ceramics, Pottery, Porcelain, Glass, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>217—227</td>
<td>Furniture, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>228—234</td>
<td>Yarns and Woven Goods of Vegetable or Mineral Materials.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>235—241</td>
<td>Woven and Felted Goods of Wool, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>242—249</td>
<td>Silk and Silk Fabrics.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>250—257</td>
<td>Clothing, Jewelry, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>258—264</td>
<td>Paper, Blank Books, Stationery.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>265—271</td>
<td>Weapons, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>272—279</td>
<td>Medicine, Surgery, Prosthesis.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>280—284</td>
<td>Hardware, Edge Tools, Cutlery, and Metallic Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>292—296</td>
<td>Carriages, Vehicles, and Accessories.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>310—319</td>
<td>Institutions and Organizations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>340—349</td>
<td>Engineering, Architecture, Maps, etc. Physical, Social, and Moral Condition of Man.</td>
</tr>
<tr>
<td>Art Gallery.</td>
<td>IV. Art.</td>
<td>400—409</td>
<td>Sculpture.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>410—419</td>
<td>Painting.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>420—429</td>
<td>Engraving and Lithography.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>430—439</td>
<td>Photography.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>440—449</td>
<td>Industrial and Architectural Designs, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>450—459</td>
<td>Ceramic Decorations, Mosaics, etc.</td>
</tr>
<tr>
<td>Machinery Building.</td>
<td>V. Machinery.</td>
<td>500—599</td>
<td>Machines, Tools, etc., of Mining, Chemistry, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>520—529</td>
<td>Machines and Implements of Spinning, Weaving, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>530—539</td>
<td>Machines, etc., used in Sewing, Making Clothing, etc.</td>
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<tr>
<td></td>
<td></td>
<td>540—549</td>
<td>Machines for Printing, Making Books, Paper Working, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>550—559</td>
<td>Motors, Power Generators, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>560—569</td>
<td>Hydraulic and Pneumatic Apparatus.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>570—579</td>
<td>Railway Plant, Rolling Stock, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>580—589</td>
<td>Machinery used in Preparing Agricultural Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>590—599</td>
<td>Aerial, Pneumatic, and Water Transportation. Machinery, and Apparatus, especially adapted to the requirements of the Exhibition.</td>
</tr>
<tr>
<td>Agricultural Building.</td>
<td>VI. Agriculture.</td>
<td>600—699</td>
<td>Arboriculture and Forest Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>610—619</td>
<td>Pomology.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>620—629</td>
<td>Agricultural Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>630—639</td>
<td>Land Animals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>640—649</td>
<td>Marine Animals, Fish Culture, and Apparatus.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>650—662</td>
<td>Animal and Vegetable Products.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>665—669</td>
<td>Textile Substances of Vegetable or Animal origin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>670—679</td>
<td>Machines, Implements, and Processes of Manufacture.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>680—689</td>
<td>Agricultural Engineering and Administration.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>690—699</td>
<td>Tillage and General Management.</td>
</tr>
<tr>
<td>Horticultural Building.</td>
<td>VII. Horticulture.</td>
<td>700—709</td>
<td>Ornamental Trees, Shrubs, and Flowers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>710—719</td>
<td>Hot Houses, Conservatories, Gra- peries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>720—729</td>
<td>Garden Tools, Accessories of Gardening.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>730—739</td>
<td>Garden Designing, Construction, and Management.</td>
</tr>
</tbody>
</table>
CLASSIFICATION.

DEPARTMENT V.—MACHINERY.

MACHINES; TOOLS, AND APPARATUS OF MINING, METALLURGY, CHEMISTRY, AND THE EXTRACTIVE ARTS.

CLASS 500.—Rock drilling.
CLASS 501.—Well and shaft boring.
CLASS 502.—Machines, apparatus, and implements for coal cutting.
CLASS 503.—Hoisting machinery and accessories.
CLASS 504.—Pumping, draining, and ventilating.
CLASS 505.—Crushing, grinding, sorting, and dressing. Breakers, stamps, mills, pans, screens, sieves, jigs, concentrators.
CLASS 506.—Furnaces, smelting apparatus, and accessories.
CLASS 507.—Machinery used in Bessemer process.
CLASS 509.—Gas machinery and apparatus.

MACHINES AND TOOLS FOR WORKING METAL, WOOD, AND STONE.

CLASS 510.—Planing, sawing, veneering, grooving, mortising, tonguing, cutting, moulding, stamping, carving, and cask-making machines, etc., cork-cutting machines.
CLASS 511.—Direct acting steam sawing machines, with gang saws. Bark mills.
CLASS 512.—Rolling mills, bloom squeezers, blowing fans. Rivet, nail, bolt, and tack making machinery.
CLASS 513.—Furnaces and apparatus for casting metals, with specimens of work.
CLASS 514.—Steam, trip, and other hammers, with specimens of work, anvils, forges, bellows,
CLASS 515.—Planing, drilling, slotting, turning, shaping, punching, stamping, cutting, and coining machines. Wheel cutting and dividing machines, emery wheels, drills, taps, gauges, dies, etc. Grindstones.
CLASS 516.—Stone-sawing and planing machines, dressing, shaping, and polishing, sand blasts, Tilghman's machines, glass-grinding machines, etc.
CLASS 517.—Brick, pottery, and tile machines. Machines for making artificial stone.
CLASS 518.—Furnaces, moulds, blowpipes, etc., for making glass and glassware.
CLASS 519.—Tools, implements, etc., for working metal, wood, and stone.

MACHINES AND IMPLEMENTS OF SPINNING, WEAVING, FELTING, AND PAPER MAKING.

CLASS 520.—Machines for the manufacture of silk goods.
CLASS 521.—Machines for the manufacture of cotton goods.
CLASS 522.—Machines for the manufacture of woolen goods, carpets, and tapestry
CLASS 523.—Machines for the manufacture of linen goods.
CLASS 524.—Machines for the manufacture of rope and twine, and miscellaneous fibrous materials.
CLASS 525.—Machines for the manufacture of paper and felting.
CLASS 526.—Machines for the manufacture of India-rubber goods.
CLASS 527.—Machines for the manufacture of mixed fabrics.
CLASS 528.—Machines for the manufacture of wire cloth.

MACHINES, APPARATUS, AND IMPLEMENTS USED IN SEWING AND MAKING CLOTHING AND ORNAMENTAL OBJECTS.
CLASS 530.—Machines used in the manufacture of lace, floor-cloths, fancy embroidery, hair, ribbons, etc.
CLASS 531.—Sewing and knitting machines, clothes, corset, hat, and bonnet making machines.
CLASS 532.—Machines for preparing and working leather.
CLASS 533.—Machines for making boots and shoes.
CLASS 534.—Machines for ironing, drying, scouring, and cleaning.
CLASS 535.—Machines for making clocks and watches.
CLASS 536.—Machines for making jewelry.
CLASS 537.—Machines for making buttons, pins, needles, etc.
CLASS 538.—Pipes for smoking.

MACHINES AND APPARATUS FOR TYPESETTING, PRINTING, STAMPING, EMBOSSED, AND FOR MAKING BOOKS, AND PAPER WORKING.
CLASS 540.—Printing, stamping, embossing, and lithographing presses.
CLASS 541.—Typecasting machines, apparatus of stereotyping.
CLASS 542.—Types and typesetting machines. Type-writing machines.
CLASS 543.—Printers' furniture.
CLASS 544.—Bookbinding machines.
CLASS 545.—Paper-folding machines.
CLASS 546.—Paper and card cutting machines, paper box machines.
CLASS 547.—Envelope machines.

MOTORS AND APPARATUS FOR THE GENERATION AND TRANSMISSION OF POWER.
CLASS 550.—Boilers and all steam or gas generating apparatus for motive purposes.
CLASS 551.—Water-wheels, water engines, hydraulic rams, windmills.
CLASS 552.—Steam, air, or gas engines, electro-magnetic engines.
CLASS 553.—Apparatus for the transmission of power, shafting, belting, cables, transmission of power by compressed air, etc., gearing, cables.
CLASS 554.—Screw propellers, wheels for the propulsion of vessels, and other motors.
CLASS 555.— Implements and apparatus used in connection with motors, steam gauges, manometers, etc. Anti-friction metals.

HYDRAULIC AND PNEUMATIC APPARATUS, PUMPING, HOISTING, AND LIFTING.
CLASS 560.—Pumps and apparatus for lifting and moving liquids.
CLASS 561.—Pumps and apparatus for moving and compressing air or gas.
CLASS 562.—Pumps and blowing engines, blowers and ventilating apparatus.
CLASS 563.—Hydraulic jacks, presses, elevators, lifts, meters, cranes.
CLASS 564.—Fire engines, hand, steam, or chemical, and fire extinguishing apparatus, hose, ladders, and fire-escapes, etc.
CLASS 565.—Beer engines, soda-water machines, bottling apparatus, corkscrews.
CLASS 566.—Stop valves, cocks, pipes, etc.
CLASS 567.—Diving apparatus and machinery.
CLASS 568.—Ice machines.

RAILWAY PLANT, ROLLING STOCK, AND APPARATUS.
CLASS 570.—Locomotives, models, drawings, plans, etc.
CLASS 571.—Carriages, wagons, trucks, cars, etc. Scales.
CLASSIFICATION.

Class 572.—Brakes, buffers, couplings, and snow-plows.
Class 573.—Wheels, tires, axles, bearings, springs, etc.
Class 574.—Permanent ways, ties, chairs, switches, etc.
Class 575.—Station arrangements, signals, water-crane, turn-tables.
Class 576.—Miscellaneous locomotive attachments.
Class 577.—Street railways and cars.

MACHINES USED IN PREPARING AGRICULTURAL PRODUCTS.
Class 580.—Flour mills.
Class 581.—Sugar refining machines.
Class 582.—Confectioners' machinery.
Class 583.—Oil-making machinery.
Class 584.—Tobacco manufacturing machines.
Class 585.—Mills for spices, coffee, etc.
Class 586.—Machines for preparing fancy goods.
Class 587.—Machines for preparing malt and spirituous liquors.

AERIAL, PNEUMATIC, AND WATER TRANSPORTATION.
Class 590.—Suspended cable railways.
Class 591.—Transporting cables.
Class 592.—Balloons, flying machines, etc.
Class 593.—Pneumatic railways, pneumatic dispatch.
Class 594.—Boats and sailing vessels. Sailing vessels used in commerce. Sailing vessels used in war. Yachts and pleasure boats. Rowing boats of all kinds. Life boats and salvage apparatus, with life rafts, belts, etc. Submarine armor, diving bells, etc. Ice boats. Models and drawings.
Class 595.—Steamships, steamboats, and all vessels propelled by steam.
Class 596.—Vessels for carrying telegraph cables and railway trains, also coal barges, water boats, and dredging machines, screw and floating docks, and for other special purposes.
Class 597.—Steam capstans, windlass, deck-winches, and steering apparatus, fans.

MACHINERY AND APPARATUS ESPECIALLY ADAPTED TO THE REQUIREMENTS OF THE EXHIBITION.
Boilers, engines, cranes, pumps, etc.
# INDEX TO ADVERTISEMENTS.

<table>
<thead>
<tr>
<th>Advertisement</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Newspaper Union</td>
<td>44</td>
</tr>
<tr>
<td>Automatic Fire Extinguisher and Alarm</td>
<td>54</td>
</tr>
<tr>
<td>Asbestos Materials</td>
<td>54</td>
</tr>
<tr>
<td>Bridesburg Manufacturing Co.</td>
<td>17</td>
</tr>
<tr>
<td>Baldwin Locomotive Works</td>
<td>41</td>
</tr>
<tr>
<td>Baeder, Adamson &amp; Co.</td>
<td>71</td>
</tr>
<tr>
<td>Baugh’s, E. P., Patent Sectional Mills</td>
<td>71</td>
</tr>
<tr>
<td>Braw, W. A., &amp; Co.</td>
<td>40</td>
</tr>
<tr>
<td>French Restaurant</td>
<td>55</td>
</tr>
<tr>
<td>Gloucester Iron Works</td>
<td>17</td>
</tr>
<tr>
<td>Greenwood &amp; Batley</td>
<td>54</td>
</tr>
<tr>
<td>Harrison Boiler Works</td>
<td>40</td>
</tr>
<tr>
<td>Haseltine Galleries</td>
<td>40</td>
</tr>
<tr>
<td>Lawson, Samuel &amp; Sons</td>
<td>55</td>
</tr>
<tr>
<td>Morris, Tasker &amp; Co.</td>
<td>71</td>
</tr>
<tr>
<td>McKay’s Equilibrium Drill</td>
<td>54</td>
</tr>
<tr>
<td>Pancoast &amp; Maule</td>
<td>28</td>
</tr>
<tr>
<td>Pritchett, Baugh &amp; Co.</td>
<td>29</td>
</tr>
<tr>
<td>Pennsylvania Railroad</td>
<td>70</td>
</tr>
<tr>
<td>Rue’s Little Giant Injector</td>
<td>29</td>
</tr>
<tr>
<td>Springfield Fire and Marine Insurance Co.</td>
<td>71</td>
</tr>
<tr>
<td>Sun Newspaper</td>
<td>45</td>
</tr>
<tr>
<td>Scanlan, Jr., &amp; Co.</td>
<td>54</td>
</tr>
<tr>
<td>West Philadelphia Passenger Railway Company</td>
<td>71</td>
</tr>
<tr>
<td>Wiedershiem, John A. &amp; Co.</td>
<td>71</td>
</tr>
</tbody>
</table>
NOTICE TO COTTON AND WOOLEN MANUFACTURERS.

THE BRIDESBURG MANUFACTURING COMPANY
Offices, 65 and 67 North Front Street, Philadelphia,
IS THOROUGHLY REORGANIZED.

It builds none but the best machinery. It builds machinery strictly to specifications. It puts any of its machinery in on competition. It furnishes machinery in contract time, under forfeiture. It furnishes repairs promptly and at moderate prices. It can build ten Looms a day. It can build ten Spinning Frames a week. It can build five sets of Cards in a fortnight. It can build five self-acting Mules in a month. It can build Hand Mules, Cotton Cards, Twisters, Drawing Frames, Railway Heads, Pickers, Feeders, Renovators, Bobbin Winders, Beaming Machines, Warping Mills, Spreaders, Reels, &c., in any quantity required. It asks no pay until efficiency is demonstrated. It quotes low prices, and uniform to all.

David S. Brown, Pres't.
Benj. Chew, Treas.

Jas. P. Michellon, Sec'y.
Wm. Sexton, Sup't.

CAST IRON & WOOD MANUFACTURERS,
Office, Philadelphia, No. 6 North Seventh St.
Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

1 Waring Rock Drill Co., New York, N. Y.—Mining, quarrying, and tunneling drills. A 54. 500

2 Pennsylvania Diamond Drill Co., Pottsville, Pa.—Prospecting drill, quarry drill, and samples of cores, continuous cylindrical sections of rock and mineral strata, bored out to any depth, and furnished: therefore is a perfectly reliable method of proving mineral lands. Artesian wells bored of any size and depth. A 55. 500

2a Beamisdarfer & Eby, Campbeltown, Pa.—Rock-drilling machine. (Annex 2.) 500

2b Union Rock Drill Co., New York, Pa.—Rock drills. A 60. 500

2c American Diamond Rock Boring Co., Providence, R. I.—Diamond-pointed rock drills. A 54. 500

5 Gardiner Drill Co., New York, N. Y.—Rock-drilling machines and appliances for operating in mines and quarries. A 55-. 500

4 Weaver, W., Phoenixville, Pa.—The Victor rock drill. Two men with this machine will do the work of six by hand. 1t-drills holes from half an inch to six inches in diameter to any depth and at any angle required. Price for machine driven by water, $150; by steam, $750. A 55-. 500

5 Ingersoll Rock Drill Co., New York, N. Y.—Steam or compressed air rock-drilling machine. A 60-61. 500

6 Bolles, J. N., Baltimore, Md.—Machinery for boring artesian wells, in operation. (Outside of building.) 501

6a Mowbray, George M., North Adams, Mass.—Electric batteries and exploders. A 59. 501

6b Randolph, Theodore F., Morristown, N. J.—Ditcher and excavator. C 77-. 501

6c Roberts, E. A. L., Titusville, Pa.—Oil well torpedo. C 78. 501

6d Robinson, John E., Boston, Mass.—Sand and air chamber and artesian well. (Annex 3.) 501

7 Bolles, Jesse N., Baltimore, Md.—Boring machinery for artesian wells. A 56-57. 501

8 Melvin & McMorris, Philadelphia, Pa.—Artesian well, drilling and pumping. (Outside of building.) 501

9 Pierce, Charles D., Peru, La Salle Co., Ill.—Well boring and prospecting machine. One man and horse can bore 20 feet per hour. Bores any size or depth. Boulders, hard-pan, and quicksand easily handled. Has an established reputation in every State and Territory. $35 per day is made with one machine. Agents wanted in every county, also in foreign countries. Illustrated catalogue sent free on application. Address as above. (Outside of building.) 501

10 Monitor Coal Cutter Co., Brazil, Ind.—Compressed air coal-cutting machine. A 58. 502

11 Hunt, Chas. W., New York, N. Y.—Machinery for unloading vessels and storing cargoes. A 56. 503

12 Sternbergh, James Hervey, Reading, Pa.—Surface emery-grinding machine. B 37. 505

13 Blake Crusher Co., New Haven, Conn.—Machine for crushing ores, stones, etc. Extensively used for breaking stone for MacAdam roads, ballasting railroads, and for concrete. In mining operations, for the rapid and economical crushing of ores of all kinds, it has a world-wide reputation. A 58 and A 63. 505

14 Fulton Foundry Co., Cleveland, O.—Turn-table. A 36. 505

14a Krom, S. R., New York, N. Y.—Ore and laboratory separator; ore crushers. A 60. 505


16c Coxe Bros. & Co., Jefilfs, Pa.—Working model of coal breaker. A 63. 505

17 Baugh & Sons, Philadelphia, Pa.—Mills for crushing and grinding minerals, bones, etc. A 61-62. 505

18 State of Nevada, Gold Hill, Nevada.—Quartz mill. (South of Machinery Hall.) 505

19 Poole & Hunt, Baltimore, Md.—Fertilizer and paint mixer. C 79. 507

20 Bradford, H., Philadelphia, Pa.—Coal and ore separator. This machine separates all solid substances that differ in specific gravity, and from the smallest particles to four inches in size. For sale by H. Bradford, room 26, Merchants' Exchange, corner Third and Walnut streets, Philadelphia. A 73. 505

21 Albright & Stroh, Mauch Chunk, Pa.—Coal jig for separating slate from coal, etc. B 19. 505

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
DEPT. V. — MACHINERY.

Mining, Chemical, Gas Machinery.


23 Bowron, William M., Philadelphia, Pa.—Waste house, fire grates, blast furnace, hot blast stoves. A 57. 508

24 Koenigsberg, J., Lock Haven, Pa.—Model of coke oven and discharging machine. A 57. 508

25 W. C. P., Lebanon, Pa.—Charging apparatus for blast furnaces, blast furnace fixtures. B 69. 506

26 Edgemoor Iron Co., Edgemoor, Del.—Rotary pulley, hydraulic forged eye-bars, wrought and cast iron work for Main Exhibition Building. C 22. 506

26a Caldwell & Mather, Philadelphia, Pa.—Melting furnace. (Annex A.) 506

26b Manes, James, sr., New Haven, Conn.—Revolving globe furnace for smelting gold and silver ores, etc. A 57-58. 506


27 Tully, John W., Industrial Plant, Varnish, and Filler Works, Twentieth and Parrish streets, Philadelphia, Pa.—Paints and varnishes, scraper filling, Belgian varnish filler, American paint filling, Koman filler, iron priming and finishing point, lubricating paste, wood filling, and French washing blue. A 67. 508

28 Bryan & Snyder, Philadelphia, Pa.—Manufacture of silver-plated ware. A 66. 508

29 Zieggraf & Hohenadel, 215 Race streets, Philadelphia, Pa.—Machine for grinding and mixing paint. Manufacturers of machinery for grinding and mixing paint. Also mills for grinding drugs, spices, etc. Our mills are made with an improved stand for adjusting upper stone. A 66. 508

30 Fichtenberg, Werner, New York, N. Y.—Insect powder, exterminating powders and papers, powder bellows, bird calls. A 66. 508

31 Reeves, John W., Philadelphia, Pa.—Soup cutting machine. A 67. 508

31a Condit, Hanson, & Van Winkle, Newark, N. J.—Electro-plating machine. Condit, Hanson & Van Winkle, 236 Market street, corner Mulberry, Newark, N. J., exhibit the "Weston-Dynamo Electric Machine," doing electro, nickel, silver, gold, and copper plating. The machine is simple, easy to manage, requiring scarcely any attention. It is strong, durable, compact, reliable, powerful, and requires but little force to run it. It is a self-regulator, automatically adjusting the current to the amount of work done. From the great force obtained from a small amount of material, and the simplicity of its construction, the machines are sold at very low prices, $75 and upwards. The conversion of motion into electricity and its use for the elec­tro-deposition of the metal is of great importance, as it not only avoids the use of expensive materials and the deleterious and corrosive fumes produced by batteries, but saves a great deal of time, and the current is more uniform than can be obtained by the use of batteries. B 73. 508

32 King, Wm. H., Philadelphia, Pa.—Soap press. A 66. 508

33 Hagner Drug Milling Co., Philadelphia, Pa.—Double run flaxseed chasing mill. A 64. 508

34 Mosser, W. F., & Co., Allentown, Pa.—Bark mill, with independent grinding segments. A 48 and Pump annex. 508

35 Carr Calvin, & Co., Cleveland, O.—Galvanized iron circular cornice machinery. Owners of all circular machine and nearly all the brake and folding machine patents. See circular. B 69. 508

35a Averill Chemical Paint Co., New York, N. Y.—Paint, all colors, ready for use. (Outside of building.) 508


36 Wallace & Sons, Ansonia, Conn.—Magneto-electric machines, for deposition of copper and for electric light, proprietors of brass and copper rolling mills, Ansonia, Conn., office and warehouse 89 Chambers and 71 Reade streets, New York. Manufacturers of brass, rolled and in sheets, copper rivets and nails, brass and copper tubing, brass and copper wire, brass door rail, brass and iron jack chains, stair rods, copper tacks and nails, braziers, bolt and sheathing copper, etc., kerosene burners and trimmings. Price lists, with discount, furnished on application. A 67. 508


36b Gilbert & Barker Manufacturing Co., Springfield, Mass.—Gas machine. A 77. 509

36c Eichholt, John H., Greenpoint, L. I., N. Y.—Gas generator. A 67. 509

36d Patton, J. Desha, Norristown, Pa.—Cylinder, governor, etc. C 27. 509


36f Hickman, Towsley, & Swan, St. Louis, Mo.—Gas utilizer for manufacturing illuminating gas. A 65. 509

36g Thomsen, Alexander, Worcester, Mass.—Governor for gas. C 27. 509

36h Day, George H., Haverhill, Mass.—Lime hordules and screens. C 27. 509

36i Goodwin, Wm. W., & Co., 1016 Fill­bert street, Philadelphia, Pa.—Gas meters of all descriptions, station meters, standard cubic foot measures and provers, photo­meters of all kinds, candle scales, pressure registers and gauges, pressure and vacuum registers, apparatus for determination of sulphur and ammonia in coal gas, density and specific gravity apparatus, etc. A 89-90. 509

36j Walker, James H., Milwaukee, Wis.—Model of gas works. C 27. 509

36k Towsley, L. D., Cincinnati, O.—Gas utilizer for manufacturing illuminating gas, and for saving one-half the coal-gas of cities. It is automatic, safe, durable, simple, and cheap. A 65. 509


36m Harris, Griffin, & Co., Philadelphia, Pa.—Gas meters, registers, gauges, photometers, provers, pumps, exhaust govern­ors. A 78. 509

Por location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
Mervine, Samuel P., jr., Philadelphia, Pa.—Gas regulator. A 73. 509

Automatic Gas Governor Co. of the U. S., Philadelphia, Pa.—Automatic gas governor. A 73. 509

Rand, A. W., Philadelphia, Pa.—Gas machine. A 71. 509

Rex & Bockius, Philadelphia, Pa.—Illuminating gas generator. C 69. 509

Excelsior Gas Machine Co., South Norwalk, Conn.—Gas machines. A 75. 509

Improved Steiner Gas Machine Co., Philadelphia, Pa.—Portable gas machines. A 75. 509

Walworth Manufacturing Co., Boston, Mass.—Gas machines for lighting country residences, public buildings, etc. A 76, E 75, and B 41. 509

Imperial Manufacturing Co., New York, N. Y.—Gas machines. A 73. 509

Tiffany, J. C., Boston, Mass.—Oil gas generator, dry gasometer, process for refining naphthalene in gas condensing, platinum appliance for combustion of coal in furnaces. (Outside of building.) 509

Vasquez, Chas. L., Philadelphia, Pa.—Automatic gas machine. A 73. 509

Starr, Jesse W., & Son, Camden, N. J.—Gas works, pipe. (Outside of building.) 509

Novelty Gas Machine Co., Baltimore, Md.—Carburetted gas machine. A 73 and outside of building. 509

Gruber, John P., Jersey City, N. J.—Gas works. A 52. 509

Bean, Joseph H., Cincinnati, O.—Automatic gas machine for residences, churches, etc. A 72. 509

American Meter Co., New York and Philadelphia.—Standard provers, meters, pressure registers, gauges, exhaust governors, fan and jet engines; also any other apparatus generally. A 69. 509

Burr, William H., Philadelphia, Pa.—Apparatus for making hydrocarbon gas. A 68. 509

Excelsior Gas Machine Co., South Norwalk, Conn.—Refrigerating machine. A 75 and outside of building. 509

Daschbach, E. J., Pittsburgh, Pa.—Gas machine, with automatic carbureter. A 72. 509

Ramsey, Robert H., Pottsville, Pa.—Bituminous coal gas machine, adapted to private residences, stores, and manufactories. Furnishes coal gas of largely increased illuminating power, at less than one dollar per thousand feet. Indorsed by insurance underwriters. A 72. 509

Rowland, T. F., Greenpoint, N. Y.—Specimens of forgings; model of steam stoker. A 69 and D 31. 509

Lane & Bodley, Cincinnati, O.—Stroke power mortisers. A 50 and saw-mill. 510

Gerlach, Peter, & Co., Cleveland, O.—Stave-saving machine. A 34. 510

Andrews, E., Williamsport, Pa.—Saw-sharpening, cross-cut saw handles, saws, gang-saw, hooks and stumps, etc. B 78. 510

Palmer, Samuel R., Belfast, Me.—Stave-jointing machine. A 28. 510

Atkins, E. C., & Co., Indianapolis, Ind.—Saws, B 5 and A 5. 510

Knowlton, John L., Sharon Hill, Pa.—Saws, saw-sharpening and planer knife, and gang machines. A 1 and B 1, and saw-mill. 510

Stranges Cylinder Saw & Machine Co., Taunton, Mass.—Cylinder-saw stave machine; foot lathe. B 74. 510

Curtis & Co., St. Louis, Mo.—Slotted circular saw. B 79. 510

Ames & Frost, Chicago, Ill.—Drill-attachment machine. B 61. 510

Norris, W. R., Fort Ann, N. Y.—Diagonal planing and polishing machine. B 60. 510

Eureka Manufacturing Co., Boston, Mass.—Lathe, scroll saw, scroll saw attachment. B 36-37. 510


Trump Bros., Wilmington, Del.—Foot-power scroll saws. B 57. 510


Dowling, T. W., Detroit, Mich.—Scroll saw. B 61. 510

Barnes, W. F., & John, Rockford, Ill.—Scroll and circular saws; lathes. B 57. 510

Paskell, S. J., Chicago, Ill.—Wood lathes. B 56. 510

Providence Saw Works, Providence, R. I.—Jig-sawing machines. B 56. 510

Buss, Charles, & Sons, Marlboro', N. H.—Rotary bed, paneling, planers, band saw, lathes, slitter, cutting-up machines. B 40. 510

First & Pryibil, New York, N. Y.—Re-slitting band saw, carving machine, saws, planers, etc., for wood working. B 43. 510

Disston, Henry, & Sons, Philadelphia, Pa.—Saws and saw tools, trowels, carpenter's tools, files, knives, bit-holding sheet steel. B 41-46. 510

Baxter, C. M., Lebanon, N. H.—Band saws; planer. B 64. 510

Forstner, Benjamin, Salem, Oregon.—Wood auger. D 68. 510


Douglas Manufacturing Co., Seymour, Conn.—Machines' edge tools and boring implements. A 43. 510

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 11-15.
Wood-working Machinery.

blown away from the slides by a fan blower attached.

c. Power-feed panel raise, for panels of any width or raise or thickness; has upright spindles and heads, swing table and, adjustable guards.

70  Wallace & Keller, Philadelphia, Pa.—Portable bandsaw, B 67.


74  Moseley, Jerome S., Syracuse, N. Y.—Scroll saw machine, boring machine. In all of the wood-sawing machines on exhibition, the most principles involved in their mechanical construction are the many devices for starting, stopping, and controlling its speed without taking the attention of the operators from the work. The manner of holding the saw, and the manner of giving the saws more or less "rake or feed," have been the difficult problems to solve. Moseley's Patent Egyptians Scroll Sawing Machine, with its improved apparatus, can be run at a speed from 800 to 1100 revolutions per minute, and will saw the lightest venerated work, such as piano or melodeon work, and is capable of running saws from one-sixteenth of an inch wide to any width that can be practically used in a scroll saw machine. The blower and self-adjusting blowpipe is a new feature, which adds greatly to the convenience of running and working this machine. It is attached in a simple manner to the upright shaft in which the saws are worked, and serves every purpose of blowing the saws gently away from the work all sawdust that accumulates. The machine is admirably adapted for all kinds of scroll sawing, from the lightest to the heaviest, and does the work well. This machine received the first prize medal at the fair of the New York State Agricultural Society, held at Utica in the fall of 1870; also at Elmira, 1872; also at Albany, 1872 and Rochester, 1874; also received a medal of special award at the Fair of the American Institute, held at New York city in 1872; and the first prize medal at the International Exhibition, Buffalo, N. Y., 1872. B 63.


76  Battle Creek Machinery Co., Battle Creek, Mich.—Carving, paneling, variety moulding, and dovetailing machines; moulders' solid steel cutters. B 55.

77  Lane Manufacturing Co., Montpelier, Vt.—Portable single circular saw mill, designed for common use as a portable saw mill; and also intended for use in fixed establishments of ordinary capacity. Sawing sets the mill both receded, and when desired, advanced, by power; dogging devices especially adapted for "live or "through-and-through" sawing, and for holding frozen logs. Gauge roll (Fairbank's patent) in front of saw; tapering devices, elevated scale or rule. Over 2000 of these mills (Lane's patent) in use. Heavy double circular saw mill, intended for first-class establishments of the largest capacity; 72 inch circular saw and 20 inch upper saw, feed and jigg ing back works, operated from either front or back side of frame; saw-guide quickly removable; uprights advanced by both forward and backward movements of lever. Over better rollers on the back, and rolled-steel headblocks; improved dogs catch under and upper sides of logs, and swing away from saw when released; up right s receded or advanced by power. (Saw Mill Building) inch inch, for "Farrar," planing machine; 18 inch stationary bed or roll-feed planing machine; heavy matching, or tonguing and grooving machine; light matching, or tonguing and grooving machine.

78  Marston, J. M., 6 Taber St., Boston, Mass.—Combined hand and foot circular sawing, boring, and mitreing machines. B 77.

78  Holmes, James, Belfast, Me.— Machine for joining staves. B 77.


78  Boynton, Eben B., New York, N. Y.—Saws, frames, sets, files, handles, etc. B 50.

79  Chase Turbine Manufacturing Co., Orange, Mass. (Saw Mill annex.)

a. Machine for sawing staves, stock pool, box, etc. B 44.


80  Beach, Henry Lloyd, Montrose, Pa.—Sawing machines. There is no class of machinery on exhibition that attracts greater attention than the scroll sawing machines. Among the number that possess merits as to their mechanism are the two manufactured by Henry L. Beach, of Montrose, Pa. The No. 2, which is mostly of wrought iron, insuring great strength and durability, is especially noticeable; instead of the ordinary pulley and belted lever, the small shaft carries a friction pulley, by which the saw is made to start and stop instantly without shifting the belt—a great saving of time on inside work. Both the Nos. 1 and 2 are provided with saw clamps, and very powerful and elastic spring, which gives an even tension on the saw of from 10 to 75 lbs. No. 1 has a tilting table, which for pattern work is indispensable, and is used almost daily in any shop. Both the machines have: air pumps, steel bearing for each saw, and are adaptable in every part to take up all lost tension. A 29.

81  Fay, J. A., & Co., Cincinnati, O.—Patent wood-cutting machinery. In the choice of the machinery it is an object to select the best adapted to the work to be done, so that a machine may be made which it must be so constructed as not likely to get out of order. In the display in Machine Hall, section 8, columns 61, 62, and 63, by J. A. Fay & Co. of Cincinnati, are several varieties of improved wood-cutting machines they manufacture, and the additions added to them during the past five years, it is claimed that the new features introduced place their machines for location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
Wood-working Machinery.

in the front rank. The high reputation and character of this firm throughout this country and Europe, may be attributable in the highest degree, to the improvements made upon them from year to year, increasing their labor-saving features; 3d, extensive facilities and abundant capital for manufacturing. Of the different machines for planing, matching, band-sawing, boring, variety wood workers, combination edging and ripping-saw tables, carving, band re-sawing, and other specialties, blinds, wheels, felloes, spokes, and agricultural implements, allusion here can only be made to the more important ones. The No. 2 patent variety wood-worker is peculiar and simple in its mechanical construction, and has capacity for great range and variety of work, being constructed in a substantial manner, and possesses many labor-saving qualities. Their patent band saw with elastic wheels embraces many new and valuable labor-saving features by which the breakage of saws is prevented. Their new Circular and planing machines are designed to meet the demands for an effective machine at low cost, and is adapted for any designs of panels in fine furniture, piano, and organ manufactures. The combination edging and ripping-saw table is built wholly of metal, and is quite novel, having a rising and falling saw, hand and power feed, and with a parallel movement of blade of ample size for rapid and accurate work. It is also provided with planed iron table, and is in all respects admirably adapted for the purposes designed. The large six-roll double cylinder patent planing and matching machine should be seen to be perfect in all of its appointments. It is strong and powerful. It embraces many new and valuable improvements displayed for the saving of labor, money, lumber, and increasing the quantity of production. The patent band re-sawing machine embodies several novel features which have attracted much attention from visitors not only in this country, but of Europe. It is simple, powerful, has a large range and capacity for work. The manner of connecting the two shafts with an outside, showing connection, the automatic friction feed, revolving frictionless guides, the perfect ease of adjustment, and ready manipulation by the operator, with many others which might be added, make it a very interesting exhibit for those interested in the reduction of lumber. B 62.

82 Clark Thread Co., Newark, N. J.—Self-acting spool-winding machine, spool-turning machine. C 53, and A 54. (See also the exhibit in Main Building. A 76.)


86 Patterson, C. R., Pittston, Pa.—Pressure, blocks independent, showing construction and same applied to J. C. Fay's planer. B 61.


89 Burt, C. S. & S., Dunleith, Ill.—Machines for sawing shingles, barrel-heads, etc. B 54.


92 Bentel, Margendant, & Co., Hamilton, O.—Universal wood-working machines. Planing and matching, jointing, band and scroll saws, boring and shaping machines. Bentel, Margendant, & Co. have on exhibition twelve different machines, each of them presenting new features, which are improvements, and add greatly to their value and usefulness, and are all fitted with a mechanical construction. Their patent universal wood-workers for planing out of wind, joining, squaring, smoothing, beveling, cornering, chamfering, tapering, mitring, rabbing, tenoning, halving, paneling, tonguing, grooving, band-sawing, matching, rolling-joints, gaining, plowing, serpentine and waved moulding, fluting, beading, ripping, splitting, cross-cut sawing, straight, circular, oval, and elliptical moulding, etc. The patent band-sawing machine is, in its construction and improvements, new and highly valuable. This is a patent machine, the improvements on which are entirely new features. The mechanical cause of the breakage of hand-saw blades unprecedently and successfully removed. The buckling, friction, heating, and crystallization of the saw-blades entirely overcome. Instantaneous starting and stopping of the motion of the saw-blade. The patent scroll saw machine with uniform tension is certain at all points of the stroke. The Hamilton patent surface planer for planing out of wind, jointing, squaring, smoothing, beveling, cornering, chamfering, mitring, and tapering, is furnished with patent triangular shearing cutter-heads, and flat planes both smoothly and accurately. Sec. B 7, columns 51-52 and 53.


94 Seymour & Whittlock, Newark, N. J.—Sash dovetailing, mitre, wiring, boring, mortising machines, and sewing machine motors. A 39.


96 Baggs, J. T., Bridgeport, O.—Sawing, planing, and boring machinery. B 60.


Wood and Metal-Working Machinery.

101 Houston, Smith, & Co., Montgomery, Pa.—Outside bearing moulder, door tenoner, door mortiser. A 31. 510

102 Goodall, Braun, & Waters, Philadelphia, Pa.—Panel planer, planer and matcher, surfacer and matcher, band saw. B 27-78. 510

102c Gould, Roscoe J., Newark, N. J.—Dovetailing machine. A 33. 510

103 Mussot, A., Cincinnati, O.—General wood-working machinery. A 29. 510

104 Greenwich Machine Works, Greenwich, N. Y.—Weavers wood-working machines, driven by hand, foot, or power. A 37. 510

105 Knapp Dovetailing Machine Co., Northampton, Mass.—Machines for cabinet dovetailing. A 35. 510

106 Combined Power Co., New York, N. Y.—Geared machinery for all powers. A 34. 510

107 Colloday, Jos. O., & Bro., Philadelphia, Pa.—Jointing machine, band saw machine, etc. B 36. 510

108 Gieson, John, Philadelphia, Pa.—Spoke and handle turning lathe, etc. B 64. 510

109 Babbitt, F. S., Taunton, Mass.—Combination foot lathe. B 61. 510

110 Howard Manufacturing Co., Easton, Pa.— Milling machines, easily adjustable in all the different parts, cut all angles, used by cabinet makers, carpenters, picture frame makers, car builders, etc. A 29. 510


112 Whitney, Baxter D., Winchendon, Mass.—Wood-working machines. B 70-80. 510

113 Benson, A. M., Cleveland, O.—Stave machinery dresser and jointer. A 29. 510


115 Hart, Roswell, Rochester, N. Y.—Machines for making half-round hoops for barrels, etc. B 46. 510

116 Pope Manufacturing Co., Boston, Mass.—Lathe scroll saw. Acme lathe $7.00; scroll saw, $5.50 and $7.00; darning machine, $8.00. C 64. 510

117 Buck, Martin, Lebanon, N. H.—Single, double, and triple tenoning machines, blind mortising and boring machine, slat planer, wedge and pin machine, band saws, etc. B 64. 510

118 Bustin, Robert, St. Johns, N. B.—Fire escape. Bustin's portable fire escape. One of the many new inventions that deserve special notice for its simplicity, cheapness, durability, and almost certain security to life. It is simple in its construction, easily adjusted, and can be carried in a small valise, thus insuring the traveler that, no matter how high in a hotel, he can in a moment rescue his own life, and if he has others in the room in the same perilous situation, save them at the same time. It can be used in many ways, as it is so ingeniously made that it is always ready for use. There is no machine connected with it. It cannot get out of order. In case the lower part of

the building is so enveloped in flames as to render a direct descent impossible, the parties can make a descent across the street. It is now on exhibition at the north end of Machinery Hall, where practical illustrations of its workings can be seen. The fire escapes, all complete, cost from $10.00 to $15.00. In every case you can save your apparatus. 584

119 Lane & Bodley, Cincinnati, O.—Stainless portable circular saw mill. (A 50, Saw mills.) 511

120 Eureka Bark Mill Co., Lancaster, Pa.—Bark mills. A 28. 511

121 Harbert & Raymond, Philadelphia, Pa.—Portable saw mill. (Saw mills) 511


122a Scholfield, Socrates, Providence, R. I.—Logging saw. (Saw mill, B 12.) 511

122b Meiners, C., & Sons, Philadelphia, Pa.—Band, saw mill and head blocks. B 13. 511

122c Harvey, Easton, & Co., Lock Haven, Pa.—Gang lathe mill. B 15. 511

122d Stearns Manufacturing Co., Erie, Pa.—Circular saw mill, double edging machine, log jacker, log turner, steam engine. (Saw mill, A 3, B 3.) 511

122d Allis, Edward S., & Co., Milwaukee, Wis.—Saw mill machinery. (Saw mill, A to 11.) 511

123 Flint, C. M., Fitchburg, Mass.—Saw mill. B 13. (Saw mills.) 511

124 Hoyes, Frank G., Clinton, Iowa.—Gang edger with four circular saws. B 12. (Saw mills.) 511


128 Middleton, John W., Philadelphia, Pa.—Cast and wrought iron, and steel ready for the planer. C 77. 512

128a Lattimore, D. I., Philadelphia, Pa.—Suction and blast fan. B 64. 512


129 Flagg, Stanley G., & Co., Philadelphia, Pa.—Malleable gray iron and steel castings. A 41. 513

130 Midvale Steel Works, Philadelphia, Pa.—Bar steel, steel forgings and castings. C 23. 513

(See also classification 572.)
Metal-working Machinery.

131 Dick, C. J. A., Philadelphia, Pa., Phosphor Bronze Smelting Works, 2038 Washington avenue.—Phosphor bronze ingots, axle bearings, castings, bells, wire, sheets, tubes, etc. A 42. 513

132 Eames, Charles J., New York, N. Y.—Petroleum iron boiler plates, forge blooms, billets, jack plates, horseshoes, etc. (Annex 1.) 513

132—Roberts, E. A. L., Titusville, Pa.—Compound metal. C 78. 513

133 Reed, S. G., Boston, Mass.—Apparatus for heating locomotive and carriage tires with gas; portable gas attachment for lighting streets. E 69. 513

134 Malleable Iron Fitting Co., Bristol, Conn.—Malleable iron steam and gas fittings and castings. A 4. 514

135 Lawrence, Frank, Philadelphia, Pa.—Cupola and troller. (In building of C. Noble & Co.) 513

135—Phosphor Bronze Smelting Works, T. A. Dick, Philadelphia, Pa.—See No. 131. 513

135—Harris, Samuel, Springfield, Mass.—Sifting machines. (Adjoining Index 2.) 514

136 Keystone Portable Forge Co., 120 Exchange Place, Philadelphia, Pa.—Portable forges and pressure and exhaust blowers; forges, portable or stationary, for hand or power, forty-seven styles and sizes, for every class of work from lightest to heaviest, and patented and sold in leading countries. English, French, and Belgian patents for sale. Also blowers for every purpose requiring either pressure or exhaust; all shown in operation. (Annex No. 1, Machinery Hall.) 514

137 Carnell, F. L. & D. R., 1844 Germantown avenue, Philadelphia, Pa.—Steam hammers. See illustrated catalogue. (Annex 1 and 3.) 514

137—a Kacy, Robert F., Philadelphia, Pa.—Hand fan-blower. (Adjoining Annex 3.) 514


139 Ferris & Miles, Philadelphia, Pa.—Machine tools and steam hammers. B 31 and 32. 514

140 Merrill, Chas., & Sons, New York, N. Y.—Drop hammer, parallel sizes, differential blocks. C 4 and Annex 2. 514

141 Hammond, H., & Co., Hartford, Conn.—Cast steel hammer, anvils, and drop forgings. A 41. 514

142 Metz, George W., & Sons, Philadelphia, Pa.—Bellow. (Annex 1.) 514

143 Bayliss, John, New York, N. Y.—Hot blast water tuyere and forge, blacksmiths' bellows, portable forge and bellows. (Annex 1.) 514

144 Bradley Manufacturing Co., Syracuse, N. Y.—Cushioned helve hammers. A 15. 514

145 Tubular Barrow & Truck Manufacturing Co., New York, N. Y.—Self-acting steam hammer. (Annex 1.) 514

146 Empire Portable Forge Co., Troy, N. Y.—Portable fan-blowing forgings. (Annex 1.) 514

147 Bullock, T. H., & Co., Cleveland, O.—Blacksmiths' moulders', hand, and cooper's bellows. (Annex 1.) 514

148 Hull & Belden Co., Danbury, Conn.—Power forging hammer, samples of drop forgings. C 72. 514

148—Mason, John L., Camden, N. J.—Tire shrinker, blacksmiths' tuyere and pinch bar. (Annex 1.) 514

148—Schiernoh, H., Jersey City, N. J.—Heat welding compound, with samples of iron and steel welded. (Annex 1.) 514

148—Stiles & Barker Press Co., Middletown, Conn.—B 34, and Annex 1. a Drop hammers. 514 b Sheet metal presses. 515

148—Pusey, Jones, & Co., Wilmington, Del.—B 35. a Riveting machine. 514 b Sheet iron cleaner. 515

149 Howard, George C., 13½ S. Eighteenth street, Philadelphia, Pa.—Grinding-stone backer, for truing and sharpening the stone, drill-press, boring and sapping machine. B 31. 515

150 Cooper, John H., Philadelphia, Pa.—Model of mechanical movement. C 31. 515

151 Mitchell, J. E., Philadelphia, Pa.—Founded, 1860.—Column of 38 varieties of grinding-stones; two thousand tons in stock; seven sizes of machinist's grinding-stones in iron boxes. Send for descriptive pamphlet. B 28 and 29. 515

152 Sternbergh, J. H., Reading, Pa.—Surface-grinding machines, bolts, nuts, washers, rivets, wood screws, etc. B 37. 515


154 Cooper, Jones, & Cadbury, Philadelphia, Pa.—Lathes. B 19. 515


156—Laurence, Benjamin, Lowell, Mass.—Index and plain milling machine. B 29. 515


158—Gallagher, Bernard, Lynn, Mass.—Emery grinder; drills. C 39-40. 515

159—Weed & Co., Boston, Mass.—File cutting machine. G 30. 515

160 Stevens, W. X., East Brookfield, Mass.—Centre cutting shears for iron, to cut old steamboat shafts, rails, chain links, bolts, angle and merchant iron; cold power unlimited. B 34. 515

157—Ferris & Miles, Philadelphia, Pa.—Planing, shaping, slotting, drilling, cut-off, turning, boring, punching, and shearing machines. B 31-32 and Annex 1. 515

158—Brown & Sharpe Manufacturing Co., Providence, R. I.—Machinery and tools. Manufacturers of universal and plain milling machines, grinding, screw, and tapping machines, screw finishing and for classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
polishing machines, reels, assorters, scales, and testers for roving and yarn, for cotton and woolen manufacturers' use, patent cutters for gear wheels, and for taps, beavers, twist drills, irregularly formed sewing machine and gun parts, milling and screw slotting cutters. B 38. 515

159 Lobdell Car Wheel Co., Wilming-
ton, Del.—Solid die rivet machine. E 65. 515

159a Richards, I. P., Providence, R. I.—Punches for metal. A 42. 515

159b Hendey Machine Co., Waltham-
ville, Conn.—Planer and shaper. D 35. 515

159c Howard, William H., Philadelphia, Pa.—Loom frame with automatic let-offs. B 31. 515

159d Cosmopolitan Emery Wheel Co., Philadelphia, Pa.—Emery wheels for grinding saws, tools, etc. (Annex r.) 515

160 American Saw Co., Trenton, N. J. —B 33.
a Movable tooth circular, perforated, and solid saws. 510
b Eccentric geared power punching and shearing machines. 515

161 Cornell University Machine Shop, Ithaca, N. Y.—Foot lathe, magneto-electrical machine, measuring machine, tools, and gauges. B 68. 515


163 Smith, Oberlin, & Bro., Bridgeport, N. J.—Upright or inclined foot and power presses, for cutting or drawing tinware, and can makers' tools, pipe tools, special drills, etc. C 27. 515


165 Thorne, De Haven, & Co., Philadel-
phia, Pa.—Drilling machines. B 39. 515

166 George & Du Laney, New York, N. Y.—Screw machinery. C 55 and B 17. 515

166a Clogh & Williamson, Newark, N. J.—Wire cork screws and handles: machine for manufacturing same. B 38. 515

166b Edwards, E. B., Columbia, Pa.—Axle rolls. B 40. 515

166c Cushing, N. B., Jersey City, N. J.—Shears, and punching machines. B 26. 515

167 Merriman, A. H., West Meriden, Conn.—Power punching press. B 29. 515

168 Jones, Lamon, & Co., Windsor, Vt.—Engine lathes, screw machines, gang drills, etc. B 36. 515

170 Sellers, William, & Co., Philadel-
phia, Pa.—C 18 to 25 and Annex 1.
a Steam hammers. 514
b Machine tools, punching and shearing machines. 515

171 Washburn Machine Shop, Worces-
ter Free Institute, Department Mechanical Engineer, Worcester, Mass.—Lathes with hardened steel bearings; grinding machines and drawing stands. C 38. 515

172 Spiral Elliptic Spring Works, Cin-
cinnati, O.—Machinery for making upholstering springs. E 70. 515


174 Schon, Mathias, Enghesh town, N. J.—Tire upsetting machine. (Annex.) 515

175 Nichols, Pickering, & Co., Phila-
delphia, Pa.—Portable rail punches. D 67. 515


177 Van Hagen, C., & Co., Philadelphia, Pa.—Rotary shapers, iron planers, drill sharpeners, drills, and boring tools. C 32. 515

177a Vitrified Wheel and Emery Co., Ashland, Mass.—Emery and emery wheels. (Annex.) 515


177c Broadbooks & Co., Batavia, N. Y. —Folding chairs. C 43. 515

177d Howard Iron Works, Buffalo, N. Y.—Propeller wheel. C 29-30. 515

177e Dudgeon, Richard, New York, N. Y.—Punches. C 27. 515

177f Temple, Edward B., Philadelphia, Pa.—Planing machine for metals, etc. B 28. 515

177g Old Colony Rivet Works, New York, N. Y.—Iron planers, shears, cutters, punches, drilling machines, rivets, etc. B 28. 515

177h Clark, John A., Newark, N. J.—Drip pan for kerosene and other liquids. C 30. 515

178 Miller's Falls Co., Miller's Falls, Mass.—A 40.
a Scroll saw. 510
b Iron cutter, drilling machines. 515
c Vises. 510

179 Putnam Machine Co., Fitchburg, Mass.—Machinists' tools, steam engines, Woodworth planers, water wheels, shifting, mill work, etc. C 28. 515

180 Kreider, Campbell, & Co., Phila-
delphia, Pa.—E 50.
a Engine lathe. 515
b Glassware grinding machine. 516

181 American Watch Tool Co., Wal-
tham, Mass.—Lathes for watchmakers' use, and bench lathes for machinists. F 38-40. 515


182a Young, William, Easton, Pa.—Young's patent water and gas main tapping machine. With this apparatus the main pipe is drilled and tapped, the service pipe screwed in, and connection made in one operation, without shutting off the water or changing tools. (Pump annex 7-5.) 514

183 E. Horton & Son Co., Windsor Locks, Conn.—Lathe and car-wheel chucks. B 30. 515

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 21.
Metal and Stone-working Machinery.


203 Scofield, Charles, Vineland, N. J.—Machine for straightening shafting in position. C 34. 515

204 Cox & Sons, Bridge ton, N. J.—Steam and gas-fitters' tools, supplies, etc. C 32. 515

205 Hamlin, G. A., Philadelphia, Pa.—Machinery for refitting valves. C 35. 515

206 Merritt, Daniel S., Bay City, Mich.—Machine for cutting heavy iron bars and plates; punch for all kinds of metal. B 36. 515

207 Fitchburg Machine Co., Fitchburg, Mass.—Engine lathes, drills, planer, and shaping machine. C 38. 515

208 Ames Manufacturing Co., Chicopee, Mass.—Engine lathes, planer, drilling edging machine, die-sinking machine. C 38 to 40. 515

208b Putnam & Estey, Fitchburg, Mass.—Emery wheels. (Annex 1, 2.) 515


208f Reynolds, D. M., Port Deposit, Md.—Machine for cleaning and polishing sheet iron. C 36. 515

208k Cleveland Patent Manufacturing Co., Cleveland, O.—Bolt and pipe cutters; cutter heads. B 29. 515

209 Gray, J. Hammond, Philadelphia, Pa.—Screw machinery, for turning and threading screws, etc. B 27. 515

210 Hilles & Jones, Wilmington, Del.—Radial drills and slotting machine. B 37. 515

211 Hardy Machine Co., Biddeford, Me.—Hardy's improved traverse emery wheel card-grinders, for truing and graining perfectly the teeth of cotton and wool cards. We warrant the "Hardy" card grinder, cloth-shear grinder, and planer knife grinder. B 35. 515


213 Rogers & William A, Cambridge, Mass.—Automatic machine for grinding parallel surfaces on glass, etc. C 40. 516

214 Branch, Crookes, & Co., St. Louis, Mo.—Diamond circular saws and machinery for sawing stone. (Saw mill.) 516

215 Steam Stone Cutter Co., Rutland, Vt.—Stone channeling or quarrying machines; block of machine-cut marble. (Annex 4.) 515

216 Emerson Stone Saw Co., Pittsburg, Pa.—Diamond circular stone saw and machine. This machine, doing regular work, cuts in ordinary sandstone one hundred and fifty square feet per hour (counting both sides of the cut), and other stone in proportion, according to the
relative hardness, leaving the stone perfectly in line, beautifully finished; ready to be placed into buildings, etc. This is more than can be accomplished by one hundred men in the same space of time, and at an expense not exceeding the cost of sharpening and wear of tools necessary to do the same amount of work. The highest honor (a gold medal) was awarded to this saw at the Cincinnati Exposition of 1845 and at the Pittsburgh Industrial Exposition of 1875. (Annex 2.)

217 Batley, John, & Co., Philadelphia, Pa.—Shaping machine, for mounding, paneling, or carving on marble, etc. (Annex 2.) 516

218 Davis & Richmond, Detroit, Mich.—Hand machine for cutting and punching slate. (Annex 2.) 516

219 Ryan, James M., Cincinnati, O.—Silver-plated lathe, show cases, and process of cutting glass. D 38. 516

220 Ross, Thos., Rutland, Vt.—Stone-sawing machine. (Annex 2.) 516

221 Young, Hugh, New York, N. Y.—Rocksplitting diamond stone-sawing machines. (Saw mill.) 516

222 Union Stone Co., Boston, Mass.—Solid emery wheels and machinery for grinding and polishing. Emery wheels, from one inch to six feet in diameter, and grinders for mounting them. Special machines for joining plows, beveling boiler plates, gumming saws, etc. Patent automatic knife grinder, a decided success, for grinding planning machines, bookbinders’, curriers’, and long knives and shears of all kinds. Grinders’ and polishers’ supplies. B 37, and Annex 1. 515

223 Carnell, F. L. & D. R., 1844 Germantown avenue, Philadelphia, Pa.—Fire and red brick presses; working model of “Peerless” brick machine. The above firm manufacture brick machinery of every description, of which they have a fine illustrated catalogue, which will be mailed to any person sending them their address. (Annex 1 and 3.) 515

224 Aiken, Henry, Philadelphia, Pa.—Hydrostatic machine; stone-separating and clay-tempering machine. (Annex 3.) 517

225 Farr, George, New York, N. Y.—Working model of brick machine. (Annex 3.) 517

226 Maas, Albert W. M., Meridian, Miss.—Model and drawing of perpetual burning brick-kilns. (Annex 3.) 517

227 Whiteford, John, Detroit, Mich.—Brick-moulding off-bearing and yard-leveling machine. (Outside of building.) 517

228 Miller, Samuel P., & Son, Philadelphia, Pa.—Hand brick pressing machine. (Annex 3.) 517

229 Wyatt, Charles B., Somerville, Mass.—Grate, bevel knife, and spring pressure for brickmakers’ use. (Annex 3.) 517

230 Newkemet, Adam, Philadelphia, Pa.—Crucible and pottery ware machines, dressing apparatus for glass-house pots, retorts, etc. (Annex 2.) 517


226 Carnell, Geo., Philadelphia, Pa.—Brick press and pug mill. (Annex 3.) 517

227 Morand, Augustus, Philadelphia, Pa.—Brick-making machine. (Annex 3.) 517

228 Garretson, I. H., Keokuk, Iowa.—Brick-moulding machine, ring fence. (Annex 3.) 517

229 Explosior Brick & Stone Co., Philadelphia, Pa.—Model of brick machine, samples of brick and stone. (Annex 3.) 517


232 Hotchkiss, James, Springfield, O.—Brick machine. (Outside of building.) 517

233 Gregg, Isaac, Jr., & Co., Philadelphia, Pa.—Steam brick machine, one-futcd brick. (Annex 3.) 517

234 Hazlehurst, Samuel, St. Louis, Mo.—Hand brick moulds. (Annex 3.) 517

235 Hoyt, Andrew J., Philadelphia, Pa.—Steam engine machine; steam hammer. (Annex 3.) 517

236 Gregg, Wm. L., Philadelphia, Pa.—Triple pressure brick machine for making and also re-pressing all kinds of brick; ceramic gas-kiln, for drying and burning red brick, fire brick, terra-cotta, china, line, pottery, and drain pipe. (Annex 3.) 517


239 Stacy, George, New York, N. Y.—Fastening for stonecutters’ use, etc. (Annex 3.) 517

240 Williams, S., & Son, Philadelphia, Pa.—Brickmakers’ implements. (Annex 2.) 517

240 Stockwell, J. W., Portland, Me.—Cement pipe machinery, concrete mixing, sewer pipe tamper, moulds for drain pipe, samples of work. A 55. 517

241 Martin, Henry, Lancaster, Pa.—Selling brick machine. (Annex 2.) 517


243 Hamilton, S. M., Baltimore, Md.—Perpetual brick kiln. (Annex 2.) 517

244 Mathieu, Charles, Colosse, N. Y.—Glass steam-engine, glass-blowing, knitting, spinning, and forming fancy glass ornaments. E 74. 517

245 Burgess, Warren S., Norristown, Pa.— Blowpipe, animal-clipping machine. E 75. 517


For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
<table>
<thead>
<tr>
<th>Glass and Metal-Working Machinery and Tools.</th>
</tr>
</thead>
<tbody>
<tr>
<td>247 Brooke, Homer, New York, N. Y.—Glass</td>
</tr>
<tr>
<td>manufacturers’ moulds and presses, for</td>
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<tr>
<td>making bottles, jars, lamps, lantern</td>
</tr>
<tr>
<td>globes, and for all kinds of pressed</td>
</tr>
<tr>
<td>and blown glass; also private moulds</td>
</tr>
<tr>
<td>for patent medicine bottles. E 75. 519</td>
</tr>
<tr>
<td>248 Chase, B. F., E. Stroudsburg, Pa.—</td>
</tr>
<tr>
<td>Milling machines. E 74. 519</td>
</tr>
<tr>
<td>249 Steele Bros., 209 South Eleventh</td>
</tr>
<tr>
<td>street, below Walnut, Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Glass engraver at work. Decorated china</td>
</tr>
<tr>
<td>and engraved glass. Dinner, dessert, and</td>
</tr>
<tr>
<td>tea sets decorated, to order, in any</td>
</tr>
<tr>
<td>color or design. Monograms, crests, initials</td>
</tr>
<tr>
<td>engraved on glass. E 75. 519</td>
</tr>
<tr>
<td>—Glass furnace; china furnace; printing</td>
</tr>
<tr>
<td>press and mineral cases, belonging to the</td>
</tr>
<tr>
<td>art of porcelain printing. (Annex.) 519</td>
</tr>
<tr>
<td>250 McCaffrey &amp; Bro., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Hand-cut files and rasps. A 41. 519</td>
</tr>
<tr>
<td>—Hand-cut files and rasps. A 43. 519</td>
</tr>
<tr>
<td>252 Barnett, G. H., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Files and rasps. A 39-40. 519</td>
</tr>
<tr>
<td>253 Flagg, Stanley G., &amp; Co., Philadelphia,</td>
</tr>
<tr>
<td>Pa.—Carriage hardware. A 41. 519</td>
</tr>
<tr>
<td>253a Knight, Edward H., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>—Monkey wrench. A 41. 519</td>
</tr>
<tr>
<td>Screw wrenches. B 41. 519</td>
</tr>
<tr>
<td>254 Hoopes &amp; Townsend, Philadelphia, Pa.—</td>
</tr>
<tr>
<td>—Bolts, cold-punched nuts, washers, chain</td>
</tr>
<tr>
<td>links, wood screws, rivets. C 32. 519</td>
</tr>
<tr>
<td>255 Stephens Patent Vise Co., New York, N.</td>
</tr>
<tr>
<td>Y.—Parallel vise, with swivel, taper, table,</td>
</tr>
<tr>
<td>woodworkers, and pipe attachment. B 6. 519</td>
</tr>
<tr>
<td>256 Billings &amp; Spencer Co., Hartford, Conn.</td>
</tr>
<tr>
<td>—Drop forgings for guns, pistols, sewing</td>
</tr>
<tr>
<td>machinery, and various parts, generally;</td>
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<tr>
<td>screw plates and dies, Packer ratchet</td>
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<tr>
<td>drills, Barwick pipe wrenches, clamp, die,</td>
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<tr>
<td>and common lathe tools, machine tools, and</td>
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<tr>
<td>calker’s tools. B 40. 519</td>
</tr>
<tr>
<td>257 Brainard Milling Machine Co., Boston—</td>
</tr>
<tr>
<td>—Standard universal and plain milling</td>
</tr>
<tr>
<td>machines, for working metals in all</td>
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<tr>
<td>shapes, cutting key seats, spur and</td>
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<tr>
<td>bevel gears, twist drills, fluting</td>
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<tr>
<td>taps and reamers, and making tools of all</td>
</tr>
<tr>
<td>kinds. Are used universally in American</td>
</tr>
<tr>
<td>establishments. C 38-40. 519</td>
</tr>
<tr>
<td>a Grinding machines for sharpening the</td>
</tr>
<tr>
<td>milling cutters, without drawing the</td>
</tr>
<tr>
<td>templet. 515</td>
</tr>
<tr>
<td>b Set screw machine, new design. 515</td>
</tr>
<tr>
<td>c Steel bar vises, combining strength with</td>
</tr>
<tr>
<td>lightness and convenience. 519</td>
</tr>
<tr>
<td>258 Bedell, Otis T., New York, N. Y.—</td>
</tr>
<tr>
<td>Screw wrench. B 40. 519</td>
</tr>
<tr>
<td>259 Monk, Chas., Brooklyn, N. Y.—</td>
</tr>
<tr>
<td>260 Silver &amp; Deming Manufacturing Co., Salem,</td>
</tr>
<tr>
<td>O.—Blacksmiths’ post and table drills. F 54</td>
</tr>
<tr>
<td>261 Morse Twist Drill &amp; Machine Co., New</td>
</tr>
<tr>
<td>Bedford, Mass.—Patent increase twist</td>
</tr>
<tr>
<td>drills, beach chucks, machinery relieves</td>
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<tr>
<td>tapped, screw plates, taps, wipers,</td>
</tr>
<tr>
<td>adjustable dies, solid and split must,</td>
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<tr>
<td>pipe, solid and shell reamers, adjustable</td>
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<tr>
<td>and centre drill chucks, milling cutters,</td>
</tr>
<tr>
<td>drill grinding machines, special tools.</td>
</tr>
<tr>
<td>All tools to standard gauges. B 40. 519</td>
</tr>
<tr>
<td>262 Plumb, Burdick, &amp; Barnard, Buffalo, N.</td>
</tr>
<tr>
<td>Y.—Bolt-forging machines, with forge. (Annex.) 519</td>
</tr>
<tr>
<td>263 Clark Bros. &amp; Co., Milldale, Conn.—</td>
</tr>
<tr>
<td>Bolts, rivets, nuts, washers, etc. B 41. 519</td>
</tr>
<tr>
<td>264 Parker, Chas., Meriden, Conn.—</td>
</tr>
<tr>
<td>Vises. B 41. 519</td>
</tr>
<tr>
<td>265 Fisher &amp; Norris, Trenton, N. J.—</td>
</tr>
<tr>
<td>Parallel double screw vises, hardened cast</td>
</tr>
<tr>
<td>steel faced steam and drop hammer vises,</td>
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<tr>
<td>steel faced or stamp shoes, and all</td>
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<tr>
<td>articles required hardened cast steel</td>
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<tr>
<td>welded to cast iron. Warranted. B 41. and</td>
</tr>
<tr>
<td>Annex. 519</td>
</tr>
<tr>
<td>266 Western File Co. (limited), Beaver</td>
</tr>
<tr>
<td>Falls, Pa.—Machine-cut files. A 41. 519</td>
</tr>
<tr>
<td>267 Haase, John A., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Floor and door clamps, ratchet drills. 519</td>
</tr>
<tr>
<td>268 Simonds Manufacturing Co., Fitchburg,</td>
</tr>
<tr>
<td>Mass.—Knives and sickles for mowers and</td>
</tr>
<tr>
<td>reapers, planing machine knives, regular</td>
</tr>
<tr>
<td>saws, etc. 519</td>
</tr>
<tr>
<td>268a Flanagan, W. J., &amp; Co., Philadelphia,</td>
</tr>
<tr>
<td>Pa.—Wrenches. B 41. 519</td>
</tr>
<tr>
<td>268b Bailey Wringer Machine Co., New York,</td>
</tr>
<tr>
<td>N. Y.—Adjustable parallel vises. A 42. 519</td>
</tr>
<tr>
<td>268c Barnett, Oscar, Newark, N. J.—</td>
</tr>
<tr>
<td>Malleable and gray iron castings, brass</td>
</tr>
<tr>
<td>forged for vises, etc. 519</td>
</tr>
<tr>
<td>268d Russell, Wm. C., New York, N. Y.—</td>
</tr>
<tr>
<td>Adjustable wrench. D 73. 519</td>
</tr>
<tr>
<td>268e Cleveland Screw &amp; Tape Co., Fillyria,</td>
</tr>
<tr>
<td>O.—Milled set and cap screws, taps and nuts.</td>
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<tr>
<td>B 43. 519</td>
</tr>
<tr>
<td>269 Rutschmann Bros., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Self-feeding hand drill. B 29. 519</td>
</tr>
<tr>
<td>270 Mudge Hook, Tooth, File, &amp; Rasp Co.,</td>
</tr>
<tr>
<td>Brooklyn, N. Y.—Machine clips and rasps.</td>
</tr>
<tr>
<td>A 40. 519</td>
</tr>
<tr>
<td>271 Russell, Burdall, &amp; Ward, Port</td>
</tr>
<tr>
<td>Chester, N. Y.—Bolts for manufacturers’ use.</td>
</tr>
<tr>
<td>A 40. 519</td>
</tr>
<tr>
<td>272 Clark Bros., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Eccentric or cam rivet pipe tongs. B 40. 519</td>
</tr>
<tr>
<td>273 Pool, A. Alex., &amp; Co., Newark, N. J.—</td>
</tr>
<tr>
<td>Steel arbors for machinefiers and jewelers.</td>
</tr>
<tr>
<td>B 40. 519</td>
</tr>
<tr>
<td>274 Wood, Geo. W., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Self-adjusting flooring clamp and lifting</td>
</tr>
<tr>
<td>jack. A 41. 519</td>
</tr>
<tr>
<td>275 Orum, Morris L., Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Flexible mandrels for bending metal pipe.</td>
</tr>
<tr>
<td>B 40. 519</td>
</tr>
<tr>
<td>276 Eaton, Cole, &amp; Burnham Co., John</td>
</tr>
<tr>
<td>street, New York, N. Y.—Brass and iron</td>
</tr>
<tr>
<td>goods for steam, water, and gas; cast iron</td>
</tr>
<tr>
<td>radiators, tools, etc. B 41. 519</td>
</tr>
<tr>
<td>277 Shaw, Thomas, Philadelphia, Pa.—</td>
</tr>
<tr>
<td>Lathe tools. D 69. 519</td>
</tr>
<tr>
<td>278 Nicholson File Co., Providence, R. I.—</td>
</tr>
<tr>
<td>Files, finished, ground, and forged; files</td>
</tr>
<tr>
<td>for cutting. C 33. 519</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 11-15.
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>279</td>
<td>American File Co., Pawtucket, R. I.—Files, file-testing machine. C 34.</td>
</tr>
<tr>
<td>280</td>
<td>Hey, Henry T., Philadelphia, Pa.—Measuring gauge. A 41.</td>
</tr>
<tr>
<td>281</td>
<td>Spiral Tubing Co., Boston, Mass.—Machine for making spiral seam pipe. B 34.</td>
</tr>
<tr>
<td>284</td>
<td>Wyman, J. Dana, Boston, Mass.—Self-heating soldering iron. B 49.</td>
</tr>
<tr>
<td>285</td>
<td>Backus, Q. S., Winchendon, Mass.—Bit braces, ratchet braces, tack hammers, etc. A 40.</td>
</tr>
<tr>
<td>286</td>
<td>Johnson, Wm., Lambertville, N. J.—Universal lathe chuck. C 77.</td>
</tr>
</tbody>
</table>

**Machines and Implements of Spinning, Weaving, Felting, and Paper Making.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>288</td>
<td>Looms for silk dress goods, ribbons, webbings, etc. 520</td>
</tr>
<tr>
<td>288</td>
<td>Looms for plain and fancy woolen goods. 522</td>
</tr>
<tr>
<td>290</td>
<td>Wrigley, John, Paterson, N. J.—Jacquard loom, changeable for power or hand. D 31.</td>
</tr>
<tr>
<td>292</td>
<td>Nonotuck Silk Co., Florence, Mass.—Machinery for throwing and finishing organzine, sewing silk, twist, and embroidery; machine for printing spools. D 4.</td>
</tr>
<tr>
<td>293</td>
<td>Holland Manufacturing Co., Willimantic, Conn.—Machines for winding, measuring, and testing the strength of sewing-silk and other threads. D 34.</td>
</tr>
<tr>
<td>294</td>
<td>Lawson, Peter, Lowell, Mass.—Drawing or roving can. B 58.</td>
</tr>
<tr>
<td>294</td>
<td>Davis, Caleb S., Philadelphia, Pa.—Cotton goods finisher. D 46.</td>
</tr>
<tr>
<td>295</td>
<td>Avery, John G., Worcester, Mass.—Thread, twine, and cord machinery. D 54.</td>
</tr>
<tr>
<td>298</td>
<td>Butterworth, H. W., &amp; Sons, Philadelphia, Pa.—Drying machines for making prints, tickings, etc.; drying and sizing machines, calendars and finishing machinery of all kinds. Tinmed sheet iron cotton cans, etc. D 44 to 48.</td>
</tr>
<tr>
<td>299</td>
<td>Willimantic Linen Co., Hartford, Conn.—Spool cotton thread-winding and twistering machines; ring spinning frame. C 52, 53.</td>
</tr>
<tr>
<td>300</td>
<td>Clark Thread Co., Newark, N. J.—Self-acting spool-winding machine; show case. C 33 and A 34.</td>
</tr>
</tbody>
</table>

| 302 | Kitson Machine Co., Lowell, Mass. | 521 |
| 302 |a| Cotton openers and lappers. 521 |
| 302 |b| Shoddy pickers and rag dusters. 521 |
| 302 |c| Leather needle-pointed card clothing, for carding hemp, flax, jute, and tow. C 4, 33-34. | 521 |
| 305 | Gibbs Loom Harness & Reed Co., Clinton, Mass.—Loom harness and reeds used for weaving. C 50. | 521 |
| 305 | Fales, Jenks, & Son, Pawtucket, R. I.—Combined fly frame and speeder; ring spinner frame. D 34-35. | 521 |
| 305 |a| Saco Water Power Machine Shop, Biddeford, Me.—Cotton machinery. C 35-37. | 537 |
| 306 | Patent Forged Steel Spring Ring Co., Worcester, Mass.—Steel springings. C 34. | 521 |
| 306 | Hurtle & Thompson, New York, N. Y.—Wire heddles, frame and speeder; ring spinning frame. C 4, 33-34. | 521 |
| 306 | Rockville Traverse Card Grinding Co., Rockville, Conn.—Traverse grinder for woolen and cotton cards and shears. C 50. | 521 |
| 307 | Poole, J. Morton, & Co., Wilmington, Del.—C 60. |
| 307 | a| Glazing cylinder for finishing cotton goods. 521 |
| 307 | b| Chilled roll calenders, for paper-makers' use. 525 |
| 308 | Hope & Co., Providence, R. I.—Pantograph engraving machine for calico-printers' plates. C 41. | 519 |
| 309 | Ingersoll & Balston, Greenpoint, N. Y.—Hand-power hay and cotton press. C 55. | 519 |
| 310 | Butler, Brown, & Co., Providence, R. 1.—Ring travelers and belt hooks. C 54. | 521 |
| 311 | Ross, L. E., Providence, R. 1.—Spring shuttle motion for looms, independent of speed; loom with motion attached. D 36. | 521 |
| 312 | Palmer European Patent Tentering & Finishing Machine Co., Norwich, Conn.—Machinery for stretching, tentering, and drying woven fabrics, laces, etc. C 41. | 521 |
| 313 | Providence Machine Co., Providence, R. 1.—Roving machinery, card and spinning frame, built by Samuel Slater in 1790. D 36. | 521 |
| 314 | Hill, James, Providence, R. 1.—Tin coaters. D 35. | 521 |
| 316 | Wood, Thomas, 2106 Wood street, Philadelphia, Pa.—"Star loom" single box, five leaf; three box loom, 12 harness; four box loom-slidng cans; bobbin-winding machine; new style beaming machine; power hoisting machine; patent friction pulley; shafting, couplings, and pulleys; adjustable self-oiling hangers; self-oiling pillow blocks. C 54. | 521 |

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 21.
The Acme Patent Pipe Cutter.

MANUFACTURED ENTIRELY OF SOLID CAST STEEL.

Is adapted to widely varying classes of work, and will be found to operate equally well on

Wrought Iron Gas and Steam Pipes, Boiler Tubes, Oil-Well Tubes, Round Iron, Bolts, Shafting, Brass and Copper Pipes, etc.

It is as claimed an actual cutter, and does not depend on force of pressure to indent the pipe until it can be broken off; but cuts out a regular chip precisely similar to the action of a lathe tool, leaving the end of pipe perfectly square and true, entirely devoid of any burring inside or outside, and ready for the die without being touched with a file.

The knives are of such simple construction that any blacksmith can replace them. This will often be found an advantage by mechanics working at a distance from their shops.

The knife may be ground on any ordinary grindstone, and so be kept constantly in good order.

For Descriptive Price Lists, address

PANCOAST & MAULE,
PHILADELPHIA, PA., U. S. A.
Prichett, Baugh & Co.,

HIDE

AND

LEATHER DEALERS,

NO. 127 AND 129 SOUTH SECOND

AND

133 GOTHIC STREETS,

PHILADELPHIA.

SAMUEL BAUGH.
WM. C. PRICHEEET.

LOUIS D. BAUGH.
JAMES C. PRICHEET.

RUE'S LITTLE GIANT INJECTOR,

THE GREAT BOILER FEEDER.

BEST IN THE WORLD.

IN USE ON 120 RAILROADS—SEND FOR CIRCULAR.

RUE MANUFACTURING CO.,

523 CHERRY STREET,

PHILADELPHIA.
Cotton, Woolen, Paper-working Machinery.

3156. Smith, J. A. V., Manchester, N. H.—Steel spreader flies. C 60. 521
3157. Wolfenden, Shore & Co., Cardington, Pa.—Narrow loom. D 45. 522
316. Eaton & Ayer, Nashua, N. H.—Bobbins, spools, shuttles, skivers, etc. for spinning and weaving textiles. C 60. 521
317. Leonard & Stillman, Bridgeport, Conn.—Mill spindle with driver, step and points. F 56. 522
320a. Corner & Cooper, Lowell, Mass.—Cotton cards for cotton and woolen mills. D 90. 521
321. Howard, George C., 13½ South Eighteenth street, Philadelphia, Pa.—Folding, rolling, and measuring, straightening, shearing, and brushing machines, for carpets or cloths. B 31. 522
325. Furbush, M. A., & Son, Philadelphia, Pa.—Carding machines, self-acting spinning mule. D 52. 522
327. Thames River Worsted Co., Norwich, Conn.—Spinning frame with ring and transverse bar. D 48. 522
328. Parks & Woolson Machine Co., Springfield, Vt.—Cloth-shearing machine, cloth-brushing machine, etc. Manufacturers of cloth finishing machinery, consisting of improved shearing machines for shearing all kinds of broad and narrow woolen goods, carpet rags, shawls, etc.; also, double-acting brushing machine and teasing gis, etc., etc. D 60. 522
330. Rodos, Thomas, Philadelphia, Pa.—Yarn beam. D 49. 522
330c. Short, James, New Brunswick, N. J.—Positive motion loom for all kinds of carpets. This motion is a differential duplex motion, and is a mechanical motion not before known; all dead centres are avoided by the order of this motion; looms twenty-five per cent. less power is required and a speed of twenty per cent. increase is gained. The motion is adaptable to all kinds of looms. D 47. 522
331. Crabbe, William, Newark, N. J.—Barr picker, to extract foreign substances from wool; single and double barr machine. C 34, 35. 522
333. Draper, George, & Son, Hopedale, Mass.—Spinning frame, spooler, warper and creel; twister, spinning rings. C 51. 522
335. Atlas Manufacturing Co., Newark, N. J.—Barr picker, to extract foreign substances from wool; single and double barr machine. C 34, 35. 522
336. Lobdell Card Wheel Co., Wilmington, Del.—Chilled-iron carder rolls for paper. E 65. 525
337. Holyoke Machine Co., Holyoke, Mass.—Web callender; beating-rag engine. C 74. 525

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
346 Entrekin, William G., Philadelphia, Pa.—Enameler for furnishing photographs, paper, etc. C 41.
347a Pusey, Jones, & Co., Wilmington, Del.—Wire guides for paper machinery. D 33. 525

Machinery, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

348 Butler Braider Co., Clinton, Mass.—Braiding machinery. C 42. 530
349 Wimpfheimer, Mrs. C., Philadelphia, Pa.—Loom for manufacture of haircloth. G 30. 530
351 Oppenheimer, J. D., Philadelphia, Pa.—Patent process for curling hair by steam or hot water. Manufacturer of real and imitation hair goods. C 43. 530
352 Howard, George C., 13¹⁄₂ South Eighteenth street, Philadelphia, Pa.—Forming and pressing machines for straw, felt, leather, and buckram. We also make machines for drawing sheet metal. B 31. 531
354 Franz & Pope Knitting Machine Co., Bucyrus, Ohio.—Automatic knitting machines, seamless hosiery knitting machines; samples of work. C 64. 532
355 Wheeler & Wilson Manufacturing Co., Bridgeport, Conn.—Sewing machines and attachments; samples of work. C 44. 531
357 Wensley, James, Philadelphia, Pa.—Improvement in buttonhole sewing machines. C 46. 531
358 Lamb Knitting Machine Manufacturing Co., Chicopee Falls, Mass.—C 64. 531
   a Knitting machines. 531
   b Egg heaters. 224
359 Howe Machine Co., Bridgeport, Conn.—Sewing machines and attachments; samples of work. C 59. 531
360 Rex & Bockius, Philadelphia, Pa.—Sewing machine. C 60. 531
361 Bartlett, Joseph W., New York, N. Y.—Reversible sewing machines. C 45. 531
362 Wilson Sewing Machine Co., Chicago, Ill.—Sewing machines. C 47. 531
363 Billings & Spencer Co., Hartford, Conn.—Sewing machine shuttles, drop forged and cold-pressed, from bar steel. B 40. 531
364 Wilcox & Gibbs Sewing Machine Co., New York, N. Y.—Sewing machines with automatic tension, etc. C 50. 531
365 Warth, Albin, Stapleton, N. Y.—Cutting machines for clothing, notching implement for patterns, folding machine. C 70. 531
369 Davis Sewing Machine Co., Watertown, N. Y.—Sewing machines. C 51. 531
369a Robinson, L. W., Champaign, Ill.—Treadle for sewing and other machines. F 77. 531
370 National Suspender Co., New York, N. Y.—Loom for manufacturing suspenders; process of sewing suspenders with the name on in; samples of work. C 67-69. 531
373 McLean & Benner Machine Co., Philadelphia, Pa.—Sewing machines. C 60. 531
374 Johnson, Clark, & Co., Boston, Mass.—Sewing machines. Home, Shuttle, National, and Union sewing machines are furnished for domestic or export trade, at very low prices. The "Home" runs with treadle only; the others by hand or treadle. C 59. 531
375 Campbell & Clute, Cohoes, N. Y.—Double table knitting machine, yarn winder, turning-off machine. C 64. 531
376 Hart, Wm., jr., 127 North Fourth street, Philadelphia, Pa.—Apparatus for moulding, curving, or round-shaping, pasteborder, brass, and other flexible substances. Patented May 23, 1876. C 65. 531
377 Yule, George, Newark, N. J.— Wool forming machine, sizing, stiffening, body stretching, etc., for hatters’ use. C 67. 531
378 Victor Sewing Machine Co., Middletown, Conn.—Sewing machines, adjustable drill chuck, compensating journal. C 58. 531
379 Wagener, Jeptha, Holtsville, N. Y.—Sewing machines, carriages, and attachments. The great advantages of this machine are its simplicity, general utility, velocity and perfection of work. It is mounted upon a carriage, which is easily thrown on or off the wheels by a child, and is as easily moved from room to room as a child’s toy. It makes all the stitches of all the other well-known machines, and is easily changed from one stitch to another by the operator, and, by a new feed device, the ordinary fault of fulling the under layer in a seam is entirely obviated. The especial excellence and superiority of this machine are shown by even a brief inspection of its work. The Wagener has a manufacturing capital of $2,000,000. C 62. 531

For location of objects, indicated by letter and figure, see Key to Notation, p. 107: ground plan, p. 11.
Clothing-making, Sewing, Washing Machines.

381 Singer Manufacturing Co., Elizabethport, N. J.—Sewing machines, samples of work, and case of machine tools. (Special building.)

382 Home Knitter Co., Alliance, O.—One-needle knitter for stockings. C 64.

383 Decrow, A. W., Bangor, Me.—Sewing machine tender. E 63.


387 Dyson Needle Co., New Britain, Conn.—Spring-nickel and points for knitting machines. C 63.


390 Hinkley, Jonas, Norwalk, O.—Carpet and floor sweeper, knitting machines. C 62.


393 Taft, J. C., Providence, R. I.—Sewing machines. C 7.

394 Hull & Belden Co., Danbury, Conn.—Machine for forming fur hats. C 72, and annex.


399 Wardwell Manufacturing Co., St. Louis, Mo.—Family sewing machine. Makes a perfect lock-stitch, direct from two store spools; dispenses with the shuttle, bobbin, and tireless rewinding of under-thread; its needle is self-setting and self-fastening; feeds in any direction; is noiseless, simple, light-running, always in order, and its use saves much valuable time and labor. Ladies should examine it before buying. C 67 and 68.


403 Fish, Warren L., Newark, N. J.—Sewing machines. C 46.


405 Hurlay & Franson, Chicago, Ill.—Knitting machines. C 60.

406 Weed Sewing Machine Co., Hartford, Conn.—Sewing machines and samples of work. C 45.

407 Remington, E., & Sons, Ilion, N. Y.—Sewing machines; samples of work. C 49.


409 Pusey, Jones, & Co., Wilmington, Del.—Morocco glazing machine. D 33.


411 Buck, Isaiah D., Conshohocken, Pa.—Suction washing machine. E 77.


415 Calkins Champion Washer Co., Chicago, Ill.—Washing machine. E 77.

416 Barnard, A. B., West Fitchburg, Mass.—Mangles. E 78.

417 Howland, W. Penn, Auburn, N. Y.—Mangles. E 78.

418 Short, S., Cincinnati, O.—Mangle and ironer; blanket washing machine. E 77.

419 Pratt, Jas. W., Philadelphia, Pa.—Laundry washer. E 78.


422 Bing, James, Philadelphia, Pa.—Mangle. F 77.

423 Walker, W. B., Boston, Mass.—Machine for pressing garments; smoothing-iron and sad-irons. E 79.


425 Burt & Putnam, Rockville, Conn.—Washer for scouring cloth. E 78.


429 American Watch Tool Co., Waltham, Mass.—Watch lathes and attachments, with all modern improvements, as used in the best American watch factories; model and astronomical instrument mak.
Watch-making, Printing Machines.

Machines and Apparatus for Type Setting, Printing, Stamping, Embossing, and for Making Books, and Paper Working.

424 Howard, George C., 13 1/4 South Eighteenth street, Philadelphia, Pa.—Plate press for steel, copper, or zinc plate burnishers; power machines, ink, wipe, polish, and print twelve per minute. Screw printing, embossing, punching, and cutting press. Perforating or cutting machines for stamps, checks, sheet metal. Rotary and direct acting, heavy punching, cutting, and bending machines for metal. E 31.


441 Child, C. C., Boston, Mass.—Printing presses. F 32.


453 Loag, Samuel, Philadelphia, Pa.—Designs and specimens of color printing from blocks and plates; plate engraved by acid process. E 30.


457 Mann, Wm. H., Philadelphia, Pa.—Steam paging and numbering machine. E 32.


For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
United States.

33

Printing, Book-making, Paper-working Machines.


457 c Pusey, Jones, & Co., Wilmington, Del.—Forming cylinder; calendar rolls. D. 33.  


458 a Printing presses.  

458 b Paper cutters.  


461 Grant, Geo. B., Boston, Mass.—Calculating machines. E. 44.  

462 Bain, John W., 532 Walnut street, Philadelphia, Pa.—Type-writer; supercedes the pen, faster, is not liable, keys like a piano; children, blind, and aged, print at once. C. O. D., §125. John W. Rain, general agent (to whom all orders must be sent). E. 40.  

493 Pratt, John, Centre, Ala.—Type-writing machine. E. 40.  


496 Bruce’s, Geo. Son, & Co., New York, N. Y.—Book of printing types, and cases of samples of printing types. E. 5.  


499 Brainard, Charles R., Boston, Mass.—“Bank” and copy distributor for printing office. E. 40.  


503 Standard Machinery Co., Mystic River, Conn.—Steam rounding and backing machine, automatic book trimmer, and paper cutter. E. 40.  

504 Semple, Mary H., Lowell, Mass.—Steam cutter for bookbinders’ use. F. 33.  

505 Wm. F. Murphy’s Sons, Philadelphia, Pa.—Blank-book manufacturing and printing office.  

506 a Paper-cutting machine.  


509 a Jaeger, Gustav L., 69, 71 Wool-  


509 g Cleveland Paper Box Machine Co., Cleveland, O.—Sole manufacturers of machine for making paper boxes; also, cutting press, nicking machine for blanks, and box knives. This machine glues, folds, makes dries, and discharges the box, having a capacity of fifteen thousand a day. D. 25.  


509 j Boomer & Boschert Press Co., Syracuse, N. Y.—Copying press, paper presses, glue press, leather-binding press, cloth-binding press. Packer’s press for tank refuse—power, three hundred tons; standing and bookbinders’ presses, Nos. 0, 1, 2, and 3—power, 30, 80, 180, and 200 tons. Cloth-binding press—power, 250 tons. Copying press for banks, freight, and postage offices—power 20 tons. (For presses for cider or land, see Agricultural Hall, §13.) E. 30.  

509 k Bass, Joseph P., Bangor, Me.—Burnisher for polishing photographs. B. 30.  

509 l Curtis & Mitchell, Boston, Mass.—Paper cutters, self-making printing presses, card cutters, etc. D. 24.  


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
Paper-working Machines, Engines, Boilers, etc.


492 Lockwood, W. E. & E. D., 255 South Third street, Philadelphia, Pa.—Patent automatic envelope machine, which cuts, folds, gums, and counts 130 envelopes a minute. Automatic self-feeding envelope printing machine; capacity 6,000 an hour. Paper collar machine, which cuts, stamps, button-holes, and finishes 30,000 collars a day. Seed-bag envelope machines; envelope cutting press; small mailing envelope machine. (Section D 3. foot 27, contre aile.) 547

493 Hoole, John R., New York, N. Y.—Perforating machine for checks, stamps, tickets, etc.; paging and numbering machine, for paging blank books and numbering blank notes, checks, coupons, tickets, etc. F 54—56. 547


Motors and Apparatus for the Generation and Transmission of Power.

495 Williamson Bros., Philadelphia, Pa.—Portable and stationary hoisting engines, with spur and frictional gearing. D 79, and boiler house 4. 550

496 Tupper, Lorenzo B., New York, N. Y.—Furnace grate bars. D 76. 550

497 Connery, James W., Philadelphia, Pa.—Concave calking for steam boilers, iron ships, and metallic vessels. D 76. 550


499 Frick & Co., Waynesborough, Pa.—Portable farm and stationary engines. D 75, and boiler house 4. 550

500 Bigelow, H. B., & Co., New Haven, Conn.—Combined and independent engine feeders. 550

501 Steam Generator Manufacturing Co., of Pennsylvania, Philadelphia, Pa.—Sectional boiler. (Boiler house 3.) 550

502 American Engine Co., Jersey City, N. J.—Engines and threshing locomotive. D 75. 550

503 Shaw, Thomas, 915 Ridgeavenue, Philadelphia, Pa.—Steam and vacuum gauges, test pumps, air chamber feeder, hydraulic valves and gauges. Cushion-seated valves, exhaust nozzles, planer bar. Gauge is free of springs, and measures by weight alone; has been adopted by United States Government and principal establishments as standard of pressure. Test pumps are of superior make and finish, adapted to pressure in small quantities, to every pressure desired. Air-chamber feeder, a useful invention; utilizes vibrations of water in pump to supply air-chambers with air. Hydraulic stop-valve; controls the highest pressure without leakage; has threaded seat. Cushion-seated valve; uses face of valve as dash-pot; prevents pounding. Exhaust nozzle absorbs noise of exhaust steam, and arrests sparks in locomotives. Planer bar, doubles the capacity, of iron planers; reaches through work. D 63. 550

504 Reed, John A., New York, N. Y.—Tapping corrugated sectional boilers. D 77. 550

505 Steigert, Leopold, Cincinnati, O.—Meat-chopping machines, with engine attachments, horizontal engine. D 78. 550

506 Bent, Samuel S., New York, N. Y.—Shaking grate bars for steam boilers, etc. E 75. 550

507 Harrison Boiler Works, Philadelphia, Pa.—Sectional safety steam boiler. First class bronze medal, London, 1862; first class bronze medal, New York, 1865; gold and silver Rumford medals, Boston, 1871; first class silver medal, Philadelphia 1874. Section D 77, and boiler house No. 4. 550

508 Babcock & Wilcox, New York, N. Y.—Sectional safety steam boiler. (Boiler house 3.) 550

509 Meissner, Julius H., Philadelphia, Pa.—Steam and water economizer. D 76. 550

510 Shore Bros., Philadelphia, Pa.—Boiler feed, belt pumps, steam pump. E 75. 550

511 Houghton, R. J., New York, N. Y.—Boiler and tube compound for removing and preventing scale; specimens of scale. F 76. 550

512 Snyder, Ward B., New York, N. Y.—Steam engine. Snyder's Little Giant steam engine, one-horse power complete, with tubular boiler, $50; two-horse power, $600; three-horse power, $550. Send for circular. Factory, 84 Fulton st., N. Y. B 71. 550

513 Howard Safety Boiler Manufacturing Co., Boston, Mass.—Safety sectional wrought-iron nine-inch tube boiler. (Boiler house 3.) 550

514 Ames Iron Works, Oswego, N. Y.—Horizontal steam engines. B 74, and boiler house. 550

516 Erie City Iron Works, Erie, Pa.—Horizontal tubular boiler, portable engines, farm engine with vertical boiler and horizontal engine. C 76. 550

516a Springfield Iron Works, Springfield, Mo.—Turbine water wheel. D 85. 550

517 Ryder Reciprocal Grate Association, Tamton, Mass.—Reciprocal grates, Books on grates, combustion, and results of tests, sent free. D 68. 550

518 Lowe & Watson, Bridgeport, Conn.—Steam boiler. Lowe's patent steam boiler, made entirely of steel plates; provided by eight years' use, under all conditions, to be safe, durable, reliable, and very economical of fuel. Great and uniform steaming capacity. Process of combustion (smokeless with any fuel) obtained in construction and setting. (Boiler house 3.) 550

519 Chalmers Spence Co., Philadelphia, Pa.—Composition boiler and steam pipe covering; tube cleaner. D 78. 550

520 Shuster, John T., Philadelphia, Pa.—Boiler and pipe covering. D 78. 550

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
525 O'Hara, Charles M., Boston, Mass.—Ash felting for steam pipes. D 69-71.

526 Winans, H. N., New York, N. Y.—Boiler powder, compounds and liquids; anti-incrementors; boiler cleaner. D 78.


528 a Hanmore, Jno. W., Newburgh, N. Y.—Comb felting, blast pipes, vacuum pans, etc. B 39-41.

529 c McConn, John, Philadelphia, Pa.—Radiators, for steam or water, and boiler. E 76.

530 Miller, Charles B., Philadelphia, Pa.—Steam generator. (Boiler house 4.)

531 t Fires, Charles R., New York, N. Y.—Hot-water apparatus for heating buildings. D 75.


535 Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.—Incrustation, scale, and defective iron from steam boilers, fragments of exploded boilers. D 76.


537 Sample, McElroy, & Co., Keokuk, Iowa.—Portable steam engine and boiler. This firm makes a specialty of manufacturing these engines, and are prepared to fill orders promptly, if addressed as above. D 77.

538 Payne, B. W., & Sons, Corning, N. Y.—Vertical engines with safety boilers; 3 to 4 horse power; impossible to explode; price, $50, complete, except smoke stack. (Boiler house 4.)

539 Vail, S. S., Keokuk, Iowa.—Reversible steam boiler, with automatic fuel feed. To remove scales, reverse ends, Convenient to clean or repair. Rights for sale. C 77.


541 Peirce Rotary Tubular Boiler Co., New York, N. Y.—Rotary tubular steam boiler. (Boiler house 5.)

542 Gillis & Geoghegan, New York, N. Y.—Boiler feeder and steam trap. (Boiler house 6.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
543 Harrold, George W., Rochester, N. Y.—Automatic steam trap. D 64. 550
544 Johns, H. W., New York, N. Y.— D 64.
   a Asbestos roofing, asbestos cement felt, lined hair felt.
   b Asbestos steam packing. 555
545 Skinner & Wood, Erie, Pa.—C 78.
   a Horizontal return flue boiler; variable grate surface for wood or coal. 550
   b Portable engine, stop motion governor, self-oiling connecting rod, combined check, step, and relief valve. 552
54a Starr, William M., Tyler, Texas. —D 78.
   a Water wheel, car starter, glass cutter, etc. 551
   b Road engine. 552
   a Injectors. 550
   b Three cylinder engines. 552
   c Shafting, hangers, couplings. 553
547 Haworth, James, Philadelphia, Pa.—Turbines, driven by hydrant-water power. D 73. 560
548 Lane Manufacturing Co., Montpelier, Vt.—Monitor turbine water-wheel. Sets in open flume or in a closed curh; perfectly balanced cylindrical gate; water applied upon the entire periphery of wheel. A 8, 36-36. 565
549 Grier, W. W., Hultton, Pa.—Hydraulic ram sentinel. D 79. 572
550 Stout, Mills, & Temple, Dayton, O.—Turbine water-wheels with and without flumes. Thousands of these wheels are in successful operation, driving all kinds of machinery. They have been introduced into nearly every civilized country in the world. They produce a very high percentage of power, are compact and durable. Call at Machinery Hall, and get descriptive catalogue, or address proprietors as above. D 80. 576
552 Dexter Spring Co., Hultton, Pa.—Carriage spring, in connection with fifth wheel. D 79. 576
553 Leffel, James, & Co., Springfield, O., and 100 Liberty street, New York.—Double turbine water-wheel. D 77. 576
554 Chase Turbine Manufacturing Co., Orange, Mass.—Turbine wheels. (Pump annex.) 576
555 Wolf, Abraham N., Allentown, Pa.—Turbine water-wheel and flume. (Pump annex.) 576
556 Buzzby, Albert G., Philadelphia, Pa.—Water motor, from hydrant pressure; model of centripetal railway. D 79. 576
558 Valentine, Wm. J., Fort Edward, N. Y.—Turbines, with and without register gates; hydraulic motor. D 79. 576
559 Wright & Rogers, Minneapolis, Minn.—Stationary, portable, locomotive, and marine steam engine. D 79. 576
561 Wright, James, Minneapolis, Minn.—Cylinder meter motor. D 79. 586
562 Springfield Iron Works, Springfield, Mo.—Turbine wheel. D 80. 586
563 Bing, James, Philadelphia, Pa.—Turbine water-wheel. E 77. 586
564 Poole & Hunt, Baltimore, Md.—Turbine water-wheels and gearing. C 79. 586
565 Cox & Sons, Bridgeton, N. J.—Turbine water-wheels. C 78. 586
566 York Manufacturing Co., York, Pa.—Turbine water-wheels. D 78. 586
567 National Water-Wheel Co., Bristol, Conn.—Turbine water-wheels. D 77. 586
568 Barber & Son, Allentown, Pa.—Globe flume, with turbine wheel. D 77. 586
569 Brown, Son, & Co., Brooklynville, Pa.—Turbine water-wheels. D 78. 586
570 Cope, E. T., & Sons, West Chester, Pa.—Turbine water-wheel, with water-tight gates opening separately. (Pump annex.) 586
571 Bolinger, O. J., York, Pa.—Turbine water-wheel. (Pump annex.) 586
572 Risdon, T. H., & Co., Mount Holly, N. J.—Turbine water-wheel. Many sizes of this wheel, at tests by different engineers, and under different conditions, have given over 90 per cent. of the power of the water consumed. (Pump annex.) 586
572 Walton, Silas, Moorestown, N. J.—Turbine water-wheel. (Pump annex.) 586
575 Tait, Thomas, Rochester, N. Y.—Water wheel. The guides form wedge-shaped openings under all degrees, cutting water off at periphery of wheel; counterpoising under any hydrostatic pressure. Surface joints prevent water escapement between curb and wheel. (Pump annex.) 586
576 Knowlton & Dolan, Logansport, Ind.—"Little Giant" turbine water-wheel, noted for economy in the use of water, and durability. (Pump annex.) 586
576a Howobin, W. T., Cohoes, N. Y.—Water-wheel governor; rollers. D 78. 586
576b Turnham, N. F., York, Pa.—Turbine water-wheel. (Pump annex.) 586
576c Capron Water-Wheel Manufacturing Co., Hudson, N. Y.—Water-wheels. D 77. 586
576e Rotary fulling mill. D 45. 552
577 Folsom, Andrew, Barrington, R. I.—Wheel constructed to operate in the direction of wind or water. (Pump annex.) 552
578 Portable steam engine. D 78. 552

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
United States.

37

Engines, Boilers.

579 Abendroth & Root Manufacturing Co., 56 Liberty street, New York, N. Y.—Wrought iron sectional safety boiler. These boilers were introduced to the public in 1867. There is now over forty thousand horse-power in use in all parts of the world. (Boiler house 3.)

580 Fields, Wm., Wilmington, Del.—Motor-power model dumping coal wagon. B 79.

581 Bolles, J. N., Baltimore, Md.—Steam engine. (Outside.)

582 Cobb, Z., & Sons, Wilmington, Del.—Water engine for sewing machines, etc. E 65.


585 Lobdell Car Wheel Co., Wilmington, Del.—Portable steam engine and boiler. E 65.


591 Wardwell, George J., Rutland, Vt.—Stationary and portable valveless steam engines. B 77.


593 Hawley, Henry Q., Albany, N. Y.—C 75.


598 Carlisle, Mason, & Co., Chicago, Ill.—Chain elevating machinery. C 76.

599 Shapley & Wells, Binghamton, N. Y.—Steam engines. D 80, and Boiler house 4.

599(a) Russell, William D., New York, N. Y.—Engines. (Outside building.)

599(b) Butterworth, H. W., & Sons, Philadelphia, Pa.—Sheet iron; tin cans, D 44 to 48.

599(c) Baxter Steam Engine Co., New York, N. Y.—Steam engines; in use in Gillett & Sons' glass-house, and in Nevada State building.

599(d) Wisner & Strong, Pittston, Pa.—Horizontal engine. B 71.

599(e) Forbes, J. W., Chicago, Ill.—Quartz battery for crushing quartz. A 73.


603 Naylor, Jacob, Philadelphia, Pa.—Engines, horizontal and vertical boiler feed pump, and combined feed pump and heater. D 71-73.


608 Griffith & Wedge, Zanesville, Ohio.—Vertical portable engine, and centrifugal drying machine. C 74 and D 77.

609 Klein, Chas. C., Philadelphia, Pa.—Eccentric piston engine. C 79.


611 Hartford Foundry & Machine Co., Hartford, Conn.—Automatic and variable cut-off non-condensing steam engine. These engines, formerly known as the "Woodruff & Beach" iron works engine, have acquired a very wide reputation on account of their excellent performances. They are of three types of steam motor, combining the prime essentials of solidity, durability, and great economy. There are now in daily use over three hundred, practically demonstrating their merits. (Annex 1.)


613(a) Lewistown Brass & Engine Co., Lewistown, Pa.—Upright and horizontal engines. C 74.
Engines and Appliances, Belting, Shafting, etc.

614 Erie City Iron Works, Erie, Pa.—Stationary engine, horizontal engine. C 76. 552
615 Otis Bros. & Co., 348 Broadway, New York. N. Y.—Furnace engine for hoisting puppets. The balance hoisting engine, is adapted for operating two platforms; store hoisting engines, small size, lifting power and gear combinations, lifting power with screw combinations, for use in factories, mills, etc., and safety platforms for freight purposes, with corner and side upright; tiercing truck for piling up heavy boxes or packages. B 30. 555
616 Bastet Magnetic Engine Co., Philadelphia, Pa.—Magnetic engines for sewing machines, organs, lathes, pumps, etc. B 75. 552
618 Niagara Steam Pump Works, Buffalo, N. Y.—Miniature engine. Direct acting piston, pressure, and fire pump, direct acting plunger mining pump, crank pump and engine; direct acting organ engine; direct acting agitator and oil pump; direct acting plunger, on hoops in saw mill, loaned Centennial Commission. (Pump annex.) 552
620 Howard, George C., 13½ South Fifteenth street, Philadelphia, Pa.—Patent bolt gearing for operating machines of variable speed, sewing machines, etc. H 31. 553
621# Powers, W. P., La Crosse, Wis.—Belting. A and B, Saw mill. 552
621# Stow & Burnham, 500 North Fifteenth street, Philadelphia, Pa.—Flexible cable for transmitting power in any direction, also tools and machines operated therewith; drills workable wherever ratchet drill is used; flue cutter for regulating locomotive flues. JD 68. 553
621# Wahl, Albert, Philadelphia, Pa.—Health apparatus; back straightener and chest expander. E 75. 553
622 Eckfeld & Richre, Philadelphia, Pa.—Oak-tanned leather butts, belting and fire hose. D 65. 553
623 Page Belting Co., Concord, N. H.—Leather belting and lace leather; driving belt (in use). D 64. 553
624 Roebling’s Sons, John A., & Co., Trenton, N. J.—Wire rope, rigging, rope fastenings, bridge cables, rods, telegraph wire, etc. C 64. 553
625 Alexander Bros., 410 & 412 North Third street, Philadelphia, Pa.—Oak-tanned leather belting, and fine oil skin lapes; also patent double belt-driving shaft No. 3, the construction of which greatly increases the effectiveness and durability of belts from 16 to 48 inches or wider. Descriptive circulars furnished. D 64. 553
626 Cresson, Geo. V., Philadelphia, Pa.—Pulleys, hangers, couplings, wall boxes, pillow blocks, etc. C 71-73. 553
627 Heim, Anton, New York, N. Y.—Leather belting, hydraulic packing leather, tymanum skins, lace leather, picker leather, elastic pulley; driving belt (in use). D 65. 553
628 Branch, Crookes, & Co., St. Louis, Mo.—Adjustable countershaft hanger and belt tightener, for intermediate motion with fixed pulleys. (Saw mill.) 552
629 Rorer, Thomas J., Philadelphia, Pa.—Combined leather and canvas belting. D 65. 553
630 American Tubular Iron & Steel Association, Philadelphia, Pa.—Tubular iron and steel car axles, shafting, columns, bars. C 72-73. 553
631 Pennsylvania Combined Iron & Steel Association, Philadelphia, Pa.—Combined iron and steel rails, beams, girders, shafting plates, horse shoe and merchant bars. C 70-73. 553
632 Jones & Laughlin, American Iron Works, Pittsburgh, Pa.—Bar, sheet, and plate iron, T-rails, shafting, hangers, pump, couplings. Manufacturers of bar, hoop, sheet, and plate iron; patent cold-rolled shafting; hangers, pulleys, couplings, T-rails, street rails, nails, and spikes. C 65 and 70. 553
633 Schieren, Charles A., New York, N. Y.—Oak-tanned leather belting; double belt (in use). D 64. 553
634 Charlton, John, Philadelphia, Pa.—Internal clamp coupling for shafting, main driving pulley, with internal clamp hub. C 71 and 73. 553
635 Hoyt, J. B., & Co., New York, N. Y.—Oak-tanned sole leather and belting. 66. 553
636 Royer, H., San Francisco, Cal.—Fuller rawhide, belting, lacings, rope. D 66. 553
638 Pusey, Jones, & Co., Wilmington, Del. C 74. 553
638# Expanding pulleys. 553
638 t Temper cut-offs and governors for steam engines. 555
639 Jewell, P., & Sons, Hartford, Conn.—Leather belting, metallic-tipped belt lacings. D 67. 553
640 Mason, Volney W., & Co., Providence, R. I.—Friction clutches and pulleys, adjustable hangers; also, friction clutch pulleys, driving main lines of shafting in pump annex, and in Machinery Hall adjoining, near Corliss engine. D 66 and Pump annex. 553
641 Poole & Hunt, Baltimore, Md.—Shafting and appurtenances. C 79. 553
641# Eccles, James, Philadelphia, Pa.—Shaft coupling. D 60. 553
642 Gates, Josiah, & Sons, Lowell, Mass.—Leather belting, hose, lacing, and woolen apron leather and fire supply. C 78. 553
643 Burgess & Son, Providence, R. I.—Leather belting, lace leather, picker leather, lom pickers. C 70. 553
644 Cook, A. B., & Co., Erie, Pa.—Adjustable dead pulleys, wooden belt pulleys, and taper sleeve pulleys. D 72. 553

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
The following Medals have been awarded to this boiler:

- By the World's Fair, London, First-class Bronze, 1851.
- American Institute Fair, N.Y., " " 1859.
- Great Gold and Silver Rumford Medals, 1871.
- Franklin Institute Exhibition, First-class Silver, 1874.

Descriptive Pamphlets, Drawings, &c. furnished upon application to the Works.

These Boilers may be seen in operation in Boiler-house No. 4 of Machinery Hall.
BALDWIN LOCOMOTIVE WORKS,
BURNHAM, PARRY, WILLIAMS & CO., PHILADELPHIA.

ALL WORK
Accurately Fitted
TO GAUGES
AND
Thoroughly Interchangeable

LOCOMOTIVE ENGINES,
ADAPTED TO EVERY VARIETY OF SERVICE, INCLUDING
Narrow Guage Locomotives, Mine Locomotives, Steam Street Cars,
ETC., ETC.
Works on Broad St., from Pennsylvania Ave. to Spring Garden St.
645 Fowler, F. G., Bridgeport, Conn.—Propeller. B 72. $54
646a Neale & Levy, Philadelphia, Pa.—Steam propeller wheels and blades. C 77. $54
646b Lane Bros., Millbrook, N. Y.—Motor for driving light machinery. C 77. $54
647 Rhett, Roland, Baltimore, Md.—Spring motor for sewing machines. C 71. $54
649 Brown, Edward, Philadelphia, Pa.—Pyrometers for blast furnaces, bakers' ovens, tempering steel, etc.; revolution indicators. D 68. $55
650 Woodruff, Joseph, Rahway, New J.—Balanced steam damper regulator. D 76. $55
651 Wickersham & Bro., Philadelphia, Pa.—Oil feeder, brass and glass oil cups. D 76. $55
652 Pancoast & Maule, Philadelphia, Pa.—Steam and hot water house heating apparatus, vertical tube radiators, pipe fittings. D 75. $59
653 New York Beltin & Packing Co., New York, N. Y.—Rubber belting, packing, hose, tubing, car springs, vulcanite emery wheels, etc. D 75. $55
654 Ashcroft, E. H., Boston, Mass.—Steam and vacuum gauges; safety valves; all testing machine. D 72-73. $55
658 Parshall, C. H., Detroit, Mich.—Lubricator. D 71. $55
659 Belfield, H., & Co., Philadelphia, Pa.—Brass and iron valves, cocks, steam gauges, whistles, gongs, steam heating apparatus, etc. D 74. $55
660 Rue Manufacturing Co., Philadelphia, Pa.—Boiler feeders; injectors. (Boiler house 4, and Pump annex, Sec. 4, Col. 13.) $55
661 Allen's Sons, Josiah J., Philadelphia, Pa.—Anti-lamina, for preventing and removing scale from boilers. D 76. $55
662 Stilwell & Bier Manufacturing Co., Dayton, O.—Lime extracting heater and filter combined. Removes all impurities from feed-water for steam boilers; indispensable to an economical use of steam. D 80. $55
663 Richards, Jackson, Philadelphia, Pa.—Piston packing. D 69. $55
664 Waters, C., & Co., Boston, Mass.—Steam engine governors. D 74. $55
665 Buffalo Steam Gauge & Lantern Co., Buffalo, N. Y.—D 72. $55
   a Steam gauges. $55
   b Locomotive head light with patent burner, bulb lantern. $76
666 Lehman, B. E., Bethlehem, Pa.—Gauge cocks, water gauges, oil cups, gate valves. D 70. $55
667 American Oil Cabinet Co., Boston, Mass.—Safety oil cabinets. D 72. $55
668 Varianized Fibre Co., Wilmington, Del.—Fish-bolt and carriage washers. D 65. $55
670 McShane, Henry & Co., Baltimore, Md.—Bellows. (Northeast tower.) $55
671 Christoffel, T. B., Williamsburg, N. Y.—Tube cleaners and scrapers. D 66. $55
672 Utica Steam Gauge Co., Utica, N. Y.—Gauges, marine clocks, revolution counters, gauge testing apparatus. D 73. $55
673 Cleveland Steam Gauge Co., Cleveland, O.—Gauges, spring balances, test pump and gauge. D 72. $55
674 Aultman, Miller, & Co., Akron, O.—Self-registering dynamometer. D 68. $55
675 Davis & DuBois, Philadelphia, Pa.—Tallow cups for engines, etc. D 66. $55
676 Lynde, J. D., Philadelphia, Pa.—Governors, valves, feed water heaters, regulators and low water alarm combined. B 71, and Boiler house 4. $55
677 Union Water Meter Co., Wooster, Ohio.—Water meters, steam gauge, governor valves, steam and water regulators. D 67. $55
678 Kline, Aaron K., Sommerville, N. J.—Governor for steam engines. D 69. $55
680 Hetzel, Herman V., Philadelphia, Pa.—Speed indicator. B 73. $55
681 Chard & Howe, New York, N. Y.—Lubricating compound and cup. A 47. $55
682 Canfield Manufacturing Co., Philadelphia, Pa.—Steam and hydraulic stopping-box packing, self-lubricating hempen fibre, gun core. D 68. $55
683 Haurey, Henry F., Newark, N. J.—Flue and tube brushes. D 69. $55
684 Jenkins, Wm. H., & Co., Philadelphia, Pa.—Boiler feeder, steam trap, damper regulator, low water alarm, safety valve, steam gauges. D 77. $55
685 Bibb, B. C., & Son, Baltimore, Md.—Fireplace heater. D 72. $55
686 Post & Co., Cincinnati, O.—Steam gauges. D 71. $55
687 Greenwich Machine Works, Greenwich, N. Y.—Horseboc corking vise and bolt heading machine. A 37. $55
688 Tracy, Eliashib, Philadelphia, Pa.—Injector for boilers. D 68. $55
689 Clark, Rufus F., Philadelphia, Pa.—Cylinder oiler. E 69. $55
690 Lathrop Anti-friction Co., New York, N. Y.—Carbon composition machinery lubricator. D 68. $55
691 Asbestos Patent Fibre Co. (limited), Philadelphia, Pa.—Utilized fibre, paper, board; steam joints and packing, non-conducting pipe covering. D 69. $55

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
### Motors and Appliances. Pumps.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>677</td>
<td>Davis, J. B., Hartford, Conn.—Feed water heater and purifier.</td>
<td>555</td>
</tr>
<tr>
<td>678</td>
<td>Jasper, George F., Freeburg, Ill.—Heater and filter.</td>
<td>555</td>
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<td>680</td>
<td>Brown &amp; Fergus, Philadelphia, Pa.—Steam injector for steam boilers.</td>
<td>555</td>
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<tr>
<td>680a</td>
<td>Jamison, Samuel S., Saltsburg, Pa.—Steam water-injector, car replacerr, chimney top.</td>
<td>555</td>
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<td>681</td>
<td>Le Van, W. Barnet, Philadelphia, Pa.—Steam engine governors, damper regulator, and furnace grate bars.</td>
<td>555</td>
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<td>682</td>
<td>Willoughby, James D., Philadelphia, Pa.—Governor cut-off for steam engines.</td>
<td>555</td>
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<td>683</td>
<td>Woodruff, A. H., Lansing, Iowa.—Reverse and expansion gear for locomotives and propeller engines.</td>
<td>555</td>
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<tr>
<td>685</td>
<td>Newell, Wm. H., Philadelphia, Pa.—Injector valves.</td>
<td>555</td>
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<td>686</td>
<td>Allen, Stillman B., Boston, Mass.—Governor for steam engines.</td>
<td>555</td>
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<tr>
<td>686a</td>
<td>Pickering, T. R., Portland, Conn.—Steam engine governors.</td>
<td>555</td>
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<td>687</td>
<td>Osgood, Josiah A., Boston, Mass.—Crank pin oiler, metallic spring packing, etc.</td>
<td>555</td>
</tr>
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<td>688</td>
<td>McNab &amp; Harlin Manufacturing Co., New York, N. Y.—Valves, cocks, whistles, water gauges, iron fittings, plumbers’ materials.</td>
<td>555</td>
</tr>
<tr>
<td>689</td>
<td>Edson's Steam Recording Gauge Manufacturing Co., 91 Liberty street, New York, N. Y.—Gauges, electrical alarms, revolution counters.</td>
<td>555</td>
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<tr>
<td>690</td>
<td>Schutte &amp; Goehringer, Philadelphia, Pa.—Steam jet machinery, furnace blowers, ventilators, injectors, syphons, gas exhaustors, condensers, etc.</td>
<td>555</td>
</tr>
<tr>
<td>690a</td>
<td>Leonard, T. M., New York, N. Y.—Oil cup and dynamometer.</td>
<td>555</td>
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<tr>
<td>690b</td>
<td>Miller, W. P., New York, N. Y.—Lubricant.</td>
<td>555</td>
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<td>690c</td>
<td>Pratt &amp; Whitney Co., Hartford, Conn.—Automatic boiler-feeder and return steam trap.</td>
<td>555</td>
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<tr>
<td>690d</td>
<td>Smith, Levi F., Philadelphia, Pa.—Low water indicators, lubricators, gauge, steam trap, blower, comb-wrench, car seat, etc.</td>
<td>555</td>
</tr>
<tr>
<td>691</td>
<td>Lonergan &amp; McBride, Philadelphia, Pa.—Oil cups and lubricators.</td>
<td>555</td>
</tr>
</tbody>
</table>

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.

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### DEPT. V.—MACHINERY.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>692</td>
<td>Silver Lake Co., Boston, Mass.—Self-lubricating steam packing.</td>
<td>555</td>
</tr>
</tbody>
</table>

### Hydraulie and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>693</td>
<td>Dart, Edward &amp; Co., New York, N. Y.—Rotary pumps and engines, marine governors, cotton gins, presses, duplex plunger crank steam pump.</td>
<td>555</td>
</tr>
<tr>
<td>694</td>
<td>Cooper, Jones, &amp; Cadbury, Philadelphia, Pa.—Pumps.</td>
<td>555</td>
</tr>
<tr>
<td>695</td>
<td>Silsby Manufacturing Co., Seneca Falls, N. Y.—Rotary steam pump.</td>
<td>555</td>
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### Aquometer Steam Pump Co., Philadelphia, Pa.—Steam pumps. | 555 |

### 700 | Union Manufacturing Co., New Britain, Conn.—Iron and brass cistern; force, yard, drive well; garden engines, boiler, pumps, and rams. | 555 |

### 700a | Purvis, Edward, New York, N. Y.—Automatic steam valve. | 555 |

### 700b | Nichols, Harris & Walker, New London, Conn.—Acid pump and syphon. | 555 |

### 700c | Craig & Brevoort, New York, N. Y.—Condenser for steam pumps, steam engines, etc. | 555 |

### 700d | Hyneman, Isaac, Philadelphia, Pa.—Odorless excavating pump. | 555 |

### 700e | Le Page, W. N., Boston, Mass.—Force pumps. | 555 |

### 700f | Wood, Joseph, Red Bank, N. J.—Steam pump. | 555 |

### 700g | Hubbard, S. D., Pittsburg, Pa.—Steam pump. | 555 |

### 700h | Young, William, Easton, Pa.—Young's patent wrought iron, rubber-coated, brass cylinder lid and force pumps for deep wells and cisterns. | 555 |

### 700i | Wiswall, H. M., Boston, Mass.—Rotary and oscillating pumps. | 555 |

### 702 | Norwalk Iron Works Co., South Norwalk, Conn.—Direct acting non-expansive steam pumps. | 555 |
  a Rotary pumps and engine.
  b Reversing steam fire engine.


705 Carr, Adam, New York, N. Y.—Direct action steam pumps; compound direct action pump; will save sixty per cent. of fuel and labor; positive circulating steam radiators; noiseless friction hoisting engine; condensers for steam engines and pumps. (Pump annex and Boiler house 4.)

706 Douglas, W. & B., Middletown, Conn.—Pumps, hydraulic rams, pump chains, garden engines, curbs, chain pump fixtures; grindstone frame. (Pump annex.)

707 Vail & Wallace, Keokuk, Iowa.—Water elevator. (Pump annex.)


709 Hooker, Wm. D., Dedham, Mass.—Direct acting steam pumps. (Pump annex.)

710 Chapman, Henry, Philadelphia, Pa.—Centrifugal hydro-extractor, for brewers' grains, etc. Kiln model. (Pump annex.)

710a Waring, J. B., Stamford, Conn.—Steam pump. (Pump annex 12.)

710b Toledo Pump Co., Toledo, O.—Wood pumps. (Pump annex 5.)


710d Heold, Sisco & Co., Baldwinsville, N. Y.—Steam centrifugal pump and centrifugal pumps driven by belts. (Pump annex.)

711 Folliensbee, Geo. S., Lewistown, Me.—Double propeller pump. (Pump annex.)

712 Grosvenor, J. A., Jersey City, N. J.—Pulsometer steam pump, operated by pressure of steam on surface of water. (Pump annex.)

713 Biggs, B. F., & Wells, La Fayette, Ind.—Wooden lifiting and suction pump. (Pump annex.)

713a Ferrell & Jones, Philadelphia, Pa.—Combined steam pump and engine; centrifugal pump and yoke steam pump. (Pump annex 8.)

713b Matthewman & Johnson Pump Co., New Haven, Conn.—Excavating pump with deodorizing apparatus. (Pump annex 12.)

713c Blake, George F., Manufacturing Co., Boston, Mass.—Steam pump. (Pump annex 8.)

713d Eagle Odorless Excavating Co., Philadelphia, Pa.—Odorless excavator. (Pump annex.)


713f Crane Bros. Manufacturing Co., Chicago, Ill. (Pump annex 7.)
  a Steam elevators and pumps.
  b Hoisting engines and steam radiators.

714 King, Charles W., Boston, Mass.—Force pumps and house pumps with removable cylinders. (Pump annex.)

715 White, Clark, & Co., Baldwinsville, N. Y.—Centrifugal pump. (Pump annex.)

716 Poole & Hunt, Baltimore, Md.—Water heater and pump. (Pump annex.)


719 Gawthrop, A., & Son, Wilmington, Del.—Glass models of hydro-extractors with regulators, in operation. (Pump annex.)

720 Huffer, Abraham, Hagerstown, Md.—Automatic steami vacuum pump. (Pump annex.)

721 Pease, F. S., Buffalo, N. Y.—Pneumatic pump. (Pump annex.)

722 Bagley & Sewall, Watertown, N. Y.—Rotary metal force pump with self-jacking joints, without stuffing-boxes or valves; pressure on working parts equalized; absolutely positive in action; volume of discharge proportionate to proportionate to power and speed applied. Specially adapted to use of paper makers, brewers, tanners, etc., and for fire protection. (Pump annex.)

724 Niagara Steam Pump Works, Brooklyn, N. Y.—Direct acting steam pump and crank pump. (Pump annex.)

725 Hydrostatic & Hydraulic Co., Philadelphia, Pa.—Shaw's compound propeller pumps for quarries, mines, etc. Propeller wheel's secured to rotating shaft lifts from one thousand to one hundred thousand gallons per minute any height; has no valves, and is not liable to obstruction. Office at Shaw's Engineering Depot, Ridge avenue, Philadelphia, Pa. (Pump annex.)

726 Conde & Co., Philadelphia, Pa.—Steam pumping engine. (Pump annex.)

727 Nye, Gourlay, & Co., Chicago, Ill.—Steam vacuum pump. (Pump annex.)

728 Sluithour & Mintzer, Philadelphia, Pa.—(Pump annex.)
  a Force and bilge hand pumps.
  b Fire engines.

730 Albright & Stroh, Mauch Chunk, Pa.—B 19.
  a Model of duplex steam pump.
  b Fire-engines.

732 Allison & Bannan, Port Carbon, Pa.—Improved air compressing engines. Correspondence and orders solicited. A 52.


732c Union Rock Drill Co., New York
  a Air compressor.
  b Hose couplings for rock drills.

733 Coffin & Woodward, Boston, Mass.—Main and bilge pump for vessels, force pump. D 39.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
Hydraulic and Pneumatic Machines, Elevators.

734 Roots, P. H. & F. M., Connersville, Ind.—Rotary pressure blowers, hand blowers, gas exhauster. Patents and manufacturers of positive blast rotary blowers, and gas exhausters, adapted to all purposes for which blast or exhaust are required; also of improved Bye passes and gas valves. (Pump annex.)

734a Patterson, C. R., Pittston, Pa.—Suction and blast fan. B 61.

734b Gould's Manufacturing Co., Seneca Falls, N. Y., New York office 15 Park Place.—Iron and brass force and lift pumps, rotary pumps, ship, railroad, mine, and quarry pumps, hydraulic rams, garden and fire engines. A very elaborate exhibit. (Pump annex 8 and 10.)

735 Ferris & Miles, Philadelphia, Pa.—Blowing engine, steam hammer, and steam drop. (Annex 1.)

736 Willibrand, T., & Bros., Philadelphia, Pa.—Pressure blowers and steam engines, gas exhausters and steam engines. (Pump annex.)

737 Morse Co., l. P., Philadelphia, Pa.—Blowing engine—ten thousand seven hundred and forty cubic feet of air per minute, self-oiling, can be adapted to all uses. B 48.


740 Murphy, Francis, Streator, Ill.—Ventilating apparatus for mines, tunnels, steamboats, etc. (Pump annex.)

741 Disston, Thomas S., Philadelphia, Pa.—Rotary pressure blower. (Pump annex.)


743 Chase, F. D., Boston, Mass.—Patent ventilating ship deck iron, in brass composition, and galvanized iron; intended for vessel decks, steam car gages, etc. Seven sizes; flues, from four to nine inches in diameter. Patented, June 23, 1863, improved 1875. (Pump annex.)


745 Exer Machine Works, Boston, Mass.—Pressure blowers, fan blowers, and exhaust fans. (Pump annex.)

746a Boston Piston Meter Co., Boston, Mass.—Fluid meter. (Pump annex 2-3.)

747 Howard, George C., 13½ South Eighteenth street, Philadelphia, Pa.—Hoisting machine; screw gear runs in a bath of oil; patent stop brake, belt shifter, pulleys self-oiling, on independent bearings, car for any location. Elevators made with or without single engines. B 51.

748 Gunpowder Pipe Driver Co., Philadelphia, Pa.—Pile driver. (Outside of building.)

749 Ruoff, William, Philadelphia, Pa.—Double and single-gared jack screws, for moving and raising stone and all heavy weights. (Pump annex.)

750 Eccles, James, Philadelphia, Pa.—Quadruple screw-power press, pivot centre for drawbridge, etc. D 60.


751a Pennypacker, Matthias, Philadelphia, Pa.—Hand hoisting machine. (Pump annex.)

752 Harrison, W. H., Philadelphia, Pa.—Double-acting two-valve pump and hydraulic elevator. (Pump annex.)

753 Pneumatic Despatch Co., New York, N. Y.—Pneumatic tube. (Outside of building.)

754 Bolen, Crane, & Co., Newark, N. J.—Compound hydraulic press. (Pump annex.)

755 Eagle Meter Co., New York, N. Y.—Water meter. (Pump annex.)

756 Archbold, Samuel, 417 Walnut street, Philadelphia, Pa.—Marsland's liquid meter, for measuring water and other fluids. Of the turbine wheel form; has only one moving part, besides the register; is not at all affected by sand or silt passing through it; no friction, no wear— hence, its durability; readily understood and easily operated. Manufactured by the American Meter Co., Philadelphia. (Pump annex.)


759a Baily & Co., Faxcroft, Me.—Elevator for raising rocks, etc. (Adjoining Annex 3.)

759b United States Hoisting & Conveying Co., New York, N. Y.—Automatic machinery for hoisting, conveying, and depositing. (Outside of Machinery Hall.)

759c Higgins, H. Van, Chicago, Ill.—Water meter; oscillating piston meter. (Pump annex.)

759d Carlile & Elliott, Steubenville, O.—Safety lock for elevators. (Pump annex.)

760 Guerin, Thomas, San Francisco, Cal.—Instrument for measuring and regulating the flow of water from reservoir or canal. (Pump annex 1-2.)


763 Goldmark, Joseph, New York, N. Y.—Safety elevators for hotels, dwellings, and warehouses, operated by steam, water, or hand power. These elevators are absolutely safe, by virtue of the mechanical principles underlaying their construction; they, therefore, require no safety appliances whatsoever, beyond a common break. They are run in private resi-

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
Hydraulic Machines, Fire Engines and Appliances.

duces by water pressure, at an expense of less than half a cent for a round trip, and are used by women and children without requiring a special attendant. A 40. 563

763a Remington, E., & Sons, Iliion, N. Y.—Water meter. (Pump annex 1.) 563

764 Robertson, John, & Co., Brooklyn, N. Y.—Hydraulic pumps, hydraulic presses. (Pump annex.) 563

765 Ross, Thos., Rutland, Vt.—Steam crane. (Annex 2) 563

766 Randall, Francis M., New York, N. Y.—Automatic steam and vacuum pump. (Pump annex) 563

766a Maclay, J. W., New York, N. Y.—Water meter. (Pump annex 1.) 563

766b Ritter, J. R., Reading, Pa.—Model of hoisting apparatus. (Pump annex.) 563

767 Jones & Holmes, Providence, R. I.—Water elevators for open wells. (Outside of building.) 563

768 Bates, James, Baltimore, Md.—Hand elevator. (Pump annex.) 563

769 Yale Lock Manufacturing Co., Stamford, Conn.—Safety hoisting machinery, friction clutches and brakes, differential pulleys, drilling braces, steam end cutters. C 78. (Outside) 563

770 Foulds, Thomas, jr., Trevorton, Pa.—Water elevator. (Pump annex.) 563

773 Otis Bros. & Co., 348 Broadway, New York, N. Y.—Passenger elevator, including engine, safety drum, etc. Manufacturers of brewery elevators, which are generally in use and with great satisfaction in many of the large breweries throughout the country. Their specialty in this line is the elevators, including independent hoisting engine, safety platform, with galvanized iron work, to prevent rust, with lifting ropes and safety ratchets, etc. B 55. 563

774 Leonard & Silliman, Bridgeport, Conn.—Grain elevator. E 56. 563

774a Sweetland, I. B., Pontiac, Mich. a Brick and mortar elevator. (Annex 3.) 563

774b Self-packing faucet, rubber packing. (Annex 3.) 563


776 Tatham & Bros., New York, N. Y.—B 21. a Safety apparatus for hoisting machines. 563

b Drop and buck shot, lead and tin-lined lead pipe, tin-lined iron pipe, sheet lead. 563

776b Silsby Manufacturing Co., Seneca Falls, N. Y.—Rotary steam fire engines, horse hose carriage and hand hose reel. Also, in charge of the Centennial Fire Brigade, two rotary steam fire engines and horse hose cart. Illustrated and descriptive of circulars, English, Spanish, French, and German, may be had on application. A 6. 564

778 Street, E. A., New York, N. Y.—Portable fire pump. B 45. 564

778a Halloway, Charles T., Baltimore, Md.—Chemical self-acting fire engine; portable fire extinguisher. A 43. 564

778b Birkinbine, H. P. M., Philadelphia, Pa.—Apparatus for operating hydraulic valves at a distance. B 46. 564


778d Babson & Dwight, New York, N. Y.—Self-regulating fire-escapes. (West end of Machinery Hall, opposite column 58.) 564


779 Straw, E. A., Manchester, N. H.—Steam fire engine. (In new grounds.) 564

780 Schanz, C., Philadelphia, Pa.—Hook and ladder truck for firemen. B 54-56. 564

780a Falk, Louis, New York, N. Y.—Portable fire escape. A 5. 564

780b Wilson, W. H., New York, N. Y.—Firemen's hats and helmets. B 62, 64. 564

781 Champion Fire Extinguishing Co., Louisville, Ky.—Chemical engines, with hook, ladder, and hose attachments, hand fire extinguishers. B 36. 564

782 Babcock Manufacturing Co., New York, N. Y.—Chemical engines, hook and ladder trucks, truck and engine combined, fire extinguishers. B 57-60. 564

783 Platt, Wm. K., & Co., Philadelphia, Pa.—Fire extinguishers. B 49. 564

784 Vose, Wm. T., Boston, Mass.—Hydroulp, for extinguishing fires, washing and watering purposes. A 4. 564

784a Eureka Fire Hose Co., New York, N. Y.—Seamless cotton and linen fire hose. E 68. 564

784b Gutta-Percha & Rubber Manufacturing Co., New York, N. Y.—Rubber belting, hose, and packing. B 44. 564


787 Nichols, B. S., & Co., Burlington, Vt.—Steam fire engine. (Pump annex.) 564

788 Gomersall, Alfred, Philadelphia, Pa.—Engines, pumps, model of hose carriage. A 79. 564

789 Greer, Samuel Y., Philadelphia, Pa.—Hand hose carriage, leather fire hose, leather fire buckets. B 50. 564

791 Rumsey & Co. (limited), Seneca Falls, N. Y.—Hand fire engine. B 45. 564

794 Dennisson, J. N., Newark, N. J.—Steam fire engine, portable waterworks. B 48. 564

795 Hamm, John, Port Deposit, Md.—Fire extinguisher. Permanent for dwellings, factories, etc.; useful to gardeners. Rights for sale by patentee. B 66. 564

796 Lindlaw, John E., New York, N. Y.—Fire escape. B 56. 564

797 Holmes, Horatio L., Providence, R. I.—Fire extinguisher and stand, combination tool post, with samples of work. (Pump annex 1.) 564

798 Daniels, T. E., Detroit, Mich.—Fire escape and ladder. (Annex.) 564


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
DEPT. V.—MACHINERY.

Hydraulic and Pneumatic Machines and Appliances.


802 Zwietusch, Otto, Milwaukee, Wis.—B 25.


804 Bates, Benjamin, Baltimore, Md.—Copper and silver carbenaters, with attachments. A 29.


809 Tufts, James W., Boston, Mass.—Soda water apparatus, generators, fountains, tumbler washers, etc. A 19 and B 23.


811 Ferguson, James, & David, Philadelphia, Pa.—Machine for bottling and corking liquors. A 22.

812 Hey, Michael, Philadelphia, Pa.—Beer pump, with bar fixtures, water pressure machine, beer cooler, air bung and regulator. Manufacturer of all kinds of beer pump bar fixtures, patent water pressure machine, patent beer coolers, patent air bung and patent air regulator, and all kinds of beer spigot and coupling, etc. E 68.


817 b Powell, Wm., & Co., Cincinnati, Ohio.—Valves and lubricators. B 22.

817 c Talley, James, Jr., Kansas City, Mo.—Liquid faucet, automatic bung. B 29.

817 d Powell, Wm., & Co., Cincinnati, O.—Regrindling globe valves; automatic lubricators, etc. B 22.


818 Flower, James, & Bro., Detroit, Mich.—Stop valve, fire hydrant, machine for squaring nuts, oil cups. D 20.

819 Evans, Dalzell, & Co., Pittsburg, Pa.—Boiler, oil-well, radiator, artesian and hydraulic tubing; wrought iron pipe, coils of copper, nipples, and fancy designs. B 25.


824 Bridge water Iron Co., Bridge water, Mass.—Forgings, seamless copper and brass tubes and bolts, chilled soft rolls, spikes, roll plates, metal sheeting, etc. B 22-23.


828 Crosby Steam Gauge & Valve Co., Boston, Mass.—Steam gauges and safety valves, hydraulic and vacuum gauges, etc. D 67.


829 b Shedd, J. Herbert, Providence, R. I.—Hydrant box, taps, stop valves, and valve. C 37, and Pump annex 4.

829 c Douglas, W. B., & Middletown, Conn.—Pumps, hydraulic rams, garden engines, etc. (Pump annex.)


829 f Pect Valve Co., Boston, Mass.—Brass and iron steam valves. B 22.

830 Merrill & Keizer, Baltimore, Md.—Gauge cocks for steam boilers. D 64.

831 Wood, R. D., & Co., Philadelphia, Pa.—Fire hydrants, cast iron pipe, Eddy valves, lamp posts, turbine wheels, duplex turbine. Cast iron pipe for gas and water from one and a half to seventy-two inches diameter. Fire hydrants; Mathew's patent automatic releasing sliding frost case; valve opened by positive motion, without springs, weights, or levers. All working parts removable from ground without dig-
THE SUN NEWSPAPER

Is printed and published every day in the year, at 166, 168, and 170 Nassau Street, New York City. Its regular edition on secular days now (April, 1876) averages about 140,000; its weekly edition over 88,000; and its Sunday issue is nearly 100,000. It thus prints and sells more than a million copies a week, which are read all over the United States. This is a circulation unprecedented in American journalism, and it is constantly on the increase. In proof of this, let the following figures testify. They show the number of copies of The Sun printed every week during the year ending March 11, 1876.

<table>
<thead>
<tr>
<th>Week Ending</th>
<th>Copies Printed</th>
<th>Week Ending</th>
<th>Copies Printed</th>
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<td>849,892</td>
<td>25</td>
<td>858,778</td>
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<td>857,556</td>
<td>October 2</td>
<td>863,935</td>
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<td>10</td>
<td>863,556</td>
<td>9</td>
<td>870,820</td>
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<tr>
<td>17</td>
<td>855,976</td>
<td>9</td>
<td>878,082</td>
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<td>24</td>
<td>858,270</td>
<td>5</td>
<td>874,625</td>
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<td>May 1</td>
<td>869,542</td>
<td>30</td>
<td>876,160</td>
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<td>8</td>
<td>867,550</td>
<td>November 6</td>
<td>908,580</td>
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<td>15</td>
<td>877,450</td>
<td>13</td>
<td>852,372</td>
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<td>874,946</td>
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<td>December 4</td>
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<td>874,216</td>
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<td>967,850</td>
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<td>August 7</td>
<td>865,558</td>
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<tr>
<td>11</td>
<td>860,755</td>
<td>11</td>
<td>1,028,951</td>
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</tbody>
</table>

Total...46,799,769

In printing these papers, no less than three million four hundred and twenty-six thousand six hundred and ten (3,426,610) pounds of paper were consumed.

ADVERTISING RATES.

DAILY AND SUNDAY, 40 cents a line, ordinary advertising; large type, 80 cents; and preferred positions, 50 cents to $2.50, according to classification. Weekly, 50 cents a line; no extra charge for large type. Preferred positions, from 75 cents to $2.00.

SUBSCRIPTION RATES.

DAILY (4 pages), by mail, 55c. a month, or $6.50 a year, postpaid; with Sunday edition, $7.70.

SUNDAY (8 pages), $1.20 per year, postpaid.

WEEKLY (8 pages), $1.20 per year, postpaid.

Address, THE SUN, New York.
# THE American Newspaper Union.

A. J. Aikens, President.

<table>
<thead>
<tr>
<th>Newspaper Union</th>
<th>Number of Newspapers</th>
<th>Cost per Line per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York Newspaper Union, 148 and 150 Worth St., New York</td>
<td>315</td>
<td>$3.00</td>
</tr>
<tr>
<td>Chicago Newspaper Union, 114 Monroe St., Chicago</td>
<td>350</td>
<td>$3.50</td>
</tr>
<tr>
<td>Milwaukee Newspaper Union, 365 East Water St., Milwaukee</td>
<td>120</td>
<td>$1.25</td>
</tr>
<tr>
<td>Aikens Newspaper Union, 143 Race St., Cincinnati</td>
<td>200</td>
<td>$2.00</td>
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<tr>
<td>Southern Newspaper Union, 227 Second St., Memphis, Tenn.</td>
<td>145</td>
<td>$1.50</td>
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<tr>
<td>St. Paul Newspaper Union, 17 Wabashaw St., St. Paul, Minn.</td>
<td>73</td>
<td>$.75</td>
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</table>

## THE ORIGIN OF CO-OPERATIVE NEWSPAPER ADVERTISING.

Co-operative newspaper printing, as now practised, originated in Wisconsin twelve years ago. It is termed co-operative for the reason that one side of each of the newspapers is printed at a central office, and the paper sent in its half-printed state to the home office, where it is completed with editorials, local news, and other matter prepared by the editor or publisher. In December, 1846, the idea of co-operation, with advertisements, occurred to Mr. Aikens, while yet serving his time as an apprentice, in printing the message of President Polk on one side of a country newspaper of New England at Boston, and the other half being printed at the local office.

Mr. A. J. Aikens, a practical printer and business man, conceived the idea of reducing the cost of ready-printed paper, as it is now termed, to country publishers, by making an agreement with them to use a certain space in each of their papers for advertisements that he might procure. This plan of co-operation he put into practice twelve years ago, at the office of Cramer, Aikens & Cramer, Milwaukee. It at once became successful, leading to the establishment of co-operative newspaper printing-offices in Chicago, New York, St. Louis, Cincinnati, Memphis, St. Paul, and other places. There are now over two thousand newspapers printed upon the co-operative plan in the United States and Canada, and the number is constantly increasing, it having more than doubled in the last five years. The enterprise is no longer an experiment, but an established success, and the system is one yielding manifold advantages to advertisers as well as to local publishers.

## The American Newspaper Union

Is essentially national. The papers represented in it are located in all the States of the Union and in nearly five hundred county seats. They circulate over the whole area of the country from Maine to Colorado, distributing at least one hundred copies every year to each square mile of the settled portions of the United States.

Although, as a whole, the Union List is national, covering all sections, it is so made up of different members as to be susceptible of easy division into sections—East, Middle, West, South. The distribution of the papers is as follows:

<table>
<thead>
<tr>
<th>State</th>
<th>Number</th>
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<tbody>
<tr>
<td>New England</td>
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<tr>
<td>New York</td>
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<td>New Jersey</td>
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<td>Pennsylvania</td>
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<td>Virginia</td>
<td>24</td>
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<td>No. and So. Carolina</td>
<td>24</td>
</tr>
<tr>
<td>Ohio</td>
<td>122</td>
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<tr>
<td>Indiana</td>
<td>81</td>
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<tr>
<td>Illinois</td>
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<tr>
<td>Michigan</td>
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<td>Alabama</td>
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<td>Louisiana</td>
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<tr>
<td>Mississippi</td>
<td>29</td>
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<tr>
<td>Other States</td>
<td>46</td>
</tr>
</tbody>
</table>

## AGGREGATE CIRCULATION.

The circulation of these papers is large and constantly increasing. It is larger than the circulation of any other lists or combinations of country papers in the United States—the last aggregate weekly circulation being seven hundred thousand seven hundred and thirty copies (700,730).

Send to either office for a circular.
gining. Valves; Eddy's patent straight way double gated gates, hung on universal joint; perfectly adjustable duplex turbines so arranged as to develop full power from variable quantities of water; lamp posts; turbines; heavy machinery. B 18, and Pump annex. 566

382 Roots, P. H. & F. M., Connersville, Ind.—Tuyere irons and fire bed, by pass, gas valves. Patents to manufacturers of hand blowers for blacksmithing of all kinds; also, portable forgés adapted to every variety of work; also, improved Tuyere iron and fire bed combined. (Pump annex) 566

383 Allison, W. C., & Sons, Philadelphia, Pa.—Boiler tubes, oil-well tubing, steam pipe, rivets, bolts, nuts, washers, carriage bolts, forgings. B 24. 566

384 Cooper, Jones, & Cadbury, Philadelphia, Pa.—Supplies for plumbers, steam fitters, and machinists, etc. B 19. 566


388 Lagrave Valve Manufacturing Co., Troy, N. Y.—Sliding stop valves for water, gas, and steam, fire hydrants, etc. B 26. 566

389 Lunkenheimer, Fred., Cincinnati, O.—Automatic cylinder lubricators and glass oil-cups for steam engines; steam valves, with regulating device; untrammelled brass castings. B 13, and 22. 566


392 Lewistown Brass & Engine Co., Lewistown, Pa.—Brass goods. C 74. 566

393 Walworth Manufacturing Co., Boston, Mass.—Steam heating apparatus; steam and gas fitters' tools, etc.; laundry apparatus, etc.; pipe and fittings for steam, gas, and water. A 70, E 73 and B 41. 566

394 Radde, William, 548 Pearl street, New York, N. Y.—Patent glass-lined iron pipe; keeps water, chemicals, and all liquids perfectly pure; prevents poisoning by metallic water pipes; is a safe pipe for aquaria; resists frost, and gives full satisfaction. Patent underground telegraph system; secures perfectly reliable telegraphic connections, under all circumstances, and, through life and property, is composed entirely of inorganic substances. Naked copper wires are drawn through very small glass tubes (3 to 18 and upward), which are held in the required position in an iron pipe by paraffine wax. Both articles are cheap; need no repairs. B 3 to 20. 566

395 Chapman Valve Manufacturing Co., Boston, Mass.—Water, gas, and steam valves, with Rabbit metal seats. B 33-34. 566

396 Jarecki Manufacturing Co., Erie, Pa.—Brass work for steam, gas, water, oil, and iron fittin gs, adjustable pipe tongs. (Outside of building) 566

397 Starr, Jesse W., & Son, Camden, N. J.—Castings for gas and water, lamp posts, fire hydrants, stop valves, etc. (Outside of building) 566


399 Long Dennis, & Co., Louisville, Ky.—Cast iron gas and water pipes. Have in operation three foundries, with melting and casting capacity of 200 tons daily; supply the gas and water mains for the principal cities and towns west, north, and south. B 20-21. 566

400 Warren Foundry & Machine Co., Philadelphia, N. J.—Cast iron water pipe. (Building near Machinery Hall.) 566

401 Peck Bros., & Co., New Haven, Conn.—Brass-plated cocks, valves, and fittings for plumbers', gas and steam fitters' use. A 40. 566


403 O'Neill, Andrew, Ansonia, Conn.—Cast iron pipe; patent gas and water mains, joined without hot lead, a saving of 30 per cent. over the old; O'Neill's patent-planished copper and brass, tinned or nickeled; nickeled sheet zinc and yellow metal couplings for soil or surface and telegraph pipes. B 3-22, and outside. 566

404 Mills, Thomas, & Bro., Philadelphia, Pa.—Vertical engine and ice cream freezer combined, ice cream freezers and freezing apparatus. E 65. 568

405 Knickerbocker Ice Co., Philadelphia, Pa.—Ice tools, elevators, wagons, and ice machinery. B 18. 568

Railway Plant, Rolling Stock, and Apparatus.


407 Rhode Island Locomotive Works, Providence, R. I.—Passenger locomotive engine; photographs of locomotives. E 46. 570

408 Brooks' Locomotive Works, Dunkirk, N. Y.—Narrow-gauge locomotive. (West End Passenger R. R.) 570

409 Pease, James H., Reading, Pa.—Historical chart of inventions and improvements of the locomotive and railway system. E 71. 570

410 Rogers Locomotive & Machine Works, Paterson, N. J.—Locomotive engine, and tender. D 41, 42, and E 43. 570


412 Howe, Henry, Council Bluffs, Iowa.—Apparatus for supplying locomotives with water. D 68. 570

413 Dickson Manufacturing Co., Scranton, Pa.—Portion of the Stonebridge Lion locomotive. C 57. 570

For causes of exhibits, indicated by numbers at end of entries, see Classification, pp. 15-15.
Locomotives, Railway Plant, Scales.

859 Polytechnic College, Philadelphia, Pa.—Working model compressed locomotive with horizontal grip drivers for ascending planes. E 44. 570

860 Robinetz, James F., Petersburg, Va.—Model locomotive. (Empire Transportation Co.'s building.) 570


862 Philadelphia & Reading Railroad Co., Philadelphia, Pa.—Locomotive and tender. D 44-47. 570


865 Pennsylvania Railroad Co., Altoona, Pa.—Locomotive built in 1851, large-gage and passenger car combined (Buildings). 570

866 Mason Machine Works, Taunton, Mass.—Narrow-gage locomotive. (In use on West End Railroad) 571

866 Johnson, Chas. E., & Co., Lansing, Iowa.—Self-coupling railway car. F 35. 571

866 Lebanon Manufacturing Co., Lebanon, Pa.—Coal cars. (Outdoors, west of Machinery Hall) 571

867 Richle Bros., Philadelphia, Pa.—Scales, testing machines, beams, rope-twisters, sand-sifters. E 54. 571


869 Brandon Manufacturing Co., Brandon, Vt.—Railroad, merchandise, post-office, and other scales, beams and trucks. E 61-63, and D 8. 571

870 Dell, John C., Philadelphia, Pa.—Scales and weights. D 62. 571

871 Buffalo Scale Co., Buffalo, N. Y.—Platform, counter, and combination beam scales. D 54. 571

873 Becker & Sons, 232 E. 128th street, New York, N. Y.—Becker’s construction of improved balances and weights of precision for druggists, chemists, assayers, and for all purposes where accuracy is required. D 51. 571

874 Meyers, F., Newark, N. J.—Scales. D 53. 571

875 Hitchcock, S. S., Des Moines, Iowa.—Scales. D 47. 571

877 Gilly, John L., Columbus, O.—Freight cars; car wheels. (West of Machinery Hall.) 571


879 Willoughby, James D., Philadelphia, Pa.—Notifying scales, frictionless scales, D 8 and 54. 571

880 Chatillon, John, & Sons, New York, N. Y.—Spring balances, self-adjusting scales, counter scales, scale beams. D 50. 571


885 Robidoux, Joseph, & Sons, New York, N. Y.—Scale beams, frames, hooks, etc. D 49. 571

886 Steinway & Sons, New York, N. Y.—Metal frames for pianofortes, pianoforte actions. D 49. 571

887 Automatic Scale Co., Boston, Mass.—Automatic scales. D 51. 571

888 Reinhardt, Chas., Brooklyn, N. Y.—Druggists’, gold, and diamond scales. D 62. 571

889 Henderson Hydraulic Car Brake Co., Philadelphia, Pa.—Car brake, by steam or hydraulic pressure. D 64-66. 572

890 Singer, Jacob, Harrisburg, Pa.—Automatic car coupler; brakeshoke. E 92. 572

896 Welch, Robert R., Frankford, Pa.—Automatic car coupler. F 74. 572

897 Lahaye, J. J., Reading, Pa.—Model cars with automatic couplings. In successful operation on the Philadelphia & Reading Railroad, by which company it was delineated after more than a year’s trial. D 64. 572

901 Barton, C. S., Philadelphia, Pa.—Railway station indicator, operated from engine by compressed air or by hand. D 64. 572


903 Eames Vacuum Brake Co., Water- town, N. Y.—Injector, valve, vacuum, brake, etc. D 69. 572

904 Decrow, A. W., Bangor, Me.—Smoke conductor; railroad concession brake. E 65. 572

905 Kline, Aaron K., Somerville, N. J.—Model of car coupling. D 69. 572

906 Nelson, Nels, Minneapolis, Minn.—Steam and air car brake, car coupler. D 65. 572

906 Bing, James, Philadelphia, Pa.—Brake shoe. E 76-77. 572

907 Westinghouse Air Brake Co., Pittsburg, Pa.—Automatic brakes, vacuum brakes, air compressors, speed indicators, engine governors, engine. D 67. 572

907 Zook, Z., & Sons, Wilmington, Del.—Filipic steel springs, for car seats and upholsterers, door springs. E 68. 573

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
980 Cayuta Wheel & Foundry Co.,
Waverly, N. Y.—Chilled wheels for cars
and engines; specimen and tests. E 64. 573
980 Lobdell Car Wheel Co.,
Wilmington, Del.—New and old railroad
car wheels, tires, castings, etc. E 65. 573
981 Ramapo Wheel & Foundry Co.,
Ramapo, N. Y.—Railroad car and engine
wheels. E 71. 573
982 Culmer Spring Co.,
Pittsburg, Pa.—Springs for railway purposes; spiral
d疹, bolster, journal, equalizing, car,
tender, brake release, switch, and valve
springs. Spiral springs of all descriptions,
made to order. E 69. 573
983 Bryant, George B., Pottsville,
Pa.—Self-acting car wheels, loose pulleys,
cups, car journals; vehicle and carriage
wheel hubs; independent car axles. E 66. 573
984 French, A., & Co.,
Pittsburg, Pa.—Elliptic springs for cars and locomotives. E 71. 573
985 Miltimore Car Axle Co.,
New York, N. Y.—Railroad car truck, with com-
bined, stationary, and revolving axles, loose,
independent wheels, and oscillating boxes. Six sets narrow gauge railroad
car trucks, fitted with the Miltimore axles
and wheels, are in use on the West End
Passenger Railway. D 69–70. 573
986 Tryon, Geo. K., Son, & Co.,
Philadelphia, Pa.—Car and other bearings and articles of phosphor-bronze, composition,
Rabbit, and type metal. E 73. 573
987 Davenport, Fairbairn, & Co.,
Erie, Pa.—Engine and car wheels. E 71. 573
988 Miles, W. A., Copake Iron Works,
Copake, N. Y.—Car wheels. E 68. 573
989 Middleton, N. & A., & Co.,
Philadelphia, Pa.—Railroad car springs with
section of trucks. E 66 and 70. 573
990 Barnum Richardson Co.,
Lime Rock, Conn.—Salisbury iron ore, char-
coked pig iron, cast chilled car wheels. E 71. 573
991 Ewart Manufacturing Co.,
New York, N. Y.—Drive chains. E 63. 573
992 National Car Spring Co.,
New York, N. Y.—Elliptic, spiral, rubber,
valute and rubber centre spiral car
springs. E 68. 573
993 Standard Steel Works, Philadelphia,
Pa.—Cruible steel locomotive and
car wheel tires, castings, and forgings.
E 72. 573
994 Midvale Steel Works.—Works and
a Cast steel tires, all sizes and sections;
record of trial in hydraulic press of Bald-
win locomotive works, April, 1897. 573
b Cast steel axles, guaranteed to stand five
blows of seventeen hundred pounds' drop,
falling twenty-five feet upon four-inch
section, bearings three feet apart; axle
reversed between blows. 573

c Section bent, cold. 573
d Rails, twisted, cold. 574
e Solid cast steel forging, diameter thirteen
inches; length, twelve feet. Tensile
strength per square inch, 83,824 pounds;
elastic limit, per square inch, 52,000 pounds;
elongation under strain, 16.5 per cent. 573
f Solid steel castings; railroad crossing; planned anvil-face, weighing 3280
pounds. 573

Miscellaneous ingots. 573
i Ingots of open-hearth steel, broken, show-
ing solidity and characteristics of same;
Elastic limit per square inch, 65,018
pounds; tensile strength, per square inch, 123,220 pounds; elongation under strain,
hard, etc. 573

Tool, machinery, and spring steel, all
shapes, with fractures and evidences of
quality. 573

Forgings. 574

993 Lang, Wm., Bailey, & Co.,
New York, N. Y.—Cast steel locomotive tires.
E 72. 573
994 Whitney, A., & Sons, Philadelphia,
Pa.—Car wheels and axles. E 72. 573
995 American Paper Car Wheel Manufac-
turing Co., Hudson, N. Y.—Coach,
tack and car wheels, of paper, steel and iron combined. E 65. 573
996 Washburn Car Wheel Co.,
Hartford, Conn.—Steel-tired car wheels,
cast iron centres. E 70. 573
997 White, Joseph J., Smithville, N. J.—
Portable farc-box. D 64. 573
998 Sax & Kear, Pittston, Pa.—Steel-
tired truck and car wheels, with cast iron
centres. E 73. 573
999 Harrison, Samuel L., San Fran-
cisco, Cal.—Railroad car axle, with inde-
pendent wheels. E 72. 573
1000 Schoem, Wm. H., Wilmington,
Del.—Locomotive, car, and wagon
springs. E 69. 573
1001 Nichols, Picking, & Co.,
Philadelphia, Pa.—D 67. 573

a Railway elliptic, volute and spiral
springs. 573
b Cast steel nut-lock washers. 574
1002 Fields, Wm., Wilmington, Del.—
Cast steel rails, made direct from iron
ore. E 64. 573
1003 McKee, Fuller, & Co., Catasauqua,
Pa.—Railroad car wheels. D 65. 573
1004 Baltimore Car Wheel Co.,
Baltimore, Md.—Chilled cast iron engine and
rail wheels; samples of iron. E 66. 573
1005 Atwood Railway Wheel Co.,
New York, N. Y.—Railway wheels. E 69. 573
1006 Vese, Dinsmore, & Co.,
New York, N. Y.—Elliptic, spiral, rubber,
valute and rubber centre spiral car
springs. E 68. 573
1007 Roberts, A. & P., & Co., Phila-
delphia, Pa.—Hammered and rolled car
axles. E 72. 573
1008 Hopkins, D. A., Jersey City, N. J.—
Car journal boxes. E 63. 573
1009 Woodbury, James A., Boston,
Mass.—Elastic steel tire car wheels. E 70. 573
1010 Taylor Iron Works, High Bridge,
N. J.—Passenger wheels on axle, narrow
gauge wheels, sample wheels and sections;
heat and cold, etc. E 63. 573
1011 Nashua Iron & Steel Co.,
Nashua, N. H.—Steel plates, tires, axles,
shaftings, bars, and forgings; iron axles, bars, plates, car wheels, and forgings. E 66–67. 573

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13–15.
923 a Eccles, James, Philadelphia, Pa. — Frictionless journal box for railroad car axles. D 60. 573
923 b Columbia Car Spring Co., New York, N. Y. — Spiral and rubber car springs. E 69. 573
923 c Jeffries, James, & Sons, Philadelphia, Pa. — Locomotive, tender, and elliptic car springs. E 69. 573
924 Hamilton Steel Wheel Co., Philadelphia, Pa. — Car wheels and specimens of metal, process of manufacture. D 68. 573
925 Jersey City Wheel Foundry & Machine Works, Jersey City, N. J. — Elastic steel and iron wheels. D 68. 573
926 b Union Car Spring Co., Bridgeport, Conn. — Car springs, and steel. E 71. 573
926 Raddin, John, Lynn, Mass. — Elastic car and carriage wheels, automatic brakes, compounding wheels, busters, elastic chains, etc. E 70. 573
927 Fisher & Norris, Trenton, N. J. — "Fisher" patent rail joints for broad and narrow gauge roads. B 6-41, and Am. 7. 574
930 Jersey City Iron Works, Jersey City, N. J. — Detachable steel rail frogs and crossings, safety switch stands, car regulators. D 71. 574
931 a Cochran, John, New York, N. Y. — Cleats to secure rails to the cross ties. E 48. 574
931 b Wood, Joseph, Red Bank, N. J. — Adjustable spring, and stationary frogs. E 69. 574
931 c Scheiner, J. H., Philadelphia, Pa. — Frogs for cars and signals. E 71. 574
931 d Lamson, Watertown, Troy, N. Y. — Track guard. (Outside of building.) 574
931 e Redding, W. E., New York, N. Y. — Railroad switches. (Outside of building.) 574
931 f Mansfield Elastic Frog Co., New Haven, Conn. — Railroad frog. E 71. 574
931 g Kasson, C. Vallette, Buffalo, N. Y. — Continuous rail, railway frog, and crossing. E 78. 574
931 h Seely & Stevens, New York, N. Y. — Pollicidite, architectural wood finish. (Used on all wood work in Machinery Hall.) 574
932 Pennsylvania Steel Co., Harrisburg, Pa. — Bessemer steel ingots, blooms, forgings, and rails, open hearth steel ingots and blooms, safety switch, steel rail crossing and frogs, car replacement. D 29, and E 62. 574
933 Diamond State Iron Co., Wilmington, Del. — Railway track fasteners and merchant bar iron. Manufacturers of railroad splice bars, all sizes; noted for fit, quality, and finish. Track bolts and spikes of superior iron; extra quality bar and horseshoe iron. E 62. 574
933 a Lukens, J. H., Burlington, N. J. — Railway switch stand. D 71. 574
933 b Tuthill, Daniel S., Newburg, N. Y. — Railway tracks — to overcome contraction and expansion. E 72. 574
935 Bean, H. & B. F., Pawling, N. Y. — Mop-socket holder and catcher for railroad cars while in motion, draw heads for cars. D 66. 574
936 Rousseau’s Railway Signal Co., New York, N. Y. — Electric railway signals, office indicators, switch locks, circuit closer, etc. D 67. 574
937 Wharton, Wm., jr., Philadelphia, Pa. — D 72. a Patent Bessemer steel street railway curves; cast iron street railway curves; cast iron street railway switches; cast iron street railway frogs; cast iron street railway crossing. b Patent cast-iron street railway turntable. 575
938 Spahn, Emil P., Newark, N. J. — Models for automatic railroad crossings, gates, and signals. E 57. 575
939 a Lansing, H. S., Philadelphia, Pa. — Railroad crossing safety gate. (North-east of Machinery Hall.) 575
939 c Heywood, C. L., & Co., Boston, Mass. — Railroad bridge guard, for the protection of train men, at bridges over railroads. E 41. 575
939 d Hitchcock Lamp Co., Watertown, N. Y. — Lamps for fat oils and kerosene. D 40. 575
939 e Post & Co., Cincinnati, O. — Railway passenger-car trimmings, locomotive head lights. D 71. 576

Machines used in preparing Agricultural Products.

940 Deal, M., & Co., Bucyrus, O. — Separator and smutter, brush smutter, warehouse separator, and mill machinery trucks, etc. E 57. 580
942 Huntley, Halcombe, & Hine, Silver Creek, N. Y. — Purifier, bran dusters, bolting cloths. E 47. 580
944 Howes, Babcock, & Co., Silver Creek, N. Y. — Eureka smut and separating machine. Eureka brush polishing machine. The worst samples of smutty and foul wheat can be perfectly cleaned with these two machines. Grain separator, with patent zigzag arrangement for separating oats and all other seeds from wheat. Bolting cloth, elevator buckets, mill stone brush, pick handles. E 49. 582
944 Mungan Bros., Utica, N. Y. — Corn grinding mill, eye spindles, levers, etc. E 61-62. 580

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
49 Agricultural Machinery.


49b Stangeland, Elias, Rockdale, Minn. — Grain steaming machine. E 63.

49c Teter, W. L., Bristol, Tenn. — Self-regulating silent mill feed. E 63.

49d Noye, John T., & Son, Buffalo, N. Y. — Flour mill models, portable mills, millers' tools, middlings purifier, barn cleaner. E 47.


49f Ingraham & Beard, Chicago, Ill. — Grain scouter, smutter separator, grader, dustless malt and warehouse separator and grader. E 54.

49g Young, J., & S. Bernheisel, Green Park, Pa. — Flour bolt and middlings purifier combined, with bran separator and duster attached. E 57.

49h Harris, Clinton S., Elizabeth, N. J. — Smit and scouring machine, and scouring machine for cleaning grain. E 58.

49i Richardson, D. M., Detroit, Mich. — Improved patent wheat scouter, polisher, and separator. The principles covered in this machine may be briefly stated as follows: viz.: It scours and polishes the wheat thoroughly, without breaking, cutting, scratching, wearing away, or impairing the bran fibre, thereby leaving the bran full strength. When the wheat goes upon the drums, the bran comes off in large flakes or patches, and passes through without pulverizing and mixing with the flour; the blast can be adjusted to secure any desired separation. F 60.


49m Roland, Francis, & Co., Reading, Pa. — Grain decorticador and separator; model of water wheel. E 61.


49p Griscom & Co., Potting, Pa. — Diamond mill stone dressing machines (Will do as much work in one hour as can be done in a day with the pick.) Used by best mills. Thirty days' trial allowed. E 52.

49q Harrison, Edward, New Haven, Conn. — Vertical burr stone mills for grain, minerals, etc., and combined flouring mill and bolter. E 59.

49r Leonard & Silliman, Bridgeport, Conn. — Burr stone flour and grit mills. E 56.

49s United States Attrition Co., New York, N. Y. — Attrition mill for pulverizing cereals, etc. E 49.


49x Throops Grain Cleaner Co., Auburn, N. Y. — Grain scouter and separator; wheat brushing machine. E 68.


49a Spice mill.


Agricultural Machinery, Boats, Vessels, and Appliances.

971 Boyd, G., Philadelphia, Pa.—Coffee roaster, coffee cooler. (Annex 1) 585
972 Weikel & Smith Spice Co., Philadelphia, Pa.—Coffee roasting and spice milling machinery. (Annex 1) 585
973 Trumbly, Harry. 70 Market street, Philadelphia, Pa.—Coffee mills; manufacturers of scales and balances in use at the U. S. Treasury, and all the U. S. Mints and Assay Offices. F 53. 593
975 Silver & Deming Manufacturing Co., Salem, Ohio.—Meat choppers and meat stuffers. F 54. 586
976 Speihman, Geo., Strasburg, Pa.—Meat chopper. F 55. 586
978 Murray Iron Works Co., Burlington, Iowa.—Meat choppers, hand presses, sausage stuffers, etc. This exhibit attracts special attention of butchers and sausage makers. The draw-cut movement of the knives (which is that of a knife used by hand), is the peculiar feature which is claimed, distinguishes these machines from all others, and secures to them a clean cut, without noise or pounding and with very little wear of the parts. Some of them have been in constant use for over four years, without repairs of any kind. Their beauty, durability, and smoothness and precision of their work, attracts very general attention from the many who are interested in this kind of machinery, they being the only "draw-cut" machines made. F 60. 596
979 Huber & McCarter, Lancaster, Pa.—Steam meat chopper. E 60. 586
981 Kenyon, J. H., Plainfield, N. J.—Hand and power meat choppers. F 61. 586
982 Nittinger, August, jr., Philadelphia, Pa.—Packets' and packers' machinery. F 59. 586
983 Sauter, Charles, Reading. Malt cleaning machine, cylinder-wheel malt chopper. E 63. 587
985 Boce, C, & Co., New York, N. Y.—Capping machines, for adjusting metallic capsules on bottles, jars, etc. E 68. 587
986 Bolles, J. N., Baltimore, Md.—Models for submarine work. A 56, and outside. 594
987 Fields, William, Wilmington, Del.—Models of armor-ship, andfield battery gun. E 64. 594
990 Lyman, William, Middlefield, Conn.—Row-facing rowing gear. D 31, and on lake. 594
991 Wilen, George C., Philadelphia, Pa.—Small boat. D 32. 594
992 Richards, H. J., West Troy, N. Y.—Ice yacht. D 34. 594
993 Walton, Lewis W., New York, N. Y.—Row-locks for boats. D 35. 594
994 Burr & Co., New York, N. Y.—Tackle blocks, etc. D 34. 594
996 Whistler, Thos., Baltimore, Md.—Non-capizizable life boat. D 31. 594
998 Desmond, Timothy, New York, N. Y.—Pair-cared rig. D 36. 594
999 Bird, John, Philadelphia, Pa.—Glass moulding press. (Annex 2) 594
901 Lyman, W., Middlefield, Conn.—Rowing gear. D 31, and on lake. 594
903 Waters, E., & Sons, Troy, N. Y.—Paper boats, barrels, packages, cylinders, etc. D 35-36. 594
905 Von Behren & Shaffer, Stryker, O.—Boat oar, handspike. D 38. 594
906 Smith, D. S., Philadelphia, Pa.—Canoe, "Dolphin," of Queenstown, Md. 594
909 Hook, Gilman, West Harwich, Mass.—Toy yacht. D 32. 594
911 Miles, Geo. W., Philadelphia, Pa.—Single scull shell. D 40. 594
912 McGilvery, S. W., Belfast, Me.—Model for clipper ship. D 40. 594
914 Bradlee & Co., Philadelphia, Pa.—Cable and rigging chains. D 38. 594
915 Fearon, Thomas, Yonkers, N. Y.—Shell boats, composite planking. E 40. 594

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
Boats, Vessels, and Appliances.

1006/ Roach, John B., Chester, Pa.—Models of vessels, shaft and foggings. F 40. 594

1006/ Glass, Wm., Philadelphia, Pa.—Race boat. D 36-37. 594

1006/ Englis, John, & Son, Greenpoint, N. Y.—Steamship models. D 34. 594

1006/ Flower, Wm., Bangor, Me.—Life saving apparatus, boat lowering, and detaching apparatus, etc. E 35. 594

1006/ Goldie, George, Princeton, N. J.—Rowing machine. D 40. 594

1006/ Pusey, Jones, & Co., Wilmington, Del.—Photographs and models of steamboats and steamships. C 74. 594

1006/ Harrington, Charles B., Bath, Me.—Schooner yacht. D 32. 594

1006/ Parcells, Thomas, Philadelphia, Pa.—Full-rigged schooner sailing yacht. D 49. 594

1006/ Mallory, W. H., Bridgeport, Conn.—Steam yacht. On Schuylkill river. 594

1006/ Cort, Mrs. C. A. van, New York, N. Y.—Torpedo boat. D 31. 594

1006/ Francis, Frank, Philadelphia, Pa.—Model of boat. D 36. 594

1006/ Johnson, Hilary C., Philadelphia, Pa.—Miniature model of a full rigged ship. D 40. 594

1006/ Kahnweiler, David, New York, N. Y.—Cork jacket. D 40. 594

1006/ Ormsbee, M., Brooklyn, New York.—Sail life preservers and collar rescue. "The Sleeve Life Preserver," boat used to great advantage in pleasure-swimming, and, as a teacher of the novice, learning the art. To skaters they afford comfort, keeping the arms warm and the body harmless from falling, besides saving life should the ice break, preventing cramp in the arms, however cold the weather. Cricketers also wear them. They make excellent seat cushions for traveling on cars, boats, etc. They can be placed side by side for a cushion, and are easily carried in the pocket, and can be put on very quickly. "The Collar Life Preserver" rescues persons from drowning, is used also as a cushion for the house, counting-room, or traveling in the cars or boats, and as a cabinet invalid chair cushion. It can be put on instantly for life saving, even by a child two years of age; is used as a seat in the parks to prevent colds and sickness from sitting upon the damp ground. Bathing-house proprietors can be furnished with life preservers at prices that must assure them a handsome income from their sale or rental, with bathing-dresses, and by keeping the Collar Life Preservers always ready, none of their passengers can possibly be drowned, as they can be rescued in less than a minute by any of the assistants. Either of the preservers costs $5; or $4, to hire for a trip to the State Fair, or elsewhere. For particulars address Capt. M. Ormsbee, patentee and manufacturer, 52 Willow street, Brooklyn, New York. D 40. 594

1006/ Tipton, John, Philadelphia, Pa.—Model of boat. D 36. 594

1006/ Rowland, T. F., Greenpoint, N. Y.—Steam launch, metallic life boat. A 65 and D 31. 594

1006/ Roach, John, & Son, New York.—Models, armor plate, and marine engine work. E 40. 594

1007 United States Bunting Co., Lowell, Mass.—Bunting and flags. F 40. 594

1008 Massachusetts State Commission, Leverett Saltonstall, Commissioner.—Tower M. B. Building, Boston, Mass.—Water craft, old and new, and articles which take part in their construction and use,—being an historical exhibit of the growth of the marine interests of Massachusetts, from the earliest periods to the present time. F 38-40. 594

1009 American Life-Saving Suit Co., New York, N. Y.—Life-saving suit for ocean travel, surf belt for river travel. D 11. 594

1010 Wyatt, John L., Yonkers, N. Y.—Full-rigged clipper South Sea whale ship. E 38. 594

1011 Gildersleeve, S., & Sons, Gildersleeve's Landing, Conn.—Working models of wooden, steam, and sail vessels, for military and freighting business. Largest carrying capacity on light draft with good sailing qualities. D 40. 594


1014 Cannon, John D., New Castle, Del.—Hooped skiff boat, without timbers or knees. D 31-32. 594

1015 Baird & Huston, Philadelphia, Pa.—Steam yacht. D 38-40. 595

1016 Harlan & Hollingsworth Co., Wilmington, Del.—Ships, models, drawings, and plans of vessels and machinery, paintings of ships and steamboats. D 29. 595

1017 Griffiths, John W., New York, N. Y.—Model of ocean steamship; "The Progressive Ship Builder." D 40. 595

1018 Zantzinger, Dan'l W., Washington, D. C.—Model and section of steamship, improvement in construction of iron vessels. The above improvement consists in providing small watertight compartments entirely surrounding the hull of the vessel. D 40. 595

1019 Grant, D., Conrad, Houghton, Mich.—Adjustable ice plow and naval ram, or submarine mortar, attached to winch and boat. D 30. 595


1021 Crowell, J. W., & Co., Cambridge, Md.—Models for steam and sail vessels. Builders of all classes of wooden vessels. Fitted up with the best quality of Chesapeake white oak. We invite inquiry as to our facilities. D 40. 595

1022 Thwait, Charles, Astoria, N. Y.—Model of steamship, with working machinery. D 35. 595

1023 Suter, Frederick, Philadelphia, Pa.—Propeller screws, models and drawings of boilers, etc. D 73. 595

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
**Vessels and Appliances, Machinery in Use.**

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1029</td>
<td>American Steamship Co., Philadephia, Pa.—Models and paintings of the steamers of the company. C 44. 595</td>
</tr>
<tr>
<td>1024</td>
<td>American Dredging Co., 10 South Delaware avenue, Philadelphia, Pa.—Improved grapple and dipper dredges, and machinery for river and harbor improvements. E 40. 596</td>
</tr>
<tr>
<td>1024a</td>
<td>Hawley, Abel, Washington, D. C.—Rotary dredge. E 40. 596</td>
</tr>
<tr>
<td>1024b</td>
<td>Eau Claire Lumber Co., Eau Claire, Wis.—Sheer rudder loom and pontoon bridge. (See wood.) 596</td>
</tr>
<tr>
<td>1025</td>
<td>Cox, Frank, Philadelphia, Pa.—Model for coffee dam for removing propellers from ships. F 39-40. 596</td>
</tr>
<tr>
<td>1026</td>
<td>Coffin &amp; Woodward, Boston, Mass.—Capstans, chain-stopper, screw- steerer, and rudder-supporter, elastic-traveler, portable winch, windlasses, pumps, etc. Best modern improved articles. D 39. 597</td>
</tr>
<tr>
<td>1026a</td>
<td>Robinson, R. M., Philadelphia, Pa.—Simple and compound anchor, with apparatus. D 5. 597</td>
</tr>
<tr>
<td>1027</td>
<td>Sickles, F. E., Providence Steam Engine Co., Providence, R. I.—Original models of some of exhibitor’s early inventions, now in use in this country and abroad, viz. : Trip cut-off, patented 1845, and improvements thereon patented 1845: casting steam chest on cylinder, patented 1845: improvement on working exhaust valves, patented 1844; first machine made or used to apply power to the rudder of vessels (in operation), application filed 1849, patented in 1860, etc.; improved compound engine, patented 1875; also original models of improvement in sinking pneumatic piles; also other original models. D 38. 597</td>
</tr>
<tr>
<td>1028</td>
<td>Getchett, John S., Washington, D. C.—Capstan. D 40. 597</td>
</tr>
<tr>
<td>1029</td>
<td>American Ship Windlass Co., Providence, R. I.—Capstans, windlass models. D 40. 597</td>
</tr>
<tr>
<td>1030</td>
<td>Hutchinson, T. C., Philadelphia, Pa.—Anchor. D 40. 597</td>
</tr>
<tr>
<td>1030a</td>
<td>Hamilton, S. M., Baltimore, Md.—Hydraulic cement. (Annex 27.) 103</td>
</tr>
<tr>
<td>1031</td>
<td>Hampton Emery Co., Chester, Mass.—Emery in grains. B 37. 105</td>
</tr>
<tr>
<td>1032</td>
<td>Potts Bros., Pottstown, Pa.—Flanged boiler iron and boiler flue iron. B 24. 111</td>
</tr>
<tr>
<td>1032a</td>
<td>Potter &amp; Hoffman, Philadelphia, Pa.—Iron and steel; boiler plate; pig and bar iron. B 39. 114</td>
</tr>
<tr>
<td>1033</td>
<td>Rittenhouse, E. W., &amp; Bro., Baltimore, Md.—Terra-cotta pipe. (Outside of building.) 206</td>
</tr>
</tbody>
</table>

**Machinery and Apparatus Especially Adapted to the Requirements of the Exhibition.**

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1034</td>
<td>Pease, F. S., Pease, Buffalo, N. Y.—Furnishes all the oil used for the shafting in Machinery Hall. 201</td>
</tr>
<tr>
<td>1035</td>
<td>Sellers, Wm., &amp; Co., Philadelphia, Pa.—Electric registers, showing number of admissions at gates throughout the day. 521</td>
</tr>
<tr>
<td>1036</td>
<td>Ledgerwood Manufacturing Co., New York, N. Y.—Ash-hoister. 503</td>
</tr>
<tr>
<td>1037</td>
<td>American Twist Drill Co., Woonsocket, R. I.—Emery grinding machine, used in the Centennial machine shop. 505</td>
</tr>
<tr>
<td>1038</td>
<td>Stillwell &amp; Pierce, Dayton, O.—Feeder used in boiler house No. 4. 506</td>
</tr>
<tr>
<td>1039</td>
<td>McNeil, George, Philadelphia, Pa.—Heater used in boiler house No. 4. 506</td>
</tr>
<tr>
<td>1040</td>
<td>Sellers, Wm., &amp; Co., Philadelphia, Pa.—Lathes, used in the Centennial machine shop. 510</td>
</tr>
<tr>
<td>1041</td>
<td>Prentice, A. F., &amp; Co., Worcester, Mass.—Lathe and drill, used in the Centennial machine shop. 510</td>
</tr>
<tr>
<td>1042</td>
<td>Fitchburg Machine Co., Fitchburg, Mass.—Lathe and drill for use in the Centennial machine shop. 510</td>
</tr>
<tr>
<td>1043</td>
<td>Smith, H. B., Smithville, N. J.—Full set of wood-working tools for Centennial carpenter shop. 510</td>
</tr>
<tr>
<td>1044</td>
<td>Keystone Portable Forge Co., Philadelphia, Pa.—Three 6 power forges 54 inches in diameter, for the Centennial machine shop. 514</td>
</tr>
<tr>
<td>1045</td>
<td>Stephens Patent Vise Co., New York, N. Y.—Vises, used in the Centennial machine shop. 514</td>
</tr>
<tr>
<td>1046</td>
<td>Fisher &amp; Norris, Trenton, N. J.—Vises and anvils, used in the Centennial machine shop. 514</td>
</tr>
<tr>
<td>1047</td>
<td>Mitchell, J. E., Philadelphia, Pa.—Grindstones, used in the Centennial machine shop. 515</td>
</tr>
<tr>
<td>1048</td>
<td>Andrews, W. D., New York, N. Y.—50 horse power boiler and pumps; boiler for use, and pumps for supplying cataract. 515</td>
</tr>
<tr>
<td>1049</td>
<td>Abendroth &amp; Root, New York, N. Y.—150 horse power boiler, supplying steam to steam pumps, etc. 550</td>
</tr>
<tr>
<td>1050</td>
<td>Steam Generator Manufacturing Co., Philadelphia, Pa.—100 horse power boiler, supplying steam to steam engines. 550</td>
</tr>
<tr>
<td>1051</td>
<td>Babcock &amp; Wilcox, New York, N. Y.—150 horse power boiler, supplying steam to steam pumps, etc. 550</td>
</tr>
<tr>
<td>1052</td>
<td>Harrison Boiler Works, Philadelphia, Pa.—100 horse power boiler, supplying steam to steam engines, etc. 550</td>
</tr>
<tr>
<td>1053</td>
<td>Exeter Machine Works, Boston, Mass.—17 horse power boiler, supplying steam to steam pumps, etc. 550</td>
</tr>
<tr>
<td>1054</td>
<td>Kelly, W. E., New Brunswick, N. J.—50 horse power boiler, supplying steam to steam pumps, etc. 550</td>
</tr>
<tr>
<td>1055</td>
<td>Lynde, J. D., Philadelphia, Pa.—50 horse power boiler, supplying steam to steam engines. 550</td>
</tr>
<tr>
<td>1056</td>
<td>Miller, Charles B., Philadelphia, Pa.—Boiler, used in boiler house No. 4. 550</td>
</tr>
<tr>
<td>1057</td>
<td>Smith, C. D., Boston, Mass.—Boiler, used in boiler house No. 2. 550</td>
</tr>
<tr>
<td>1058</td>
<td>Lo we &amp; Watson, Bridgeport, Conn.—Boiler, used in boiler house No. 3. 550</td>
</tr>
</tbody>
</table>

*Note* location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.
<table>
<thead>
<tr>
<th>No.</th>
<th>Company Name</th>
<th>Location</th>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1064</td>
<td>Hoadley, J. C., Co., Lawrence, Mass.</td>
<td>-</td>
<td>Portable hoisting engine, used while installing machinery.</td>
</tr>
<tr>
<td>1065</td>
<td>Williamson Bros., Philadelphia, Pa.</td>
<td>-</td>
<td>Portable hoisting engine, used while installing machinery.</td>
</tr>
<tr>
<td>1067</td>
<td>Hoyt, J. B., New York, N.Y.</td>
<td>-</td>
<td>One 15 inch and one 30 inch belt, for driving shafts in Annex 1 and 2.</td>
</tr>
<tr>
<td>1068</td>
<td>Yale Lock Co., Stamford, Conn.</td>
<td>-</td>
<td>Three pulley blocks, for use in Machinery Hall.</td>
</tr>
<tr>
<td>1069</td>
<td>Fales, George S., Pawtucket, R.I.</td>
<td>-</td>
<td>One 30 inch double driving belt.</td>
</tr>
<tr>
<td>1070</td>
<td>Burgess &amp; Son, Pawtucket, R.I.</td>
<td>-</td>
<td>One 30 inch double driving belt.</td>
</tr>
<tr>
<td>1072</td>
<td>Heims, Anton, New York, N.Y.</td>
<td>-</td>
<td>One 30 inch double driving belt.</td>
</tr>
<tr>
<td>1073</td>
<td>Schieren, C. A., New York, N.Y.</td>
<td>-</td>
<td>Belt for use in No. 4 shaft.</td>
</tr>
<tr>
<td>1074</td>
<td>Page, B. &amp; P. Co., Concord, N.H.</td>
<td>-</td>
<td>One 30 inch double driving belt, in No. 5 shaft.</td>
</tr>
<tr>
<td>1077</td>
<td>Jones &amp; Laughlin, Pittsburgh, Pa.</td>
<td>-</td>
<td>Shafting, pulleys and hangers, for driving Centennial machine shop tools.</td>
</tr>
<tr>
<td>1079</td>
<td>Woodruff, James, Rahway, N.J.</td>
<td>-</td>
<td>Dampers, used in boiler houses Nos. 3 and 4.</td>
</tr>
<tr>
<td>1080</td>
<td>Edson, M. B., New York, N.Y.</td>
<td>-</td>
<td>Steam gauges, for use in boiler houses Nos. 3 and 4.</td>
</tr>
<tr>
<td>1081</td>
<td>Nathan &amp; Dreyfus, New York, N.Y.</td>
<td>-</td>
<td>Patent oil cups, for one line of shafting.</td>
</tr>
<tr>
<td>1082</td>
<td>Lawrence, W. H., Brooklyn, N.Y.</td>
<td>-</td>
<td>Safety oil cans, used in Machinery Hall.</td>
</tr>
<tr>
<td>1085</td>
<td>Pratt, R. V., New York, N.Y.</td>
<td>-</td>
<td>Injector, used in boiler house No. 3.</td>
</tr>
<tr>
<td>1086</td>
<td>Caw, A., New York, N.Y.</td>
<td>-</td>
<td>Two steam pumps, in boiler house.</td>
</tr>
<tr>
<td>1087</td>
<td>Worthington, Henry P., New York, N.Y.</td>
<td>-</td>
<td>Duplex pumping engine, furnishing total supply of water for the Centennial Exhibition. (On Schuykill River, next to Lancaster.)</td>
</tr>
<tr>
<td>1088</td>
<td>Niagara Pump Works, Brooklyn, N.Y.</td>
<td>-</td>
<td>Pump, for use in boiler house.</td>
</tr>
<tr>
<td>1089</td>
<td>Norwalk Iron Works, South Norwalk, Conn.</td>
<td>-</td>
<td>Five Earl pumps, for use in boiler house No. 6.</td>
</tr>
<tr>
<td>1090</td>
<td>Blake Manufacturing Co., New York, N.Y.</td>
<td>-</td>
<td>Pumps, for supplying boilers in boiler house No. 4.</td>
</tr>
<tr>
<td>1092</td>
<td>Burton, S., &amp; Son, Waterford, N.Y.</td>
<td>-</td>
<td>Fire engine, for use.</td>
</tr>
<tr>
<td>1093</td>
<td>Scott-Uda, Mrs. M., New York, N.Y.</td>
<td>-</td>
<td>Aerial ladder. (In fire station.)</td>
</tr>
<tr>
<td>1095</td>
<td>Silsby Manufacturing Co., Seneca Falls, N.Y.</td>
<td>-</td>
<td>Two engines and hose carriages, for use.</td>
</tr>
<tr>
<td>1096</td>
<td>Nichols, S. B., Burlington, Vt.</td>
<td>-</td>
<td>Fire engine and hose carriage, for use.</td>
</tr>
<tr>
<td>1097</td>
<td>Hoyt, J. B., New York, N.Y.</td>
<td>-</td>
<td>Three driving belts, for main driving pulley.</td>
</tr>
<tr>
<td>1098</td>
<td>Gotta-Percha Co., New York, N.Y.</td>
<td>-</td>
<td>Hose and two driving belts.</td>
</tr>
<tr>
<td>1100</td>
<td>Cook &amp; Pulver, New York, N.Y.</td>
<td>-</td>
<td>Lubricators, for use in annexes.</td>
</tr>
<tr>
<td>1101</td>
<td>Hanmore, J. W., New York, N.Y.</td>
<td>-</td>
<td>Felting, covering steam pipe in Machinery Hall.</td>
</tr>
<tr>
<td>1102</td>
<td>Y'Harra, O. M., Boston, Mass.</td>
<td>-</td>
<td>Felting, covering steam pipe in Machinery Hall.</td>
</tr>
<tr>
<td>1103</td>
<td>Johns, H. W., New York, N.Y.</td>
<td>-</td>
<td>Felting, covering steam pipe in Machinery Hall.</td>
</tr>
<tr>
<td>1104</td>
<td>Chalmers, Spence &amp; Co., New York, N.Y.</td>
<td>-</td>
<td>Felting, covering steam pipe in Machinery Hall.</td>
</tr>
<tr>
<td>1105</td>
<td>Spaulding, John T., Philadelphia, Pa.</td>
<td>-</td>
<td>Felting, covering steam pipe in Machinery Hall.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
GREAT BRITAIN.

(Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.)

   a. Coal boring machine. 500
   b. Coal and rock cutting machine. 502


3. Hurst, Frederick, & Co., Wakefield.—Coal-cutting machine; ratchet wedge shovel. 502

4. Macdernott, Martin, London.—Rock and coal perforators; machines for undercutting coal; screw wedge for breaking down coal. 502

5. Hardy Patent Pick Co. (limited), Sheffield.— Implements for coal, ironstone, gold, and silver mining; for quarrying and excavating; cast steel picks. 502

6. Pickering, Jonathan, Globe Works, Stockton-on-Tees.—Pulley blocks, hoists. 503

7. The Dunston Engine Works Co., Gateshead-on-Tyne, Durham.—Stone breaker; combined stone breaker and bone cutter. 505


9. Siemens, Charles William, London.—Models of furnaces for metallurgical operations, glass melting, etc. 506

10. Smith, Dillwyn, Liverpool.—Mechanical stokers and fire bars. 506


12. Roberts, William, Bootle, near Liverpool.—Self-acting painting machine for venetian blinds, laths, hoop iron, etc. 510

   a. Circular saw for cutting hot iron and steel. 511
   b. Steam hammers; steam stamps; models of steam hammers; samples of forgings. 514

14. Wright, Peter, & Sons, Constitution Hill Works, Dudley, Worcestershire.—Anvils; vises; tools of various kinds; hammers. 514

15. Brooks & Cooper, Mousehole Forge, Sheffield.—Anvils, vises, hammers, shear steel, etc. 514

16. Fairbairn, Kennedy & Naylor, Leeds.—Quadruple boring machine. 515

17. Beesley & Sons, Abbey Road Boiler Works, Barrow-in-Furness.—Punching, shearing, and angle-cropping machine for iron, steel, or other metals. 515

19. Heap, Joshua, & Co. (limited), Oldham.—Tools and machines, taps, hobs, pipe; bolt-screwing and nut-tapping machines. 515

21. Shearer, Hugh, London.—Machine for dressing stone. 516

22. Lavers, Alfred Hamilton, London.—Testing machine to show strength of cement. 517


23. Fleming, Thomas, & Son, West Grove Mill, Halifax.—Card clothing for carding machines, etc.; needle-point teeth. 520

24. Ambler, William, Bradford, Yorkshire.—Machine for making paper cup tubes used in spinning; machine for cleaning the teeth of wheel castings. 520


26. Ingham, John, & Sons, Croft Head Works, Thornton, near Bradford.—Case of shuttles, etc., for weaving; tacking, shuttle pikes, stocks, and bowls for weaving. 520

27. Platt Bros., & Co. (limited), Hartford Works, Oldham, Lancashire.—Cotton gin. 521

28. Gadd, Thomas, Manchester.—Printing machine for large size garment rollers, angular engine; combined engraving and punching machine; setting-out table, with micrometer; combined varnishing and ruling machine; machine for setting out; ruling machine, cams, engravers' block, and lathe. 521

29. Lancaster, William, Willow Iron Works, Accrington, Lancashire.—Yarn-sizing dressing machine; self-stopping beaming machines; loom. 522


31. Carter, John, Halifax, Yorkshire.—Spinning frame. 521

32. Greenwood & Batley, Albion Works, Leeds.—Machine for tying in warps for looms. 521

33. Coats, J. & P., Ferguslie Thread Works, Paisley.—Spooling machine; thread-winding machine; machine for ticketing. 521

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 15-15.
GREENWOOD & BATLEY, ALBION WORKS, LEEDS, ENGLAND,
Machinists to the British War Department, the Council of State for India, and all the principal Foreign Governments,

EXHIBIT AT THE INTERNATIONAL EXHIBITION OF 1876,
PATENT BOOT SEWING MACHINE, 
PATENT BOLT FORGING MACHINE, 
PATENT PRINTING PRESS, and 
PATENT MACHINE FOR TIEING IN WARPS, 

MAKERS OF Special Machinery for the manufacture of Guns and Gun Carriages, Small Arms and Ammunition of all descriptions, including Cartridges, Shot and Shell, Fuzes, Rockets, Bullets, Percussion Caps, &c.; also of Gunpowder and Powder Cask Machinery, as well as of all kinds of Machinery used in the production of War Material and Implements.

MAKERS OF Machinery on the latest system for Dressing, Preparing, and Spinning Silk, Silk Waste and China Grass; and of Special and General Tools for Engineering and Railway Work, and Wood-Working Machinery.

Agent for China and Japan—Mr. JAMES DAVIDSON, Shanghai.

SCANLAN, JUNR., & CO., WALSALL, STAFFORDSHIRE, ENGLAND,
Proprietors of the Patterns and Goodwill of Messrs. Best & Co.'s PLUMBING AND ENGINEERING FOUNDRY WORK, from Birmingham (Trade Mark as above), 
MANUFACTURERS OF PATENTED NOVELTIES. 
IMPORTERS OF SPECIAL AMERICAN TOOLS. 
MACHINERY INSPECTED. MANUFACTURED IRON EXPORTED, 

IMPORTANT TO CAPITALISTS.
FOR SALE,
THE AMERICAN PATENTRIGHT OF THE AUTOMATIC FIRE EXTINGUISHER & ALARM 
A MOST VALUABLE INVENTION—IS ENTIRELY SELF-ACTING. 
Sole Patentees: 
(1) SANDERSON & PROCTOR, at the EXHIBITION (MACHINERY BUILDING); 
(2) SANDERSON & PROCTOR, Electric Engineers and Lightning Conductor Manufacturers. SHORE WORKS, HUDERSFIELD, ENGLAND. 

Gold Medal, MCKAY'S EQUILIBRIUM DRILL, Paris, 1875. 
For Boring Tube Plates, Drilling Rivet Holes, and every description of Engine Work with perfect accuracy, without skilled labour. Only requires true centre pop to guide cutters. 
MENZIES & BLAGBURN, NEWCASTLE-ON-TYNE, ENGLAND.

AMERICAN PATENT FOR SALE.
SAMUEL LAWSON & SONS
LEEDS,
MAKERS OF
MACHINERY FOR PREPARING AND SPINNING FLAX,
TOW, HEMP, AND JUTE.
LOOMS and PREPARING MACHINERY for
FLAX and JUTE WEAVING.
SPECIAL MACHINERY FOR THE MANUFACTURE OF TWINES.
SOLE MAKERS OF
GOOD'S PATENT COMBINED HACKLING and
SPREADING MACHINE,
PATENT AUTOMATIC SPINNING FRAMES,
And other special Machinery for the manufacture of Rope Yarns.

GRAND MEDAL, Paris, 1867.                 DIPLOMA OF HONOUR, Vienna, 1873.

Corner of Belmont and Fountain Avenues,
NEAR THE LAKE.

FRENCH RESTAURANT,
LES TROIS FRÈRES PROVENCAUX.
The same which had such a great success in the Vienna Exhibition, in 1873.

CH. VERDIER,
of the MAISON DOREE, of Paris, Proprietor.

Near the Lake, opposite the U. S. Government Building.
35 Nussey & Leachman, Leeds.—Hydraulic cloth pressing and finishing machine. 552
36 Lawson, Samuel, & Sons, Hope Foundry, Leeds.—Machinery for carding, preparing, and spinning jute; cop-winding machine. 554
37 Fairbairn, Kennedy, & Naylor, Leeds.—Machinery for preparing and spinning jute, hemp, flax, tow, and similar fibres. Carding engine; drawing, roving, and spinning frames. 554
38 Marshall, T. J., & Co., Campbell Works, Kingsland.—Dandy rolls and wire cloth, for paper making, and pulp stripper. 555

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.
39 Gimson & Coltman, Leicester.—Knitting machines; rip top and circular machines. 531
40 Wilson, Newton, & Co., London.—Sewing machines, their appliances and apparatus. 533
41 Kimball & Morton, Glasgow.—Sewing machines; machines for sewing sails and sacks over-edge. 534
42 Sanson, Robert Bell, London.—Spring arm endless band knife; cloth-cutting machine; parallel pressing machine for tailors' use. 531
43 Air Burning Co. (limited), Glasgow.—Ironing table. 534
45 Broadbent, Thomas, Chapel Hill, Huddersfield.—Hydro extractor, for extracting water from wool, cotton, etc. 534

Machines and Apparatus for Type-Setting, Printing, Stamping, Embossing, and for Making Books, and Paper Working.
46 Beatty, Francis S., Dublin.—Lithographers' manifold transfer machines, for the reproduction of printed matter on enlarged or reduced dimensions from that of the original. 540
47 Greenwood & Batley, Albion Works, Leeds.—Printing machine. 540
47 Lilly, John, & Co., London.—Perfecting and single cylinder printing cutters. 543
48 Walter, John, London.—Printing press. 540
49 Shaw, William, London.—Logotypes and cases, shown in operation; printing press. 540

Motors and Apparatus for the Generation and Transmission of Power.
50 Green, Edward, & Son, Manchester.—Fuel economizer for heating the feed water for steam boilers. 550
51 Davey, Paxman, & Co., Colchester, Essex. a Vertical boiler and water heater. 550 b Portable steam engine; vertical engine; steam corn dryer. 552
52 Galloway, W. & J., & Sons, Knott Mill Iron Works, Manchester.—Steel boilers, for use in the British section. 550

55 Wright, William, Vulcan Foundry, Coalridge.—Hot water boilers for heating dwellings, conservatories, etc. 550
56 Moncrieff, John, North British Glass Works, Perth, Scotland.—Steam boiler water gauge glasses. 554
57 Wier, Marshall Arthur, London.—Pneumatic motor, water meter, hydrogyrometer, locomotive speed indicator, pneumatic gyrometer, reciprocating counter. 551
57 a Holmes, Joseph E., Payton, Walter, & Taylor, Fenner B., London.—Cylinder engine; revolving steam engine and air compressor. 552
57 b Hurd, Frederick, & Co., Wakefield.—High-speed air compressor. 552
57 c Smith & Starley, Trafalgar Works, Coventry.—Electric motors. 552
58 T h e r m o - E l e c t r i c Generator Co. (limited), London.—Thermo batteries worked by gas, charcoal, or coke, in nature approaching the appearance of a gas stove. 552
58 a May, Thomas, London.—Small steam engines for tramways, etc. 552
58 b King, F. L.—Steam engines. 552
59 Turner, Charles, Southampton.—Couplings for propeller shafts and other purposes. 554
60 Hewitt, William, Bristol. a Model of improved screw propellers; model of an improved principle for driving machinery. 553 b Breenc-loader gun; gun carriage. 560
61 Vansittart, Henrietta, Mrs., Twickenham.—Screw propeller. 554
62 Hicks, James Joseph, London.—Enamel water gauges for steam boilers. 555
63 Moncrieff, John, North British Glass Works, Perth.—Gauge glasses for indicating height of water in steam boilers. 555

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.
63 a Pickering, Jonathan, Globe Works, Stockton-on-Tees.—Steam and water cylinder; steam pump. 560
64 Gwynne, John & Henry, Hammersmith Iron Works, London.—Model of compound surface-condensing engines with centrifugal pumps made to ¼ scale. 560
64 a Haynes, Thomas, & Sons, London. a Platform pump; garden syringe. 560 b Water booster, for overcoming friction caused by drawing water through long lengths of hose; self-acting hose cooler. 564
65 Gwynne & Co., London. a Centrifugal pumps and engines. 561 b Gas exhauster and engine. 561
66 Ellis, William Irlam, Manchester.—Blower or exhauster for air or gas. 561
67 Appleby Bros., London.—Steam cranes. 563
68 Wallace & Tucker, Belfast.—Fire annihilator. 564
70 Needham & Kite, Phoenix Iron Works, London.—High pressure filter press. 565

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
### Railway Plant, Agricultural Machinery, Vessels.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td>Lawrence &amp; Co., London.—Refrigerators; mashing machines, spargers, etc. 565</td>
</tr>
<tr>
<td>72</td>
<td>Dennis, T. H. P., &amp; Co., Anchor Iron Works, Clemsford.—High pressure valves for steam, hot or cold water, or gas. 566</td>
</tr>
<tr>
<td>73</td>
<td>Welch, Alfred, London.—Railway cattle wagons. 571</td>
</tr>
<tr>
<td>74</td>
<td>Williams, Richard Price, London.—Continuous railway crossings; switches for doing away with facing points on railways. 574</td>
</tr>
<tr>
<td>75</td>
<td>Brierley, Sons, &amp; Reynolds, London.—Railway signal model of railway junction. 574</td>
</tr>
<tr>
<td>76</td>
<td>Seaton, William, London.—Saddle rail and permanent way construction. 574</td>
</tr>
<tr>
<td>77</td>
<td>Saxby &amp; Farmer, London. a Models of railway switches; junction, with switches and signals. 574 b Railway signals, and level crossing gates. 575</td>
</tr>
</tbody>
</table>

**Machines used in preparing Agricultural Products.**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>Sutcliffe, James S., Bacup, Lancashire.—Middlings flour separator. 580</td>
</tr>
<tr>
<td>79</td>
<td>Mirles, Tait, &amp; Watson, Glasgow.—Machinery in motion, consisting of sugar mills, valveless engine working an air pump for a vacuum pan, and driving centrifugal machines. 581</td>
</tr>
<tr>
<td>80</td>
<td>Collier, Luke, Rochdale.—Confectioners’ machines. 582</td>
</tr>
<tr>
<td>81</td>
<td>Andrew, J. E. H., Stockport.—Machines for spinning tobacco; samples of twist tobacco from Europe. 584</td>
</tr>
</tbody>
</table>

**Aerial, Pneumatic, and Water Transportation.**

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>82</td>
<td>Siebe &amp; Gorman, London.—Diving apparatus for two divers; figure of diver in diving suit, with the helmet and speaking apparatus. 594</td>
</tr>
<tr>
<td>82a</td>
<td>Wallace &amp; Tucker, Belfast.—Model of turret system of life preservation, in case of shipwreck. 594</td>
</tr>
<tr>
<td>83</td>
<td>Cruickshank, A. B., Dundee, Scotland.—Self-acting safety cleats for boats and yachts. 594</td>
</tr>
<tr>
<td>84</td>
<td>Logan, John Maxwell, Cambridge.—Model of four-oared racing boat, to take to pieces for convenience in traveling. 594</td>
</tr>
<tr>
<td>85</td>
<td>L. &amp; M. Steamship Co. (limited), Liverpool.—Full rigged model and oil painting of the steamer “City of Berlin.” 594</td>
</tr>
<tr>
<td>86</td>
<td>Hill &amp; Clark, London.—Boat disengaging hooks. 594</td>
</tr>
<tr>
<td>86a</td>
<td>Bradford, William Henry, Great Sughall, near Chester. a Model of life boats, lateen rig, life or salvage boat. 594 b Model of a ship’s course indicator. 597</td>
</tr>
<tr>
<td>87</td>
<td>Clark, Standfield, &amp; Co., London.—Models of floating and gridiron depositing docks. 596</td>
</tr>
<tr>
<td>88</td>
<td>Reby, George, Wigan.—Hydro-pneumatic and other vessels for the storage of gunpowder, etc. 596</td>
</tr>
<tr>
<td>90</td>
<td>Wood, John William, Harwich, Essex.—Iron self-adjusting shot hole, rivet hole, and leak stopper. 597</td>
</tr>
<tr>
<td>91</td>
<td>Martin, Claude, London.—Self-canting anchors; chain cables; model of H. M.’s turret ram “Alexandra.” 597</td>
</tr>
<tr>
<td>92</td>
<td>Gümpe!l, Charles Godfrey, London.—Ship’s rudder. 597</td>
</tr>
<tr>
<td>92a</td>
<td>Cooke, Joseph, &amp; Co., Midland Davy Lamp Works, Birmingham.—Miners’ safety lamps. 120</td>
</tr>
<tr>
<td>92b</td>
<td>Bainbridge, Emerson, Duke of Norfolk’s Collieries, Sheffield.—Miners’ safety lamp. 120</td>
</tr>
</tbody>
</table>

(N.B.—Certain exhibits of machinery from Great Britain are installed in the Main Building, and catalogued in Part I.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

1 Hannahan, Joseph, Ottawa, Ont.—Rock-drilling bits. 500
2 Symonds, W. S., & Co., Halifax, N.S.—Gold quartz crushing machine. 505
3 Freeland, R., Toronto, Ont.—Soap-making machinery. 508


9 Kennedy, W., & Son, Owen Sound, Ont.—Facing and jointing planer. 510
11 Machine Co., Bowmanville, Ont. a. Turning lathe for wood, moulding machine, planing and notching machine. 510 b. Metal turning lathe, planing machine. 515
14 Waterous Engine Works Co., Brantford, Ontario, Canada.—Twenty-horse power portable saw mill; capacity, six to ten thousand feet per day; shipping weight, eight tons. A strictly portable saw mill, practical, efficient, economical, and durable; obtained first medal and diploma at Exposition Santiago Chili, South America, September, 1875. 510

31 Fisher, J., & Co., Kincardin, Ont.—Clipping boiler plate machine. 515
32 Mitchell, R., & Co., Montreal, Q.—Lead tube bending machine. 515
33 Dunn, P., Cote St. Paul, Q.—Wire nail machine. 515
34 McFarlane, Thum, & Co., Fredericton, N. B.—Vertical power drill. 515
37 Bulmer & Sheppard, Montreal, Q.—Brick machine. 517
37a Tiffany, Geo. S., London, Ont.—Tile and brick machine. 517


38 Powers, S. H., Woodstock, N. B.—Self-acting hand loom. 521
39 Becker, A., Montreal, Q.—Sample of card clothing. 522
40 Boeck, Chs., Toronto, Ont.—Combining machines for brush makers. 524

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

44 Wilkie & Osborne, Guelph, Ont.—Sewing machines. 531
45 Wanzer & Co., Hamilton, Ont.—Sewing machines. 531
48 St. Amand, O., Quebec, Q.—Sewing machine. 531
49 Lawlor, J. D., Montreal, Q.—Sewing machines. 531
51 Williams, C. W., Manufacturing Co., Montreal, Q.—Sewing machines. 531
52 Harris, Th., Montreal, Q.—Sewing machine needle sharpener. 531
55 Popham James & Ebenezer, Montreal, Ca.—Popham steam peg breaker—now being patented both in Canada and the United States—will cut off and entirely remove the peg-ends that have so long troubled manufacturers and dealers in boots and shoes, and leaves the inside of the sole as free from peg-points and nails as the outside. Attached to the machine will be found samples of the work done, a close inspection of which will conclusively demonstrate the reality of the improvement. 533
56 Clarke, R., St. John, N. B.—Lasts. 533

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-75.
Motors and Apparatus for the Generation and Transmission of Power.

62 Tandy, G. J., Kingston, Ont.—Steam boiler. $50
63 McKay, Adam, Dartmouth, N. S.—Model steam boiler. $50
64 Kanzly, W., & Sons, Owen Sound, Ont.—Water-wheel. $55
65 Tuerk, F. W., Berlin, Ont.—Working model water-wheel. $53
66 Barber & Harris, Meaford, Ont.—Water-wheel. $51
67 Goldie & McCulloch, Galt, Ont. a Turbine water-wheel. $51 b Steam water-wheel. $52
69 Harris, J., & Co., St. John, N. B.—Water-wheel. $51
70 Fleck, A., Ottawa, Ont.—Oscillating steam engine. $52
71 Thomson Williams’ Manufacturing Co., Stratford, Ont.—Stationary engine. $52
72 Martin, Chs., Belleville, Ont.—Vertical steam engine. $59
75 Piper, Thos., Hamilton, Ont.—Model four-cylinder engine. $59
77 Brush, Geo., Eagle Foundry, Montreal, Ca.—Portable steam hoisting engine, for use on wharves, in mines, quarries, coal yards, etc., and erection of buildings; is very compact and easily handled; all levers and working parts being within easy reach of the driver, without moving from his post. $554
83 Fleming, Geo., & Sons, St. John, N. B.—Oscillating engine. $59
85 Smith, J.G., Dartmouth, N. S.—Miniature steam engine. $59
86 Dixon, Smith, & Co., Toronto, Ont.—Belting. $53
87 Sandall, John, Moncton, N. B.—Valve link motion. $53
91 McKewogh, J. W., Chatham, Ont.—Brass dome. $55
92 Morrison, James, Toronto, Ont.—Steam, vacuum, hydraulic gauges. $55
93 Piper, Thos., Hamilton, Ont.—Steam boiler detector gauge. $55
94 Myers, S., & Son, St. John, N. B.—Governor. $55

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.

95 Patrick, Rob., Galt, Ont.—Rotary pump. $560
96 Cox, H. W., Peterborough, Ont.—Rotary force pumps. $560
97 Oakville Manufacturing Co., Oakville, Ont.—John Dayer, Andrew J. Bounsall, and George C. Bounsall, foundry and iron pump manufacture; force, well, and cistern pumps. $560
100 Bowes, E., & Son, Stratford, Ont.—Force pumps. $560
101 Webster, Stephen, St. Catherines, Ont.—Oil-storing tank. $560
102 Smart, J., Brockville, Ont. a Cistern, well, and force pump. $560 b Jack screws. $560

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

105 Barnes, C. C., St. John, N. B.—Rotary pump. $560
106 Jones, C. C., Fredericton, N. B.—Barrel pump. $560
107 Wilson, Clarke, & Co., Yarmouth, N. S.—Ship pump. $560
111 Small & Fisher, Woodstock, N. B.—Barrel lifter. $563
112 Dailey, M. E., Ottawa, Ont.—Telescope trolley. $563
113 Ronald, John D., Chatham, Ont.—Steam fire engine, hose cart and hose. $564
117 Murphy & Harle, Montreal, Q.—Pneumatic fire extinguisher. $564
118 Bustin, Robert, St. John, N. B.—Fire escape. $564
119 Smith, H. F., Toronto, Ont.—Soda water fountain. $565
120 Sells, H., Vienna, Ont.—Cider mill and press. $565
122 Brazil, P., Barrie, Ont.—Cider mill and press. $565
122 Date, John, Montreal, Q.—Diving apparatus. $577
123 Pitts, D. H., Halifax, N. S.—Submarine armor. $577

Railway Plant, Rolling Stock, and Apparatus.

124 Meyer, F. W. A., Montreal, Q.—Drawing of engine and tender. $571
127 Knott, Kennard, Petersville, L., Ont.—Cattle car and refrigerating tender. $571
128 Brydon, Robert, Newberg, Ont. a Grain car. $571 b Grain car door fastener. $573
129 Muir, Thomas, London, Ont.—Rail joint protector and car-coupler. $572
130 McNabb, M.—Car coupler. $572
131 Chrisholm, R. K., Oakville, Ont.—Car coupler. $572
132 Chisholm, R. N., Oakville, Ont.—Car coupling. $572
132b Griffin, J. K., Toronto, Ont.—Model of car coupler. $572
133 Richard, E. O., & Bro., St. Roch, Q.—Car brakes and coupling. $572
134 Car Wheel Co., Toronto, Ont.—Car wheels and axles. $573
136 Harris, J., & Co., St. John, N. B.—Railroad car wheels and axles. $573
136b Osborne, Henry, St. Andrews, Q.—Model of car axle. $573
137 Von Staden, W. G., Strathroy, Ont.—Bent posts and rafters for railroad cars. $574
140 Nunn, W. C., Belleville, Ont.—Railway telegraph signals, with revolving and fixed lamps, and electric gong. $575
143 Miller, Flanges Co., Fredericton, N.B.—Locomotive flanges. $576
144 Ramsay, R. H., Cobourg, Ont.—Ramsay’s car truck shifting apparatus, patented March 14, 1876. The power required to run a car on the level track is sufficient to remove the trucks, and re-
Agricultural Machinery, Boats, Vessels.

place them again. Expense reduced from twelve thousand dollars to one hundred. Correspondence with railroad companies invited. 176

147 Colford, Henry, Halifax, N. S.—Spark arresters for house, factory, and locomotive. 176

Machines used in Preparing Agricultural Products.

148 Rochelle, L. N. & A. H., St. Anselme, Ont.—Magnetic separator and dryer. 180

149 Copping, G. H., Toronto, Ont.—Vacuum pan. 181

150 Scales, Rob., Toronto, Ont.—Evaporator and tobacco lump machine. 184

152 Adams, J. L., Montreal, Q.—Tobacco cutter. 184

153 Marengo, J. & A., Montreal, Q.—Cigarette machine. 184

Aerial, Pneumatic, and Water Transportation.

155 Herald, D., Gore’s Landing, Ont.—Canoes. 194

156 English, W., Peterborough, Ont.—Hunting canoe. 194

159 Power, W., & Co., Kingston, Ont.—Ship models. 194

160 Lapierre, Zephirin, Isle of Orleans, Q.—Nailing boat rigged, rowing boat, winter canoe. 194

163 Baldwin, P., St. Roch, Quebec, Q.—Ship model. 194

164 Dunn & Samson, Levis, Q.—Ship models. 194

165 Rose, N., Levis, Q.—Ship models. 194

166 Dinning, H., Quebec, Q.—Ship models. 194

167 Marquis, F. H., Levis, Q.—Ship models. 194

168 Auger, E., Quebec, Q.—Ship models. 194

169 Cotman, W., Quebec, Q.—Ship models. 194

170 Samson & Co., Quebec, Q.—Ship models. 194

171 Gingras, E., Quebec, Q.—Ship models. 194

172 Oliver, J., Quebec, Q.—Ship models. 194

173 Oliver, F. H., Quebec, Q.—Ship models. 194

174 Quebec Advisory Board, Quebec, Q.—Ship models. 194

175 Sewell, E. W., Levis, Q.—Drawing of steamship for Canadian trade. 195

176 Robitaille, Th., Quebec, Q.—Complete cod-fishing boat; “Micmac” bark canoe. 194

177 Charland, W., Levis, Q.—Ship model. 194

178 Grenier, Frs., Isle of Orleans, Q.—Pilot boat. 194

179 Girard, A., Murray Bay, Q.—Poplar canoe. 194

182 Ross, Elizah, Portland, N. B.—Single scull racing boat, spoon-set oars, set single scull oars, set oars, life boat model. 194

183 Barrill, Jos., Yarmouth, N. S.—Ship model, improved gear for reeling sail. 194

184 Moreley, E., Darmouth, N. S.—Ship models. 194

185 Garmouth, Wm.—Ship model. 194

186 Dalley, M. E., Ottawa, Ont.—Model ocean ship. 195

187 Merritt, Abel, Chatham, Ont.—Propeller boat. 195

188 Richeux & Ontario Navigation Co., Montreal, Q.—Steamboat models. 195

189 Wildgoose, F. H., Montreal, Q.—Steamboat model. 195

190 Meyer, F. W. A., Montreal, Q.—Drawing longitudinal section steamboat. 195

191 Brautey, H., Quebec, Q.—Dragging or grappling apparatus. 195

192 Carroll, S., Widden, Ont.—Marine compass, automatic ship trimmer. 197

194 Pitts, D. H., Halifax, Ont.—Ship windlass and cable brake. 197

195 Mosler, Geo, J., Maitland Island, N. B.—Ship wheel. 197

196 Harris, James, & Co., St. John, N. B.—Capstan. 197

197 Pitts, D. H., Halifax, N. S.—Mast hoop clamp, cable brake, metal jib hank. 197

198 Couvrette & Frigon, Montreal, Q.—Stern of ship (model). 197

198a Harris, James, & Co., St. John, N. B.—Ships’ iron knees, straps. 204

198b Coldbrook Rolling Mills Co., St. John, N. B.—Cut and clinch nails, spikes and knees. 204

198c Weddleton, J. B., Yarmouth, Ont.—Head earrings for ships. 204

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
### FRANCE.

(North of Central Aisle, Columns 1 to 7.)

<table>
<thead>
<tr>
<th>Metal, Wood, Stone, Cloth-working Machinery, Motors.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.</strong></td>
</tr>
<tr>
<td><strong>DEPT. V.—MACHINERY.</strong></td>
</tr>
<tr>
<td><strong>Machines, and Tools for Working Metal, Wood, and Stone.</strong></td>
</tr>
<tr>
<td><strong>24</strong> Couture, Paris.—Breaking machine for textile fabrics.</td>
</tr>
<tr>
<td><strong>25</strong> Maigrou, F. A., Paris.—Rope machine.</td>
</tr>
<tr>
<td><strong>26</strong> Deny, Louis, Paris.—Open copper cylinder and refiner for paper manufacture.</td>
</tr>
<tr>
<td><strong>27</strong> Thomine, F., Paris.—Machine for the manufacture of fishing nets.</td>
</tr>
<tr>
<td><strong>Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.</strong></td>
</tr>
<tr>
<td><strong>28</strong> Legat, D., Paris.—Machine for sewing straw hats.</td>
</tr>
<tr>
<td><strong>29</strong> Cornely, E., Paris.—Embroidering machines.</td>
</tr>
<tr>
<td><strong>Machines and Apparatus for Type Setting, Printing, Stamping, Embossing, and for Making Books, and Paper Working.</strong></td>
</tr>
<tr>
<td><strong>29a</strong> Alauzet, Paris.—Printing machines.</td>
</tr>
<tr>
<td><strong>30</strong> Coblenz, Paris.—Electrotypes.</td>
</tr>
<tr>
<td><strong>31</strong> Derricy, Ch., Paris.—Typography, engraving, and electrotypes.</td>
</tr>
<tr>
<td><strong>31a</strong> Derricy, Ch., Paris.—Printing type.</td>
</tr>
<tr>
<td><strong>32</strong> Tucker, Paris.—Types and cuts.</td>
</tr>
<tr>
<td><strong>33</strong> Lecerf, L., Paris.—Printing materials.</td>
</tr>
<tr>
<td><strong>34</strong> Vital, A., Paris.—Rollers for lithographic presses.</td>
</tr>
<tr>
<td><strong>Motors, and Apparatus for the Generation and Transmission of Power.</strong></td>
</tr>
<tr>
<td><strong>35</strong> Leroy, François, Marseilles.—Models of marine boilers.</td>
</tr>
<tr>
<td><strong>36</strong> Fontaine, Hippolyte, Paris.—Steam engines.</td>
</tr>
<tr>
<td><strong>37</strong> Electro-Magnetic Machine Manufacturing Co., Paris.—Gas machines, galvano-plastic machine, machine to transmit power.</td>
</tr>
<tr>
<td><strong>38</strong> Mignon &amp; Rouart, Paris.—Noiseless gas motors.</td>
</tr>
<tr>
<td><strong>39</strong> Chauveau, Paris.—Steam engines.</td>
</tr>
<tr>
<td><strong>40</strong> Breguet, Paris.—Electro-magnetic machines.</td>
</tr>
<tr>
<td><strong>41</strong> Roux, Edmond, Paris.—Hermetic claps for oil cups, etc.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
Motors, Hydraulic Apparatus, Railway Plant, Agricultural Machinery.

42 Welby, Rouen.—Belting. 553
43 Jacob, Ch. Moise, Paris.—Oiling cushions. 553
44 Domange, Lemierre, & Co., Paris.—Belting. 553
45 Perreaux, L. G., Paris.—Screw propeller. 554
46 Bourdin, Paris.—Motor for sewing machines. 554
46 Dechamp, C., Lyons.—Safety boiler apparatus. 555
47 Cazaubon, Dominique, Paris.—Cocks for steam, water, and gas pumps, and water closets. 555
48 Lion & Guichard, Paris.—Metallic manometer. 555
49 Macabie, Paris.—Automatic feeder. 555
50 Rigolot, Paris.—Cocks for water, steam, and gas. 555
50a Serrin, Paris.—Regulator for electric light. 555
51 Cau, Paris.—Boiler injector. 555
52 Coux des Roseaux, Asnieres, near Paris.—Automatic oil cups for steam machines; fire-proof insulator for steam pipes. 555

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.
53 Neut, L., & Dumont, L., Paris.—Centrifugal pumps. 560
54 Garlaudat, Paris.—Refrigerating apparatus. 562
55 Enfer, A., jr., Paris.—Portable forges and bellows. 562
56 David Bros., Charleville (Ardennes).—Portable forges. 562
57 Enfer, Ernest, Paris.—Portable forges, bellows, gas apparatus. 563
58 Morane, jr., Paris.—Hydraulic press for candle manufacture. 563
59 Chrétien, J., Paris.—Automatic apparatus for unloading coal. 563
60 Rous, Edmond, Paris.—Pulleys and tackles. 563
61 Mégy, Echeverria, & Bazan, Paris.—Elevators, regulators, etc. 563
62 Gaussart, Epernay (Marne).—Machines for charging wines with gas. 564
63 Constant, Port-a-Binson (Marne).—Wine press. 564
64 Appert-Mandart, Reims (Marne).—Hoeks and claps for champagne. 565
65 Lejeune, Epernay (Marne).—Machines for charging wines with gas. 565
66 Renard, Epernay (Marne).—Wires and strings for champagne. 565
67 Paillot & Co., Epernay (Marne).—Corks. 565
68 Cazaubon, D., Paris.—Soda water machines; siphons. 565
69 Freal, Epernay (Marne).—Bottling machines. 565
70 Gervais, E., Bordeaux.—Bottling machines. 565
71 Guéret Bros., Paris.—Soda water machine. 565
72 Logette, Ay (Marne).—Clasps for bottles and machines for applying. 565
73 Maldine, H., Paris.—Soda water machines, siphons. 565
74 Maurice, Widow, & Guerin, Epernay (Marne).—Bottling machines. 565
75 Michelot, jr., Epernay (Marne).—Stands and cases for wines. 565
76 Thessier, Fèvre, Paris.—Table apparatus for Seltzer water. 565
77 Tricourt, A., Reims (Marne).—Wine-making machines. 565
78 Mestre, A. de, Bordeaux.—Bottling machines. 565
79 Mondollet, A., Paris.—Soda water machine, siphons. 565
80 Cicle-Larbre, Reims (Marne).—Bottle cleaners. 565
81 Durafort, Paris.—Soda water machine. 565
82 Fisse-Thirion, & Co., Reims.—Bottling machines. 565
83 Rigolot, Paris.—Cocks for water, steam, and gas. 566
84 Perreaux, L. G., Paris.—Rubber values. 566
85 Giffard & Berger, Paris.—Ice machines. 568
86 Carré, E., Paris.—Ice machine. 568

Railway Plant, Rolling Stock, and Apparatus.
87 Edoux, Leon, Paris.—Special system for mountain railroads. 570
88 Jiot, S., Vincennes.—Car brakes. 572
89 Le Bas, Paris.—Automatic clutch. 572
90 Arbel Lucien, Rive-de-Gier (Loire).—Forged iron wheels for locomotives and cars. 573
91 Brunon Bros., Rive-de-Gier (Loire).—Wheels manufactured by hydraulic pressure. 573

Machines used in Preparing Agricultural Products.
92 Aubin & Baron, Paris.—Bolting mill. 580
93 Durrschmidt, Lyons.—Emery millstones. 580
93a Deplanque, Son, sr., Maison-Alfont (Seine).—Emery millstones. 580
94 Beyer Bros., Paris.—Soap and chocolate machines. 582
95 Herrmann, G., Paris.—Chocolate machines. 582
96 Durvie, Ivry-la-Bataille (Eure).—Mechanic kneading machine. 582
97 Beyer Bros., Paris.—Soap and chocolate machines. 582

Aerial, Pneumatic, and Water Transportation.
98 General Transatlantic Co., Paris.—Model of the steamship “Pereire.” 593

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-14.
## Germany.

(South of Central Aisle, Columns 1 to 7, and Pump Annex.)

Metal, Wood, Stone, Cloth, Paper-working Machinery, Pumps, etc.

<table>
<thead>
<tr>
<th>Machines, Tools, etc., of Mining, Chemistry, etc.</th>
<th>Machines for Printing, Making Books, Paper Working, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Sparre, Julius von, Dortmund.— Model of a drill.</td>
<td>26 Traiser, Carl, Darmstadt.— Ruling machine.</td>
</tr>
<tr>
<td>2 Wünschmann, Reinh., Leipsic.— Candle-making machine.</td>
<td>27 Lotz, Ferd., Offenbach-on-Main.— Lithographic machinery.</td>
</tr>
</tbody>
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<tbody>
<tr>
<td>3 Kahle &amp; Detlefse, Hamburg.— Cutting machine and apparatus for cleaning boiler tubes.</td>
<td>29 Schilling, F. A., Bremerhaven.— Steam engines.</td>
</tr>
<tr>
<td>3 a Schäffer &amp; Budenberg, Buckau.— Polishing machines.</td>
<td>30 Gas Motor Factory, Deutz.— Gas motors.</td>
</tr>
<tr>
<td>4 Schlickeysen, C, Berlin.— Brick, turf, cement, and clay machines.</td>
<td>31 Biancke, C. W. J., &amp; Co., Merseburg.— Pyrometers, steam gauges, vacuum meters, etc.</td>
</tr>
<tr>
<td>5 Loeff, Paul, Berlin.— Model of a kiln for bricks, etc.</td>
<td>32 Bodemer, Georg, Zschopau, near Chemnitz.— Regulators.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Machines and Implements of Spinning, Weaving, etc.</th>
<th>Hydraulic and Pneumatic Apparatus.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Windmüller &amp; Meynen, Zwischenah, Oldenburg.— Wooden spools.</td>
<td>37 Alliéoud, Emanuel, Metz.</td>
</tr>
<tr>
<td>8 Grothe, H., Berlin.— Models.</td>
<td>a Siphon pumps.</td>
</tr>
<tr>
<td>9 Bodemer, Georg, Zschopau.— Apparatus for spinning.</td>
<td>b Mechanical lever.</td>
</tr>
<tr>
<td>10 Beuthner Bros., Berlin.— Carders.</td>
<td>38 Weyhe, Wilh., Bremen.— Rotary pumps.</td>
</tr>
<tr>
<td>12 Huhn, Heinr., &amp; Co., Aix-la-Chapelle.— Needles.</td>
<td>40 Schultz, Ernst, Aschaffenburg.— Atmospheric apparatus for firemen, miners, etc.</td>
</tr>
<tr>
<td>13 Lammertz, Leo, Aix-la-Chapelle.— Needles.</td>
<td>Railway Plant, Rolling Stock, etc.</td>
</tr>
<tr>
<td>14 Bellé, R., Aix-la-Chapelle.— Needles.</td>
<td>42 Glöeckner Bros., Tschirndorf, near Halbau.— Blocks for brakes.</td>
</tr>
<tr>
<td>15 Pastor, Ph. H., Sons, Burtscheid, near Aix-la-Chapelle.— Needles.</td>
<td>43 Camozzi &amp; Schlösser, Frankfort-on-the-Main.— Railway switch.</td>
</tr>
<tr>
<td>16 Zimmermann, Jos., Aix-la-Chapelle.— Needles.</td>
<td>43 a Schäffer &amp; Budenberg, Buckau.— Spark catchers.</td>
</tr>
<tr>
<td>17 German Sewing Machine Factory, Frankfort-on-Main.— Sewing machines.</td>
<td>Machines used in Preparing Agricultural Products.</td>
</tr>
<tr>
<td>18 Müller, Cl., Dresden.— Sewing machines.</td>
<td>43 b Israel Bros., Dresden.— Mill and grind stones.</td>
</tr>
<tr>
<td>19 Kiehle, R., Leipsic.— Sewing machines.</td>
<td>43 c Osenbruck &amp; Co., Hemelingen, near Bremen.— Cigar moulds.</td>
</tr>
<tr>
<td>20 Hamburg-American Sewing Machine Factory Joint Stock Co.— Sewing machines, etc.</td>
<td>Aerial, Pneumatic, and Water Transportation.</td>
</tr>
<tr>
<td>21 Schmalz, F. G., Altenburg.— Machines for making gloves.</td>
<td>44 Dicker, Baron F. F. von, Bückerburg.— Drawing of a wire-rope railway.</td>
</tr>
<tr>
<td>22 Hemmer, L. Ph., Aix-la-Chapelle.— Fulling and washing machine.</td>
<td>46 Hamburg-American Steamship Co., Hamburg.— Model of a mail steamship.</td>
</tr>
<tr>
<td>23 Dausch, J. G., Munich.— Instruments and apparatus for watchmakers.</td>
<td></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
AUSTRIA. — SWITZERLAND.

Ores, Metallurgical Products, Weapons, Railway Plant.

<table>
<thead>
<tr>
<th>Minerals, Ores, Stone, Mining Products.</th>
<th>Weapons, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metallurgical Products.</td>
<td>Railway Plant, Rolling Stock, etc.</td>
</tr>
<tr>
<td>48 Krupp, Fried., Essen. — Samples of fractured iron and steel.</td>
<td>50 Krupp, Fried., Essen. — Axles, wheels, pistons, springs, etc.</td>
</tr>
</tbody>
</table>

AUSTRIA.

(South of South Aisle, Columns 1 to 5.)

Mining, Weaving, Agricultural Machinery, Motors.

Machines, Tools, etc., of Mining, Chemistry, etc.

1 Rosenegger, Josef, Oberalm, near Hallein, Salzburg. — Model of a glass-melting furnace, cylinder furnace. 506

Machines and Implements of Spinning, Weaving, etc.

3 Schram, Willibald, Vienna. — Jacquard looms. 521
4 Surber, J. Jacques, Vienna. — Weavers’ reeds and heddles. 527

Motors, Power Generators, etc.

5 Hock & Co., Julius, Vienna. — Petroleum motor with pump. 559
6 Popper, Joseph & David, Vienna. — Patent boiler incrustation preserver, boiler fittings. 559

Railway Plant, Rolling Stock, etc.

7 Tagleicht, Karl, Vienna. — Locomotive spark catcher and blue. 576

Machinery used in Preparing Agricultural Products.

8 Voltěchovsky & Reznicek, Prague. — Machines for candy production. 582

SWITZERLAND.

(Section 1, Pump Annex.)

Railway Appliances.

Motors, Power Generators, etc.

1 Sulzer Bros., Winterthur, Canton Zurich. — Model of a new system of reversing gear for valve engines. (Pump annex.) 535
1a Pictet, Raoul, & Co., Geneva. — Machine for producing ice with the aid of anhydrous sulphurous acid. 568

Railway Plant, Rolling Stock, etc.

2 Swiss Manufacturing Co., Neuhau- sen, near Schaffhausen. — Model of an apparatus for heating railway carriages. (Pump annex.) 574

Machines pertaining to watchmaking are exhibited in Swiss section, Main Building, and catalogued in that volume.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
MACHINERY.

Belgium.

(North of North Aisle, Columns 7 to 18.)

Metal, Cloth, Paper-working Machinery, Motors.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

1 Dubois, Wm. & François Joseph, Seraing, near Liége.—Drilling machine for mines, tunnels, etc. 500
2 Chaudron, Joseph, Brussels.—Apparatus for boring and tubing mining shafts. 501
3 Libotte, Nicholas, Gilly, near Charleroi.—Cages with system of parachute. 502
4 Muller & Co., Clermont, near Liége.—Safety fuse for miners. 502
5 Souheur, Arnold, Seraing, near Liége.—Safety lamps for coal mines. 502
6 Van Haecht, Émile, Haeren, near Brussels.—Models of fat-rendering works, with samples of stearine and oleine. 508


7 De Tombay, Auguste, Marcinelle, near Charleroi.
   a Model of a trip-hammer. 514
   b Model of steam shears. 515
8 Jullien & Jennar, Bomereé, near Charleroi.—Tuyere and axle. 514
9 Nicaise, Ch., & Co., and Gobert, Aug., La Louvière.—Machinery for making bolts. 516


10 Bède & Co., Verviers.—Wool cleaning machine. 522
11 Delrez, Félix, Verviers.—Cards. 522
12 Dethiou, Gilles, & Co., Verviers.—Cards. 522
13 Horstmans Bros., Liége.—Cards. 522
14 Martin, Célestin, Verviers.—Looms, mechanical winder, cards. 522
15 Martin, Th. J., Pisseroule-Dison, near Verviers.—Cards. 522

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

16 Turner, B. B., & Co., Brussels.—
   a Festooning and embroidering machines. 530
   b Sewing machines for gloves, straw hats, buttonholes, etc. 531
17 Joint Stock Society for the Manufacture of Machines and Tools of Precision, Saint Josse-ten-Noode.—Sewing and knitting machines. 531


18 Derckx-Schlopf, I. F., Anderlecht, near Brussels.—Wooden printing types. 542

Motors, Power Generators, etc.

19 Van den Kerchove, P., Ghent.—Cor- liss and Rider engines. 552
20 Dolle, L., & Co., Verviers.—Belting. 553
21 Horstmans Bros., Liége.—Belting. 553
22 Versé-Spelmans, Brichot, Ant., & Co., Brussels.—Belting. 553
23 Dervaux, Alfred, Brussels.—Feeding apparatus for boilers. 555

Hydraulic and Pneumatic Apparatus.

24 Moreau, Léon, Brussels.—Rotary pumps. 560
24a Banolas, R., & Co.—Fire extinguishers. 564

Railway Plant, Rolling Stock, etc.

25 Durieux & Co., Louvain.—Wheels for cars, carriages, etc. 573
26 Mabelle, Valère, Mariembourg.—Railway plant. 573
27 Legrand, Achille, Hylon, near Mons.—Sleepers and cushions for mining railways. 573
28 Léonard, F. L. J., Fayt, near Senffe.—Railway brake, signals, and gates. 575

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
NETHERLANDS.—SWEDEN.

[The Machinery Exhibit of the Netherlands is installed in the Main Building, and catalogued in Part I.]

SWEDEN.

(North of North Aisle, Columns 7 to 16.)

Stone, Metal, Wood, Cloth, Paper-working Machines, Motors.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

1 Nilson, G., Eskilstuna.—Jacks. 503
1a Wiklund, W., Stockholm.—Centrifugal pump. 504
2 Alsing, J. R., Stockholm.—Model of cylinder for crushing hard materials. 505
6 Soderqvist, R., Göteborg.—Gas apparatus. 509


7 Bergström, J. W., Stockholm.—Screw-cutting machine. 510
   a Sawing machines. 510
   b Machines for making metal cartridges; emery wheels. 515
9 Von Essen, H. H., Baron, Tidaholm.—Iron for turning veneer. 510
10 Stridsberg & Biork, Thorrstrålla.—Blades for frame, circular, timber, wood, and pit saws; machine knives, trowels, ship scrapers, plane irons, etc. 510
11 Fagersta Manufacturing Co., Westnoros.—Saw blades. 510
12 Sandvikens Iron Works (limited), Sandvikon.—Piston rod for steam hammer. 514
13 Breghmer, E. F. A., Stockholm.—Drilling machine. 515
15 Köpings Mechanical Works Co. (limited), Köping.—Turning machine. 515
15a Samuelson, S. H., Foskefors, Rada.—Machine for making hollow pest bricks. 517

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

16 Hedlund, J., Joh., Eskilstuna.—Sewing machines. 531
17 Husquarna Arms Manufacturing Co. (limited), Jönköping.—Sewing machines. 531

Machines for Printing, Making Books, Paper Working, etc.

   a Paging and ticket counting machines, date stamps, etc. 542
   b Paper-cutting machine. 546

Motors, Power Generators, etc.

20 Atterberg, A. J., Hagforsen, Rada.—
   a Drawings of turbines. 551
   b Drawing of blast engine. 552
21 Wenström, W., Orebro.—Drawing of a turbine. 551
22 Kristinehamn Machine Manufacturing Co., Kristinehamn.—Marine steam engine, tank engine. 552
24 Köping Mechanical Works (limited), Köping.—Cast iron cylinders for a sixty-horse power propeller steam engine. 552
27 Motala Iron & Steel Co., Motala.—Compound marine engine. 552
27a Runqvist, C. R., Stockholm.—Oscillating steam engine governors. 555
28 Kockum Machine Manufacturing Co. (limited), Malmo.—Steam engines. 552
29 Sandvikens Iron Works Co. (limited), Sandvikon.—Axles for propellers. 553

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
Hydraulic and Pneumatic Apparatus.

29a Wiklund, W., Stockholm.—Centrifugal pump. 560
31 Atterberg, A. J., Hagforsen, Rada.—Drawing of blowing engine. 562

Railway Plant, Rolling Stock, etc.

34 Bjorkman, C. R., Kristinehamn.—Drawing of a narrow-gauge locomotive. 570
34a Kristinehamn Machine Manufacturing Co. (limited), Kristinehamn.
   a Locomotive. 570
   b Railway car wheels. 573
37 Sandviken Iron Works Co. (limited), Sandviken.—Railway wheels and axles. 573
38 Adelskold, C., Stockholm.—Model of an axle box for railway cars. 573
39 Arboga Foundry & Machine Manufacturing Co., Arboga.—Railway wheels, tires and axles. 573

41 Ekman, Carl, Finspang.—Railway wheels. 573
42 Fagersta Iron & Steel Works, Westansfors.—Railway axles and springs. 573
43 Köpings Machine Manufacturing Co. (Limited), Kopling.—Axles. 573
45 Ankarsrums Works, Ankarsrum.—Railway switches. 574
46 Ostrand, Herrman, Helsingborg.—Drawing of a railway switch. 574

Aerial, Pneumatic, and Water Transportation.

47 Lesjofors Iron & Steel Co. (limited), Langbansenhytta.—Wire cables. 591
49 Royal Swedish Commission.—Models of fishing boats. 594
51 Kockum Machine Manufacturing Co., Malmö.—Models of steamers, and torpedo boat. 594

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**SPAIN.**

[Machinery Hall (Section F. 1.)]

Motors and Apparatus for the Generation and Transmission of Power.

1 Cases, Valero, Director of “La Primitiva,” Madrid. Semi-portable steam-engine. 552

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.

2 Pando, Acha y Garcia, Sevilla.—Model of a wheel for drawing water from wells. 560
3 Cases, Valero, Valencia.—Wheel for drawing water from wells. 560
4 Mirapeix, Bartolomé, Barcelona.—Fire Hose. 564

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
NORWAY.—ITALY.

(The Machinery Exhibit of Norway is installed in the Main Building, and catalogued in Part I.)

ITALY.

(North of North Aisle, Columns 16 to 19.)

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paresi, E. Giuseppe, Parma</td>
<td>Furnace for lime.</td>
</tr>
<tr>
<td>2</td>
<td>Agrarian Committee of Chiavari</td>
<td>Sulphur machine.</td>
</tr>
<tr>
<td>3</td>
<td>Ferrari, Bartolomeo, Parma</td>
<td>Apparatus for silkworms.</td>
</tr>
<tr>
<td>4</td>
<td>Perisi, Achille, &amp; Son, Naples</td>
<td>Pianografo-votacarte, mechanical invention.</td>
</tr>
<tr>
<td>5</td>
<td>Zanini, Pasquale, Rome</td>
<td>Steam machine.</td>
</tr>
<tr>
<td>6</td>
<td>Gasparini, Giacomo, Rome</td>
<td>Hydraulic machine.</td>
</tr>
<tr>
<td>7</td>
<td>Bertea, Stefano, Alessandria</td>
<td>Lozenge machine.</td>
</tr>
<tr>
<td>8</td>
<td>D'Allessandro, Benedetto, Benvenuto, Rome</td>
<td>Life-preserver.</td>
</tr>
<tr>
<td>9</td>
<td>Villa, Cav. Ignazio, Milan</td>
<td>Drawings of nautical machinery and architecture.</td>
</tr>
<tr>
<td>10</td>
<td>Origone, Paolo, Genoa</td>
<td>Design for an iron steamer, and model in relief.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
### BRAZIL.

*(North of North Aisle, Columns 10 to 27.)*

#### Machinery, Weapons, Hardware, Motors, Vessels and Appliances.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Souza, Fausto de.—Metal fuses for artillery.</td>
<td>17 National Mint, Rio de Janeiro.—Stamping machine, edging machines, hand tools and instruments.</td>
</tr>
<tr>
<td>2 Pyrotechnical Laboratory, Rio de Janeiro.</td>
<td>18 Rezende, Luiz de, Rio de Janeiro.—Machine for reeling and skilling silk, apparatus for counting the twist, samples of silk and cocoons.</td>
</tr>
<tr>
<td>a Fuses for artillery.</td>
<td>19 Navy Arsenal, Rio de Janeiro.</td>
</tr>
<tr>
<td>b Apparatus for guiding signal rockets.</td>
<td>a Models of engines for small monitors and mortar ships; steam engine to be used as motor at the pyrotechnical laboratory at Rio de Janeiro.</td>
</tr>
<tr>
<td>3 Military Archives of Rio de Janeiro.—Pyrotechnical maps.</td>
<td>b Pulleys, pulley stand shafts, and flying wheels.</td>
</tr>
<tr>
<td><strong>Weapons, etc.</strong></td>
<td>20 Army Arsenal at Rio de Janeiro.</td>
</tr>
<tr>
<td>4 Army Arsenal, Rio de Janeiro.</td>
<td>a Iron drums and chairs for transmitting motion.</td>
</tr>
<tr>
<td>a Breech-loading rifle, and sword bayonet revolver.</td>
<td>b Iron screw propeller and its cog wheel.</td>
</tr>
<tr>
<td>b Model of rifled brass field gun, with accessories.</td>
<td><strong>Hydraulic and Pneumatic Apparatus.</strong></td>
</tr>
<tr>
<td>c Mounted rifled gun and casemate; brass rifled gun and accessories; brass mortars; shot and shell, canister and grape for heavy ordnance; apparatus for guiding rockets, used as a projectile.</td>
<td>21 Costa, T. C. da.</td>
</tr>
<tr>
<td>d Spears.</td>
<td>a Pumps.</td>
</tr>
<tr>
<td>5 Arsenal at Bahia.—Drum used by the Brazilian army.</td>
<td>b Hydraulic ram.</td>
</tr>
<tr>
<td>6 Arsenal in the Province of Rio Grande do Sul.—Weapons and articles used by the Brazilian army.</td>
<td>c Nozzle fire plug.</td>
</tr>
<tr>
<td>7 Navy Arsenal, Rio de Janeiro.</td>
<td>22 Neves, F. Candido das, Rio de Janeiro.—Stop cocks.</td>
</tr>
<tr>
<td>a Leather buckets for artillery service.</td>
<td>23 Russell, B. G., Rio de Janeiro.—Lead pipes and hydraulic syphons, copper valve box.</td>
</tr>
<tr>
<td>b Leather cartridge boxes for heavy ordnance.</td>
<td><strong>Machines used in Preparing Agricultural Products.</strong></td>
</tr>
<tr>
<td><strong>Hardware, Edge Tools, Cutlery, and Metallic Products.</strong></td>
<td>24 Birrenbach &amp; Bros., Iron Works, Province of S. Paulo.—Hand mill.</td>
</tr>
<tr>
<td>8 Silvino, Tripo di.—Hand tools.</td>
<td>25 Aerial, Pneumatic, and Water Transportation.</td>
</tr>
<tr>
<td>9 Province of Minas Gerais.—Hand tools and instruments.</td>
<td>26 Navy Arsenal, Rio de Janeiro.—Models of iron clads, casemate and monitor ships, men of war and steam launches; models of corvettes and launches, designed by Trajano de Carvalho.</td>
</tr>
<tr>
<td>10 Arsenal of the Province of Bahia.</td>
<td><strong>Arboriculture and Forest Products.</strong></td>
</tr>
<tr>
<td>a Hand tools.</td>
<td>26 Navy Arsenal, Rio de Janeiro.—Samples of wood used for ship building.</td>
</tr>
<tr>
<td>b Locks for naval and ships’ stores.</td>
<td><strong>Engineering, Architecture, Maps, etc.</strong></td>
</tr>
<tr>
<td>11 Ipanema Iron Works.</td>
<td>16 Navy Yard at Rio de Janeiro.—Models of dry docks cut into the rock.</td>
</tr>
<tr>
<td>a Hand tools.</td>
<td>17 Souza, Sereno.—Suitable for conveying loads.</td>
</tr>
<tr>
<td>b Imperial crown and cross of cast iron; samples of cast iron.</td>
<td>18 Santos, Caetano.—Bench grinder.</td>
</tr>
<tr>
<td>12 Army Arsenal, Rio de Janeiro.—Cast iron ventilator, and samples of cast iron.</td>
<td>19 Bieunemback &amp; Bro.—Chair of cast iron; samples of iron grates.</td>
</tr>
<tr>
<td>13 Santos, Cauço.—Imperial crown of cast iron; samples of cast iron.</td>
<td>20 Sichei, Fabiano.—Horse shoes of different shapes.</td>
</tr>
<tr>
<td>14 Bieunemback &amp; Bro.—Chair of cast iron; samples of iron grates.</td>
<td>21 Costa, T. C. da.</td>
</tr>
<tr>
<td>15 Sichei, Fabiano.—Horse shoes of different shapes.</td>
<td>a Pumps.</td>
</tr>
<tr>
<td>16 Navy Yard at Rio de Janeiro.—Models of dry docks cut into the rock.</td>
<td>b Hydraulic ram.</td>
</tr>
<tr>
<td>For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.</td>
<td>c Nozzle fire plug.</td>
</tr>
</tbody>
</table>
ARGENTINE REPUBLIC.——RUSSIA.

**ARGENTINE REPUBLIC.**

(North of North Aisle, Columns 21 to 23.)

<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Provincial Commission, Province of Santiago del Estero.—Weaving loom. 522</td>
</tr>
<tr>
<td>2 Estrada, Angel, Prov. of Buenos Ayres.—Samples of printing, types, electrotypes, corners, etc. 542</td>
</tr>
<tr>
<td>3 Cañarte, Bernardo R., Province of Buenos Ayres.—Album of typographic works. 542</td>
</tr>
<tr>
<td>Railway Plant, Rolling Stock, etc.</td>
</tr>
<tr>
<td>4 Gardella, Luis, Province of Buenos Ayres.—Plan of a rotary machine with boiler. 573</td>
</tr>
</tbody>
</table>

Aerial, Pneumatic, and Water Transportation.

<table>
<thead>
<tr>
<th>Machines, Tools, etc., of Mining, Chemistry, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Yevleff, Andrew, Moscow.—Gold-beater's skins and sample of leaf gold. 525</td>
</tr>
<tr>
<td>2 Administration of the Mining District in Western Poland.—Plan of gas smelting furnace. 566</td>
</tr>
<tr>
<td>3 Admiralty Electroplate Establishment, Cronstadt.—Specimens of metallic layers by electrotyping. 508</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>4 Lessner, Gustavus, St. Petersburg.—Planing, drilling, and turning machine. 515</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Popoff, Basil, St. Petersburg.—Workbench. 515</td>
</tr>
<tr>
<td>6 Practical Technological Institute, St. Petersburg.—Lathes, planing, shaping, and drilling machines. 515</td>
</tr>
</tbody>
</table>

Metal, Stone, Cloth, Paper-working Machines.

<table>
<thead>
<tr>
<th>Machines, Tools, etc., used in Sewing, Making Clothing, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Smithery of the Port of St. Petersburg.—Apparatus for stamping bolts with threads; specimen of bolts, for armor plates and stamped row locks. 515</td>
</tr>
</tbody>
</table>

Machines and Implements of Spinning, Weaving, Paper Making, etc.

<table>
<thead>
<tr>
<th>Machines for Printing, Making Books, Paper Working, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 Tilzoff, John, Moscow.—Weaving slays. 520</td>
</tr>
</tbody>
</table>

Machines, etc., used in Sewing, Making Clothing, etc.

| 9 Rauer, Augustus, Warsaw.—Album of reduced patterns for tailors. 531 |

Machines for Printing, Making Books, Paper Working, etc.

| 10 Alissoff, Michael, St. Petersburg.—Type-writing machine, and new photolithographic process of music printing. 542 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
Machinery, Motors, Railway Plant, Vessels.

11 Goldberg, Isidor, St. Petersburg.—
a Printing types and electrotypens, stereotypes. 542
b Pasteboard cutter. 546
12 Lorchetes, Alfred, Liban.—Steganographic apparatus. 542
13 Wolf, Morris, St. Petersburg.—Sample book of typographical types. 542

Motors, Power Generators, etc.
15 Lesser, Gustavus, St. Petersburg.—Section of a steam cylinder with steam distributing apparatus. 550
16 Steam Engine Works, Port of Cronstadt.—Steam engine and boiler for a large. 550
17 Lilpop, Rau, & Loevenstein, Warsaw.—Portable steam engine, ten horse power. 552
18 Pootilof Iron Works Co., St. Petersburg.—Steam engine. 552
18a Imperial Technical School, Moscow.—Model of a steam engine with parallel motion and regulator. 552
19 Admiralty Tyova Works, near St. Petersburg.—Chains and moving tackle. 553
20 Herezinsk, W., Warsaw.—Cordage transmission straps. 553
21 Hofmark, Bruno, St. Petersburg.—Wire transmission belt. 553
22 Milek, William, Warsaw.—Cordage transmission straps. 553
23 Tember, K., & Schovede, L., Warsaw.—Leather transmission belts. 553
24 Cohnfeld, S., St. Petersburg.—Automatic feeding apparatus. 555

Hydraulic and Pneumatic Apparatus.
26 Admiralty Tyova Works, near St. Petersburg:
a Dawson’s ship pump and fire pump. 560
b Diving apparatus. 567
27 Friedland, Michael, St. Petersburg.—Pumps, rotary system. 566
28 Liarsky, Nicolas, Smolensk.—Load roller. 563
29 Tretzer, Adolphus, Warsaw.—Fire engine. 564
30 Lange & Co., Moscow.—Fire engine hose. 564
31 Mick, William, Warsaw.—Fire engine hose. 564
32 Hesse, Charles, Riga.—Metal capsules. 565

Railway Plant, Rolling Stock, etc.
34 Lilpop, Rau, & Loevenstein, Warsaw.
a Bolts, screws, and other railway and car fittings. 571
b Buffer spring and coupling appliance; wheel and spring for railway carriages. 572

35 Shiloff, L. P., Moscow.
a Patent railway car lock. 571
b Railway signals. 573
37 Pootilof Iron Works Co., St. Petersburg.—Railway ties, axles, and wheels. 573
38 Aboookoff Steel Foundry, near St. Petersburg.—Railway wheels, ties, and axles. 573
39 Russian Rail Manufacturing Co., Government of Riazan, District of Pronsk.—Railway ties, chairs, nails, bolts and nuts. 574

Machinery used in Preparing Agricultural Products.
41 Yosefow Sugar Manufacturing Co., Government of Warsaw.—Metallic sugar loaf form. 581

Aerial, Pneumatic, and Water Transportation.
42 St. Petersburg River Yacht Club.—Rowing boats. 594
43 Alexandroosky, —, St. Petersburg.—Air bags for raising sunken vessels. 594
44 Makarooff, T. R. N., St. Petersburg.—Patent safety mats for instantly stopping leakage in ship bottoms. 594
45 Modeling Workshop in the Naval Museum, St. Petersburg.—Models of ships, yachts, and circular iron clads. 595
46 Russian Steamboat & Trade Co., Odessa.—Model of steam schooner for the coal trade. 595
47 Naval Museum, St. Petersburg.
a Models of a floating dock and graving dock in Cronstadt. 596
b Model of steering apparatus. 597
48 Engineers’ Shop of the Port of St. Petersburg.—Apparatus for lowering boats and boat furniture. 597
49 Steam Engine Works, Port of Cronstadt.—Admiral’s caboose. 597
51 Mast Maker’s Shop, Port of Cronstadt.—Models of masts, etc. 597

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.
The Pennsylvania Railroad is the Best Constructed and Best Equipped Railway on the American Continent.

The Entire Line between New York and Pittsburg is laid with a double track of steel rails, weighing sixty-seven pounds to the yard. These rails are secured to oak ties, averaging 2600 to the mile of single track, and are connected between the ties, thus preventing all jarring or jolting.

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1. Offices.
2. Water-closets.
3. War Department.
4. Navy Department.
5. Post Office.
6. Treasury Department.

Total Length, 504 ft.  
Width, 360 ft.  
Height, 50 ft.

7. Agricultural Department.
8. Interior Department.
9. Smithsonian Institution and Food Fisheries.
10. United States Hospital.
11. Tent.
12. Laboratory.
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WM. A. DE CAINDRY, Secretary of the Board.

UNITED STATES GOVERNMENT BUILDINGS.

MAIN BUILDING, No. 51.

Architect, JAMES H. WINDRIM.—Size, Floor Area, 102,840 square feet.

This structure is situated at the intersection of Belmont and Fountain Avenues, is built in the form of a Latin cross, and is of framed white pine, unplaned, with two tiers of windows. It contains for exhibition contributions from the different Executive Departments of the United States Government.
ORDNANCE LABORATORY BUILDING, No. 54.
This building is located north of Main Building, and is built of wrought iron, rivetted, covered with a light casing of wood. It is designed with the view of preventing the great loss of life that usually results from the demolition of a building of ordinary construction, by the explosion of even a small amount of powder. In the event of an explosion in this building, the roof and sides fall at once, and the iron frame is left standing, in order to shield the inmates from being crushed beneath the ruins. The building, as well as its contents, is on exhibition.

UNITED STATES ARMY POST HOSPITAL, No. 52.
Size, 35 feet by 39 feet, and Addition of 40 feet by 14 feet.
This Hospital is situated north of the Main Building, is two stories in height, and is intended to hold twenty-four beds. It is built of wood, and contains medical appliances of all kinds, including medicines, instruments, hospital stores, clothing, books, and furniture, models of hospitals, cars, boats, ambulances, etc., microscopical and other specimens. The construction of the building and its contents are on exhibition.

TRANSIT OF VENUS BUILDINGS.
This structure is situated southwest of Government Building, consisting of,—
1. Transit House.—Dimensions, 10 feet by 8 feet.
2. Photographic House.—Dimensions, 12 feet by 10 feet.
3. Equatorial House.—Dimensions, 11 feet in diameter.
All the instruments employed in observing and recording the phenomena of the late transit of Venus are so placed on exhibition that the various processes will be exemplified by practical workings.

WAR DEPARTMENT.

SIGNAL SECTION.
The instruments exhibited in the Signal Service Section of the United States Army are all of American manufacture, and only such as have been devised for the signal service of the army by officers or enlisted men of the corps.

METEOROLOGICAL INSTRUMENTS.
The display of self-recording instruments consists of barographs, anemographs, thermographs, rain-gauges, and evaporator. Some of these are worked by electrical batteries, others by mechanical means. Those recording the velocity and direction of the wind, the amount of rainfall and changes of temperature, are connected with their respective wind-cups, wind-vanes, rain-receivers, and thermometers, exposed upon an artificial glass roof, beneath which the recording apparatus is placed, each electrical instrument having its own battery. Artificial currents of air and water are used to obtain uninterrupted working.

UNITED STATES SIGNAL STATION.
This department consists of a model United States signal service station, similar to those established in different sections of the United States. Here are exhibited the meteorological instruments used on station; the manner of taking, recording, and transmitting to the central office at Washington the observations upon which the weather reports, storm warnings, etc., are based; the method of publishing and distributing the predictions forwarded from the office of the Chief Signal Officer of the army, as well as the various means adopted to furnish at the earliest practicable moment all weather information which would be of benefit to commerce and agriculture. Specimens of the publications, charts, and maps of the office of the Chief Signal Officer are also exhibited.

PRINTING DEPARTMENT.
Here are exhibited in detail the printing of "weather maps" and "farmers' bulletins."

FIELD WORK.
This portion of the exhibition comprises a complete United States field-telegraph train, with capacity to erect 50 miles or more of portable telegraph line; portable signal tower 75 feet high, with its wagon; semaphore, signal flags, torches, rockets, bombs, and mortars, colored lights, heliographs (for communicating by means of sun flashing), and international flags, and other apparatus used in communicating with troops in the field or with vessels.
MODEL DEPARTMENT.

The model department comprises models of the different instruments used in field signaling; models of meteorological instruments and portable instrument shelter, and a new electrical instrument for transmitting by telegraph the isobarometric and isothermal lines of the Signal Service weather maps.

QUARTERMASTER SECTION.

Uniforms.—Revolutionary uniforms, and those of succeeding years; present uniforms of the army.

Camp and Garrison Equipage.—Tents, flags, cooking utensils and tools; field music—drums, bugles, etc.; bunks, blankets, and bedsacks.

Means of Transportation.—Wagon and harness; ambulance and harness; apparatus; pack saddle; historic wagon; portable and traveling forges.

Machines.—For cutting out clothing; for brass screwing shoes; for testing fabrics.

Farriers' and Saddlers' Tools.

Standard Horse Shoes.

Veterinary Chest.

Kiernan's System of Horse Shoewing.

MEDICAL SECTION.

This display represents the character of the work of the medical staff of the United States army in peace and war. Four classes of objects are exhibited by the objects themselves, by models, or by photographs.

1. Hospitals for Sick and Wounded Soldiers.
   a. Post hospital of 24 beds of full size.
   b. Four full-sized hospital tents, with furniture representing the tent ward which served as the unit of the "tent field hospital" used during the civil war of 1861-65.
   c. Models of the barracks "General Hospitals" used during the war of 1861-65, viz.: a model of the form of barracks ward for 60 beds, on the scale of half an inch to the foot; and four ground-plan models showing combinations of such wards in general hospitals.

2. Medical and Hospital Supplies.

Samples of articles on the medical supply table of the army; medicines; hospital stores; surgical instruments and dressings; hospital furniture, bedding, clothing, and appliances; books, blank forms for reports, and stationery; medical panners and medicine wagons, and samples of the artificial arms, legs, trusses, and other apparatus issued by the medical department to disabled soldiers.

3. Transportation of Sick and Wounded.

Stretchers, litters, and ambulances, full size and models; models of hospital railroad cars, hospital steamboat, and hospital ocean steamship, illustrating mode of transporting sick and wounded during the late war.

4. Treatment of Diseases and Injuries of Soldiers.

A medical museum, represented by medical, surgical, anatomical, and microscopical specimens, photographs of specimens, and catalogue of museum; catalogue of Surgeon-General's office; photographed title pages of rare books on military medicine and surgery, etc.; medical and surgical publications of Surgeon-General's office.

The Post Hospital, for twenty-four beds, constructed from plans approved by the War Department, contains the greater part of the display of the Medical Department, as follows:

Room 1, 45x25, a ward with twelve beds, furniture, bedding, clothing, etc.
Room 2 (the other ward, same size), models of hospitals, ambulances, hospital cars, boats, and tents, specimens from museum, etc.
Room 3, the dispensary, samples of medical supplies.
Room 4, the office, samples of surgical instruments, medical and surgical books, blanks, etc.
Room 5, dining room, table ware, mess furniture.
Room 6, kitchen, cooking apparatus.
Room 7, office of officer in charge of the display.

Rooms on second floor, stretchers, litters, medicine chests, and panners; artificial legs and arms, trusses for rupture, and other apparatus.

Tent ward, full-sized hospital tents, pitched in the rear of the post hospital. Ambulances, medicine wagons, and carts, full-sized, parked near the tent ward.

ENGINEER SECTION.

Maps and Drawings.

Map of the United States, showing work done by corps of engineers, 1776-1876.
Drawing of Rock Island bridge.

Map of canal and locks, Des Moines rapids.
Map of Mississippi river, from Le Claire, Iowa, to Rock Island, Illinois.

Drawings of improvements of Mississippi river between mouths of the Illinois and Ohio.

Plans of improvements on Hudson river, near Albany.

Drawing of iron landing pier, Delaware breakwater harbor.

Drawing of foundation of Fort Delaware.

Drawing of dynamometer for determining force required to screw down iron piles of Lewes pier.

Drawing of Delaware breakwater, with details of breakwater and ice barrier.

Map of shore of Delaware harbor, including Cape Henlopen.

Chart of Schuylkill river, from mouth to Chestnut Street bridge, showing improvements made by United States in its navigation from 1870 to 1875.

Drawing of dredge-boat "Henry Burden."

Drawing of mortar mill and concrete mixer.

Map of flood plain of Minnesota and Mississippi rivers, showing connection with basin of Red river and Lake Winnipiseg.

Drawings of snags boat.

Chart of Galveston entrance.

Detailed drawings and photographs, illustrating experimental works at Galveston entrance.

Chart of Indianola harbor.

Detail drawings of end dock.

Charts of Lake Survey.

Lighthouse drawings, Eleventh district.

Drawing of river and harbor works.

Plans of cribs and pile pier at Chicago.

Maps and hydrographs of Ohio, Mononga-

hela, and Great Kanawha rivers.

Drawings of crib work for piers on Lake Ontario.

Special map of region west of Mississippi river.

Special triangulation map of region west of Mississippi river.

Detailed topographical sheets of above region.

Specimen copies of photolithographic atlas,
Models of Harbor Improvements.

The work at Hallet's Point, N. Y. (Hellgate.)
Northern extremity of Cape Cod.
Section of iron landing pier of Delaware breakwater at harbor.
Iron ice barrier proposed for Horse Shoe of Delaware river.
Breakwater at Dunkirk, N. Y.
Crib and lighthouse on Spectacle reef, Lake Huron.
Angle crib and lighthouse at Harbor of Refuge, Lake Huron.
Model showing shore line and breakwater at Harbor of Refuge, Lake Huron.
Crib and pier at Chicago, Illinois.
Crib work for piers on Lake Ontario.
"Mattress" or "apron" used in improvements of harbor at mouth of Cape Fear river, N. C.

Models of Machinery and Appliances.
Steam drilling scow.
Capstan-head and machinery for screwing down iron piles at Delaware breakwater landing pier.
Derrick for landing shafts.
Eccentric clamp or "ripper" for sustaining piles.
Snag boat, showing hull.
Dredge boat "McAister."
Large grapple.

Photographs.
Views of Hallet's Point, N. Y.; snag boat; Red river; cribs and piers at Chicago, III.; country west of Mississippi river (Wheeler expedition.)

Materials, Specimens, and Samples.
Specimens of boring at site of landing pier of Delaware breakwater; of iron used in construction of landing pier; of timber piles taken from between tides at Keedys Island; ice barrier of building stone, concrete, and woods; collected from various parts of the United States; of fossil trees; of large cypress stump, taken from mouth of Cape Fear river, N. C.

Miscellaneous.
United States bridge equipage, pontoon wagons, loaded; tool wagon; forge; model of bridge train, wagons, and loads; reserve and advance guard bridges; siege and mining tools; field photographic outfit; reconnaisance fire-engines; bridge model; models of torpedoes; models of apparatus for measuring subaqueous explosions, in glass tank; torpedoes, full size, models, 1874-75; ground mine; cable stop; junction boxes; torpedo cables, multiple and single; operating box; electrical apparatus used with torpedoes; iron plate from torpedo target, showing effects of thirty pounds of dynamite exploded under water at thirty feet distance; models of King, De Russy, and Hunt self-depressing gun carriages; models of mortar carriage and muzzle-pivoting gun carriage; surveying, astronomical, and barometrical instruments for field work; publications of the engineer bureau.

ORDNANCE SECTION.

Sea Coast Guns.
20 in. Rodman gun, on carriage and chassis, with hydraulic buffer, on platform; implements.
12 in. Thompson b. l. rifle, experimental, under Laidley's gun lift.
6 in. Sutcliffe b. l. rifle, experimental, on carriage and chassis, with Sinclair's friction-brake, mounted on platform; implements.
10 in. Woodbridge gun, experimental; in slings, under Laidley sling cart.
8 in. m. l. converted rifle, experimental, on 10 in. casemate carriage and chassis, with pneumatic buffers, mounted on platform in model of casemate; implements.
Mann's 8 in. b. l. rifle, wrought iron, experimental, mounted on top carriage and chassis.
8 in. siege howitzer, mounted on wooden siege carriage.

Siege Guns.
4.5 in. siege rifle gun, mounted on Benton's experimental iron siege carriage, with limber; implements.

Field Guns.
Light 12 pdr. gun, 4.62 in. wooden carriage, with limber; implements.
Sutcliffe 3.9 in. b. l. rifle, experimental.
Hotchkiss 3.9 in. b. l. rifle, experimental.
Moffat 3.15 in. b. l. rifle, experimental.
Mann's 3 in. b. l. rifle, experimental.
3 in. wrought iron, m. l. rifle, mounted on Benton's experimental iron 12 pdr. field carriage, with limber and caisson; implements; model horse harnessed to limber, with mounted driver.
10 pdr. Parrot rifle, mounted on Watervliet experimental iron field carriage, with limber.
3 in. Whitworth field piece, on carriage.
2.5 in. Woodbridge gun, experimental; fired 1777 times.
Hotchkiss field cannon, experimental.
Rebel b. l. pieces, field and boat, experimental skids.
Lyman's multicharge rifle, cal. 6 in., experimental skids.
Bomford and Wade perforated gun, experimental; used to determine experimentally exterior lines of heavy cannon, by means of pressure at different points of bore.
Mountain howitzer, mounted on carriage.
Mountain howitzer battery, on stands.

Volley and Repeating Guns.
Gatling gun, short barrel, cal. 45, on cavalry carriage; model horse in harness.
Hotchkiss revolving cannon, on carriage, experimental.
Union repeating (coffee-mill) gun, on carriage, experimental.
Regua battery, on carriage, experimental.
Guthrie & Lee gun, on carriage, experimental.
Vandenburgh volley gun, on carriage, experimental.

Revolutionary Guns.
6 pdr. French guns, bronze, presented by Lafayette; forming enclosure around models of modern plantation.
12 pdr. siege gun, bronze, mounted on wooden carriage, with limber.
8 ft. howitzer, bronze, mercer.
24 pdr. howitzers, Byer's; cast in Philadelphia.
Anthony Wayne howitzers, intended to be used on horseback; cast in Germantown, Philadelphia, by D. King.

Mortars.
13 in. sea-coast mortars, on bed, with centres, pinless, chassis mounted, on platform; implements.
24 pdr. Coehorn mortars, on beds.

Carriages.
New cavalry forge cart.

Projectiles.
Shot, shells, grape, canister, etc., for various weapons and calibres; smooth-bored and rifled; fired and unfired; hand-grenades,
War and Navy Departments, Ordnance and Appliances.

**SPECIAL BENTON ENGINE STRAIGHTENING PACKING LONG TARGET IRON BARREL-TURNING DOUBLE-ACTION CAMERA AND IMPRUSE ORDNANCE BRANCH.**

**Rifled and Smooth Bore Guns.—25 in. guns on Ericissen's and Edes's steam carriages.**

*These two guns are mounted on a circular platform and inclosed in a wooden turret, representing in size and form a monitor's iron turret.*

Pieces of heavy ordnance, muzzle and breech loading, of unique styled and manufactured. Guns from 11 in. to 3 in. calibre, and 100 pds. to 12 pds., variously mounted.

**Torpedoes.—Automatic, stationary, and movable; electric batteries, wires, fuse, etc.;**

Illustrating progress made by the torpedo school.

**Small Arms.—Muskets, rifle and smooth bore, breech- and muzzle-loading; pistols, swords, cutlasses, bowie knives, battle axes, tomahawks, boarding helmets, etc.**

Ordnance publications.

Samples of gunpowder.

Inspecting instruments for heavy guns; implements for gauging and inspecting shot and shell.

Fuse presses; machines for making percussion caps; metallic carriages; solid head metallic musket and pistol cartridge now used in the navy, showing the different stages of

**Boards of component parts of small arms, and progressive work on scabbards.**

**Rodman guns, mounted in barbette and in casemates.**

**Mortar, mounted on bed with centre pintle—chassis.**

Table with models, field and siege carriages.

Lead bullets, joined together by collision in mid-air at the battle of Petersburg, Va.

**Machines.**

*Casesemine gas: Baxter engines.*

**Cartridge Machinery.**

Portable gas furnace for annealing cartridge shells; double-action press; drawing presses; case and cup anvil trimmers; head; primer; cup venting, and impression machines; bullet, ball-trimming, and greasing, tapering, and loading machines; cup anvil press; rotary fan; packing tables and work boxes.

**Gun-making Machinery.**

Drop hammer: forging; trimming jumper; barrel-boring lathe, for nut boring and quick boring; barrel-turning lathe; straightening stand, polishing stand; vises, with machine for bending swivels; trimming press; drill press; rifling, brush, and profiling machines; milling and screw machines; clamp milling machine; machine for bending swivels; grindstone; lathe; emery mill grinder; second drilling receiver; first turning stock; lock-bedding with post and spare pulley; air pump and reservoir; bench for assembling guns.

**Instruments.**

Laidley laboratory, showing principles of construction, and illustrating experiments in ballistic; models pressure; pendulum prospetive; camera lucida for representation with model of Frankford target; Shultz chronoscope, with Russel's interrupter; vignotti machine; Le Boulangé chronograph; Benton thread, and electro-ballistic machines; target for electro-ballistic machines; recoil dynamometer; mercurial densimeter; scales for mercurial densimeter; stercometer; collection of inspecting instruments for cannon and projectiles; for 3 in., rifles and .50 in. gun; iron tube for firing through with safety; firing stand.

**Miscellaneous.**

Boards showing rifle practice.

Publications from ordnance office and artillery school.

**Medal, army target practice; stadia, silver (r cavalry, r infantry); telemetres (r battery, r infantry, r field).**

Corrugated iron powder barrels; copper powder barrel.
manufacture; other musket cartridges and cartridge inventions in possession of the navy. Rifled projectiles for heavy guns; inventions of Dahlgren, Holroyd, Dana, Parrot, Hotchkiss, James, Brooks, and other inventors.

Sub-calibre and elongated projectiles for smooth bore guns; solid shot, shell, incendiary shell, grape, canister, shrapnel, as used at present, and as previously used or proposed.

Projectiles which have been fired at iron targets; models of projectiles; model gun-carriages; cannon carriages; targets; rammers, paratus, lights made dyeing compass, the American observations improvement.

plans and the mouth, folk, Boston, Miscellaneous Navy Figures Portable Adjustable Navy Chronometers. Present, publications.

of compass. 9, various YARDS AND MACHINERY, 1874. of the States, and instruments of the navy, known specimens. Micros and compass-testing instruments, showing specimens of the navy compass, azimuth circle, tell-tale, boat, and monitor compasses. Portable compass-testing instrument, with specimens to illustrate development of the liquid compass.

Specimens of the old dry or air compass of American makers, illustrating the progress of improvement. Adjustable binnacle.

NAVAL OBSERVATORY.

HYDROGRAPHIC OFFICE. Nautical charts, books, etc., published by the Hydrographic Office.

NAUTICAL ALMANAC OFFICE. Publications of the office.


Models of dry docks at Boston, Mass.; New York, N. Y.; Norfolk, Va., and Mare Island, Cal.

Pyramid of blocks of wood taken from naval vessels.

STEAM ENGINEERING BRANCH. Machinery of the "Nipsic." The machinery of the various sizes of steam launches. The engines of the "Epervier." Part of the original machinery of the torpedo boat "Spuyten Duyvel," a steam launch, with the first torpedo machinery used in the United States Navy. Detail drawings of compound engines. Photographs of machine shops, foundries, etc., showing improved tools used in the manufacture and construction of steam machinery. Two compound boilers. Baird's distiller, illustrating the method of making fresh water on board ship at sea.

EQUIPMENT AND RECRUITING BRANCH. Young's ship's galley, with utensils for cooking for 500 men. Hemp, Manila, and wire rope; cable, blocks, chain cables, etc.


MEDICAL AND SURGICAL BRANCH. Medicines and Hospital Stores used in the Navy. Surgical instruments and appliances usually supplied in the service; additional case of surgical instruments occasionally supplied in lieu of the standard operation case. Cots and stretchers for transportation of wounded in action. Model of a sick bay; the part of the ship usually allotted for hospital accommodation. Model of hospital ship. Fan for ventilating the hold of a ship in hot climates. Starting funnel arrangement for aerating distilled water. Set of record and account books for a naval hospital. Fracture bedstead, for elevating the patient and changing position. Bed with woven wire mattress. Photographs and plans of naval hospitals.

PAY, PROVISION, AND CLOTHING BRANCH. Articles and materials of clothing issued in the navy. Package, showing the manner of packing clothing for sea. Navy rations in glass jars, and packages of the same is prepared for sea. "Small stores," articles for mess use: pans,
spoons, knives, etc., tobacco, soap, needles, thread, and other small articles.

Packages of tobacco and soap as packed for sea use.

Paymasters' books and blanks for a ship with complement of 200 men; paymasters' sta-

tionery; stewards' stores, scales, and tools used in issuing provisions.

Iron safe; locks used on paymasters' store-

rooms, three in number.

Specimen of candles.

TREASURY DEPARTMENT.

(Owing to want of sufficient appropriation by Congress for defraying the expense of the par-

ticipation in the Exhibition by the Treasury Department, no definite arrangements have yet

been made for contributions from it.—March 31, 1876.)

INTERIOR DEPARTMENT.

PATENT OFFICE.

Publications.—Annual reports; official gazette; indexes to patents, general and year-

ly; volumes of patents, monthly and weekly; decisions of Commissioner of Patents; me-

chanical dictionary: official classification.

Drawings of Models.—Selected series (60,000), intended to serve in the illustration of the Patent Office work, from the classes given below.

Models.—Selected series (3000), intended to serve in the illustration of the Patent Office work, from the following classes: agriculture; harvesters; mills and presses; architecture; civil engineering; railways; navigation; met-

allurgy; metal working; wood working; steam; hydraulics; pneumatic mechanical movements; hoisting; horse powers; journals and bearings; vehicles; fire arms; textile; printing and stationery; stone; clay; glass; leather; light; heat; electricity; household; chemistry; gas; ice, and fine arts.

Miscellaneous Collections of Interest.

The original Declaration of Independence; Gen. Washington's commission from the Con-

tinental Congress; personal effects of Gen. Washington, such as furniture, porcelain, clothing, canoe, sword, traveling escritoire, surveying compass, camp equipage, includ-

ning tent, mess-kit, money-chest, etc.

Weapons of historical interest, such as bayonets from General Braddock's line of march; muskets presented by the Emperor of Morocco to Mr. Jefferson; war saddle of Baron De Kalb; sabres of honor presented to United States officers by sovereigns and beys; model of invention by President Lincoln.

PENSION OFFICE.

Publications.—Annual reports; graphic illustrations; wall maps; wall charts; port-

folios of diagrams, etc.; collections of histori-

cal interest; selections from the archives of the office relative to the Revolutionary war.

GENERAL LAND OFFICE.

Publications.—Annual reports; digests, and other documents.

Graphic Illustrations.—Maps, charts, and atlas of surveys; miscellaneous collec-

tions; instruments and processes employed in the land survey.

INDIAN OFFICE.

Publications.—Reports and other publica-

tions.

Illustrations.—Portraits, photographs, maps of reservations, etc.

Models.—Wigwams, communal houses, canoes, etc.

Miscellaneous Collection of Interest.

Costumes, male and female, adult and others; weapons of war and the chase; tents, wig-

wams, canoes, etc.; domestic utensils; speci-

mens of food; toys, games, and festivals; arts and manufactures of the tribes; ethnolo-

gical collections, etc.

EDUCATION OFFICE.

Publications by the Office.—Annual and special reports, and circulars of information.

Publications by other Offices or Pers-

ons.—Foreign reports on American educa-

tion; foreign educational reports and docu-

ments; treaties on pedagogy; and educa-

tional journals.

Graphic Representations.—Wall maps and charts; portfolios of engravings, drawings, and photographs; busts; paintings, and other portraits.

Models of Educational Buildings.—The primitive log school-house; country school-

house of to-day; city graded school-house; college buildings; details as to dormitories; ventilative apparatus, school-rooms, etc.; models of adobe and sod school-houses.

Specimens of School Furniture, Appar-

atus, and text-books.—Historic collection, showing progress in text-books; specimens and models of school desks, seats, black boards, school maps, charts, etc.; specimens of modern slates, globes, natural history cab-

inets, chemical and philosophical apparatus, chemical appliances, etc.

Miscellaneous Collections of Interest.

Selected volumes of state and city educa-

tional reports; catalogues of private schools, academies, seminaries, colleges, and profes-

sional schools, selected series; catalogues and reports of orphan, reformatory, and charitable schools for the young, etc.; catalogues and reports of institutions for the deaf mute, blind, etc.; catalogues and reports of libraries; cat-

alogues and reports of museums of art, of sci-

ence, and of natural history.

These miscellaneous collections, some bound and others in their original condition, will be exhibited as showing specimens of the ma-

terials for the study of education, which are published by the systems and corporations themselves.

Volumes of manuscript returns made to the Bureau of Education by educators and school officials of every grade, and used in the prepa-

ration of its annual and special reports.

CENSUS OFFICE.

Publications.—Decennial censuses; statis-

tical atlas, 1870.
Graphic Illustrations.—Maps, charts, and diagrams.

Miscellaneous Articles of Interest.—Original schedules of the census of 1790; selected volumes of schedules of subsequent censuses.

GEOPHYSICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.

1st Division.

Publications.—Reports, bulletins, etc.

Graphic Illustrations.—Topographical and geological atlases; wall maps and charts; panoramic photographs; stereoscopic views; photographic portfolios; photographic transparencies; paintings, landscapes, portraits, etc.

Models and Reliefs.—Topographical and geographical relief maps; relief sections; models of displacement; models of ancient ruined cliff habitations; models of same restored.

Collections of Interest.—Geological and mineralogical cabinets; pottery, costumes, weapons, implements, toys, etc.

2d Division.

Publications.—Reports; bulletins; monographs, etc.

Graphic Illustrations.—Topographical and geological atlases; wall maps and charts; panoramic and stereoscopic views; portfolios, albums, and transparent photographs.

Models and Reliefs.—Topographical and geological relief maps; geological structural sections; models of displacement.

Miscellaneous Collections.—Geological and mineralogical specimens; arms, clothing, etc.

POST-OFFICE

The exhibition of this Department is classed under the following general heads:

A MODEL WORKING POST-OFFICE.

This is a branch office or station of the Philadelphia office, and shows the practical workings of the following divisions of this Department, viz.: Box and general delivery system; system of carrier delivery and collections; registered letter system; money-order system; foreign mail system, etc.

RAILWAY MAIL SERVICE DIVISION.

Two railway post-offices or postal cars, equipped with mail-bag catchers, and all other first-class appointments of that service, under charge of railway post-office clerks, by whom the mailing and distribution of outgoing mails is performed. Several models of mail catchers are also exhibited under this head.

Model mail cars.—Small size, exhibiting the practical working of the mail-bag catcher upon a miniature truck inside the building.

AGRICULTURAL DEPARTMENT

The exhibit from the Agricultural Department embraces as follows:

BOTANICAL DIVISION.

A collection of all the timber trees of the United States, in sections, showing interior and exterior surfaces; specimens of flowers, leaves, and fruits; herbarium specimens of grasses and other specialities.

STATISTICAL DIVISION.

Large outline maps of the United States, showing forest areas, extent, and value of farming lands, and amount of production, by counties; arrangement of charts and diagrams detailing amount of special products, by sections; statistics of farm animals, and illustrated statistics of industrial education; statistical album of miscellaneous details, with charts, diagrams, etc.

ENTOMOLOGICAL DIVISION.

Collections of fruit and vegetable models; birds beneficial and injurious to farmers and orchardists; poultry types, illustrated by stuffed specimens; collection of grains and cereals; collection of textile fibres of the United States, with specimens of their manufacture; specimens of tobacco, from different tobacco-producing sections of the United States; mounted collection of beneficial and injurious insects.

MICROSCOPICAL DIVISION.

Series of water-color drawings illustrating typical genera of microscopic fungi; preparations illustrating the characteristics of poisonous and edible mushrooms common to the United States; illustrative displaying the varied character of the starch granules of plants; drawings and illustrations explaining method of distinguishing vegetable and animal fibres, their kind and quality; drawings displaying vegetable and animal cellulose and starches, and illustrating methods of detecting them in organizations.

CHEMICAL DIVISION.

Fertilizers.—Mineral—including phos-
Horticulture, Animals, Fish, Ethnology.

The Smithsonian Institution, and Commission on American Food Fishes.

Casts, photographs, and drawings of fish and other aquatic animals.
Prepared or living specimens of aquatic animals.
Products of the waters.
Economical applications of the above products.

E.—COLLECTION TO ILLUSTRATE THE ETHNOLOGY OF THE UNITED STATES.

In charge of Dr. Charles Raw.

(This exhibit is made conjointly with the Indian Bureau of the Interior Department.)

Objects of Stone.
Flaked and chipped stone; raw material (pieces of flint, etc.); flake and cores of flint, obsidian, etc.; rude or unfinished implements; arrow and spear heads; perforators and scrapers; cutting and sawing implements; dagger-shaped implements; leaf-shaped implements; digging implements, and wedge or celts-shaped implements.
Pecked, ground, and polished stone; wedges of celts; chisels; gouges; adzes; grooved axes; hammers; ceremonial weapons; cutting tools; scraper and spade-like implements; pendants and sinkers; discordal stones, etc.; ground tablets and boat-shaped objects; grinding and polishing stones; stone vessels; mortars; pestles; tubes; pipes; ornaments, and sculptures.

Objects of Copper.
Implements and ornaments.

Objects of Bone.
Implements, weapons, and ornaments.

Objects of Shell.
Utensils, implements, and ornaments.

Objects of Clay.
Mound pottery and terra-cottas.

Objects of Wood.
Fragmentary objects and carvings of an early date.

Ethnological Series.
Man.—Skulls, mummies, etc.
Ceremonial.—Aliments, food (mineral and vegetable), drinks, narcotics, and medicines.
Habitations.—Models of houses, tents, etc., and appurtenances.
Furniture.—Cradle boards, mats, etc.
Utensils and other utensils of household use.—Earthenware; carved horn and wooden ware; stone ware; wicker work; bladders and boxes.
Utensils for smoking, etc.—Pipes; tobacco pouches; snuff apparatus, etc.

Receptacles used as means of transportation.—Pouches, bags, raw-hide cases, burdens, etc.

SPECIAL BUILDINGS.

This is covered to a considerable extent by the preceding group, in connection with which it is arranged. The special features will embrace the following:

Fishing vessels, boats, etc., life size and models.
The apparatus and dories used in the whale fisheries.
 Nets, traps, and pound.
Hooks, lines, baits, etc.

Collection to Illustrate the Fishery Resources of the United States.

This is covered to a considerable extent by the preceding group, in connection with which it is arranged. The special features will embrace the following:

Fishing vessels, boats, etc., life size and models.
The apparatus and dories used in the whale fisheries.

SPECIAL BUILDINGS.

Horticulture, Animals, Fish, Ethnology.

The Smithsonian Institution makes the following exhibits:

Publications of the Institution.
Smithsonian contributions to knowledge; miscellaneous collections; annual reports, and other publications.

Meteorological work of the Institution: Charts showing the mean temperature, rainfall, and barometric pressure of the United States.

International exchanges; statistics of number of correspondents; extent of distribution by exchange.

General condition; financial statement.

Collection to Illustrate the Animal Resources of the United States.

In charge of G. Browne Goode.

Animals Beneficial or Injurious to Man—Mammals; birds; reptiles; amphibians; fishes; classombranchiates; marsipobranchiates; insects; arachnians; crustaceans; worms; mollusks; raditaes; protozans and marine products not of animal nature.

Means of Pursuit and Capture.—Hand-implements; implements for seizure of objects; missiles; baited hooks; angling tackle; nets, and traps.

Apparatus for Wholesale Destruction.—Hunting animals; decoys and disguises; pursuit—its methods and appliances.

Means of Utilization.—Preparation and preservation of foods; manufacture of textile fabrics, felts and stuffings; preparation of the skin and its appendages; the hard materials; oils, glues, drugs, perfumes, chemical products, fertilizers and lime; preservation of the animal for scientific uses.

Animal Products and their Applications.—Food; clothing; materials employed in the arts and manufactures.

Protection and Culture of Useful Animals.—Investigation; protection, and propagation.

Collection to Illustrate the Fishery Resources of the United States.

This is covered to a considerable extent by the preceding group, in connection with which it is arranged. The special features will embrace the following:

Fishing vessels, boats, etc., life size and models.
The apparatus and dories used in the whale fisheries.

Nets, traps, and pounds.
Hooks, lines, baits, etc.
Clothing—Raw material; complete suits; head, body, hand, leg, and foot clothing; parts of dress.

Personal adornment—Skin ornamentation; head, neck, breast, body, and limb orna-
tments; toilet articles.

Impplements of general use of war and the chase, and of special crafts. — Implements for cutting, drilling, etc.; lances, bows and arrows, clubs, tomahawks, etc.; shields, body armor, etc. Implements for fire-making, arrow-making, pottery, for procuring and manufacturing food; agricultural implements; implements used in spinning, weaving, sewing, and embroidery.

Means of locomotion and transportation. — Snow shoes, ice creepers, etc.; balsas, dug-
outs, bark canoes, hide boats, etc.; saddles, bridles, halters, harness, etc.; sleighs, etc.

Games and pastimes. — Gambling imple-
ments; masks, etc., used in dancing; rackets, balls, etc.; toys.

Music. — Drums, rattles, whistles, flutes, etc.

Art.—Pictorial representations and carving.

Superstition.—Charms, mythological fig-
ures, etc.

COLLECTION TO ILLUSTRATE THE MINERAL RESOURCES OF THE UNITED STATES.

IN CHARGE OF W. P. BLAKE.

The principal objects of this collection of the useful ores and minerals of the country have been to illustrate: 1st. The nature and variety of the mineral resources of the United States; 2d. The geographical distribution and geological associations of the minerals; 3d. The extent to which they have been utilized; 4th. The mechanical, metallurgical, and chemical processes by which they are ex-
tracted or converted into useful products; 5th. The inherent and comparative qualities of the extractive products. A portion of the collection is arranged according to the nature of the objects, irrespective of locality, but the bulk of the Exhibition is grouped geographi-
cally by States. There is also a section de-
oted to models and drawings, and one to geolog-
ical maps and graphic charts. This collection occupies the northeast portion of the Government Building, upon the right of the main aisle.

I. SYSTEMATIC SERIES, GROUPED IRRESPECTIVE OF LOCALITY, IN THE FOLLOWING ORDER:

a. Crystalline minerals, chiefly for scientific and educational purposes.
b. Fuels and petroleum.
c. Ores, metals, and their immediate deriva-
tives.
d. Ornamental stones and gems.
e. Building stones; marbles, etc.
f. Artificial stones; lime; mortars; cement.
g. Geologists' materials; direct products, in-
cluding refractory materials, etc.
h. Pigments; colors; detergents.
i. Grinding, abrading, and polishing sub-
stances.
j. Fertilizing substances.
k. Sulphur, salts, and minerals chiefly used in chemical manufactures.

II. ORES, MINERALS, AND METAL-
LURGICAL PRODUCTS, GROUPED BY STATES.

Maine.—Iron ores, limestone and pig iron; granite for buildings and monuments.

New Hampshire.—Granite and meta-
morphosed rocks; granite; geological map of the State.

Vermont.—Marble; slate of various colors; roofing slate, etc.; iron ores and limonite; chilling pig iron; spiegelisen; kaolin and fire brick; coal for glass making; copper ores, copper, and metallurgical products; scythe stones.

Massachusetts.—Iron ore, siderite; magn-
etic iron ore, and steel produced from it: iron and steel wire; emery, massive and as-
social; corundum, corundophylite, diasporo; red oxide of titanium, and ilmenite; argen-
tiferous lead ore, galenite; copper ore; syne-
tite and porphyry; porphyry, a series of polished specimens; granite; sand for glass making; glass, cut and pressed; pearl ash and red lead; kaolin; potters' clay, brick clay, etc.; potters', paper, and alum clay; marble and limestone; geological map of the State.

Rhode Island.—Granite, for building and monumental purposes; magneteite; anthracite and graphitic coal, in large mass and in lumps.

Connecticut.—Granite and building stone; marble and limestone; serpentine marble, verd antique; barytes (sulphate of barytes); kaolin; brick clay, and products; iron ore, limonite, etc.; pig iron; iron ore, spathic and associates; cement steel; mining picks and hammers; copper and alloys, nickel silver, etc.; feldspar, silica, clay for potteries purposes; geological map of the State.

New York.—Magnetic iron ores, building stones, etc.; fluxes, fuels, and iron; Bessemer steel; hematite, magnetite, etc.; malleable cast iron; puddled iron and muck bar; lime-
stone and lime; hydraulic limestone, hydraulic cement, and cement drain-pipe; kaolin, crude and washed; "incombustible mineral wool," or nitrous fibre "slag felt;" lead and tin foil; fire brick and fire clay goods, refractory materials, etc.

New Jersey.—Magnetic iron ore; iron ore; massive and granular willemite; zinc ores and franklinite; zinc; spiegel iron, "franklinite iron;" calamine (sulicate of zinc); pot-
ter's clay; brick clay and iron-stone china ware; refractory furnace materials, fire brick, etc.; fire-brick clay and fire brick, etc.

Pennsylvania.—Iron ore, flux, and fuel; coal and coke; kaolin; limestone; iron ores, limonite, specular iron, etc.; copper ores, copper and copper products; petroleum and petroleum products; glass, and materials for its manufacture; window glass and materials; pig iron and ores; nickel and cobalt ores and products; cast steel; sheet iron; chromite.

Maryland.—Iron ore, flux, and fuel.

Virginia.—Zinc ores, calamine; lead ores, galena, cerussite, etc.; gypsum; barytes; kaolin; iron ores, magnetite, hematite, limonite, and fossil ore; coal and coke; copper ores; salt brine, fossil salt, and prepared salt; gold-bearing quartz; manganese; granite.

West Virginia.—Bituminous coal; coke; iron ores, black band, brown hematite, and fossil ores.

North Carolina.—Gold and silver ores; copper ores; marble; corundum and the asso-
ciate minerals; iron ores and iron; muscovite (minerals of the geological map of North Carolina).

South Carolina.—The phosphatic fossils, mineral fertilizers, etc., minerals and ores.

Alabama.—Ores and coal; spiegelisen and ores; geological map of Alabama.
Minerals, Geological Maps and Publications

**Tennessee.**—Iron ores, coal and mineral products; copper pyrites and vein stone; refined copper; geological map of Tennessee.

**Georgia.**—Auriferous gravel; gold-bearing quartz, etc.

**Kentucky.**—A series of specimens illustrating the mineral resources of the State.

**Louisiana.**—Rock salt; sulphur.

**Ohio.**—Open hearth steel; iron ores, flux and fuel; pig iron; potters' clay and pottery; crude and manufactured plaster; building stone.

**Indiana.**—Specimens of block coal, and iron ores; potters' clay; "Indianite."

**Missouri.**—Lead ores, galena, cerussite, etc.; pig lead; zinc ores; barytes, associated with lead ores; marble, limestone, and granite; iron ores, magnetite, specular iron, hematite; pig iron; copper ore; coal and coke; fossil plants, etc.; porphyry.

**Michigan.**—Iron ores, flux, and Bessemer pig iron; specular and magnetic; native copper, crystallized; mass and stamp work, with silver and associate minerals, and in amygdaloid and "ash bed;" building stone; native silver; copper and "copper conglomerate."

**Colorado.**—Gold and silver ores; gold, and ores containing tellurium; silver and copper ore.

**Utah.**—Silver ores.

**Idaho.**—Gold and silver ores.

**Montana.**—Silver ores; argentiferous galena.

**Arizona.**—Copper ores; gold, quartz, and other minerals.

**Nevada.**—Silver and gold ores.

**California.**—Gold and silver ores; auriferous gravel, "cement" with gold; quicksilver ores, cinnabar and native quicksilver; copper ores; tin ores and tin.

**III. MODELS AND DRAWINGS.**

**IV. GEOLOGICAL MAPS AND GRAPHIC CHARTS.**

Geological Map of the United States and Territories.

Geological and other Maps of the State of New Hampshire.

Geological Reports and Publications.
WOMEN'S PAVILION.

Scale, 80 ft. to 1 in.

Section A.—Art, Industrial Art, Education.

"  B.—Manufactures, etc.

"  C.—Foreign Exhibits—Great Britain, Canada, Brazil, Norway, Sweden, Japan, France, Egypt, Tunis, Italy, Spain, Netherlands.

"  D.—Needlework, inventions, patents, etc.

E.—Library.

F.—Benevolent Institutions.

G.—Editorial Office of "The New Century for Women."

H—Committee Rooms.

I.—Dressing Room.

J.—Kindergarten.

Total Length, 208 ft. Width, 208 ft. Height of Nave, 41 ft. Height of Dome, 67 ft.
No. 153. WOMEN'S PAVILION.

Architect, H. J. SCHWARZMANN.—Size, 26,368 square feet.

This pavilion was erected by money raised through the exertions of the women of the United States, and is devoted exclusively to the results of women's labor. It is built of wood, and is situated on Belmont avenue, adjacent to the Horticultural grounds.

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Twenty-eighth, .......... Mrs. T. J. Davis.
Twenty-ninth, ............ Mrs. W. B. Mann.
Thirty-first, ............. Mrs. E. H. Ryan.
Furniture, Laundry Appliances, Woven Goods.

Ceramics—Pottery, Porcelain, Glass, etc.

1 Hoopes, Ellen C., Soho Pottery, Pittsburg, Pa.—Ironstone china toilet set. Sec. B. 210

Furniture and Objects of General Use in Construction and in Dwellings.

2 Olson, Christine, Chicago, Ill.—Organ and table made of three thousand pieces of wood. Sec. D. 217

3 Stiles, Mrs. E. W., Philadelphia, Pa.—Combination desk and book paper file. Sec. D. 217

4 Chapman, Miss Laura M., Friendship, N. Y.—Lap table. Sec. D. 217

5 Spofford, Mrs. Jennie H., Philadelphia, Pa.—Mattress supporter, mosquito bar. Sec. D. 217

7 James, Mary I., Cambridge, Mass.—Holly wood chess table. Sec. A. 217

8 Page, Mrs. Elizabeth M., Philadelphia, Pa.—Dirt catcher. Sec. D. 217

9 Steele, Mrs. M. W., Woodbury, N. J.—Toy set, quilt furniture. Sec. B. 217

10 Dickerson, Mrs. Y. G., Belfast, Me.—Embroidered camp chair, foot rest, and sofa pillow. Sec. D. 217


12 Cowen, Mrs. S. J., Hartford, Conn.—Book case. Sec. D. 217

13 Williams, Mrs. G. A., Baltimore, Md.—Leather table with checker board. Sec. D. 217

14 Phillips, Mrs. Richmund L., New York, N. Y.—Table painted in water colors. Sec. D. 217

15 Ladd, Miss Gertie, North Hero, Vt.—Student’s book-frame. Sec. D. 217

16 Allen, Mary W., Cambridge, Mass.—Chess table, with pen and ink sketches. Sec. D. 217

17 Story, Miss Mary, Cambridge, Mass.—Chess table, with etchings. Sec. D. 247

18 Women’s Executive Committee of Wisconsin.—Easel. Sec. D. 217

19 French, Julie Blanche, Boston, Mass.—Bedstead containing drawers, interior safe, etc. Sec. D. 217

20 Davey, Mrs. Israel, Brandon, Vt.—Slatted stand tops and panels. Sec. A. 217

21 Mitchell, Mrs. Carrie, Normal, Ill.—Combined bureau, table, cupboard, and sink. Sec. D. 217

22 Bulfinch, Miss Ellen S., Cambridge, Mass.—Book rack, with pen and ink etchings. Sec. A. 220

23 Smith, Mrs. O., Chicago, Ill.—Range. Sec. D. 222

24 Sherwood, Amanda S., Philadelphia, Pa.—Griddle greaser. Sec. D. 224

25 Fox, Jane Ann, Stamford, N. Y.—Dish draining pan. Sec. D. 224

26 Whitman, Mrs. E. J., Oakland, Cal.—Kettle and pan scraper. An indispensable article for kitchen use. State rights for sale. Sec. D. 224

27 Boynton, Mrs. E. E., Evanston, Ill.—Tea kettle one hundred years old. Sec. D. 224

28 Kelsey, Phoebe M., Philadelphia, Pa.—Meat tenderer. Sec. D. 224

29 Steiger, Mrs. Hannah, Laurel, Md.—Lock barrel cover. Sec. D. 224

30 Hunkins, Mrs. D. Grace, Allegheny, Pa.—Punching pin, containing ten articles used in cooking. Sec. D. 224

31 Sterling, Mrs. Charlotte, Gamba, O.—Dish washer. Sec. D. 224

32 Wells, Miss Glory Anna, Luzerne, Pa.—Glass washing machine. Sec. D. 224

33 Inesly, Susan V., New York, N. Y.—Reversible sad iron stand. Sec. D. 225

34 Short, Mrs. S., Cincinnati, O.—Blanket washer, mangle, ironer, paint cleaner, and stretcher for drying curtains, etc. Sec. D. 225

35 Ball, Mrs. S. P., Philadelphia, Pa.—Gas smoothing iron. Sec. D. 225

36 Tremper, Miss Marietta, New York, N. Y.—Window-washing machine. Sec. D. 225

37 Colvin, Margaret F., Battle Creek, Mich.—Triumph rotary washing machine, combining three principles: 1st, forcing steam through the goods—a powerful detergent; 2d, revolving in hot suds, with a constant change of position; 3d, the alternate elevation and falling of the goods is equivalent to light pounding. This machine is the successful result of years of experiment by a practical woman, to accomplish the perfect cleansing of all fabrics, from carpets to laces, without rubbing. With this machine, a child of twelve years can do more work, and do it better, than two women by ordinary methods. Sec. D. 226

38 Bancroft, Sarah H., Media, Pa.—Bathing chair. Sec. D. 226

39 Griswold, Mrs. Ellen D., Hagers-town, Md.—Sash fastener. Sec. D. 227

40 Reibert, Babetta, Montgomery, S. C.—Bell pulls. Sec. D. 227

41 Anderson, Miss Ellen D., Frederick, Md.—Shutter fastener. Sec. D. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

42 Collignon Bros., New York, N. Y.—Cane-seat work, made by women. Sec. D. 229

Woven and Felted Goods of Wool, etc.

43 Wilkinson, Mrs. James A., Providence, R. I.—Yarn from the hair of an Esquimaux dog. Sec. D. 235

44 Bates, Mrs. Edward, Newport, R. I.—Hand spinning and carding of wool and flax. Sec. D. 235

45 Shapleigh, Mrs. E. B., Philadelphia, Pa.—Hand-made rug. Sec. D. 239

46 Ham, Miss Amanda S., Rochester, N. Y.—Rag rug. Sec. D. 239

47 Wingate, Mrs. J. F., Hampton, N. H.—Rag rugs. Sec. D. 239

Clothing, Jewelry, and Ornaments; Traveling Equipments.

48 Drury, Mrs. L., Springfield, O.—Dress cutting system. Sec. D. 250

For location of objects, see ground plan, p. 83.
SPECIAL BUILDINGS.

Clothing, Embroideries, Laces, Fancy Articles.

50 Union Benevolent Society, Philadelphia, Pa.—Infants' clothing. Sec. D. 250
51 Jones, Mrs. M. A., Philadelphia, Pa.—Children's clothing, dress-cutting system. Sec. D. 250
52 Tardy, Mrs. C., Paterson, N. J.—Infants' dressing corset. Sec. D. 250
53 Brosse, Madame S. C., San Francisco, Cal.—Models for self-measurement. Sec. D. 250
54 Keyser, Mrs. E., Philadelphia, Pa.—Misses' clothing and infants' outfits. Sec. D. 250
55 Harman, Mrs. E. F., New York, N. Y.—Dress and pattern designer. Sec. D. 250
56 Cornwell, Mrs. Elmira, Philadelphia, Pa.—Self-fitting chart, and patterns for cutting ladies' and children's clothing. Sec. D. 250
57 Overend, Rebecca C., Fairlee, Md.—Tippet and muff from pod of wild cotton. Sec. B. 250
58 Livingstone, L. M., New York.—Garment cutting, tailors' system. Sec. D. 250
59 Flynt, Mrs. Olivia P., Boston, Mass.—Weather protector, linen duster, skirts, and under garments. Sec. D. 250
60 Stearns, Mrs. A. B., Woburn, Mass.—Diagrams for cutting dresses and shirts. Sec. D. 250
62 Dyer, Miss Fannie E., Providence, R. I.—Child's apron. Sec. D. 250
63 Merritt, Mrs. Jane E., Brooklyn, N. Y.—Cape made from the silk of the milk weed pod. Sec. B. 250
64 Gardiner, Miss Mary Jane, Warwick, R. I.—Trimming cutter. Sec. D. 250
65 Blauvelt, Mrs. Mary, New York, N. Y.—Marking and cutting gauge for tailors and dressmakers. Sec. D. 250
66 Kellogg, Mrs. D. G. M., Keokuk, Ia.—Hosiery. Sec. B. 250
67 Forsyth, Mrs. S. M., Manchester, Ia.—Hosiery. Sec. B. 250
68 Champney, Mary H., Billerica, Mass.—Stockings knit at ninety-eight years of age. Sec. D. 250
69 Lovering, Mrs. Abigail F., Oxford, Me.—Mittens knit at the age of one hundred years and four months. Sec. D. 250

70 Women's Centennial Committee of Lowell, Mass.—Lowell hosiery. Sec. D. 250
71 Robbins, L. E., Boston, Mass.—Diagram for cutting dresses. Sec. D. 250
72 Employment Society, Providence, R. I.—Sec. D.
   a Infant's shirt, child's skirt, and afghan. 250
   b Embroidered flannel skirt. 252
73 Bonney, Sarah E., Sterling, Mass.—Sec. E.
   a Muff, boa, and cap. 250
   b Feather fans. 254
74 Shaw, Mrs. James, jr., Providence, R. I.—Infant's socks. Sec. D. 251
75 Summer, Mrs. Sallie O., Providence, R. I.—Mittens. Sec. D. 251

76a Conant, Mrs. Orpha, Dwight, Ill.—Hat of common grass, gathered, bleached, and sewed in her eighty-fourth year. Sec. D. 251
76b Todd, Miss Lizzie, Columbus, O.—Embroidery. Sec. D. 252
77 Marsh, Mrs. Charles P., Woodstock, Vt.—Embroidered for camp chair. Sec. D. 252
78 Bach, Jennie & Flora, Philadelphia, Pa.—Embroidered table cover. Sec. D. 252
79 Lucas, Mrs. Mary, Charlotte, N. C.—Lace trimmed and embroidered handkerchief. Sec. D. 252
80 Paul, Mrs. C. F., Saratoga Springs, N. Y.—Honiton collar and lace. Sec. D. 252
81 Beach, Edith, West Hartford, Conn.—Child's rug. Sec. D. 252
82 Brush, Miss Jennie, New York, N. Y.—Embroidered lambsquins. Sec. D. 252
83 Todd, Miss Lizzie, Columbus, O.—Embroidered shawls and saucy. Sec. D. 252
84 Ladies of Immanuel Church, Bel- lows Falls, Vt.—Needlework. Sec. D. 252
85 St. John's Guild, New Haven, Conn.—Ecclesiastical embroidery. Sec. D. 252
86 Burton, Susie, Laurel, Md.—Tapestry picture: Joseph presenting his Father to Pharaoh. Sec. D. 252
87 Jones, Anna S., Worcester, Mass.—Tatted cushion cover. Sec. D. 252
88 Luce, Miss Caroline, Washington, D. C.—Honiton lace. Sec. D. 252
89 Weld, Mrs. William G., Boston, Mass.—Embroidered panels; imitation of antique lace. Sec. D. 252
90 Skuse, M. J. & F. A., Boston, Mass.—Irish point lace. Sec. D. 252
91 Shepherd, Mrs. Emeline, Northampton, Mass.—Embroidered handkerchief. Sec. D. 252
92 Jones, Miss Anna, Worcester, Mass.—Cushion cover. Sec. D. 252
93 Leonard, Miss Louise, New Bedford, Mass.—Lace ends for necktie. Sec. D. 252
94 Fay, Sarah R., Lancaster, Mass.—Embroidered blanket. Sec. D. 252
95 Hathaway, Mrs. Mary, New Bedford, Mass.—Embroidered scarf. Sec. D. 252
96 Nye, Mrs. Clement D., New Bedford, Mass.—Lace necktie. 252
97 Women's Executive Committee of Wisconsin.—Seal of Beloit College, embroidered on white satin. Sec. D. 252
98 Brown, Nettie, Keokuk, Ia.—English point guipure. Sec. D. 252
99 Leigerot, Mrs. Marie, Keokuk, la.—Thread lace. Sec. D. 252
100 Clothier, Miss Minnie J., Nevada, la.—Honiton point. Sec. D. 252
101 Scott, Mrs. T. R., Burlington, la.—Point lace bertha; handkerchief of Honiton point. Sec. D. 252
102 Scott, Mrs. John, Keokuk, Ia.—Guipure barb. Sec. D. 252

For location of objects, see ground plan, p. 83.
Embroideries, Laces, Fancy Articles.

103 Young Ladies' Society, Grinnell, Pa.—Baby blanket; Bible cushion. Sec. D. 252

104 Little, Miss, Hagerstown, Md.—Old Spanish lace. Sec. D. 252

105 Larkum, Mrs. Edward, Providence, R. I.—Crochet tidy. Sec. D. 252

106 Arnold, Mrs. John H., Pawtucket, R. I.—Pincushion cover and tidies in antique lace. Sec. D. 252

107 Bradley, Mrs. N. M., Providence, R. I.—Emroidered suspenders. Sec. D. 252

108 Kelley, Miss Lina, Providence, R. I.—Pincushion cover in antique lace. Sec. D. 252

109 Torrey, Miss, Baltimore, Md.—Guipure lace tidies. Sec. D. 252

110 Whitehead, Mrs. C. E., New York, N. Y.—White lace. Sec. D. 252

111 Reynolds, Mrs. W. H., Providence, R. I.—Embroidered flannel skirt. Sec. D. 252

112 Jessop, Mrs. Henry, Brooklyn, N. Y.—Honiton lace; English and Irish point lace. Sec. D. 252

113 Hassam, Miss Harriet A., Frederick, Md.—Embroidered ribbon. Sec. D. 252

114 Mordecai, Miss Rosa, Philadelphia, Pa.—Parasol cover, tatted to imitate Irish lace. Sec. D. 252

115 Taylor, Miss, Baltimore, Md.—Darning on cloth. Sec. D. 252

116 Ralston, Miss Florence, Providence, R. I.—Tatted tidy. Sec. D. 252

117 Hoard, Mrs. John W., Providence, R. I.—Netted tidy. Sec. D. 252

118 Congdon, Miss C. A., Providence, R. I.—Children's afghans. Sec. D. 252

119 Carroll, Mrs. Andrew J., Providence, R. I.—Netted shawl, Afghan, and embroidered handkerchief. Sec. D. 252

120 Walker, Mrs. Victoria, Providence, R. I.—Embroidered carriage robe and child's skirt. Sec. D. 252


122 Cheeny, Miss Daisy, East Greenwich, R. I.—Tatted tidy. Sec. D. 252

123 Wiggan, Mrs. Abby N., Providence, R. I.—Button holes in silk. Sec. D. 252

124 Brown, Miss Fanny G., Providence, R. I.—Embroidered sofa pillow. Sec. D. 252

125 Fuchs, Helene, St. Louis, Mo.—Embroidered lace dress. Sec. D. 252

126 States, Mrs. E. J., Boston, Mass.—Embroideries and infants' dresses. Sec. D. 252

127 Bravo, Miss Sofia, St. Augustine, Fla.—Pincushion cover and Spanish needle work. Sec. B. 252

128 King, Mrs. Henry, Georgetown, D.C.—Embroidered cashmere shawl. Sec. D. 252

129 Weiller, Julia, Philadelphia, Pa.—Embroidered picture. Sec. D. 252

130 Noot, L., New York, N. Y.—Hand-made laces. Sec. C. 252

131 Whitesides, Mrs. E. G., Philadelphia, Pa.—Braiding and embroidery. Sec. D. 252

132 McCarthy, Miss Eva, Washington, D. C.—Piano cover. Sec. D. 252


134 Anthony, Mrs. Sarah E., Smyrna, Del.—Embroidered picture. Sec. D. 252

135 Smyth, Mrs. M. H., Philadelphia, Pa.—Embroidery and lace mending. Sec. D. 252

136 Auerbach, Mrs. Annie T., Troy, Ala.—Embroidered white satin spread. Sec. D. 252

137 Stansbury, Mrs. J. C., Jersey City, N. J.—Thread lace. Sec. D. 252

138 Shepherd, Mrs. E. M., Northampton, Mass.—Embroidery and lace. Sec. D. 252

139 Heubel, Miss Melanie, Philadelphia, Pa.—Embroidered picture. Sec. D. 252

140 Huston, Mrs. A. B., Cincinnati, O.—Embroidered motto. Sec. A. 252

141 Purkis, Miss E. W., Providence, R. I.—Sec. B.

a) Tatting in thread and silk. 252

b) Cross in spatter work. 252

142 Palmer, Mrs. John S., Providence, R. I.—Sec. D.

a) Tidy and barb in tatting. 252

b) Tidy in spatter work; cross made from pith of Japan rose. 252

143 Welsh, Mrs. A. S., Ames, Ia.—Embroidered dressing gown, fire screen, and toilet cushion. Sec. D. 252

144 Piaisted, Miss Anna D., Dubuque, Ia.—Sachet and needlework. Sec. D. 252

145 Toole, Mrs. J. C., Dubuque, Ia.—Embroidered table cover. Sec. D. 252

146 Sheffield, Mrs. S. K., Dubuque, Ia.—Embroidered footstool. Sec. D. 252

147 Smythe, Miss Dora A., Dubuque, Ia.—Embroidered pin cushion. Sec. D. 252

148 Parrott, Mrs. Natt, Waterloo, Ia.—Pillow shams. Sec. D. 252

149 Guilbert, Mrs., Waterloo, Ia.—Hand sewing. Sec. D. 252

150 Gray, Mrs. John H.—Chenille work. Sec. D. 252

151 Lovejoy, Mrs. Perley R., Mt. Washington, Md.—Sec. D.

a) Handkerchief, transferred work. 252

b) Sachet and wild flowers embroidered on satin. 252

152 Davey, Mrs. Israel, Brandon, Vt.—Sec. A.

a) Jewelry. 253

b) Fancy weights. 254

154 Walcott, Eloise B., Boston, Mass.—Indian basket work. Sec. D. 254

155 Nye, Miss Mary, New Bedford, Mass.—Mats for finger bowls. Sec. D. 253

156 Abbe, Mrs., New Bedford, Mass.—Toilet cushions and mats. Sec. D. 254

For location of objects, see ground plan, p. 83.
Fancy Articles, Stationery, Medicine.

157 Kesiah, Margaret, Saratoga, N. Y.—Indian work. Sec. B. 254
158 Scott, Miss S., Nevada, Ia.—Toilet box. Sec. D. 254
159 Dodge, Mrs. A. C., Dubuque, Ia.—Counterpane with India ink designs. Sec. D. 254
160 Sisters of the Visitation, Ottawa, Ia.—Chenille flowers and toilet cushion in fish scale work. Sec. D. 254
161 Burdie, Mrs. A. S., Des Moines, Ia.—Miss roses. Sec. D. 254
162 Iowa College for the Blind.—Fancy work by pupils. Sec. D. 254
163 Ward, Hetta L. H., Newark, N. J.—Violet pin and ear rings. Sec. B. 254
164 Jacquemin, Mrs. Eliza F., St. Louis, Mo.—Artificial flowers. Sec. B. 254
165 Kohn, Miss Annette, New York, N. Y.—Autograph album. Sec. B. 254
166 Candeel, Mrs. Charles T., New Haven, Conn.—Pansies in wool. Sec. D. 254
167 Vogel, A. C., Washington, D. C.—Crimping and curling pin. Sec. D. 254
169 Wilhelm, Mrs. A. C., Philadelphia, Pa.—Screw button for shoes, gloves, etc. Sec. D. 254
170 Parkhill, Miss Harriet R., Jackson-ville, Fla.—Ornaments and flowers made of fish scales. Sec. D. 254
171 West, Miss Julia M., Bristol, R. I.—Cross in spatter work. Sec. B. 254
172 Atwater, Miss Carrie A., New Haven, Conn.—Paper cut with scissors in imitation of lace. Sec. B. 254
173 Bailey, H. F., Walworth, Wis.—Ornamental paper cuttings. Sec. B. 254
174 Schmidt, Josephine, Baltimore, Md.—Satin tidy, painted in oil. Sec. A. 254
175 Dunning, Miss, Canaan, Conn.—Wooden tray, decorated. Sec. A. 254
176 Pierce, Mrs. Mary R., Philadelphia, Pa.—Thread and needle bank. Sec. C. 254
177 Requa, Emma M., New York, N. Y.—Miniature Independence Bell. Sec. B. 254
178 Bacon, Mrs. L. C., Boston, Mass.—Decorated lamp shades. Sec. B. 254
179 Jenkins, Mrs. R. E., Bordentown, N. J.—Dolls’ shoes. Sec. B. 254
180 Martin, Mrs. J. H., Philadelphia, Pa.—Feather flowers. Sec. B. 254
181 Harley, Elizabeth G., Haddonfield, N. J.—Complete darners. Sec. D. 254
182 Yohe, Mrs. Daniel, Philadelphia, Pa.—Lamp mat. Sec. D. 254
183 Schmitt, Madam Katherine, Philadelphia, Pa.—Hair jewelry. Prize medals of 1854 and 1874. Sec. B. 254
184 Whitman, Mrs. E. J., Oakland, Cal.—Buttons that require no needle or thread. Sec. D. 254
185 Newberry, Miss Rose, New York, N. Y.—Silk scent bags, painted in water colors. Sec. D. 254
186 Brush, Miss J., New York, N. Y.—Satin lambrourkins. Sec. D. 254
187 Tremper, Miss Marietta, New York City.—Shawl strap and bag combination. Sec. D. 254
188 Laumann, Mrs. Celine, New York, N. Y.—Combined traveling bag and chair. Sec. D. 254
189 Merckell, Mrs. J. H., Chicago, Ill.—Faded mink, sable, and seal furs restored to original color. Sec. B. 254

Paper, Blank Books, and Stationery.

190 Stiles, Mrs. E. W., Philadelphia, Pa.—Revolving ink stand. Sec. D. 254
191 McNair, Linda H., Oakland, Calif.—Book marker, pencil holder, and paper cutter combined. Sec. D. 254
192 Jay, Miss Elizabeth C., New York, N. Y.—Postal stamp moistener. Sec. D. 254
193 Miller, Harriet G., Springfield, Mass.—Specimens of job printing. Sec. D. 261

Medicine, Surgery, Prosthesis.

194 Marshall, Clara, Women’s Medical College of Pennsylvania.—Materia medica cabinet and pharmaceutical preparations. Sec. C. 272
195 Blake, Mary J. S., Boston, Mass.—Surgical instrument. Sec. C. 276
196 Treadwell, Mrs. F. C., Philadelphia, Pa.—Dental work. Sec. B. 277
197 Rambour, Annie D., Philadelphia, Pa.—Dental work. Sec. B. 277

Hardware, Edge Tools, Cutlery, and Metallic Products.

198 School of Design, Cincinnati, O.—Original metal work; hinges, lockplates, handle plates, etc. Sec. A. 284
199 Goldsborough, Mrs. G. R., Queens-town, Md.—Lock. Sec. A. 284

Carriages, Vehicles, and Accessories.

200 Spofford, Mrs. Jennie H., Philadelphia, Pa.—Spring saddle. Sec. D. 296
201 Ruth, Mrs. Sarah, Philadelphia, Pa.—Sunshade for horses. Sec. D. 296

Educational Systems, Methods, and Libraries.

203 Fitts, Ellen E., Boston, Mass.—Geographical globes. Sec. D. 300
204 Covell, Miss Adelia C., New York, N. Y.—Perspective outline models for schools. Sec. D. 300
205 Bradley, Miss Anna J., Boston, Mass.—The thirteen primary forms of crystallization, made of mica. Sec. A. 301
206 Ladd, Miss Gertie, North Hero, Vt.—Music. 302
207 Woman’s Art School, Cooper Union, New York, N. Y.—Normal School Work. Sec. A. 302
WOMEN'S PAVILION.

Education, Science, Sculpture.

208 Sill, Miss Anna P., Rockford, Ill.—History, catalogues, programmes, and magazine, of Rockford Seminary. Sec. E. 304

209 Women's Centennial Committee, Providence, R. I.—Volume of Herald of the Centennial. Sec. E. 304

210 Ladd, Miss Marion, North Hero, Vt.—Manuscript tale and poem. Sec. E. 306

211 Willard, Mrs. Harriet J., Chicago, Ill.—Books and pamphlets written by Chicago ladies. Sec. E. 306

212 Cowen, Mrs. S. J., Hartford, Conn.—Mrs. H. B. Stowe's works. Sec. E. 306

213 Larned, Ellen D., Thompson, Conn.—History of Wyandham county, Conn., from 1600 to 1700. Sec. E. 306

214 Caulkins, Frances M., New London, Conn.—Histories of Norwich and New London; Literary remains of Martha Day. Sec. E. 306

215 Barrett, Elizabeth G. B., New Haven, Conn.—Poems. Sec. E. 306

216 Hillhouse, Mary, New Haven, Conn.—German Songs in English Rhyme; Hymns from the Latin. Sec. E. 306

217 Porter, Rose, New Haven, Conn.—Miscellaneous literature. Sec. E. 306

218 Smith, Julia E., Glastenbury, Conn.—Translation of the Bible. Sec. C. 306

219 Harbert, Elizabeth B., Evanston, Ill.—Books. Sec. C. 306

220 Women's Centennial Committee of Massachusetts.—Books edited, compiled, and translated by Massachusetts women. Sec. C. 306

221 Hale, Sarah Josepha, Philadelphia, Pa.—Books. Sec. C. 306

222 Stone, Lucy, Boston, Mass.—"Women's Journal" and pamphlets. Sec. C. 306

223 Brotherson, Mrs. H. B. M., Peoria, Ill.—A poem. Sec. C. 306

224 Beach, Mrs. John S., New Haven, Conn.—The Spirit of Seventy-Six. Sec. C. 306

225 James, Mrs. T. P., Cambridge, Mass.—The Potts Memorial. Sec. C. 306

Institutions and Organizations.

226 Richards, Margaret C., Philadelphia, Pa.—Work of Indian women. Sec. C. 312

227 Janvier, Mary R., Northam, India.—Curiosities from India. Sec. B. 312

Scientific and Philosophical Instruments and Methods.

228 Whitmer, Mrs. Mary A. E., Philadelphia, Pa.—Multiscope. Sec. D. 324


230 Tuckerman, Mrs. Lucius, New York, N. Y.—Descriptive tablet of New York Infirmary and Medical College for Women. Sec. E. 346

231 Women's Centennial Committee of Massachusetts.—Photographs of New England Hospital, New Bedford Orphans' Home, New Bedford Mariners' Home, Lowell Old Ladies' Home. Sec. A. 346

Sculpture.

232 Guild, Mrs. Emma C., Waltham, Mass.—Sketch in plaster. Sec. A. 400

233 Nevin, Blanche, Philadelphia, Pa.—Plaster models: Eve; Cinderella. Sec. A. 400

234 Whitney, Anne, Belmont, Mass.—Bronze bust. Sec. A. 400

235 Massachusetts State Normal Art School.—Casts; historical ornaments, flowers in relief, medallion portraits, bas-relief of antique figure. 400

236 Freeborn, Sarah M., New York, N. Y.—Sec. A.
a Sculpture, Vision of St. Christopher. 401

b Bas-reliefs in silver. 401

237 Ward, Emily Winthrop, New York, N. Y.—Bas-relief in plaster, Gates of Life. Sec. A. 401

238 Perkins, Mrs. E. W., Boston, Mass.—Sec. A.
a Bas-relief on stone jug. 401

b Carved cabinet and footstool. 401

239 Wilsey, Mrs. A. W., Syracuse, N. Y.—Little old folks and chair, cut with a penknife. Sec. A. 405

240 Hewett, Mrs. Milwaukee, Wis.—Carved ebony book form. Sec. E. 405

241 Patterson, Mrs. S. C., Baltimore, Md.—Wall clock, cut with a penknife; salad fork and spoon. Sec. A. 405

242 Cutler, Misses N. M. & M. A., Providence, R. I.—Carved wall pocket, glove box, hanging cross, and frame. Sec. A. 405


244 Women's State Centennial Committee, Wisconsin.—Memorial shrine of carved ebony. Sec. A. 405

245 Schools of Drawing and Design, Lowell, Mass.—Carved frame. 405

246 Brainard, Miss M. M., Worcester, Mass.—Wood carving. Sec. A. 405

Collective Exhibit of Carved Work, Painting, etc., from Ladies of the Cincinnati School of Design, Cincinnati, O. (Sec. A.)

247 McLaughlin, Miss M. Louise.—Bust of female head: The Pleasing Thought. 400

248 Banks, Miss Fannie M.—Carved Estey organ. 405

249 Pitman, Miss Agnes.—Carved piano. 405

250 Pitman, Mrs. & Miss.—Carved oak door, ebony inlaid and black walnut door. 405

251 Johnson, Misses H. & M.—Carved black walnut bedstead, ebony inlaid. 504

252 Huston, Mrs. A. B.—Carved dining-room mantel. 405

For location of objects, see ground plan, p. 83.
Wood Carvings.

253 Pitman, Mrs. & Miss.—Carved dining-room shelves. 405
254 Barrett, Mrs. T. M.—Carved cabinet. 405
255 Pitman, Mrs. Agnes.—Carved hanging cabinet, ebony inlaid. 405
256 Tidball, Miss Flora.—Child's carved bedstead. 405
257 Pitman, Miss Agnes.—Carved chest of drawers, and mantel bracket, ebony inlaid. 405
258 Pack, Miss Mary L.—Carved oak secretary cabinet. 405
259 White, Mrs. A.—Carved dressing bureau. 405
260 Caldwell, Miss Hattie D.—Carved altar cross. 405
261 Johnson, Misses Hattie & Mary.—Carved hanging cabinet, picture frames, wall pocket. 405
262 Cooper, Miss Alice.—Carved "prie-dieu" and stool. 405
263 Jordan, Miss Laura B.—Carved mahogany hanging cabinet. 405
264 Abbott, Mrs. E. F.—Carved dressing stand. 405
265 Rice, Miss Julia H.—Carved parlor table. 405
266 Laws, Miss Lizzie T.—Carved gothic flower stand. 405
267 Gurley, Miss Clara.—Carved writing desk. 405
268 Collard, Miss Helen.—Carved ebonized book covers. 405
270 Hirst, Miss Claude R.—Carved parlor casel and jewel casket. 405
271 Banks, Miss Fanny M.—Carved flower stand. 405
272 DePilgrom, Miss V.—Carved black walnut bedstead. 405
273 Barrett, Mrs. S. M.—Carved chess table and picture frame. 405
274 Pitman, Miss Agnes.—Carved hanging secretary, walnut and ebony. 435
275 White, Mrs. A.—Carved picture frame. 435
276 Collard, Miss Isora.—Carved book racks and casket. 435
278 McDowell, Miss W. H.—Carved gothic book frame. 435
279 Huston, Mrs. A. B.—Carved dog kennel frame. 435
280 Dominick, Mrs. G.—Carved cherry wall pocket and casket. 435
281 Tidball, Miss Flora J.—Carved flower stand. 435
282 Collard, Miss Helen.—Carved picture frame. 435
283 Vallandingham, Miss N.—Gentleman's carved dressing stand. 435
284 Collier, Miss Lizzie M.—Carved tea pot rest. 435
285 Hesser, Mrs. C. F.—Carved flower stand. 435
286 Huston, Mrs. A. B.—Carved bread plate. 435
287 Stern, Miss Jessie.—Carved wall pocket and card receiver. 435

288 Donnelly, Miss A.—Carved flower stand and picture frame. 405
289 Drake, Miss Ada P.—Carved jardinière. 405
290 Swift, Miss Mary P.—Carved writing desk. 405
291 McCloskey, Miss Lizzie.—Carved wall pocket and photograph frame. 405
292 Collard, Miss H. A.—Carved trencher, picture frame, and flower stand. 405
293 Pitman, Miss A.—Carved fruit plate and card receiver, library stool, lamp stand, and picture frame. 405
294 Dunlap, Miss Sarah.—Carved wall pocket. 405
295 Hollingshead, Miss H.—Carved casket and picture frame. 405
296 Kidd, Mrs. N. R.—Carved flower stand. 405
297 Metcalf, Miss Flora.—Carved shield. 405
298 Newell, Miss Emma.—Carved fruit plate. 405
299 Caldwell, Miss Hattie D.—Carved picture frame. 405
300 Dodd, Mrs. William.—Carved casket. 405
301 Rice, Miss M.—Carved picture frame. 405
302 Menzies, Miss R. N.—Carved corner bracket. 405
303 B rash ear, Miss Lillie.—Carved parlor casel. 405
304 Scudder, Miss Tillie.—Carved medicine cupboard. 405
305 Doherty, Miss Clara.—Carved fruit plate. 405
306 Tazner, Miss Augusta.—Carved rocking chair. 405
307 Moore, Miss A. G.—Carved flower stand. 405
308 Kemper, Mrs. Theodore.—Carved tray. 405
309 Shaler, Miss Minnie.—Carved chess board and picture frame. 405
310 Merril, Miss Susie.—Carved flower stand and carved and painted bracket. 405
311 Temple, Mrs. O. H.—Carved picture frame and wall bracket. 405
312 Brash ear, Miss Lillie.—Carved flower stand. 405
313 Stribley, Miss May.—Carved picture frame and casket. 405
314 Taturn, Miss Lizzie.—Carved flower stand. 405
315 Huston, Mrs. A. B.—Painted slate panels. 410
316 Barrett, Mrs. S. M.—Silver bronze panels and oil painting. 410
317 E. rzter, Miss Claude R.—Oil painting. 410
318 Drake, Miss Ada P.—Painted tiles. 410
319 Dominick, Mrs. G.—Illumination and medieval lettering. 411

For location of objects, see ground plan, p. 83.
Warner, Miss Naidine, New York, N.Y.—Painting: Mackerel. Sec. A. 410


Cook, Miss H. M., Providence, R.I.—Painting: Snow Scene. Sec. A. 410

Burt, Mrs. Helen, New York, N.Y.—Oil paintings: Quiet Ruminations. Sec. A. 410


Paul, Miss Kate, Providence, R.I.—Beethoven and Quartette, copied in oil from an engraving. Sec. A. 410

Keep, Mrs. John R., Hartford, Conn.—Painting: Ear of Corn. Sec. A. 410

Rafter, Susan L. Johnson, Brooklyn, N.Y.—Painting: Fruit; decorated table top; Wreath of Nasturtiums. Sec. A. 410

Fraley, Miss Mollie E., Marshall, Texas.—Oil painting: Flowers. Sec. A. 410

Fraley, Miss Mary E., Marshall, Texas.—Oil paintings: Jephtha; The Murder of the Innocents. Sec. A. 410

Conant, Miss C. W., New York, N.Y.—Oil painting: The Charity Scholar. Sec. A. 410

Twombly, Mrs. John H., Madison, Wis.—Oil painting: The White Mountains, from the Conway valley. Sec. A. 410

Dalton, Miss Eleanor W., Providence, R.I.—Oil painting: Children at Play. Sec. A. 410

Martin, Mrs. S. L., Rupert, VA.—Panels, paper weights, rulers, etc., painted in oil on slate, and enamelled. Sec. A. 410

Holbrook, Harriet Jane, New York, N.Y.—Panels; Snowballs; Cactus; fruit-piece in oil, and portraits of Lady and Gentleman. Sec. A. 410

Hine, Franc E., Saratoga Springs, N.Y.—Flowers on slate panel. Sec. A. 410

Donaldson, Lucy, Baltimore, Md.—Panels; Wild Flowers; Roses. Sec. A. 410

Williams, Mary E., Salem, Mass.—Oil paintings: Roman Beggar; An Alchemist; Autumn Wild Flowers of New England. Sec. A. 410

Anthony, Miss Margaret M., Providence, R.I.—Oil painting: Fruit. Sec. A. 410

Studley, Mrs. Thos. E., Providence, R.I.—Child’s portrait, in oil. Sec. A. 410

Stephens, Miss Maud, New York, N.Y.—Oil paintings: Autumn Leaves; A Picture within a Picture. Sec. A. 410

Porter, Miss Rebecca T., New Haven, Conn.—Oil painting: Absorbed. Sec. A. 410

For location of objects, see ground plan, p. 83.
<table>
<thead>
<tr>
<th>Paintings</th>
</tr>
</thead>
<tbody>
<tr>
<td>369 Knowlton, Helen M., Boston, Mass. — Oil painting: Paper Mills at Newton Lower Falls. Sec. A. 410</td>
</tr>
<tr>
<td>371 Wadsworth, Miss A. E., Boston, Mass. — Oil painting: Woman Washing. Sec. A. 410</td>
</tr>
<tr>
<td>372 Adams, Miss Elizabeth, Boston, Mass. — Oil painting. Sec. A. 410</td>
</tr>
<tr>
<td>373 Osborn, Miss H. Frances, Peabody, Mass. — Oil painting on panel: Apple Blossoms. Sec. A. 410</td>
</tr>
<tr>
<td>374 Callier, Miss Alice, Salem, Mass. — Oil painting on panel. Sec. A. 410</td>
</tr>
<tr>
<td>375 Lane, Miss S. M., Boston, Mass. — Oil painting: Flowers. Sec. A. 410</td>
</tr>
<tr>
<td>376 Graves, Miss L., New Haven, Conn. — Panels in oil: Pond Lilies; Fuchsias. Sec. A. 410</td>
</tr>
<tr>
<td>377 Odenheimer, Mrs. B., New York, N.Y. — Oil painting: Guinevere. Sec. A. 410</td>
</tr>
<tr>
<td>378 Telles, Sophie M., New York, N.Y. — Portraits of Linda Gilbert and P. T. Quinn. Sec. A. 410</td>
</tr>
<tr>
<td>378 a Joes, Mrs. Arthur C., Brooklyn, N.Y. — Miniature portraits. Sec. A. 410</td>
</tr>
<tr>
<td>379 Boyd, Mrs. Kate, Canastota, N.Y. — Oil paintings: Portland Light, Maine; Old Orchard Beach; Don; Brook Trout. Sec. A. 410</td>
</tr>
<tr>
<td>380 Morris, Mary Hay, Baltimore, Md. — Oil painting: Violin, Music, and Books; Fruit. Sec. A. 410</td>
</tr>
<tr>
<td>381 Nicholson, Martha A., Baltimore, Md. — Panels: Autumn Leaves; Bird. Sec. A. 410</td>
</tr>
<tr>
<td>382 Herrick, Caroline K., Orange, N.J. — Panel: Fringed Gentians. Sec. A. 410</td>
</tr>
<tr>
<td>383 Ricketts, Miss, Baltimore, Md. — Oil painting: White Grapes. Sec. A. 410</td>
</tr>
<tr>
<td>384 Pollock, Miss, Baltimore, Md. — Portrait of Samuel M. Janney. Sec. A. 410</td>
</tr>
<tr>
<td>385 Kay, Helena de, New York, N.Y. — Oil painting: Withered Golden Rod; panel: Sun Flowers. Sec. A. 410</td>
</tr>
<tr>
<td>386 Porter, Mrs. Susan C., Hartford, Conn. — Study of an Italian Girl. Sec. A. 410</td>
</tr>
<tr>
<td>387 Monks, Mary E., New York, N.Y. — Oil paintings: Calia Lilies; Water Lilies. Sec. A. 410</td>
</tr>
<tr>
<td>388 Parnham, Mrs. Sarah A., Hartford, Conn. — Oil painting: Camp in the Adirondacks. Sec. A. 410</td>
</tr>
<tr>
<td>389 Dixon, Maria R., New York, N.Y. — Oil painting: Catch me if you can. Sec. A. 410</td>
</tr>
<tr>
<td>390 Ackerman, Mary, Brooklyn, N.Y. — Oil painting: Hagar and Ishmael. Sec. A. 410</td>
</tr>
<tr>
<td>392 Scott, Mrs. E. M., Chicago, Ill. — Oil painting: Roman Boy; panel: Roses. Sec. A. 410</td>
</tr>
<tr>
<td>393 Perry, Laura C., Poultny, Vt. — Slate panels. Sec. A. 410</td>
</tr>
<tr>
<td>394 Thomas, Mrs. Annie N., New York, N.Y. — Oil paintings: Morning Glories and Fuchsias. Sec. A. 410</td>
</tr>
<tr>
<td>EXHIBIT FROM SCHOOL OF DESIGN FOR WOMEN, PITTSBURG, PA.—Sec. A. 410</td>
</tr>
<tr>
<td>397 Murtland, Mary M. — Oil paintings: Hanging Basket, Flowers. 410</td>
</tr>
<tr>
<td>398 Reed, Annie. — Oil painting, Hanging basket. 410</td>
</tr>
<tr>
<td>399 Holmes, C. — Oil painting: Flowers. 410</td>
</tr>
<tr>
<td>399 a Loomis, Eurlida. — Oil painting: Flowers. 410</td>
</tr>
<tr>
<td>400 Henderson, Annie W. — Water color paintings: Mullein, Roses. 410</td>
</tr>
<tr>
<td>401 Kerfoot, Annie. — Water color paintings: Bread and Wine; Florence. 411</td>
</tr>
<tr>
<td>402 Spring, Mary. — Water color landscapes. 411</td>
</tr>
<tr>
<td>403 Ferguson, Edith.—Water color painting: Peaches. 411</td>
</tr>
<tr>
<td>404 Halsewood, M. — Water color painting: Wild Grapes. 411</td>
</tr>
<tr>
<td>405 Darrah, Sophia T., Boston, Mass. — Oil painting: Stranded Sloop. 410</td>
</tr>
<tr>
<td>a Oil painting: Woods in Autumn. 411</td>
</tr>
<tr>
<td>406 Wood, Miss Martha J., Pittsford, Vt.—Sec. A. 410</td>
</tr>
<tr>
<td>a Oil paintings: Roman Peasant; Monk; German Interior. 410</td>
</tr>
<tr>
<td>b Painting on enameled slate: Magdalen. 413</td>
</tr>
<tr>
<td>407 Sauerwein, Loulie C., Mt. Washington, Ind.—Sec. A. 410</td>
</tr>
<tr>
<td>a Oil paintings, Indian sketches. 410</td>
</tr>
<tr>
<td>b Water color sketches. 411</td>
</tr>
<tr>
<td>408 McLaughlin, Miss M. Louise, Cincinnati, Ohio.—Sec. A. 410</td>
</tr>
<tr>
<td>a Painted panels. 410</td>
</tr>
<tr>
<td>b Painted plates, cups, teapot, stands, etc. 413</td>
</tr>
<tr>
<td>409 Voster, Sarah H., Portsmouth, N. H.—Sec. A. 410</td>
</tr>
<tr>
<td>a Oil painting. 410</td>
</tr>
<tr>
<td>b Water color painting. 411</td>
</tr>
<tr>
<td>c Painted plates. 413</td>
</tr>
<tr>
<td>410 Nourse, Mrs., Georgetown, D. C.—Water color painting of flowers. Sec. A. 411</td>
</tr>
<tr>
<td>412 Stewart, Alice, Chicago, Ill.—Orchids and ferns in water colors. Sec. A. 411</td>
</tr>
<tr>
<td>413 Burt, Martha, New York, N. Y.—Water color painting: Homely Flowers. Sec. A. 411</td>
</tr>
<tr>
<td>414 Northam, C. Gussie, Brooklyn, N. Y.—Water color figure: Amateur Theatrical. Sec. A. 411</td>
</tr>
<tr>
<td>415 Bliss, Mrs. Lydia S., Attleboro', Mass.—Panel: Cactus in Blossom. Sec. A. 411</td>
</tr>
<tr>
<td>415 a Nourse, Mrs. J. E., Washington, D. C.—Miniature in ivory. Sec. A. 411</td>
</tr>
</tbody>
</table>

For location of objects, see ground plan, page 83.
416 Badger, Mrs. C. M., Madison, Conn.—Water color paintings: Night-Blocking Cereus and Apple Blossoms. Sec. A. 411
417 Grant, Miss S. A., Uxbridge, Mass.—Water color painting: Flowers. Sec. A. 411
418 Chaplin, Miss Christine, Boston, Mass.—Water color painting, illustrating a poem. Sec. A. 411
419 Bullard, Miss, Worcester, Mass.—Water color painting: Newport Grasses. Sec. A. 411
420 Washburn, Mrs. H. B., East River, Conn.—Water color painting: Apples. Sec. A. 411
421 Hooper, Mrs. G. W., New Haven, Conn.—Water color design. Sec. A. 411
422 Lockwood, Minnie S., New Haven, Conn.—Water color painting: Grapes and Cardinal Flowers. Sec. A. 411
423 Davenport, Elizabeth W., New Haven, Conn.—Water color painting: Cardinal Flowers and Clematis. Sec. A. 411
424 Ward, Hetta L. H., Newark, N. J.—Water color painting: From the Swamp. Sec. A. 411
425 Olmsted, Mrs. Anna M., Hartford, Conn.—Water color paintings: Dead Duck, Snow Bird, Flowers. Sec. A. 411
426 Olmsted, Miss Mamie, Hartford, Conn.—Water color painting: Dead Duck. Sec. A. 411
427 Barney, Mrs. Sarah E., Farmington, Conn.—Water color paintings: Hollyhocks and Fleur de Lis. Sec. A. 411
428 Davis, Georgie A., New York, N. Y.—Water color study: At the Prison Window. Sec. A. 411
429 Bradford, Anne H., West Winsted, Conn.—Water color painting: First Chickens of the Season. Sec. A. 411
430 Lyman, Miss Abby, New Haven, Conn.—Water color drawings: Blackberry Blossoms, Apple Blossoms, Daisies, Crab-apples, Rocks and Ferns. Sec. A. 411
431 Burton, Mrs. Mary H., Hartford, Conn.—Water color painting: Autumn Field Flowers. Sec. A. 411
432 Dunning, Miss M., Canaan, Conn.—Tiles painted on wood. Sec. A. 411
433 Franklin, Mrs. Anna L., Hartford, Conn.—Water color copy: Turin. Sec. A. 411
435 Porter, Miss Sarah, Farmington, Conn.—Tiles painted on wood. Sec. A. 411
436 Burton, Mrs. Mary H., Hartford, Conn.—Water color copies: Italian Paint- ants. Sec. A. 411
437 Warner, Mrs. George, Hartford, Conn.—Water color painting: Daisies. Sec. A. 411
438 Klippart, Josephine, Columbus, O.—Water color painting. Sec. A. 411
439 Ladies’ Centennial Committee, Worcester, Mass.—Paintings. Sec. A. 411
440 Blakemore, Mrs. J. W., Philadelphia, Pa.—Water color painting. Sec. A. 411
441 Gordon, Margaret S. G., Philadelphia, Pa.—Water color paintings. Sec. A. 411
442 Robbins, Miss Ellen, Boston, Mass.—Decorated china. Sec. A. 413
443 Marquand, Miss Laura M., Boston, Mass.—Decorated china. Sec. A. 413
444 Shippen, Mrs. R. R., Boston, Mass.—Decorated porcelain table top. Sec. A. 413
445 James, Mary I., Cambridge, Mass.—Painting on porcelain. Sec. A. 413
446 Homans, Miss S. E., Boston, Mass.—Painted porcelain. Sec. A. 413
447 McLaughlin, Miss M. Louise, Cincinnati, O.—Decorated egg cups, original design. Sec. A. 413
448 Meredith, Mrs. L. P., Cincinnati, O.—Decorated plates, flowers. Sec. A. 413
450 Cunningham, Alice H., Boston, Mass.—Decorated china. Sec. A. 411

Engraving and Lithography.

451 Mitchell, Mrs. Nellie D., Philadelphia, Pa.—Pastel painting. Sec. A. 450
453 James, Mary I., Cambridge, Mass.—Pen and ink etchings. Sec. A. 450
454 West, Elizabeth J., Philadelphia, Pa.—Marking with indelible ink. Sec. D. 450
455 Hubbard, Mabel G., Cambridge, Mass.—Charcoal sketch. Sec. A. 453
456 Bell, Mrs., Philadelphia, Pa.—Color plates, lithographs. Sec. A. 450
457 Landis, Mrs. D. C., Philadelphia, Pa.—Pastel painting. Sec. A. 450
458 Phillips, E. B., Philadelphia, Pa.—Marking in indelible ink. Sec. D. 450
459 Smyth, Mrs. M. H., Philadelphia, Pa.—Indelible ink marking. Sec. D. 450
460 Torrey, Martha A., Philadelphia, Pa.—Indelible ink marking. Sec. D. 450
461 Kay, Heléna de, New York, N. Y.—Decorative drawings on wood. Sec. A. 450
462 Davis, Georgie A., New York, N. Y.—Pen and ink study: Edwin Booth as Iago; drawing on wood; Bridge of Sighs. Sec. A. 450
463 Burt, Martha, New York, N. Y.—Crayon portrait of Sothern. Sec. A. 450
464 Stone, Mary L., New York, N. Y.—Illustration of Hans Andersen’s Snow Queen, on wood; block drawing of Italian Girl. Sec. A. 450
465 Curtis, Jessie, New York, N. Y.—Pen and ink drawings: Puck; Sunday Morning; Negro Reading; proofs of drawings on wood. Sec. A. 450

For location of objects, see ground plan, page 85.
Drawings, Photographs.

466 Harrison, Mrs. Margarita W., Jersey City, N. J.—Pen and ink sketch: Santa Claus; drawings on wood: Sunset; The Listeners. Sec. A. 420

467 Nurse, Mrs. Cora S., New York, N. Y.—Humming birds drawn on wood. Sec. A. 420

468 Davis, Mrs. J. A., Providence, R. I.—Marking in indelible ink. Sec. A. 420

469 Wilson, Miss Mary, Bellows Falls, Vt.—Pencilling: Horses' Heads. Sec. A. 420

470 Barton, Isabelle, New York, N. Y.—Crayon picture: Little Wide-Awake. Sec. A. 420

471 Gay, Miss Alice, West Randolph, Vt.—Crayon picture: Pharaoh's Horses. Sec. A. 420

472 Wilson, Mrs. Robert, Easton, Md.—Crayon drawing: Olympia. Sec. A. 420

473 Atkinson, Lizzie H., Baltimore, Md.—Crayon portrait. Sec. A. 420

474 Phelps, S. Louise, East Orange, N. J.—Crayon portrait. Sec. A. 420

EXHIBIT FROM SCHOOL OF DESIGN FOR WOMEN, PITTSBURG, PA.—Sec. A.

475 Murtland, Mary M.—Crayon drawings: Discobulus, Venus of Milo, Minerva, Capid. 420

476 Loomis, Eurilda.—Crayon drawing: Apollo; anatomical drawings: original drawings by pupils. 420

477 Leavitt, Miss H. J., Boston, Mass.—Crayon portrait of Mrs. Bancroft. Sec. A. 420

478 Humphreys, Miss L. B., New York, N. Y.—Drawing on wood: "My Son's Fair Wife, Elizabeth." Sec. A. 420

479 Willets, Margarita, New York, N. Y.—Proof of drawing on glass. Sec. A. 420

480 Coman, Mrs. C. B., New York, N. Y.—Charcoal sketch: In the North Woods. Sec. A. 420

481 Tu thill, Sarah S., Farmington, Conn.—Pencil drawing: Venus of Milo. Sec. A. 420


483 Wilson, Linnie R., Philadelphia, Pa.—Crayon head: Romulus. Sec. A. 420

484 Bryant, Miss, New York, N. Y.—Drawing on stone: Morning Glory. Sec. A. 420


486 Peck, Emma A., Hartford, Conn.—Crayon portraits: A Child; A Lady in Old Fashioned Costume. Sec. A. 420

487 Messick, Mrs., Providence, R. I.—Ornamental writing: Washington's Farewell Address; Declaration of Independence. Sec. B. 420

488 Wallace, Mrs. Mary W., New York, N. Y.—Drawings on wood: The Broken Doll, Flower Gathering. Sec. A. 420

489 Chamberlain, Mrs. Agnes H., New York, N. Y.—Drawing on stone: Pitcher Plant; botanical drawings. Sec. A. 420

490 Greatorex, Eliza, New York, N. Y.—Pen and ink sketches: Houses of Oberammer; Old New York—from the Battery to Bloomingdale. Sec. A. 420

491 Commonwealth of Massachusetts, Department of Education.—Primary, grammar, high, and free evening industrial schools: drawings of pupils; Massachusetts State Normal Art School; flowers and fruit. 420

492 Schools of Drawing & Design, Lowell, Mass.—Crayon portraits of Mozart, Longfellow, and Lady Moon; Child's Head, Storks. 420

493 Bache, Miss Jennie, Brooklyn, N. Y.—Crayon picture. 420

493 a Woman's Art School, Cooper Union, New York, N. Y.—Sec. A.

a Drawings from casts, photo-crayons. 420

b Work of engraving by pupils. 420
c Work of normal teachers' class. 420

494 Earls, Rebecca H. C., Philadelphia, Pa.—Crayon portrait of Brahmin Sheshshadri; crayon study: Giraffe. Sec. A. 420

495 Burt, Miss Helen, New York, N. Y.—Drawing on wood: Little Lone Bird House. Sec. A. 420

496 Bondi, Bianca, New York, N. Y.—Sec. A.

a Drawing on stone: Two Shoes. 420

b Wood engravings. 422

497 Wormley, Mrs. Annie E., Columbus, O.—Microscopic illustrations on steel. Sec. A. 420

498 Sartain, Emily, Philadelphia, Pa.—Steel engravings; portrait of R. W. Emerson; Christ Walking on the Sea; Raising of Jairus's Daughter. Sec. A. 421

499 Liggett, Miss C. S., Saratoga Springs, N. Y.—Engraved cards, and general engravings. Sec. A. 421

500 Crane, Abby T., New York, N. Y.—Wood engravings. Sec. A. 422


502 Zoble, Mrs. Sophia G., New York, N. Y.—Wood engravings. Sec. A. 422

503 Hallock, Mary, New York, N. Y.—Wood engravings, book and newspaper illustrations. Sec. A. 422

504 Sherman, Miss F. M., New Haven, Conn.—Lithograph; Madonna and Child. Sec. A. 423

505 Clapp, Mrs. F. W., Framingham, Mass.—Photography: Views of Framingham. Sec. A. 423

506 Hunt, Mrs. Chas. S., Weymouth, Mass.—Photographs of distinguished Massachusetts women. Sec. A. 430

507 Dayton, Miss M. G., Washington, D. C.—Enamelled photographs. Sec. A. 430

508 Luther, Miss M. M., Warren, R. I.—Painted photograph: An Interior. Sec. A. 430
Industrial and Architectural Designs, etc.

513 Lowell School of Design of the Massachusetts Institute of Technology, Boston, Mass.—Designs by pupils for laces, silks, Brussels carpeting, oil cloths, printed robes, and calico. Sec. A. 430

514 Schools of Drawing & Design, Lowell, Mass.—Designs by pupils, for carpets, wall papers, handkerchiefs, etc. Sec. A. 430


516 Boyd, Mrs. Kate, Canastota, N. Y.—Designs for wall paper. Sec. D. 440


518 Stigale, Mrs. E. M., Philadelphia, Pa.—Model of cemetery enclosure. Sec. D. 441

Ceramic Decorations, Mosaics, etc.

519 Drown, Mrs. C. L., New York, N. Y.—Illuminated glass signs. Sec. D. 453

520 Vanderpool, Mrs. Emily N., New York, N. Y.—Monograms. Sec. B. 453

521 Collins, Miss Carrie L., Hartford, Conn.—Case for shaving papers, with pen and ink sketch on cover. Sec. B. 454

522 Hewett, Mrs., Milwaukee, Wis.—Illustrated poem. Sec. E. 454

523 Nourse, Mrs. Cora S., New York, N. Y.—Frame with designs in engraved proof, pencil, and color wash. Sec. B. 454

524 Davenport, Elizabeth W., New Haven, Conn.—Water color painting in silk. Sec. B. 454

525 Sterling, Mrs. E. J., Brooklyn, N. Y.—Decorated tiles. Sec. A. 454

526 Sweet, Mrs. John E., Ithaca, N. Y.—Wax flowers. Sec. B. 454

527 Ward, Susan Hayes, Newark, N. J.—Fireplace tiles, illustrating British ballads. Sec. A. 454

528 Hinds, Mrs. F. B., Providence, R. I.—Hair wreath. Sec. B. 454

529 Sahler, Miss Elizabeth, Kingston City, N. Y.—Spring and summer flowers, and autumn leaves, in wax. Sec. B. 454

530 Shellman, Miss Mary B., Westminister, Ind.—Moss and stone picture of church and graveyard. Sec. B. 454

531 Roberts, Jennie M., Chicago, Ill.—Hair wreath, flowers and fruit. Sec. B. 454

532 Greatorex, Eliza, New York, N. Y.—Illustrated books and albums. Sec. A. 454

533 Whitney, Annie H. & Alice G. Chandler, Lancaster, Mass.—Carved wooden fireplaces with painted tiles, pottery and china on the shelves, and painted above. Sec. A. 454

534 Macdaniel, Miss Fanny L., New York, N. Y.—Illustrated hymn in pressed flowers, frame of pressed flowers. Sec. A. 454

535 Brothers, Mrs. H., 80 West Seventh street, Cincinnati, O.—Wax flowers and materials for making them. Manufacturer of excelsior sheet wax, wax flowers, and materials for making them. Artist of wax work, in all its branches. Sec. B. 454

536 Jeremias, Triny, Philadelphia, Pa.—Tissue paper flowers. Sec. B. 454

537 Dickerson, Anna Mary, Philadelphia, Pa.—Shell work. Sec. B. 454

538 Heicomb, Sally N., Philadelphia, Pa.—Hair work. Sec. B. 454

539 Bickerton, Mrs. Anna B., Philadelphia, Pa.—Preserved and wax flowers. Sec. B. 454

540 McPherren, Hattie E., Millersville, Pa.—Wax cross. Sec. B. 454

541 Kampmann, Mrs. Louise, Philadelphia, Pa.—Hair work. Sec. B. 454

542 Goodwin, Alice H., Hartford, Conn.—Clipping ferns and autumn leaves. Sec. C. 454

543 Springer, Mrs. L. R., Boston, Mass.—Wax work, preserved flowers. Sec. B. 454

544 Heubel, Miss Melanie, Philadelphia, Pa.—Wax work. Sec. C. 454

545 Whittington, Fannie L., New York, N. Y.—Basket of wax flowers. Sec. B. 454

546 Wilson, Mrs. Henry C., Philadelphia, Pa.—Phantom bouquet. Sec. B. 454

547 Martin, Mrs. Edna, Cambridge, Mass.—Oil painting on porcelain and wood panel. Sec. A. 454

548 Judkins, Miss Eliza M., Cambridge, Mass.—Paintings on mica. Sec. A. 454

549 Cook, Miss H. M., Providence, R. I.—Book, with illustrations in birch bark. Sec. A. 454

550 Yoster, Sarah H., Portsmouth, N. H.—Frames of paper cuttings. Sec. A. 454

551 Bradford, Anne H., West Winsted, Conn.—Shells containing marine views. Sec. A. 454

552 Terry, Miss Jennie, Hartford, Conn.—Fans painted in water colors. Sec. A. 454

553 Gittings, Mrs. James, Baltimore, Md.—Illuminated poem. Sec. A. 454

554 Alexander, Miss E., Baltimore, Md.—Latin psalm illuminated. Sec. A. 454

555 Smith, Emily A., Baltimore, Md.—Fire screen, painted in water colors. Sec. A. 454

For location of objects, see ground plan, p. 83.

557 Denaroche, Sarah B., New York, N. Y.—Illustrated maps, for photographs; portfolio and lantern. Sec. D. 454

558 Schools of Drawing & Design, Lowell, Mass.—Decorated cups and saucers, and tiles. 454

559 Whitfill, Miss H. A., Lowell, Mass.—Decorated box and tiles. 454

560 Hales, Florence, Ridgwood, N. J.—Autumn leaves, in wax. Sec. B. 454

561 Proell, Mrs. Gustave, Gastein, Austria.—Pressed flowers, with pictures of Alpine scenery. Sec. B. 454

562 Goddard, Miss Lucy, Boston, Mass.—Glass screen, with pressed ferns. Sec. B. 454

563 Clark, Miss A. F., Worcester, Mass.—Fire screen. Sec. B. 454

564 Upton, Mrs. E. W., Peabody, Mass.—Jewel case, butterfly, and needle book, painted in water colors. Sec. B. 454

565 Graves, Miss L., New Haven, Conn.—Painted candles. Sec. B. 454

566 Lockwood, Minnie S., New Haven, Conn.—Text with illuminated border. Sec. B. 454

567 Robbins, Miss Ellen, Boston, Mass.—Illuminated mirror. Sec. B. 454

568 Hooper, Alice S., Boston, Mass.—Portfolio, box, and tray, with pen and ink sketches. Sec. B. 454

569 Hollowell, Anna D., Medford, Mass.—Illuminated mirror. Sec. B. 454

570 Hendry & Bartholomew, Ansonia, Conn.—Bird cages made by women. Sec. B. 434

Machines used in Sewing, etc.

571 Compton, Geo., Worcester, Mass.—Cotton loom for dress goods. Sec. B. 615

572 Bromley, John, & Sons, Philadelphia, Pa.—The manufacture of ingrain carpets. Sec. D. 523

573 Townsend, Mrs. G. L., Philadelphia, Pa.—Vertical handle attachment to sewing machines. Sec. D. 523

574 White, Mrs. L. S., Philadelphia, Pa.—The manufacture of confectionery. Sec. B. 582

Aerial, Pneumatic, and Water Transportation.

575 Edson, Temperance P., Dedham, Mass.—Self-Initiating lie preserver. Sec. 594

Land Animals.

576 Bonney, Sarah E., Sterling, Mass.—Stuffed birds. Sec. B. 625

577 Janvier, Mrs. Mary R., Sabathu, India.—Lammergeir, or bearded vulture. Sec. B. 635

578 Lovejoy, Mrs. Carrie P., Columbus, O.—Preserved fern leaves. Sec. B. 729

579 Ware, Mrs. M. L., Philadelphia, Pa.—Preserved flowers. Sec. B. 729

580 Davey, Mrs. Israel, Brandon, Vt.—Trailing arbutus, poppies, leaves, etc. Sec. A. 729

581 Watson, Jane, Massillon, O.—North American mosses. Sec. C. 729

582 Shaw, Miss Emma, Elmwood, R. I.—Pressed ferns. Sec. B. 729

583 Luther, Mrs. B. J., Providence, R. I.—Mosses from Narragansett Bay. Sec. B. 729

584 Parkhill, Miss Harriet R., Jackson-ville, Fla.—Florida sea-weeds. Sec. B. 729

585 Bray, Maria H., Gloucester, Mass.—Marine algae. Sec. B. 729

586 Hathaway, Mrs. P. V., Stevenson, Ill.—Native flora of Illinois. Sec. B. 729

Garden Tools, Accessories of Gardening.

587 Pierce, Mrs. Mary R., Philadelphia, Pa.—Flower stands. Sec. C. 721

588 Williams, Mrs. Jeff., St. Josephs, Missouri.—Terra-cotta hanging basket. Sec. C. 721

589 Slocum, Mrs. Martha E., New York.—Plant protector. Sec. D. 721

GREAT BRITAIN.

590 Rooke, Mrs. Henry A., London.—Coutr<e de macramé lace. 252

591 Rooke, Miss E. E., Hertfordshire.—Macramé lace. 252

592 Greene, Miss, London.—Needlework. 252

593 Palmer, Miss H. M., London.—Point lace parasol cover. 252

594 Hudson, Mrs. M. A., Buckingham.—Point lace. 252

595 Harding, Miss Caroline, Norfolk.—Embroideries. 252

596 Page, Miss Nina, London.—Needlework. 252

597 Parker, Miss M. E., Dundee.—Lace shawl; embroidered screen. 252

598 Royal School of Art Needlework, London.—Artistic needlework and embroideries in applique, crewels, and silk. 252

599 Preble, Miss Mary, London.—Oil paintings. 410

600 Wilkinson, Miss G., London.—Water color paintings. 411

601 Frere, Miss Catherine F., London.—Water color paintings, and silk fan, with water color designs. 411

Articles contributed by Her Majesty The Queen.

602 Two table napkins spun by Her Majesty. Etchings by H.M. the Queen. A table cloth embroidered and made by
WOMEN’S PAVILION.

Needlework, Laces, Paintings.


JAMAICA.

603 Nash, Mrs. Francilla, Kingston.—Dagger plant ornaments. 254

CANADA.

604 Abbey, Loretto, Toronto.—Vestments. 252

604a Beverly, Mrs., Oshawa.—Knitted shawl. 250

605 Grant, Mrs. Joseph, Aberfoyle.—Mitts and gauntlets. 251

606 Webster, Mrs. R. A., Ottawa.—Palm lace. 252

607 Scales, Mrs., Toronto.—Berlin wool work. 252

608 Gemmel, Miss A., Toronto.—Embroidered piano cover. 252

609 Zimmerman, Mrs. D., Toronto.—Bead work. 252

610 Hammond, Mrs., Hamilton.—Needlework. 252

611 Park, Miss, Waterdown.—Tatting and knitting. 252

612 Robertson, Mrs., Stratford.—Berlin wool work. 252

613 Convent of St. Joseph, Toronto.—Berlin wool work and sofa cushion. 252

614 Geddes, Mrs., Montreal.—Tapestries. 252

614a Roberts, Mrs. James S., Chelston, S. C.—Needlework: Scene from Shakspeare. 252

615 McDonald, Mrs. de B., Montreal.—Goldfin tapestry. 252

616 Carrier, Miss, Montreal.—Lace work. 252

617 Fairbanks, Miss Isabella, Halifax.—Lace. 252

618 Conner, Miss Edith, Halifax.—Lace. 252

719 Sutcliffe, Mrs., Halifax.—Needlework. 252

620 Pierce, Miss C., Halifax.—Needlework. 252

621 Rutterford, Miss I., Halifax.—Lace work. 252

621a Perley, Miss H. A., Fredericton, N. B.—Point lace. 252

622 Romans, Misses, Halifax.—Crotchett work. 252

623 Viell, Miss, Halifax.—Lace. 252

624 Farrell, Misses, Halifax.—Lace. 252

625 Renni, Mrs. C. E., Halifax.—Lace. 625

626 Pryor, Mrs. H., Halifax.—Fancy work. 252

627 Farrell, Mrs. K., Toronto.—Worsted work. 252

628 Crawford, Miss, Toronto.—Tatting braid. 252

629 Nunn, Mrs., Belleville.—Point lace. 252

630 Cramer, Miss, Toronto.—Embroidery. 252

631 Brown, Miss, Brampton.—Needlework. 252

632 Strickland, Misses, Oshawa.—Embroidery. 252

633 Vean, Miss M., Oshawa.—Embroidery. 252

634 Hooper, Miss Ellen, Oshawa.—Lace work. 252

635 West, Mrs., Ottawa.—Berlin wool work. 252

636 Heslop, Mrs., Toronto.—Fancy wool work. 252

637 Barclay, Mrs., Toronto.—Fancy wool work. 252

638 Norman, Miss, Hamilton.—Lace work. 252

639 Abbey, Loretta, Toronto.—Silk embroidery. 252

639a Jardine, Miss E., Richibucto, N. B.—Point and net lace. 252

640 Elleson, Annie, Toronto.—Fancy work. 254

641 Epouse, Miss L., Halifax.—Fancy work. 254

642 Hartshorne, Mrs., Halifax.—Fancy work. 252

643 Gilpin, Mrs., Halifax.—Fancy work. 254

645 Neville, Mrs., Ottawa.—Leather work. 255

646 Constant, Mrs., Halifax.—Leather work. 255

647 Mitchell, Miss M. A., Toronto.—Leather work. 255

648 Convent of the Sacred Heart, Province of Quebec.—Plan of the institution. 309

649 Convent of Lachine, Province of Quebec.—Plan of the institution. 309

650 Convent of Joliet, Province of Quebec.—Plan of the institution. 309

651 Convent of Good Shepherd, Province of Quebec.—Plan of the institution. 309

652 Convent of Jesus Maria, Province of Quebec.—Plan of the institution. 309

653 Convent of Hochlaya, Province of Quebec.—Plan of the institution. 309

654 Congregation of Notre Dame, Province of Quebec.—Plan of the institution. 309

655 Convent of St. Hyacinthe, Province of Quebec.—Plan of the institution. 309

656 Asile de la Providence, Montreal.—Plans of buildings. 309

657 Glassford, Mrs., Morrisburg.—Oil paintings. 410

658 Smelan, Mrs., Toronto.—Oil paintings. 410

658a James, Mrs. J. A., Richibucto, N. B.—Paintings. 410

658b Mazen, Mrs. E. M., Fredericton, N. B.—Oil painting. 410

658c Water color painting. 411

659 Chamberlain, Mrs., Ottawa.—Water color paintings. 411

For location of objects, see ground plan, p. 83.
SPECIAL BUILDINGS.

Paintings, Fancy Articles, Embroideries.

660 Whitney, Miss, Montreal.—Pictures. 411
661 Harrison, Mrs., Montreal.—Pictures. 411
662 Bourne, Miss Bessie, Halifax. — Paintings. 411
663 Kent, Miss, Toronto.—Painting. 411
664 Morrison, Mrs., Opera House. — Photographs of buildings. 430
665 Stephenson, Mrs. E. J., St. John, N. B. — (a) Inlaid table. 452
— (b) Hair pictures. 454
666 Farquhassen, Miss, Whitby.—Painting in velvet. 454
667 French, Mrs. B., Prescott.—Canadian autumn leaves. 454
668 Tully, Mrs. K., Toronto.—Moss picture. 454
669 Baird, Mrs. A. G., Toronto.—Moss picture. 454
669a Comens, Loretta, Toronto.—Wax flowers. 454
669b Warren, Mrs. E. J., St John, N. B.—Bark pictures. 454

TASMANIA.

670 Meredith, Hon. Mrs., Orford.—Oil painting, Tasmanian fish. 410
671 Hull, Mrs. Hugh M., Hobart Town.—Avoca, in Tasmania, by Moonlight. 420
672 Meredith, Hon. Mrs., Orford.—Table top with flowers. 45
673 Graves, Mrs. John, Woodcock.—Table top with Tasmanian ferns. 454
674 Hope, Miss Mary, Hobart Town.—Table top with Tasmanian flowers. 454
675 Blyth, Miss, Hobart Town.—Table top with Tasmanian flowers. 454
676 Mitchell, Mrs., Swansea.—Gum from oyster bay pine tree. 633
677 Thompson, Mrs. John, Cormiston.—Native bread. 621

FRANCE.

678 Talhouchet, Roy, Mrs., Paris.—Silk embroidery. 225
679 Menon, Mrs. Marie, Directress of the Levallou-Perret School for Drawing and Painting, Paris.—Pupils' work. 300
680 Chateau de Villiers, Young Ladies' Institute, Paris.—Pupils' work. 300
681 Rouger, Miss Jeanne, Paris.—Oil painting: The Animal Merchant. 410

BELGIUM.

682 Everaert, Julie, & Sisters, Brussels.—Laces. 252

NETHERLANDS.

683 Diest, E. van, Arnhem.—Silk bed cover, with mosaic work on border. 252
684 Loks, Mrs. C.—Footstool, cushion, and embroidered kerchief. 252
685 Sermomd, Mrs., Amersfoort.—Embroidered cover and counterpane 225
686 Oldenborgh, Mrs. M. J., Dordrecht.—Imitation tiger skin and wax roses. 254
687 Amerfoortd, Mrs. H. M., Badhoeve.—Oratorio—"God's Ubiquity." 302

DENMARK.

688 Tscherning, Miss, Copenhagen.—Oil painting of flowers. 410
689 Rousholdt, Miss, Copenhagen.—Flower painting on terra-cotta vases. 454

SWEDEN.

690 Rappe, Eugenie, Barones, Skälsmä, Tjureda.—Pasteboard frames. 220
691 Soderberg, Maria, Stockholm.—Mantle. 250
692 Andersdotter, Margreta, Lällarp, Torscups.—Embroidery. 252
693 Bagge, Charlotte, Kramfors, Hamösaad.—Embroidery and frames. 252
694 Ehrenpohl, Charlotte, Enslöf, Halmstad.—Embroideries. 252
695 Fürst, Batty, Upsala.—Needlework. 252
696 Pählman, S., Ulexio.—Embroidery. 252
697 Segebader, Herminia, Trimethon.—Embroideries. 252
698 Jönson, Helena, Stockholm.—Fancy articles, ornamented with moss. 254
699 Klinghammer, Tersa, Landskrona.—Flowers and ornaments made from fish skin. 254
700 Ehrenpohl, Charlotte, Enslöf, Halmstad.—Inkstand of burned clay. 258
701 Bianchini, Emerentia, Stockholm.—Carvings in cork. 405
702 Andersson, Amanda, Stockholm.—Oil paintings. 410
703 Ehrenpohl, Charlotte, Enslöf, Halmstad.—Oil painting. 410
704 Ramsay, Ebba, Toxborg.—Water color painting of flowers. 411
705 Ramsay, Ebba, Toxborg.—Herbarium. 759

ITALY.

706 Carson, Mrs. Caroline A., Rome.—Easel. Sec. D. 217
707 Romani, G., Rome.—Embroideries. Sec. D. 259
708 Vregina, B., Rome.—Embroideries. Sec. D. 259
709 Gerosa, Adele, Rome.—Embroidery. Sec. D. 252
710 Pozzi, Vittoria, Rome.—Pearl and coral Jewelry. Sec. B. 253
711 Crotta, Giamina, Rome.—Music. Sec. D. 302
713 Maraini, Madame Adelaide, Rome.—Sec. A. (a) Marble busts; Sandalphon, Marble Faun, Cupid and Psyche, Inoencence. 400
— (b) Bas-reliefs: Angels before and after the resurrection. 401

For location of objects, see ground plan, p. 83.
Sculpture, Paintings, Embroideries.

714 Freeman, Miss Florence, Rome.—Sec. A. a Marble bust. 400
b Bronze vase. 401

715 Hosmer, Miss Harriet, Rome.—Sec. A. a The African Sibyl. 400
b Lord Browlow's Gates. 401

716 Foley, Miss M. F., Rome.—Bas reliefs: Charles Sumner, Joshua. Sec. A. 401

717 Fauchinetti, Adelaide, Rome.—Landscape in oil. Sec. A. 410

718 Walker, Miss W., Rome.—Oil paintings. Sec. A. 410

719 Penniman, Miss Ellen A., Rome.—Oil paintings. Sec. A. 410

720 Clark, Miss Sarah A., Rome.—Sec. A. a Oil paintings. 410
b The Dante Album. 411

721 Borzina, Leopoldina, Rome.—Water color paintings. Sec. A. 411

722 Wratislau, Miss Matilda, Rome.—Water color painting: Peasant's Head. Sec. A. 411

723 Conolly, Mrs. Isabella, Rome.—Illuminations. Sec. A. 411

724 Carson, Mrs. Caroline, Rome.—Painted banner. Sec. A. 411

725 Work of Roman women, exhibited by Mrs. Augustus Hemenway, Boston, Mass.—Sec. B. a Scafati rugs. 239
b Contadina apron. 250
c Roman pearls. 253
d Ornament palm branches. 254
e Oil painting: Temple of Esneh, Egypt. 410
f Water color painting: Peasant Spinning Silk. 411

TUNIS.

726 Raschid, Lilla.—Embroidered shoes. 212

727 Houssein Bey, Mrs.—Embroidered shasheen cover and jacket, embroidered by a Moorish princess. 252

728 Jewish & Moorish costumes worn in Tunis. 256

BRAZIL.

729 Oliveira, Maria de, Province of Rio de Janeiro.—Crochet shawl. 259

730 Immaculate Conception, School of the, Rio de Janeiro.—Embroidered stole for priest. 259

731 Pereira, F. C., Province of Ceará.—Embroidered and trimmed chemise. 259

732 Hegreville, Paulina, Province of Parana.—Knit woollen shawl. 259

733 Silva, Zulmira Cinthia de, Rio de Janeiro.—Robe de frivolité, for child. 259

734 Mangin, F. H., Province of Parana. a Child's dress. 259
b Crochet shawl. 262

735 Netto, Maria Pinto, Province of Rio de Janeiro. a Robe de chambre, embroidered. 259
b Linen embroideries. 259

736 Orphans' School of Santa Thereza, Rio de Janeiro. a Stole for priest. 259
b Embroidered cushions. 262

737 de Matta, Carolina A. da, Rio de Janeiro.—Cushion in tapestry work. 252

738 Neves, Isabel S. das, Rio de Janeiro.—Cushion in tapestry work. 252

739 Municipal School of St. Sebastian, Rio de Janeiro.—Tapestry work by pupils. 252

740 Municipal School of San José.—Tapestry work by pupils. 252

741 Lima, Maria de, Province of Parana.—Interlacing, and collar of linen thread. 252

742 Costa, M. E. da, Province of Parana.—Collar of linen thread. 252

743 Miró, Osmanda, Province of Parana.—Crocet lace for towels. 252

744 Almeida, Anardina B. d', Rio de Janeiro.—Crocet counterpane. 252

745 Assumpção, M. M., Province of Parana.—Crochet handkerchief. 252

746 Ribas, J. S. G., Province of Parana.—Crochet handkerchief. 252

747 Huy, Luiza M., Province of Parana.—Interlacing in crochet; embroidered handkerchief and towel; lace. 252

748 Municipal School of St. Sebastian, Rio de Janeiro.—Embroideries. 252

749 A. C. S., Salvador da Bahia.—Embroidered cushion. 252

750 Dias, H. J., Bahia.—Embroidered cushion. 252

751 Society Amante da Instrução, Orphan girls of, Rio de Janeiro.—Embroideries on velvet and silk. 252

752 Misericórdia School, Orphan Girls of, Rio de Janeiro.—Embroidered cushions. 252

753 Luz, F. F. da, Province of Parana.—Embroidered slippers. 252

754 Leão, M. M. de, Rio de Janeiro.—Embroideries. 252

755 Chaves, M. G. M., Rio de Janeiro.—Embroidered cushions. 252

756 Boa Viagem, Baroness da, Rio de Janeiro.—Embroidered pillow shams, towels, etc. 252

757 Pirapitinga, Baroness de, Province of Rio de Janeiro.—Embroidered towels and underwear. 252

758 Gama, D. Eulalia de Salvanha da, Rio de Janeiro.—Towels and pillow shams in labyrinthe lace. 252

759 Commission General for the National Exhibitions, Rio de Janeiro.—Handkerchiefs in labyrinthe lace, and laces for borders, by women of the province of Rio Grande do Norte; laces, handkerchiefs, pillow shams, seives, etc., by women of the Provinces of Paraíba, Alagoas, and Goyaz. 252

760 Rozario, G. M. da, Province of Parana.—Lace made of linen thread. 252

761 Lopez, J. F., Province of Parana.—Embroidered handkerchief. 252

762 Kelin, Clara, Province of Parana.—Embroidered handkerchiefs. 252

763 Aranjo, G. M. d', Province of Parana.—Embroidered handkerchief. 252

764 Leão, A. C. de, Rio de Janeiro.—Pillow shams in sieve lace. 252

For location of objects, see ground plan, p. 83.
| 705 | Alagoás, Province of. — Towel for toilet table, in embroidery and lace. |
| 706 | Jacobina, Theresa D., Rio de Janeiro. — Tapestry work. |
| 707 | Oliveira, Alzira H. d', Rio de Janeiro. — Cushion in tapestry work. |
| 709 | Ferreira, Maria, Province of Ceará. — Crochet case. |
| 710 | Director of the Colony of Paraná. — Fringes of linen thread, made by an Indian girl of the colony. |
| 711 | Alves, M. R., Province of Paraná. — Toilet covers. |
| 712 | Itamaraty, Viscountess de, Rio de Janeiro. — Embroidered pin case. |
| 713 | Silva, M. M., Province of Paraná. — Embroidered watch case. |
| 714 | Faria, Maria D. de, Rio de Janeiro. — Cushion of silk remnants. |
| 716 | Province of Ceará, Ladies of. — Feather flowers. |
| 717 | Province of Bahia, Ladies of. — Feather flowers. |
| 718 | Silvera de Souza, Sisters, Province of Sancta Catharina. — Artificial flowers of fish scales, egg-skin, sea shells, etc. |
| 719 | Sancta Catharina, Province of. — Flowers of fish scales. |
| 720 | Nattié, Mlle, Rio de Janeiro. — Feather flowers, fans, coiffures, ornaments, etc.; ornaments made of bugs. |
| 721 | Province of Paraná, Ladies of. — Bouquet of fish scale flowers, and stand of alum. |
| 722 | Commission General for the National Exhibition. — Feather flowers, made by the orphans of the school of the Immaculate Conception. |
| 723 | Convent das Merces, Santa Paula. — Branch made of the pith of the fig-tree. |
| 724 | Serzidillo, D. Anna M., Pará. — Frame made of cork. |
| 726 | Leme, Rosalina Paes, Rio de Janeiro. — Leather flowers. |

For location of objects, see ground plan, p. 83.
SHOE AND LEATHER BUILDING. No. 7.

Architect, A. B. BARRY.—Size, 314 feet by 160 feet.

The building is constructed of wood, two stories high, and is situated on Elm Avenue, south of Machinery Hall. Its name indicates its purpose.

KEY TO THE NOTATION.

The location of objects in the Shoe and Leather Building is shown by a letter and two figures, indicating the nearest column of the building. The letter and first figure designate the section of the building, the second figure the column within that section. The system of numbering is shown on the annexed ground plan.

The class of the classification (See Part 1., pages 27-45) to which each exhibit belongs is indicated by the small figures at the end of the line.

Oils, Leather Dressing.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dodd, A. W., &amp; Co., Gloucester, Mass.—Oils for tanners' use. F 1-3. 201</td>
</tr>
<tr>
<td></td>
<td>Hyde Bros., &amp; Swift, New York, N. Y.—'Tanners' oils. A 2-1. 201</td>
</tr>
<tr>
<td></td>
<td>Miller, Frank, Son, &amp; Co., New York, N. Y.—F 1-4. 203</td>
</tr>
<tr>
<td>2a</td>
<td>Shoe blacking, leather dressings, etc. 202</td>
</tr>
<tr>
<td></td>
<td>Hausler, John, Philadelphia, Pa.—Shoe blacking. F 1-2. 202</td>
</tr>
<tr>
<td></td>
<td>Fletcher &amp; Dwyer, Lynn, Mass.—Burnishers for finishing edges and heels of boots and shoes. D 1-6. 202</td>
</tr>
<tr>
<td>4</td>
<td>Annear, John, Philadelphia, Pa.—Shoe blacking and stove polish. F 1-2. 202</td>
</tr>
<tr>
<td>8</td>
<td>Restroff &amp; Bettmann, New York, N. Y.—Leather polish for boots, shoes, traveling bags, etc. B 2-2. 202</td>
</tr>
<tr>
<td>9</td>
<td>Sawyer, H., Boston, Mass.—Crystal blue. F 1-3. 202</td>
</tr>
<tr>
<td>10</td>
<td>Reed, Geo. H., &amp; Sons, Boston, Mass.—Dressings, inks, varnishes, and stains for leather. F 1-3. 202</td>
</tr>
<tr>
<td>11</td>
<td>Hauthaway, C. L., &amp; Sons, Boston, Mass.—Leather dressings, blackings, stains, and varnishes. These goods are favorably known throughout the United States, Canadas, and Europe, and were awarded medals at Boston and Vienna. Visitors at the Shoe and Leather Building will see upon the various exhibits of boots, shoes, harness, and horse collars, specimens of the high finish derived by the use of our dressings, as many of the best goods there are finished with our articles. They are considered indispensable in all manufactories using leather. Our exhibit consists of twenty-one different articles adapted to leather, all of our own invention and production. House established in 1834. F 1-11. 202</td>
</tr>
</tbody>
</table>

For classes of exhibits, numbered at end of entries, see Classification, Part 1., pp. 27-45.
Boots and Shoes.

12 Johnson, N. M., St. Louis, Mo.—Boots and shoes. C 2-11. 251
13 Wells, M. D., & Co., Chicago, Ill.—Boots and shoes. C 2-14. 251
14 Fargo, C. H., & Co., Chicago, Ill.—Women’s, misses’, and children’s shoes; men’s boots. C 2-11. 251
15 Palley, L., & Co., Lafayette, Ind.—Men’s, boys’, and women’s calf and kip boots and shoes. C 1-15. 251
16 Kees, Chas., Frederick, Md.—Cordovan leather patterns for boots and shoes. D 1-8. 251
17 Semenetz, Rudolf, Cleveland, O.—English top boots. D 2-4. 251
19 Davis, Whitcomb, & Co., Boston, Mass.—Seamless felt shoes. D 1-4. 251
20 Graves, Ball, & Co., Albany, N. Y.—Shoe lasts. D 2-7. 251
21 Ransom, W. A., & Co., N. Y. York, N. Y.—Men’s, women’s, misses’, and children’s sewed, nailed, and pegged shoes and gaiters. D 2-5. 251
22 Keene Bros., Lynn, Mass.—Women’s, misses’, and children’s boots and shoes. D 1-7-8. 251
23 Valpey & Anthony, Lynn, Mass.—Women’s, misses’, and children’s boots and shoes. D 1-7-8. 251
24 Bartlett & Doak, Lynn, Mass.—Women’s, misses’, and children’s boots and shoes. D 1-7-8. 251
25 Boynton & Bancroft, Lynn, Mass.—Women’s, misses’, and children’s soles. D 1-7-8. 251
26 Mower, E. W., & C. F., Lynn, Mass.—Women’s, misses’, and children’s boots and shoes. D 1-7-8. 251
27 Bubier, S. M., & Sons, Lynn, Mass.—Women’s, misses’, and children’s boots and shoes. D 1-7-8. 251
28 Bacher, C. H., & Co., Lynn, Mass.—Women’s, misses’, and children’s boots and shoes. D 1-7-8. 251
29 Hocker, Geo., Cincinnati, O.—Ladies’ and gentlemen’s boots and shoes. C 2-13. 251
30 Kilsheimer, F., Cincinnati, O.—Men’s boots, shoes, and gaiters. C 2-13. 251
31 Richard, Smith, & Co., Cincinnati, O.—Boots and shoes. C 2-12. 251
32 Alter, Frank & Co., Cincinnati, O.—Boots and shoes. C 2-12. 251
38 Burt & Mears, New York, N. Y.—Men’s boots and shoes. C 2-14. 251
39 Dress Reform Co., Boston, Mass.—Designs for ladies’ shoes. D 1-6. 251
43 Creed, Eugene, New York, N. Y.—Boots, shoe, and gaiter uppers. C 1-15. 251
45 Leh, H., & Co., Allentown, Pa.—Boots and shoes. D 2-4. 251
46 Adler & Clement, Baltimore, Md.—Ladies’, misses’, and children’s shoes. D 1-4. 251
47 Banister & Tichenor, Newark, N. J.—Men’s and boys’ boots, shoes, and slippers. First class hand and machine-sewed. Any of the goods on exhibition duplicated on orders. D 2-4. 251
48 Cafefield, M. B. & I., Newark, N. J.—Gentlemen’s boots and shoes. D 2-5. 251
49 Miller, McCullough, & Ober, Newark, N. J.—Gents’ boots and shoes. D 2-4. 251
51 Evans, Thos. R., 28 South Fourth street, Philadelphia, Pa.—“Evans’s American gaiter,” and graduated expanding boots and shoes. Patented. D 2-5. 251
52 Jenkins Bros. & Co., South Abington, Mass.—Steel shanks for boots and shoes. C 1-15. 251
54 Graf, L., & Bro., Newark, N. J.—Boots and shoes. C 1-13. 251
56 Moore, Wm. B., Camden, N. J.—Various sizes of shoes, “chaps,” etc. D 1-4. 251
57 Barrows & Boyd, New York, N. Y.—Ladies’ and children’s fine shoes. D 2-5. 251
58 Shaw, Chas. A., Boston, Mass.—Improved shoe lasts. D 1-5. 251
60 Kent, Edward E., & Co., Spencer, Mass.—Men’s, boys’, and youths’ boots. D 2-7. 251
61 Cooper, R., Ithaca, N. Y.—Centennial shoe. D 1-5. 251

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.
### SHOE AND LEATHER BUILDING.

**Boots and Shoes.**

| 49 Kelley & Moore, Philadelphia, Pa.—Ladies' shoes. C 1-13. 251 |
| 50 Targrett, John, Philadelphia, Pa.—Boots, shoe, and gaiter patterns. C 1-12. 251 |
| 50a Claffin, Waldo M., Philadelphia, Pa.—Men's and boys' boots and shoes, with Estabrook, Wirx, & Co. screws. C 1-12. 251 |
| 50b Pratt, Henry J., Abington, Mass.—Rush boot fastening. D 1-6. 251 |
| 50c Butterfield, Wm., & Co., New York, N. Y.—Button fastener, and plate lace hook. D 1-6. 251 |
| 51a Schmid, Jacob, Philadelphia, Pa.—Ladies' boots and shoes. C 1-12. 251 |
| 51b Benkert, C., & Son, Philadelphia, Pa.—Gentlemen's boots and shoes. C 1-16. 251 |
| 51a Zaan, Jacob, & Son, Philadelphia, Pa.—Men's boots and shoes. C 1-13. 251 |
| 54 Dreisbach, Wm., & Co., Philadelphia, Pa.—Shoe bows and wooden heels. C 1-15. 251 |
| 55 Heulings, Abram, American Hotel, Chestnut street, opposite Independence Hall, Philadelphia, Pa.—Iee creepers which can be attached to any lady's or gentleman's boot or shoe, and worn alike in the parlor or on icy sidewalks. C 1-15. 251 |
| 56 Meyer, C. Adolph, Philadelphia, Pa.—French call boots, shoes, and gaiters. C 1-12. 251 |
| 57 Helweg & Co., Philadelphia, Pa.—Boots and shoes. C 1-16. 251 |
| 59 Mayer & Stern, Philadelphia, Pa.—Ladies', children's, and infants' shoes. C 1-12. 251 |
| 60 Dalsheimer Bros., Philadelphia, Pa.—Ladies', misses', children's, and infants' shoes. C 1-15. 251 |
| 63 Laird, Schober, & Mitchell, Philadelphia, Pa.—Boots and shoes. C 1-15. 251 |
| 64 Schiff, W. L., Philadelphia, Pa.—Children's shoes, and ladies' white kid boots and slippers. C 1-15. 251 |
| 64a Claffin, Aaron, & Co., New York, N. Y.—Wax, grain, split, kip, and calf booths, brogans, etc. D 1-2. 251 |
| 64b Gittens, J. K., Brooklyn, N. Y.—Cork and wool boots. C 1-13. 251 |
| 64c Saller, Lebin, & Co., Philadelphia, Pa.—Men's, boys', women's, and misses' boots and shoes. C 1-13. 251 |
| 64e De Haven, A. R., & Son, Philadelphia, Pa.—Ladies' hand-sewed boots and shoes. C 1-12. 251 |
| 64f Fontyn, George, Philadelphia, Pa.—Men's boots, shoes, and gaiters. C 1-13. 251 |
| 64g Reimel, Louis, Philadelphia, Pa.—Shoe uppers. C 1-14. 251 |
| 64h Gray Bros., Syracuse, N. Y.—Ladies' and misses' fine shoes, D 1-4. 251 |
| 65 Simonds, N. J., Woburn, Mass.—Bevel and molded heel stiffeners from leather and leather boards. D 2-6. 251 |
| 67 Hamilton Web Co., Wickford, R. I.—Boot and gaiter wbs. D 1-3. 251 |
| 68 Lilly, Young, Pratt, & Brackett, Boston, Mass.—Men's, boys', and youths' boots and shoes. D 1-3. 251 |
| 69 Connolly & Power, Boston, Mass.—Gentlemen's boots, shoes, and gaiters. D 2-6. 251 |
| 70 Haskell, B. C., & Dickerman, Boston, Mass.—Shoe findings, buckles, buttons, laces, button hooks, over gaiters, shoe trimmings, and tools. D 2-7. 251 |
| 70a Cushman, Ara, & Co., Auburndale, Me.—Men's boots and shoes. D 2-7. 251 |
| 70b Henderson, C. M., Chicago, Ill.—Men's boots and shoes. D 2-4. 251 |
| 70c Krippendorf & Hart, Cincinnati, O.—Ladies', misses', and children's shoes. C 2-10. 251 |
| 70d American Novelty Shoe Co., Medville, Pa.—Wooden shoes. D 2-4. 251 |
| 71 Jones, Frederick, & Co., Boston, Mass.—Children's boots and shoes. D 1-3. 251 |
| 72 Buecheler, E. A. H., & Co., Boston, Mass.—Men's, boys', youths', women's, and misses' boots, shoes, and brogans. D 1-1. 251 |
| 72a De Waru, Laurens E., Philadelphia, Pa.—Boots and shoes showing the Gordian seam. D 1-3. 251 |
| 73 Henshaw, Ed., Boston, Mass.—Shoe findings, tools, store supplies, etc. D 2-7. 251 |
| 74 Aub, Hackenburg, & Co., Philadelphia, Pa.—Machine leather for work. D 1-5. 251 |
| 75 Jenkins, Lane & Sons, Boston, Mass.—Boots, shoes, and brogans. D 1-3. 251 |
| 76 Fogg, Houghton, & Coolidge, Boston, Mass.—Men's, boys', youths', women's, and children's boots and shoes. D 1-1. 251 |
| 77 Dana, J. F., Grinnell, & Co., Boston, Mass.—Men's boots, brogans, etc. D 1-9. 251 |
| 78 Robbins & Kellogg, Boston, Mass.—Women's, misses', and children's shoes. D 1-3. 251 |

For classes of exhibits, numbered at end of entries, see Classification, Part I., pp. 97-105.
SPECIAL BUILDINGS.

Boots, Shoes, Trunks.

79 Emerson's, Thomas, Sons, Boston, Mass.—Men's, boys', and youths' shoes. Manufacturers of hand and machine fine sewed and nailed work; owners of the patent for the celebrated "Hersome Gaiter." D 1-1.

80 Sears & Warner, Boston, Mass.—Shoe manufacturers' goods, lastings, and sergees. D 1-8.


83 The Moulded Heel Stiffening Co., Lynn, Mass.—Moulded rubber counters for boots and shoes. D 1-7.


83d Shaw, John, 2d, & Bro., Lynn, Mass.—Women's boots and shoes. D 1-7.

84 Tabetts, Charles B., Lynn, Mass.—Ladies' and gent's boots, shoes, slippers, and fancy ties. D 1-7.


90 Breed, F. W., Lynn, Mass.—Ladies' boots and shoes. D 1-7.

91 Breed, A. F., Lynn, Mass.—Men's, ladies', and misses' boots and shoes. D 1-7.


93 Mudge, W. R., Lynn, Mass.—Leather, straw, and pattern boards, paper soles, stiffenings, etc. D 1-6.

94 Sutherland, I. G., Lynn, Mass.—Boots and shoe patterns, and sample boots and shoes. D 1-6.


95a Rogers, Evan T., San Jose, Cal.—Seamless gaiters and shoes. D 1-5.

95b Boynton & Bancroft, Lynn, Mass.—Shoe soles, sole leather and roundings. D 1-7.


95d Reutz, P. J., New York, N.Y.—Boot, shoe, and gaiter uppers. D 1-4.


98 How, Moses, Haverhill, Mass.—Ladies' and misses' shoes and slippers. D 1-5.

98a Oliver, Stephen, jr., Lynn, Mass.—Women's boots and shoes. D 1-7.

98b Morgan & Dore, Lynn, Mass.—Ladies' boots and shoes. D 1-7.


98d Turnbull & Samuels, Philadelphia, Pa.—Composition heel. D 2-5.


99 Goodrich & Whitehouse, Haverhill, Mass.—Misses', children's, and infants' boots and shoes. D 1-6.

100 Goodrich & Porter, Haverhill, Mass.—Ladies' and misses' boots and shoes. D 1-5.

101 How, George C., Haverhill, Mass.—Kid slippers and ties. D 1-6.

102 Gardner Bros., Haverhill, Mass.—Ladies' and misses' boots and shoes. D 1-5.


106b Dohle, Henry, Omaha, Neb.—Boots and shoes. D 2-3.


106e Foster & Quigg, Milford, Mass.—Shoes made with Estabrook's clipping screws. E 1-14.

Trunks, Valises, etc.


For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.
Traveling Equipments, Harness, Rubber Goods.

109 Hacker, J. C., & Co., New York, N. Y.—Pocket books, bill books, card and cigar cases, etc. G 2. 255
112 Thorne, John W., New York, N. Y.—Saratoga trunk and trunk clamp. G 1. 255
113 Paddle, T. B., & Co., Newark, N. J.—Trunks, valises, traveling bags, and ladies' satchels. G 2. 255
114 Roemer, William, Newark, N. J.—Trunks, bags, and shawl straps. G 1. 255
112 Rowen, John, Philadelphia, Pa.—Trunks, satchels, and pocketbooks. 255
112 Doughty, S. H., New York, N. Y.—Ladies' belts. D 1-5. 255
113 Crouch & Fitzgerald, New York, N. Y.—Trunks, valises, shawl straps, and leather goods. G 2. 255
115 Simpson, J. F., Philadelphia, Pa.—Trunk closer, lock, strap, and sockets. G 1. 255
116 Watt, F. H., Philadelphia, Pa.—Trunks, traveling bags, and lacey leather goods. G 2. 255
117 Unruh, John, & Sons, Philadelphia, Pa.—Leather trunks and valises. G 1. 255

Saddlery, Hardware.
120 Albright, Andrew, Newark, N. J.—Hard rubber-coated harness and carriage trimmings. D 2-2. 284
121 Celluloid Harness Trimming Co., Newark, N. J.—Celluloid martingale rings and harness mountings. D 2-1. 284
121 Osborn, H. F., Newark, N. J.—Saddlers' and harness-makers' tools and machinery. D 2-2. 284
122 Kuenhold, F. B., Newark, N. J.—Saddlery and coach hardware. D 2-2. 284
123 Crane & Co., Newark, N. J.—Flexible rubber bits, wrought hand-forged bits. D 2-2. 284
125 Manning, Robert, Newark, N. J.—Winkers and winker plates. D 2-1. 284
126 Buerman, August, Newark, N. J.—Saddlery and harness hardware, bits, spurs, etc. D 2-1. 284
127 Wiener & Co., Newark, N. J.—Saddlery, hardware, and trimmings. D 2-1. 284
128 Tompkins, Samuel E., & Co., Newark, N. J.—Tompkins' patent gig trees; coach pads and gig saddles; hames, bits, etc.; coach and saddlery hardware in silver, gold, or nickel. D 2-2. 284
129 Waldron, J. V., & Bro., New York, N. Y.—Crests, coats of arms, monograms, bits, bosses, rosettes, etc., for harness. D 2-1. 284
130 Reynolds, Samuel, & Co., Pitts- burg, Pa.—Fine XC plate, silver plate, gold and japanned post bits, snaffle, ring bits and stirrups, iron gig and coach hames, all styles buckles, rings, loops, etc.; malacable iron castings for agricultural machinery. D 2-2. 284

Fabrics of Vegetable, Animal, or Mineral Materials.
132 Davidson Rubber Co., 30 Frank- lin street, Boston, Mass.—Rubber goods, used in druggist, surgical, stationery, and fine rubber work. We use nothing but the finest stock, and make superiority in finish and quality our aim. C 2-8. 285
136 National Rubber Co., Providence, R. I.—Rubber boots, shoes, clothing, cloths, stationers' and druggists' articles, mats, belting, hose, cushions, beds, pillows, etc. C 2-9 and 10. 285
138 Vulcanized Fibre Co., Wilmington, Del.—Hard and flexible goods of vulcanized fibre. G 1. 285
139 Star Rubber Co., Trenton, N. J.—India-rubber goods for mechanical purposes. G 1. 285

Carriages, Vehicles, and Accessories.
140 Peters Calhoun Co., Newark, N. J.—Harness, saddles, and bridles. E 1-12. 296

For classes of exhibits, numbered at end of entries, see Classification, Part I., pp. 27-45.
Harness, Leather-Working Machinery.

142 Kessler & Bro., Philadelphia, Pa.—
Wooden and plated hames. E 1-5. 296

142: Karr, Wm., Karrsville, N. J.—
Loft harn. E 7-1. 296

142: Crittenden, L. S., Cuba, N. Y.—
Combination horse blanket and fly pro-
tector. E 7-12. 296


142: Ries, Anton, Philadelphia, Pa.—
Harness. E 1-4. 296

142: Taylor, Marshall B., Ludlow, Vt.—
Whip lashes. E 1-5. 296

142: Hamiy, Wm., Ripon, Wis.—
Wire stitched horse collars. E 1-4. 296

142: Rosenthal, Henry, New York, N. Y.—
Leather back horse brushes. F 1-1. 296

142: Heydecke, Wm., Newark, N. J.—
Wood hames. E 1-3. 296

143 Haedrick, Henry G., & Sons, Phila-
delphia, Pa.—Harness and saddlery; preparation for polishing and dressing
harness. E 1-10. 296

143: Burns & Degnan, St. Louis, Mo.—
Ventilated side saddle. E 1-11. 296

144 Moyer, E. P., & Bros., Philadel-
phia, Pa.—Harness, saddlery, and
trunks. E 1-3. 296

145 Hansell, W. S., & Sons, Philadel-
phia, Pa.—Harness and saddlery, and
horse clothing. E 1-4. 296

146 Lynch, Anthony, Philadelphia, Pa.—
Gold-mounted double and single har-
ness. E 1-10. 296

147 Sallada & Pearson, Philadelphia, Pa.—
Ladies' and gentlemen's riding and
driving whips. E 1-13. 296


149 Yeager, Daniel A., Media, Pa.—
Double and single harness, riding sad-
dlers and bridles. E 1-2. 296

150 Wilson, R. F., Milton, Pa.—Fly
nets. E 1-4. 296

150: Wigglesworth, W. J., Darlington, Wis.—Horse collar, collar, cap, and
pad. E 1. 296

150: Phillips, Samuel R., Philadelphia, Pa.—Harness, saddles, whips, etc. E 1-2. 296


151 Weaver & Bardall, Western Pen-
tentiary, Pittsburg, Pa.—Leather
whips. E 1-13. 296

152 Moseman, C. M., & Bro., New York,
N. Y.—Single and double harness and
saddlery. E 1-1 and 9. 296

153 Korne & Currie, New York, N. Y.—
Single and double harness. E 1-5. 296

154 Moore, Thomas, New York, N. Y.—
Plain and fancy horse collars. E 1-2. 296

155 Manheim, William, New York, N. Y.—Harness loops and back curtain
loops. F 1-2. 296

156 American Whip Co., Westfield, Mass.—Driving and riding and leather
whips and lashes. F 1-1. 296

157 Wilder, J. Lyman, Hartford, Conn.—Patent leather harness work, rosettes,
etc. F 1-5. 296

158 Hill, James R., & Co., Concord, N. H.—Single and double harness and
collars. "The Concord harness" is
made in all styles and of every descrip-
tion, from the lightest, finest, and most
elegant in use, to the heaviest and strongest
required for any kind of work. Are
remarkable for style, workmanship,
strength, and durability. Correspondence
solicited. Circulars furnished on application.
E 1-1 and 9. 296

159 Gale, A. D., Pittsfield, Mass.—
Double coach harness and paper trunk.
E 1-6. 296

160 Motts, George, Washington, D. C.—
Gold-mounted buggy harness. E 1-4. 296

161 Lighthouse, J. C., Rochester, N. Y.—
Horse collars and pads. E 1-5. 296

162 Stewart, John P., Rochester, N. Y.—
Carriage and draft horse collars. E 1-13. 296

162: Spencer, Robert, Brooklyn, N. Y.—
Saddlecloths. E 1-13. 296

Leather Machinery.

163 Pusey, Jones, & Co., Wilmington, Del.—Tanning apparatus and glazing ma-
chine for morocco factory. E 2-3 and 19. 532

163: Mitchell, J. E., Philadelphia, Pa.—
Curriers' blocks, clearing and scouring stones. A 2-2. 532

163: Smith, Wm. M., Philadelphia, Pa.—
Device for regulating sewing machines. E 2-2. 532

163: Stoddard & Fifield, North Brook-
field, Mass.—Skiving machines. F 2-1. 532

163: Carl. Frederick, Somerville, Mass.—Model of stuffing mill for leather.
E 2-9. 532

163: Lewis, Rufus E., New Hampton,
N. H.—Machine for currying leather. F 2-3. 532

163: Bowser, J. C., Fort Wayne, Ind.—
Stationary engine, boiler, and fixtures. E 2-1. 532

163: Newton, E. P., Gloversville, N. Y.—
Glove, mitten, and leather cutting ma-
achines. F 2-4. 532

164 Walters, G. C., Philadelphia, Pa.—
Wet-skin sewing machine. E 2-2 and 9. 532

166 Horn, W. H., & Bro., Philadelphia,
Pa.—Tanners', curriers', and shoe-
makers' tools and machinery. D 2-3. 532

167 Osborne, C. S., & Co., ¤ Me-
chanic street, Newark, N. J.—Saddlers' and harness makers' tools. Manufac-
turers of saddlers' and harness makers' tools of superior quality and finish.
Established 1826. Send for catalogue.
E 2-4 and 11. 532

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 193.
Leather-Working Machinery and Tools.

168 Knox, David, Lynn, Mass.—Pebbling and polishing machine; sole-cutting machine. F 2-4. 532

168a McLaughlin, Grover & Lloyd, New York, N. Y.—Machine knives, leather, cloth, and paper dies or cutters. F and 2. 533

168b Sturtevant, Benjamin F., Boston, Mass.—Hot blast apparatus for tanneries and curriers’ shops. F 2-1 and 2. 532

169 Coogan, Owen, Pittsfield, Mass.—Boarding and graining machine. E 2-9. 532

170 Reed, Harvey, Vineland, N. J.—Combination tannery. F 2-5. 532

170c Lockwood, Frederick A., Fall River, Mass.—Automatic leather-scrubbing machine. E 2-12. 532

172 Baker, George W., Wilmington, Del.—Skin-sewing machine. E 2-9 and 9. 532

173 Fisk, Joseph E., Salem, Mass.—Leather-whitewing and buffing machine. E 2-10. 532


175 Rosensteel, W. H., Johnstown, Pa.—Model of leather-dressing machine. F 2-5. 532

176 Thompson & Nowell, Boston, Mass.—New patent bark-cutting and rossing machine. Tanners are respectfully invited to examine the machine and obtain circulars of information. E 2-3. 532

177 Swain, Fuller, & Co., Lynn, Mass.—Beating-out, moulding, and buffing machines. E 1-6 and 14. 532

178 Plummer, W. E., Boston, Mass.—Leather, buffing, whitening, and skiving machine; rotary tan press; round leach for leaching bark. E 2-5 and 11. 532

179 Gibson, F. N., New Ipswich, N. H.—Rasping, creasing, and wadding machine for harness makers, etc. F 2-6. 532

179a Harkinson, Robert, Philadelphia, Pa.—Hooks for tanners’ use. A 2-3. 532

Shoe Machinery.

180 Tapley Heel Burning Machine Association, Boston, Mass.—Heel-burning machine. E 1-7 and 15. 533

180a Stowe, A. F., Worcester, Mass.—Splitting, rolling, boot shaping, and side welt machines. F 2-1. 533

180b Morse, Eddy, & Co., Boston, Mass.—Wax thread, tripp sewing, burning, leveling, and sole cutting machines. F 2-1. 533

180c Union Edge Setter Co., Lynn, Mass.—Edge burnisher for boots. E 1-15. 533

180d Hall, M. H., Philadelphia, Pa.—Cutting machine for boots and shoes. F 2-4. 533


181 Tubular Rivet Co., Boston, Mass.—Rivets for boots, shoes, harness, beltting, etc. F 2-6. 533

For classes of exhibits, numbered at end of entries, see Classification, Part I, pp. 27-45.
192/2 Kafer & De Lacy, Trenton, N. J.—Steam burning iron heater. E 2-7. 652
193 Goodyear & McKay Sewing Ma-
chine Association, Boston, Mass.—Shoe
sewing machines. E 1-8 and 16. 533
194 Graves, L. S., Rochester, N. Y.—
Machines for stripping, splitting, rolling
and moulding, and heel pressing. E 2-7
and 14. 533
196 Cutlan Shoe Sewing Machine Co.,
Philadelphia, Pa.—Turned shoe sewing
machine, chamber and edge turner. F 1-
8. 533
197 Redifer, S. S., Philadelphia, Pa.—
Shoe lasts, patterns for dies. D 2-5. 533
198 Miller, Thomas L., Philadelphia,
Pa.—Beveling, channeling, moulding, and
sewing machines for shoes. F 1-8. 533
200 Cushman, C. S., Philadelphia, Pa.—
Leather and shoe stitching attachment. E 1-12. 533
201 Evans, Thomas R., Philadelphia,
Pa.—Boot and shoe tree, lengthener,
stretcher, and lasts. D 2-5. 533
202 Smith, J. Barton, & Co., Phila-
delphia, Pa.—Kasps and files for shoe-
makers and manufacturers. E 2-13. 533
203 Graf, Leopold, Newark, N. J.—
Shoe burnishing and polishing machine.
F 2-4. 533
203a Tuck, S. V., Brockton, Mass.—
Shoe knives and tools. D 2-6. 533
203b Tingley, John, Philadelphia, Pa.—
Rotating detachable shoe heel, and
machine for attaching. D 1-5. 533

Animal and Vegetable Products.
204 Wedekind, Hallenburg, & Bro.,
Louisville, Ky.—Oak sole leather. B 2-
3 and 10. 652
205 Trautwein, C., & Co., Louisville,
Ky.—Chesnut oak sole leather. B 2-
3 and 10. 652
206 Stoll, J. B., & Co., Louisville, Ky.—
Oak skirting leather. B 2-3 to 10. 652
207 Ohio Falls Oak Leather Co., Louis-
ville, Ky.—Oak harness, bridle, and belt-
ing leather. B 2-3 to 10. 652
208 Conrad, Fabel, & Mooney, Louis-
ville, Ky.—Oak sole leather. B 2-3 to
10. 652
209 Schellberg, B. F., Germania P. O.,
Ala.—Rough leather. A 2-7. 652
210 Burt, F. H., & Son, Mannington,
W. Va.—Oak sole leather. A 1-6. 652
211 Wisconsin Leather Co., Milwau-
kee, Wis.—Sole, upper, and harness
212 Hidden, E. S., Milburn, N. J.—
Leather boards for shanking insoles and
counters by improved process; also, patent
excessor carriage washers from com-
pressed leather fibre. A 2-1. 652
213 Hurkamp, J. G., Fredericksburg,
Va.—Virginia sumac. A 2-3. 652
213a Baer, A. P., & Co., Baltimore, Md.—
Chesnut oak extract; quercetron
and chestnut oak bark. A 1-5. 652

514 Leas & McVitty, Philadelphia, Pa.—Oak sole leather. A 2-6. 652
215 Keen & Coates, Philadelphia, Pa.—
Oak-tanned sole leather for finest boot
and shoe work. A 2-7. 652
216 Williams', Chas. B., Sons, Phila-
delphia, Pa.—Oak-tanned slaughter
sole leather. A 2-6. 652
217 Horton, Cray, & Co., Sheffield, Pa.—
Hemlock sole leather. A 1-5. 652
218 Shriver, A. K., & Sons, Union Mills,
Md.—Oak sole leather. A 1-5. 652
219 Sommerville, Jas. N., Bellefonte,
Pa.—Oak sole and belt leather. A 1-
6. 652
220 Downing & Price, Wilmington, Del.—Oak sole and belt leather. A 1-
6. 652
221 DeLong Bros., Philadelphia, Pa.—
Oak rough slaughter leather. A 2-7. 652
222 Sponagle & Pennbaker, Phila-
delphia, Pa.—Oak sole leather. A 2-6.
652
223 Hibernia Tannery, Blaine, Pa.—
Buenos Ayres sole leather. A 2-5 and
6. 652
224 Hench, Geo., Centre, Pa.—Oak
sole leather. A 2-5 and 6. 652
225 Hench, A. L., Alum Banks, Pa.—
533
226 McNeal & Black, Man's Choice,
Pa.—Slaughter sole. A 2-5 and 6. 533
227 Mapleton Tannery, Mapleton, Pa.—
Texas sole. A 2-5 and 6. 533
228 Rife, Henry J., Philadelphia, Pa.—
Sole and harness leather, and finished
calf skins. A 2-5. 652
229 Forepaugh, W. F., & Bro., Phi-
delphia, Pa.—Oak-tanned whole hides.
652
230 Leas, Wm. B., Shirley, Tannery,
Philadelphia, Pa.—Oak sole leather. A
1-4. 652
231 Hoffman, Jacob, Philadelphia, Pa.—
Oak sole leather. A 2-5. 652
232 Rosensteel, W. H., Johnstown,
Pa.—Union crop leather. A 1-7. 652
233 Hordenburgh, Hartwell, & Co.,
English Centre, Pa.—Sole leather. A
1-5. 652
Corry, Pa.—Hemlock sole leather. A
1-5. 652
235 Greenawalt, J. & J. K., Harris-
burg, Pa.—Oak sole, harness, wax upper, kip,
and calf leather. A 2-6. 652
236 Wilkinson, J. P., & Bro., Union-
ville, Pa.—Oak sole and harness leather.
A 2-7. 652
237 Underhill & Noble, Athens, Pa.—
Hemlock sole leather. A 1-7. 652
238 Ray, Daniel P., Tyrone, Pa.—
Union crop sole leather. A 2-7. 652
239 Webb, Wm. B., Frankford, Pa.—
Leather aprons for worsted machinery,
picker, band, and lace leather. A 2-7.
652

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.
Leather.

241. Mosser & Keck, Allentown, Pa.—Union crop back. A 2-7. 652
244. Keeler, Henry, Reading, Pa.—Oak rough leather. A 2-7. 652
248. Faust, Alvin, D., & Son, Upper Dublin, Pa.—Oak sole and rough leather. A 2-7. 652
250. Bare, John, Mt. Union, Pa.—Union crop sole leather. A 2-7. 652
253. Appold, Geo., & Sons, Baltimore, Md.—Slaughter oak sole leather. A 2-4. 652
255. Halsey, Saml., & Son, Newark, N. J.—Patent and enameled leather. B 1-5. 652
256. Buck, C., Fleming, Pa.—Oak sole leather. A 2-7. 652
257. Maynard, Ely & Roso, Baltimore, Md.—Calf andkip skins. D 2. 652
260. Frantz, D., & Son, Louisville, Ky.—Oak sole leather. A 2-3. 652
261. Decker, David, Wellsburg, N. Y.—Union back sole leather. A 2-4. 652
263. Kinley, Adam, Breepsport, N. Y.—Union crop sole leather. A 2-5. 652

For classes of exhibits, numbered at end of entries, see Classification, Part I., pp. 27-45.
H. —Oak harness leather. B 2-3-10. 652
300d Rackenback, H., New Albany, Ind.—Horse harness leather. B 2-3-10. 652
301 Woelfel, Fred'k, Alleghany City, Pa.—Harness leather. B 2-12. 652
301b Halsey, Samuel, & Son, Newark, N. J.—Patent and enameled leather. B 1-5. 652
301c Wetzel, Albert, New York, N. Y.—Calf, kip, wax upper and split leather. B 2-5. 652
301b Baltimore Calfskin Association, Baltimore, Md.—Calfskins rough, finished, and in the hair. B 2-6. 652
301h Maynard, Eyl. & Rose, Baltimore, Md.—Finished calf and kip skins. B 2-11. 652
303 Holstein, A., Alleghany City, Pa.—Harness leather. B 2-5. 652
304 Lappe & Hax, Alleghany City, Pa.—Harness leather. B 2-5. 652
305 Lappe, J. C., Alleghany City, Pa.—Harness leather. B 2-5. 652
310 Schuman, John W., Louisville, Ky.—Oak harness leather. B 2-3-10. 652
300d Wunderlich, Reinhard, New Albany, Ind.—Harness leather. B 2-3-10. 652
300d Day, Theodore, New Albany, Ind.—Wax leather. B 2-8-10. 652
30066 Michel, A. M., New York, N. Y.—Buff, grain, and calf skins; harness leather; boots and shoes. B 2-5. 652
317 Brown, Elijah T., & Co., 82 Gold street, New York, N. Y.—Cromwell’s finished calfskins, sold in this market twenty years; have a high reputation in foreign markets. B 2-12. 652

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.
For classes of exhibits, numbered at end of entries, see Classification, Part I., pp. 27-45.
358 Adams & Keen, Philadelphia, Pa.—Morocco and kid leather. B 1-4. 652
360 Locher & Atkinson, Baltimore, Md.—Morocco. B 1-6. 652
361 Martin, A. B., & Co., Lynn, Mass.—Kid and goat morocco leather. B 1-6. 652
363 Seavey, Foster, & Bowman, Philadelphia, Pa.—Machine silk twist. D 1-6. 652

GREAT BRITAIN.
West of Centre Aisle, Sect. C, Col. 3 to 4.
1 Brookes, W., & Sons, Walsall, England.—Saddlery. 296
2 Wilson, Walker, & Co., Leeds, England.—Colored skivers, calf, roans, morass, and kids, in every style of finish and for all purposes. 652
3 Edinburgh Western Tanning Co., Edinburgh, Scotland.—Hog skins for saddlery. 652
4 Hooper, Cleve, jr., London, Eng.—Colored skivers and basils, materials for tanning and making glue. 652
5 Hooper, C. W., & Sons, London, Eng.—Materials for tanning and making glue. 652
6 Angus, George, & Co., Liverpool, Eng.—Oak sole leather. (In U. S. section.) A 2-3. 652

GERMANY.
West of Centre Aisle, Sect. C, Col. 2 to 3.
1 Wolf, S., Mainz.—Shoes. 251
2 Spicharz, P. J., Offenbach.—Calf, glove, and French kid. 652
3 Simon, C., & Son, Korn.—Colored and black morassos, and calfskins. 652
4 Meyer, E., Berlin.—Colored glove kid. 652
5 Bruning, H. W., Neumunster.—Smooth and grained calf, kid and upper leather. 652
6 Schaller, G., Laher Baden.—Colored and black morassos. 652
7 Kaumanus, F. H., Ehrenbreitstein, B. A.—Sole leather, reinhinec oakslaughter sole. 652

RUSSIA.
West of Centre Aisle, Sect. C, Col. 1 to 3.
1 Bauerfeind, Adolphus, Warsaw.—Russian and calf leather. 652
2 Panisheff, John, Mournshkine, Government of Nijni Novgorod, district of Makarief.—Sheepskins, dressed and half dressed. 652
3 Afaloozoff & Alexandroff, Kazan.—Russian leather. 652
4 Mikhailoff, Alexis, Moscow.—Furs, sable, ermine, Korsar fox, Siberian squirrel. 652
5 Grunwald, Morice, Riga.—Furs, and stuffed fur animals. 652
6 Komaroff, Nicetas, Moscow.—Sheep and lamb skins, dressed. 652
7 Solin Bros., Nijni Novgorod.—Seal grease. 652
8 Ossipoff, Michael, Kieff.—Tallow. 652
9 Zinovieff, Alexander, St. Petersberg.—Boot legs and vamps. 652
10 Temberl, K., & Schwede, L., Warsaw.—Manufactured leather. 652
11 Tchernish, E., Shartash Village, Government of Perm, district of Ekaterinburg.—Manufactured leather. 652
12 Sokolin, Tihlon, Moscow.—Calf leather. 652
13 Stevebrunikoff, Simon, Mourashkin-agon, Nijni Novgorod, district of Makariief.—Horse leather. 652
14 Savin, Theodore, Ostashhoff, Government of Tver.—Russian leather and blacked boot legs. 652
15 Rene, John, St. Petersberg.—Sole leather, boot legs, and vamps. 652
16 Pervoff, Stephen, Poshekhoune, Government of Faraslow.—Calf leather and boot legs. 652
17 Ostrom Bros., Uleabor, Finland.—Sole leather. 652
18 Muller, Edward, St. Petersberg.—Boot legs and vamps. 652
19 Long, Frederick, St. Petersberg.—Calf leather, boot legs, and vamps. 652
20 Koorkhoff, P., St. Petersberg.—Leather. 652
21 Husner, Rudolph, St. Petersberg.—Boot and Russian leather. 652
22 Emelianoff, Alexander, St. Petersberg.—Boot legs. 652
23 Efnoff, St. Petersberg.—Boot legs and vamps. 652
24 Company of the Wladimir Tannery, St. Petersberg.—Sole leather. 652
25 Broonsitzine, Nicolas, & Sons, St. Petersberg.—Sole and boot leather and boot legs. 652
26 Bensenson, John, St. Petersberg.—Boot legs. 652

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.
DESCRIPTION OF BUILDINGS AND SPECIAL EXHIBITS.

No. 1. MAIN BUILDING.
See Part I., page 23.

No. 2. MACHINERY HALL.

No. 3. STOKES & PARRISH MACHINE SHOP, etc.
Size, 112 feet by 60 feet.
STOKES & PARRISH, Philadelphia.
Constitutes a part of Annex No. 2 to Machinery Hall, and is intended to execute repairs and machine work for the exhibitors. It is located south of Machinery Hall.

No. 4. AMERICAN BOILER HOUSE.
Is situated south of Machinery Hall, near the Hydraulic Annex, and furnishes steam for the American Section.

No. 5. CORLISS BOILER HOUSE.
Architects, PETTIT & WILSON, Philadelphia.—Size, 40 feet by 80 feet.
CORLISS STEAM ENGINE COMPANY, Providence, R. I.
Is built of composite stone and wood, and furnishes steam for the Corliss engine in Machinery Hall from twenty vertical tubular boilers, aggregating 1,400 horsepower. It is situated south of Machinery Hall.

No. 6. ENGLISH BOILER HOUSE.
Size, 24 feet by 71 feet.
A composite wood and stone building, furnishing steam to English and other foreign exhibitors in Machinery Hall, and situated to the south of it.

No. 7. SHOE AND LEATHER EXHIBITION BUILDING.
See Part III., page 105.

No. 8. CENTENNIAL BOARD OF FINANCE OFFICE.
Architect, H. J. SCHWARZMANN.—Size, 140 feet by 212 feet.
A one-story frame building, situated on the left hand side of the main entrance to the Exhibition grounds, and occupied by the Board of Finance for the transaction of daily business.

No. 9. U. S. CENTENNIAL COMMISSION OFFICE.
Architect, H. J. SCHWARZMANN.—Size, 192 feet by 140 feet.
Located on the right hand side of the main entrance to the Exhibition grounds. It is built of wood, one story high, and is used as a business office by the Centennial Commission.

No. 10. CENTENNIAL NATIONAL BANK.
Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 72 feet by 40 feet.
E. A. ROLLINS, President.
Situated at the northwest corner of the Main Exhibition Building, and east of the Centennial Commission Office. It is one story high, built of wood, and is the medium for transacting the financial affairs of the Exhibition.
No. 11. WEIMER'S MACHINE WORKS, LEBANON, PA.

This outdoor exhibit is located south of Machinery Hall, between the Shoe and Leather Building, and Stokes & Parrish Machine Shop, and consists of bells, car dumps, carts for coal, iron bars, and steel coil tuyere.

No. 12. DARThOLDI'S FOUNTAIN.

See Part II., page 146.

Architect, DARThOLDI, of Paris.—Size, basin, 26 feet in diameter; height, 30 feet, statue, 11 feet.

Situated in the Esplanade in front of the main entrance to the grounds.

No. 13. CATHOLIC TOTAL ABSTINENCE FOUNTAIN.

See Part II., page 146.

Architect, HERMAN KIRN, Philadelphia.

Situated at the junction of Fountain Avenue and the Avenue of the Republic, at the northwestern corner of Machinery Hall. In design it is a circular platform, with four arms projecting at right angles, terminating in four smaller circular platforms. From the centre of the large circle rises a marble rockwork sixteen feet high, with a diameter of eighteen feet at base, on which stands a statue of Moses smiting the rock. The water descends from numerous fissures into a basin forty feet in diameter. On each of the circular platforms is a drinking fountain, twelve feet in height and eight feet eight inches in diameter, surrounded with statues nine feet high, representing Father Mathew, Charles Carroll, Archbishop John Carroll, and Commodore John Barry. It has been erected by contributions made by the numerous societies forming the Catholic Total Abstinence Union of America.

No. 14. FULLER, WARREN, & CO.'S STOVE BUILDING.

Size, 60 feet by 45 feet.

FULLER, WARREN, & CO., New York city, Chicago, Ill., Cleveland, O., and Troy, N.Y.

Located at the east end of Machinery Hall, and facing the Fountain of the Catholic Total Abstinence Society. It contains samples of stoves, heaters, and ranges in operation; is built of wood, one story high, surmounted by a cupola.

No. 15. GILLEnDER & SONS' GLASSWARE BUILDING.

Architect, JAMES H. WINDRIM.—Size, 60 feet by 90 feet.

GILLEnDER & SONS, Philadelphia.

A one-story frame house, situated west of Machinery Hall, on the walk to the Fifty-second Street entrance, where glass in process of manufacture is shown.

No. 16. CAMP OF WEST POINT CADETS.

Located on the eastern slope of George's Hill, at the western end of Fountain Avenue. The tents accommodate 300 cadets, with officers and band.

No. 17. IRON PIPE.

ANDREW O'NEILL, Ansonia, Conn.

This is an outdoor exhibit, situated south of Machinery Hall, and consists of water and gas pipes, showing patent process of jointing.

No. 18. LIBERTY STOVE WORKS.

Architect, C. C. PHILLIPS.—Size, 45 feet by 34 feet.

CHARLES NOBLE & CO., Philadelphia.

A one-story frame building, located west of Machinery Hall, and south of the Catholic Total Abstinence Fountain, on Fountain Avenue; containing different varieties of heaters, stoves, and ranges manufactured by Noble & Co.
SPECIAL BUILDINGS.

No. 19. SAWMILL ANNEX.
Size, 276 feet by 80 feet, and

No. 20. BOILER HOUSE.
Architects, PETTIT & WILSON, Philadelphia.
Size, 48 feet by 30 feet.

UNITED STATES CENTENNIAL COMMISSIONERS.
Exhibit direct-acting steam saw machines and gang saws. Are on Fountain Avenue, west of Machinery Hall, and consist of a one-story frame open building, and a boiler house attached.

No. 21. RAILROAD ENGINE HOUSE.
This building is used for storing and repairing the engines of the Narrow-Gauge Railroad Company, and is located west of Machinery Hall.

No. 22. ST. CECILIAN ORGANS.
This exhibit consists of miniature organs, and some clocks made in 1676, 1776, and 1876. The building is frame, one story high, and in design resembles an organ. It is situated south of Mineral Annex, No. 1, near eastern entrance to Main Building.

No. 23. AUTOMATIC RAILROAD.
Size, 20 feet by 150 feet.
CHARLES W. HUNT, New York.
Illustrations of the mode of unloading vessels by means of a railroad worked by a self-acting apparatus. Is situated west of Machinery Hall.

No. 24. MONUMENT—THE AMERICAN SOLDIER.
NEW ENGLAND CO., Hartford, Conn.
This is a colossal monument situated between the Main Building and Art Gallery, on Avenue of the Republic. It is made of Westerly granite, is 21 feet 6 inches high, weighs 30 tons, and is the largest statue of modern times.

No. 25. GUNPOWDER PILE DRIVER.
Size, 35 feet by 12 feet.
GUNPOWDER PILE-DRIVING CO., Philadelphia.
Is built in the open air to exhibit the operation of pile-driving by means of gunpowder. It is situated southwest of Machinery Hall, between it and the barrier.

No. 26. STARR'S IRON WORKS.
JESSE W. STARR & SON, Camden, N. J.
The space allotted to Messrs. Starr & Son is occupied with gas works, pipes, special castings, stop-valves, lamp-posts, and fire hydrants. It is located southwest of Machinery Hall, close to the barrier.

No. 27. WEST END RAILWAY OFFICE.
This is a two-story frame building, situated west of Machinery Hall and north of Railroad engine house, on line of narrow-gauge road, and designed for the transaction of the Company's business.

No. 28. PNEUMATIC TUBES.
A. BRISBANE.
These tubes are placed on a platform, showing the process of transmitting messages and packages by this method. The exhibit is situated west of the gas machine, near fence on Elm Avenue.
No. 29. EXHIBIT OF NEW ENGLAND GRANITE CO., HARTFORD, CONN.

Situated in front of Board of Finance office, and consists of a Corinthian monument, 46 feet high, crowned with the statue of Hope. A canopy, 40 feet high, surmounted by spire and cross, under canopy a figure indicative of Memory. A Gothic monument with four polished columns at corners of die; a model of statue representing soldier of 1776 (life size); an individual memorial crowned with cross; a Gothic column, surmounted by spire and turrets; a Scotch granite polished monument, 16 feet high, with circular dome terminating in a finial; an individual memorial; a small monument, terminating in an urn; and a rustic monument, with ivy-circled column surmounted with cross.

No. 30. PATENT RAILROAD CROSSING.

This exhibit is located on line of narrow-gauge road near Elm Avenue, and west of Machinery Hall. It is designed to keep dirt from accumulating between the rails and planks of crossing.

No. 31. NEVADA QUARTZ MILL.

Size, 60 feet by 43 feet.
STATE OF NEVADA.

Exhibits the process of manipulating ores and precious metals. It is a one-story frame building, situated south of Machinery Hall.

No. 32. STORE HOUSE.

A one-story brick building, 10 feet by 10, used for the storage of oil for the machinery department. It is between the Nevada quartz mill and the barrier.

No. 33. FRICTION DRUM.

I. S. MUNDY, Newark, N. J.

Situated west of gas machine, near Elm Avenue, and consists of an improved portable friction drum.

No. 34. U. S. HOISTING MACHINE.

Stokes & Parrish.

This exhibit adjoins the machine shop of Stokes & Parrish, south of Machinery Hall, and consists of a derrick with engine and boiler attachment.

No. 35. CHILIAN AMALGAMATING MACHINERY.

Commission for Chili.

Contains working models of amalgamating machinery used in working ores, and has a boiler house with small cylinder boilers. Is situated west of Machinery Hall.

No. 36. CAMPBELL PRINTING PRESS BUILDING.

Architect, ALEXANDER B. BARY.—Size, 88 feet by 144 feet.

CAMPBELL PRINTING PRESS AND MANUFACTURING CO., Brooklyn, N. Y.

The various printing presses manufactured by this company are exhibited in operation; the power is furnished by a thirty (30) horse-power engine and boiler. Specimens of type printing from the date of the invention, and of sunlight printing, are shown, and a complete printing office, of the fashion of 1776, is also in operation.
No. 37. OLD LOCOMOTIVE AND CARS.

EXHIBITED BY PENNSYLVANIA RAILROAD CO.

This exhibit is situated on line of Narrow-Gauge Railroad, west of Machinery Hall, and consists of the engine "John Bull," with tender and two passenger cars, standing upon the rails and stone sleepers of the first piece of track laid for the Camden & Amboy Railroad, in 1831; also, the first iron prow used on ships in crossing the Atlantic Ocean.

No. 38. CAR HOUSE.

Size, 140 feet by 44 feet.

Situated west of Machinery Hall, on line of Narrow-Gauge Railroad; designed for the exhibition of cars.

No. 39. POLICE STATION.

This building is situated southwest of Glass Factory, and is used by the Centennial Guard for quarters, etc.

No. 40. AVERILL CHEMICAL PAINT CO.

Size, 36 feet by 42 feet.

Contains exhibits of the Averill Chemical Paint ready for use, and applied. The building is constructed on the Rogers patent, has no frame work, and is put together with bolts and iron tongues. It is west of the Liberty Stove Works, on Fountain Avenue.

No. 41. OFFICIAL CATALOGUE AND NEWSPAPER ADVERTISING OFFICE.

Size, 20 feet by 30 feet.

CENTENNIAL CATALOGUE COMPANY—S. M. PETTENGILL & CO., New York, Philadelphia, and Boston.

A one-story building, occupied jointly by the Centennial Catalogue Company, and S. M. Pettengill & Co., Newspaper Advertising Agents. Contains bound volumes and files of the principal newspapers of the country, specimen numbers of old newspapers, photographs of editors and publishers, etc. Situated south of the east end of Machinery Hall.

S. M. Pettengill & Co., established 1849, are agents for all the newspapers of the United States and Canada, which are received and filed at their spacious and conveniently located offices, 32 Park Row, New York; 701 Chestnut Street, Philadelphia; 10 State Street, Boston, and upon the Centennial grounds. They have built up a large business by faithful attention to the interest of their customers, for whom they save time, trouble, and expense. Their long experience and large facilities are put at the service of those who consult them respecting the best methods of advertising.

No. 42. STOKES & PARRISH BOILER HOUSE.

Size, 10 feet by 12 feet.

Contains a boiler and engines; situated east of the southern central entrance of the Main Building.

No. 43. EHRET'S WATER-PROOF ROOFING.


A circular pavilion, showing fire and water-proof roofing. It is located to the east of the central southern entrance of the Main Building.
No. 44. **TOMBSTONES.**

This exhibit is situated south of the Main Building, near central entrance, and consists of tombstones, inclosed by ornamental iron fence.

No. 45. **TERRA-COTTA PIPES.**

Exhibited by E. W. Rittenhouse & Bro., Baltimore, Md. Comprises drain pipes of different sizes, elbows, angles, etc. Southwest of Machinery Hall, and adjoining the Gas Machine.

No. 46. **MINERAL ANNEX, 1 and 2.**

An extension of the Main Building, to the east of its south central entrance. It contains the greater part of the American exhibits in Department I. (Mining and Metallurgy), which are catalogued in Part I., pages 47 to 60.

No. 47. **FIRE-PROOF VENTILATED BUILDING.**

Architect and Builder, Robert Irwest.—Size, 13 feet by 13 feet.

This is a one-story building composed of hollow bricks, peculiar in construction. Located south of Main Building and Annex No. 2.

No. 48. **HEWITT & BRENNAN'S SWINGS.**

These swings are known as aerial chairs, and are operated by means of a treadle with foot-pressure, leaving the hand entirely free. They number six, and are situated on Agricultural Avenue, immediately south of the American Restaurant, and south of Main Building, where the exhibit is known as aerial chairs.

No. 49. **ORNAMENTAL STONE WORK.**

An exhibit of brown stone, representing a double entrance to dwelling, elaborately carved, with rough dressed trimmings. Located south of St. Cecilian Organ and Main Building Annex No. 1.

No. 51. **UNITED STATES GOVERNMENT BUILDING.**

See Part III., page 72.

No. 51½. **BARTHOldI ELECTRIC LIGHT.**

Is situated immediately west of Cook, Son & Jenkins' Pavilion, on border of lake, and consists of arm of statue to be erected in New York harbor.

No. 52. **UNITED STATES ARMY POST HOSPITAL.**

See Part III., page 73.

No. 52½. **HOWE MONUMENT.**

This monument was erected by the Howe Machine Co., to the memory of Elias Howe, Jr., the first inventor of sewing machines in this country. It was designed by Mr. Ellis, and cast by Wood Bros., of Philadelphia, and is situated at the western end of the lake, opposite northern central entrance to Machinery Hall.

No. 53. **UNITED STATES HOSPITAL TENT.**

See Part III., page 73.

No. 53½. **JERUSALEM BAZAAR.**

Situated on south side of Fountain Avenue, and due north of Turkish Bazaar. Designed for sale of olive wood.

No. 54. **UNITED STATES LABORATORY.**

See Part III., page 73.
SPECIAL BUILDINGS.

No. 54½. PHILADELPHIA "TIMES" PAVILION.
Architects, WILSON BROS. & CO., Philadelphia.—Size, 28 feet by 17 feet. A. K. McCLURE, Editor.
The Centennial business office of the "Times," a daily paper, issued morning and evening, and printed on a Hoe perfecting press in Machinery Hall. It is a one-story frame building, located on Belmont Avenue, opposite and east of the lake.

No. 55. PENNSYLVANIA STATE BUILDING.
Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 97 feet by 55 feet.
A two-story frame building, with a tower, of Gothic style. It faces the lake, between Fountain Avenue and the Avenue of the Republic; contains reception-rooms and offices for the use of the State Commissioners and visitors.

No. 55½. HUNGARIAN WINE PAVILION.
Architect, H. J. SCHWARZMANN.
JACOB KOHN, Manager.
This structure is circular in form, situated on State Avenue, north of the Japanese and Mississippi buildings, and devoted to the sale of Hungarian wines exclusively.

No. 56. OHIO STATE BUILDING.
Architects, HEARD & SONS, Cleveland, O.—Size, 45 feet by 44 feet, and Annex, 60 feet by 40 feet.
A two-story stone pavilion, located at the junction of State and Belmont Avenues. It supplies accommodation for the State Commissioners.

1 Hoffman, A. O., Thompson, Wm., and others, Springfield, O.—Springfield limestone, course No. 16.
2 McNally, Wm. G., Cleveland, O.—Coat of arms of Ohio, carved from Berea stone.
3 Berea Stone Co., Berea, O.—Berea sandstone, course Nos. 1 and 2.
4 Hurst, J. R., Cleveland, O.—Independence sandstone, course No. 4.
5 Ford, O. D., Cleveland, O.—Euclid sandstone, course No. 3.
6 Halderman, L., & Son, Cleveland, O.—Amherst stone, course No. 5 and window No. 4.
7 Wagner, John, Cleveland, O.—Independence sandstone, course No. 6.
8 Amherst Stone Co., Cleveland, O.—Amherst stone, course No. 7.
9 Black River Stone Co., Cleveland, O.—Stone from Grafton, Ohio, course No. 8 and window No. 10.
10 Paul, John, & Co., Massillon, O.—White sandstone from Massillon, Ohio, course No. 9.
11 Wilson & Hughes Stone Co., Cleveland, O.—Amherst stone, course No. 10 and window No. 9, and Independence stone, course No. 12.
12 Clough Stone Co., Amherst, O.—Amherst stone, course No. 11, and one-half front entrance.
13 Worthington & Sons, Amherst, O.—Amherst stone, course No. 12, and one-half front entrance.
14 Ohio Stone Co., Cleveland, O.—Amherst stone, course No. 14.
16 Coshocton Stone Co., Coshocton, O.—Sandstone, course No. 15 and window No. 2.
17 Stitt, Price, & Co., Columbus, O.—Columbus limestone, course No. 16.
18 Finnegans, M., Cincinnati, O.—Cincinnati sandstone, window No. 3.
19 Finnegan, J. H., Cincinnati, O.—Cincinnati stone, course No. 13.
20 Montgomery, R. M., Youngstown, O.—Sandstone, part of course No. 20.
21 Caldwell & Tod, Youngstown, O.—Stone from Tod quarry, part of course No. 20.
22 Byers & McIlhainy, Youngstown, O.—Stone from Youngstown, part of course No. 20.
23 Mauser & Haid, Youngstown, O.—Stone from Youngstown, part of course No. 20.
24 Hamilton, Homer, Youngstown, O.—Stone from Youngstown, part of course No. 20.
26 Stocking, Z. S., Mansfield, O.—Red sandstone from Mansfield, two vestibule windows.
27 Bosler, Marcus, Dayton, O.—Dayton limestone, part of gable end and three windows.
SPECIAL BUILDINGS.

28 Huffman, Wm., Dayton, O.—Dayton limestone, part of front gable and three windows. 227
29 Diamond Glass Co., Ravenna, O.—Double-thick glass, iron ground white sandstone, in windows. 214
30 American Inlaid Wood Co., Cleveland, O.—Inlaid wood floor, ladies' parlor. 227
31 Garry Iron Roofing Co., Cleveland, O.—Sections of corrugated iron roof. 227
32 American Sheet & Boiler Plate Co., Cleveland, O.—Section iron roofing tile. 227

No. 56 1/2. CENTENNIAL POLICE STATION.
This building is situated immediately north of State Avenue and Hungarian Wine Pavilion, and is used as quarters, etc., of Centennial Guards.

No. 57. INDIANA STATE BUILDING.
Size, 50 feet by 42 feet.

A two-story frame building, on State Avenue, opposite the United States Government buildings, containing accommodations for the State Commissioners and for visitors from Indiana.

The exhibit consists of a chair made of one hundred different kinds of wood from one county. Specimens of block and coking and cannel coal; flag from natural bed of limestone; black walnut; model of Bailey gun, and a painting by Cox, of the Sierra Valley. The walls are occupied with panels, presenting in brief form the growth and industries of representative counties and cities. In the reading-room is a large map showing railroad system, with margin presenting agricultural and manufacturing statistics.

No. 57 1/2. SPONGE FISHERS OF TURKEY.
This building contains an exhibit of sponge and fruit, situated on south side of Fountain Avenue, and north of Vermont State building and Turkish Café.

No. 58. ILLINOIS STATE BUILDING.
Architects, Wheelock & Thomas.—Size, 60 feet by 40 feet.

Situated on State Avenue, north of the United States Government Buildings; the headquarters of the Illinois Commissioners.

No. 58 1/2. BETHLEHEM BAZAAR.
Located on Fountain Avenue, adjoining Jerusalem Bazaar, and intended for sale of olive wood.

No. 59. WISCONSIN STATE BUILDING.
Size, 50 feet by 40 feet.

For the accommodation of the State Commissioners. Located on State Avenue, north of the United States Government Exhibition Buildings.

No. 59 1/2. SCREW FOG-HORN AND BELL.
Situated at northwest corner of Belmont and State Avenues. Exhibit consists of one caloric engine, which pumps air for fog-horn; tank for air; and stationary engine.

No. 60. MICHIGAN STATE BUILDING.
Size, 48 feet by 53 feet.

On State Avenue; built of native woods and stone; interior with raised panel work; marble wainscoting; parquet floors, all highly finished. Contains reception, Commissioners', dressing, parcel, three reserve rooms, and ladies' parlor.
**SPECIAL BUILDINGS.**

No. 61. NEW HAMPSHIRE STATE BUILDING.
Size, 30 feet by 40 feet; two projections, 9 feet by 15 feet each.

In the style of an Italian villa, two stories in height, and containing ten rooms, the roof protected by an awning and used for an outlook. This exhibit consists of views of White Mountains scenery, and home of General John Stark, the hero of Bennington.

No. 62. CONNECTICUT STATE BUILDING.

Architect, D. R. Brown, from a design by Donald G. Mitchell.—Size, 30 feet by 40 feet.

This cottage is erected in the old Colonial style, somewhat modified, and is designed for the use of the citizens and exhibitors of the State of Connecticut. It is situated on State Avenue, not far distant from the United States Government Exhibition Buildings. Exhibit consists of the Royal Arms, which, before the revolution, hung above the Speaker's chair in the House of Representatives, at Hartford, painted in 1724. Rustic chess stand, ham, nutmegs, frames, etc., made from the wood of the Charter Oak. Ancient furniture, clock, tile, settee, etc., etc.

No. 63. MASSACHUSETTS STATE BUILDING.
Size, 85 feet by 56 feet.

Situated on State Avenue, opposite the New York State Building; is built of wood, two stories high, and contains offices and rooms for Commissioners and visitors.

No. 64. DELAWARE STATE BUILDING.
Size, 54 feet by 34 feet.

Built in the Swiss-Gothic style, from native woods of the State. It is occupied by the State Commissioners, the first floor being used for reception-rooms, while the second floor is devoted to business purposes. Is situated on State Avenue, north of the British Commission, opposite the New York State Commission.

No. 65. MARYLAND STATE BUILDING.
Size, 92 feet by 60 feet.

For the use of the State Commissioners and visitors. Situated on State Avenue, north of the British Government buildings, and is built of wood, two stories high. This exhibit consists of minerals, woods, building stone, specimens of art by pupils of Maryland Institute and School of Art and Design, portraits of Governors, three engines by Baltimore & Ohio Railroad, models of fish-house and hatching-house.

No. 67. JAPANESE DWELLING.
Architect, Matsuo-Ehe, Tokio.—Size, 102 feet by 48 feet.

This building, usually called the Japanese Government Building, is intended as a dwelling-house for Japanese workmen. The wood and other articles that enter into its composition, and also the vases and flowers in the surrounding garden, were imported from Japan, and all the work has been done by Japanese artisans. It is situated south of the British buildings.

No. 68. WEST VIRGINIA STATE BUILDING.
Size, 115 feet by 40 feet.

Northwest of the Catholic Total Abstinence Fountain, built of wood, two stories high. Headquarters for State Commissioners and visitors from West Virginia. The exhibit consists of twenty pyramids of coal, mineral waters, ores, agricultural products, oils, tobacco, building stone, veneers, salt, glass, and a memorial shield made of seventy-eight varieties of wood, viz.:
Minerals, Ores, Stone, Mining Products.

1 Central Virginia Copper Mine, Virginia—Copper ores, iron pyrites, and collection of minerals found on line of Chesapeake & Ohio Railroad. 100
2 Stack, A. I., Virginia—Hematite ore. 100
3 Lancaster Furnace & Mining Co., Taylor county, West Va.—Carbonate of iron. 100
4 McCreery, W., Raleigh county, West Va.—Hematite ore. 100
5 Harvey, R. T., Putnam county, West Va.—Iron ore. 100
6 Dickinson, H., Pendleton county, West Va.—Hematite ore. 100
7 Miller, George, Pendleton county, West Va.—Hematite ores. 100
8 Boggs, J. C., Pendleton county, West Va.—Hematite ore. 100
9 Davis, Madam, Dença, Pendleton county, West Va.—Hematite ores. 100
10 Garloe, A. E., Marion county, West Va.—Carbonate of iron. 100
11 Brown, T. L., Kanawha county, West Va.—Black band iron ore. 100
12 Hamilton, Jas., Jefferson county, West Va.—Barites. 100
13 Melville, A. W., Jackson county, West Va.—Iron ore. 100
14 Bond, E., Harrison county, West Va.—Iron ore. 100
15 McMechen, S. A., Hardy county, West Va.—Iron ores. 100
16 Alexander, W. A., Greenbrier county, West Va.—Calc spar. 100
17 Lewis, F., & Co., Grant county, West Va.—Calc spar and iron ores. 100
18 Hill, Wm., Fayette county, West Va.—Iron ore. 100
19 Wilson, Lewis, Barbour county, West Va.—Carbonate of iron. 100
20 Stout, H. L., Phillippi, West Va.—Carbonate of iron. 100
21 Nickell, G. W., Greenbrier county, West Va.
   a Iron ore. 100
   b Coal. 100
22 Hovey, W. M., Kanawha county, West Va.
   a Iron ores. 100
   b Coals. 101
   a Carbonate of iron. 100
   b Bituminous coal. 101
24 Great Western Mining & Manufacturing Co., Ky.
   a Iron ore. 100
   b Coal. 101
   a Hematite ore. 100
   b Marble. 102
26 Ruffner, L., & Lewis, J. D., Kanawha county, West Va.
   a Black flint. 102
   b Building sandstone. 102
   a Carbonate of iron. 100
   b Building sandstone. 102

28 Capon Iron Works, Hardy county, West Va.
   a Iron ores. 100
   b Limestone. 103
   a Iron ores. 100
   b White glass and sand. 104
   a Iron ores. 100
   b Ferruginous. 104
31 Shimp, Jas., Hardy county, West Va.
   a Iron ores. 100
   b Potters' clay. 104
   a Iron ore. 100
   b Potters' clay. 104
33 Cantley, R. K., Greenbrier county, Va.
   a Flint. 100
   b Semi-bituminous coal. 102
   c Limestone and silicious coal. 103
   a Carbonate of iron. 100
   b Coal. 101
   c Fire clay. 104
35 Clay, Cecil, Greenbrier county, West Va.
   a Iron ore. 100
   b Building sandstone. 102
   c Clay. 104
   d Mineral waters. 101
   a Iron ore. 100
   b Limestone. 103
   c Sandstone for furnaces. 104
37 Mendenhall, U., Morgan county, West Va.
   a Hematite ore. 100
   b Limestone. 103
   c White glass sand. 104
38 Willey, W. T., Monongahela county, West Va.
   a Iron ores. 100
   b Coals. 101
   c Building sandstone. 102
   d Limestone. 103
   e Fire clay. 104
   a Iron ores and black oxide of manganese. 100
   b Mineral waters. 107
40 Johnson, J. F., Pendleton county, West Va.
   a Hematite ores. 100
   b Mineral water. 107
41 Dulin, C., Wirt county, West Va.—Petroleum. 101
42 Volcano Oil & Coal Co., Wood county, West Va.—Bituminous coal. 101
43 Hale & Porter, Wirt county, West Va.—Petroleum. 101
44 Aspenwall & Low, Wayne county, West Va.—Cannel coal. 101
45 Ferguson, Waye, Wayne county, West Va.—Bituminous and cannel coal. 101
46 Barnes, J. H., Taylor county, West Va.—Bituminous coal. 101
47 McGregor, Dr., Ritchie county, West Va.—Petroleum and Ritchie mineral. 101
WEST VIRGINIA STATE BUILDING.

48 Beckley, A., Raleigh county, West Va.—Bituminous coal.
49 Prude, G. H., Raleigh county, West Va.—Bituminous coal.
50 Raymond Coal Co., Putnam county, West Va.—Bituminous coal.
51 Auten Coal Co., Preston county, West Va.—Coal and coke.
52 Hill, M. L., Ohio county, West Va.—Bituminous coal.
54 Hartford City Coal & Salt Co., Mason county, West Va.—Bituminous coal.
55 Gaston Coal Mines, Marion county, West Va.—Gas coal.
56 Aspinwall & Low, Lincoln county, West Va.—Cannel coal.
57 Falling Rock Coal Co., Kanawha county, West Va.—Cannel coal.
58 Lewis, J. D., Kanawha county, West Va.—Coal.
59 Enterprise Coal Co., Kanawha county, West Va.—SPLIT coal.
60 Kanawha Semi-Cannel Coal Co., West Va.—Coal.
61 Mill Creek Cannel Coal Co., Kanawha county, West Va.—Cannel coal.
62 Lewiston Cannel Coal Co., Kanawha county, West Va.—Coal.
63 Monongahela Gas Coal Co., Harrison county, West Va.—Gas coal.
64 Despard Gas Coal Co., Harrison county, West Va.—Gas coal.
65 Murphy's Run Coal Mine, Harrison county, West Va.—Gas coal.
67 Cole, B., Fayette county, West Va.—Bituminous coal.
68 Coal Valley Coal Co., Fayette county, West Va.—Gas coal.
69 Gauley, ——, Kanawha Coal Co., Fayette county, West Va.—Coal and coke.
70 Lingle Coal & Iron Co., Fayette county, West Va.—Coal and coke.
71 Nuttal Coal Co., Fayette county, West Va.—Coal and coke.
72 Stanton Rock Coal Co., Brooke county, West Va.—Bituminous coal.
73 Brown, T. L., Boone county, West Va.—Cannel coal.
74 Peytona Cannel Coal Co., Boone county, West Va.—Cannel coal.
75 Ball, A., Boone county, West Va.—Cannel coal.
76 Corrathers, L., Taylor county, West Va.
   a Cannel coal.
   b Fire clay.
77 Radcliff, R. S., Marion county, West Va.
   a Bituminous coal.
   b Limestone.
78 Hall, W. W., Pleasants county, West Va.
   a Petroleum.
   b Brine.
79 Boggs Run Mining Co., Ohio county, West Va.
   a Bituminous coal.
   b Building sandstone.
   c Limestones.
80 Hudson, J. & D., Hancock county, West Va.
   a Bituminous coal.
   b Building sandstone.
   c Limestone.
81 Browse, R. H., Pleasants county, West Va.—Building sandstone.
82 Waddle, J. & M., Ohio county, West Va.—Building sandstone.
83 Osborne, J., Monroe county, West Va.—Marble.
84 Camden, P. B., Lewis county, West Va.—Building sandstone.
85 Rall, R., Jefferson county, West Va.—White marble.
86 Strider, S. W., Jefferson county, West Va.—Black marble.
87 Strider, J. S., Jefferson county, West Va.—Black and white marble.
88 Withrow, Jas., Greenbrier county, West Va.—Marlites.
89 Miller, J. H., Fayette county, West Va.—Building sandstone.
90 Lanham, Gabriel, Taylor county, West Va.
   a Building sandstone.
   b Limestone.
91 Laiddy, J. B., Cabell county, West Va.
   a Building sandstone.
   b Brine.
92 Lanham, Zadock, Taylor county, West Va.—Limestone.
93 Gwinn, M., Summers county, West Va.—Hydraulic limestone.
94 Lang, A. J., Ohio county, West Va.—Hydraulic limestone and cement.
95 Thompson, O. D., Ohio county, West Va.—Hydraulic limestone.
96 Wells, J., Ohio county, West Va.—Limestone.
97 Potomac Cement Mills, Jefferson county, West Va.—Hydraulic limestone and cement.
98 Mann, M., Greenbrier county, West Va.—Limestone.
99 Donaghe, A. P., Wood county, West Va.—Potters' clay.
100 Pickering, N. A., Wirt county, West Va.—Potters' clay.
101 Johnson, D. D., Tyler county, West Va.—Fire clay.
102 Glade Fire Brick Co., Marion county, West Va.—Fire clay.
103 Wolfe, A., Hardy county, West Va.—White glass sand.
104 Wells, N., Brooke county, West Va.—Potters' clay.
105 Williamson, J. R., Barbour county, West Va.—White sand for glass.
106 Seatt, J., Raleigh county, West Va.—Millstone rock.
107 Sawtall, G., Ohio county, West Va.—Wetstones.
109 Sweet Chalybeate Springs co., West Va.—Mineral water.
110 Kanawha Salt Co., Kanawha county, West Va.—Brines and bitterns.
111 Alexander, E. S. & M. S., Hardy county, West Va.—White sulphur water.
SPECIAL BUILDINGS.

112 Duffy, J. W., Hardy county, West Va.— Sulpho-chalcybeate water.

113 Parrow, N. D., Hardy county, West Va.—Mineral waters.


115 Huffman, A. R., Greenbrier county, West Va.—White sulphur water.

116 McPherson, Joel, Greenbrier county, West Va.—Mineral water.

117 Williams, J. V., Grant county, West Va.—Calcareaous marl.

Metallurgical Products.

118 Capon Iron Works, Hardy county, West Va.—Slag, bloom, wrought iron and cold blast charcoal iron.

119 Bloomery Iron Works, Hampshire county, West Va.—Cold blast charcoal iron.

120 Elk River Iron & Coal Co., Braxton county, West Va.—Slag and cold blast charcoal iron.

Chemical Manufactures.

121 Kanawha Salt Co., Kanawha county, West Va.—Salt.

122 Sharp & Staples, Wood county, West Va.—Lubricating and refined oils.

123 Camden Consolidated Oil Co., Wood county, West Va.—Oils.

124 Lerner, H., Mason county, West Va.—Bromine.

125 Hale, E. W., Wirt county, West Va.—Parmenter oil.

126 Smith, P. B., Lewis county, West Va.—Yellow ochre.

127 Boteler, A. R., Jefferson county, West Va.—Yellow ochre.

128 Scott, H., Hardy county, West Va.—Yellow ochre.

129 Fisher, W., Hardy county, West Va.—Yellow ochre.

130 Wood, A. M., Hardy county, West Va.—Yellow ochre.

131 Peters, W. L., Cabell county, West Va.—Mineral paint.

Ceramics—Pottery, Porcelain, Glass.

132 Glade Fire-brick Co., Marion county, West Va.—Fire brick.

133 Donnaghe, A. P., Wood county, West Va.—Crockery.

Furniture and Objects of General Use in Construction and in Dwellings.


Fabrics of Vegetable, Animal, or Mineral Materials.

135 Robson, Mary E., Fayette county, West Va.—Basket.

Educational Systems, Methods, and Libraries.


137 Young, J., Mason county, West Va.—Schoolwork of Mason county public schools.

138 McGregor, Dr., Ritchie county, West Va.—Schoolwork of Ritchie county public schools.

139 Staley, T. J., Tyler county, West Va.—Work from Buckhannon public school.

140 Radcliff, R. S., Marion county, West Va.—Schoolwork of Fairmount public schools, Marion county.

141 Ruffner, L. & Lewis, J. D., Kanawha county, West Va.—Schoolwork of public schools, Charleston, Kanawha county.

Engineering, Architecture, Maps, etc.

142 Johnson, H. H., Hampshire county, West Va.—Embosed maps of the United States and West Virginia, for use of the blind.

Sculpture.

143 Crawford, G. B., Brooke county, West Va.—Ornamental bracket of native woods.

144 Doddridge Music & Art School, Wheeling, West Va.—Oil paintings.

145 Henderson, D. E., Jefferson county, West Va.—Oil painting.

Photography.

146 Donnaghe, A. P., Wood county, West Va.—Photograph of Burning Spring school.

147 Pickering, N. A., Wirt county, West Va.—Photograph of Elizabeth High School.

148 City of Wheeling, West Va.—Photographic views of free schools.

149 Lerner, H., Mason county, West Va.—Photograph of Clifton public school.

150 Kanawha Salt Co., Kanawha county, West Va.—Photograph of Union public school, Charleston, Kanawha county.

151 Turner, G. H., Jefferson county, West Va.—Photograph of Shepperd College, Jefferson county.

152 Bloomery Iron Works, Hampshire county, West Va.—Photograph of Deaf, Dumb, and Blind Asylum, Hampshire county.

153 Peters, W. L., Cabell county, West Va.—Photograph of Marshall College.

154 Wells, N., Brooke county, West Va.—Photograph of public schools.

Aerial, Pneumatic, and Water Transportation.

155 Young, J., Mason county, West Va.—Model of steamboat.

Arboriculture and Forest Products.

156 Kyle, Henry, Wetzel county, West Va.—Sections of woods.

157 Peterson, W. P., Wetzel county, West Va.—Sections of wood.

158 Johnson, D. D., Tyler county, West Va.—Timber.

159 Armstrong, A. Taylor county, West Va.—Timber.
160 McCready, W., Raleigh county, West Va.—Samples of timber. 600
161 Beckley, A., Raleigh county, West Va.—Cross sections of timber. 600
162 Prince, G. H., Raleigh county, West Va.—Woods. 600
163 Dull & Callaway, Putnam county, West Va.—Stakes and hoop poles. 600
164 Browse, R. H., Pleasants county, West Va.—Specimens of woods. 500
165 Banjoy, N. I., Pendleton county, West Va.—Laurel wreathe and vine. 600
166 Hammer, B., Pendleton county, West Va.—Section of locust wood. 600
167 Hammer, Jacob, Pendleton county, West Va.—Sections of wild cherry and yellow pine. 600
168 Johnson, J. F., Pendleton county, West Va.—Sections of various woods. 600
169 Mestrezall, W., Monongahela county, West Va.—Walnut board. 600
170 Fairchild, Lawhead, & Co., Monongahela county, West Va.—Woods used in wagon building. 600
171 Ruffner, L., & Lewis, J. D., Kanawha county, West Va.—Cross sections of twenty-one varieties of timber. 600
172 McKnight & Rohrer, Jefferson county, West Va.—Axe handles and follos. 600
173 Clay, Cecil, Greenbrier county, West Va.—Specimens of woods. 600
174 Letterman, W. H., Fayette county, West Va.—Samples of woods. 600
175 Heald, D., Fayette county, West Va.—Holasses hogshead shok. 600
176 Guard, Jas., Fayette county, West Va.—White oak stave. 600
177 Abbott, J. M., Fayette county, West Va.—Holly. 600
178 Cassidy, R. B., Fayette county, West Va.—Maple. 600
179 Miller, J. H., Fayette county, West Va.—Woods. 600
180 Sinsel, J. B., Fayette county, West Va.—Samples of ash. 600
181 Elk River Iron & Coal Co., Braxton county, West Va.—Charcoal. 600
182 Brown, S. H., Fayette county, West Va.—Veneers. 601
183 Peters, W. L., Cabell county, West Va.—Poplar boards, polished. 601

Agricultural Products.

184 Leigh, Wm., Berkeley county, West Va.—Corn. 620
185 Downer, J. E., Cabell county, West Va.—Corn on stalk. 620
186 Settle, J. G., Fayette county, West Va.—Corn. 
   a Wheat, buckwheat, and corn. 620
   b Tobacco. 623
187 Marrs, John, Fayette county, West Va.—Oats. 620
188 Robson, H A., Fayette county, West Va.—Corn. 620
189 Blake, L., Fayette county, West Va.—Corn. 620
190 Dickinson, M., Fayette county, West Va.—Corn. 620
191 Rice, J. P., Harrison county, West Va.—Wheat. 620

192 Bartlett, P. W., Harrison county, West Va.—Wheat. 620
193 Rider, B. D., Harrison county, West Va.—Corn, wheat, oats and buckwheat. 620
194 Bartlett & Riley, Harrison county, West Va.—Wheat. 620
195 Green, R. H., Harrison county, West Va.—Wheat. 620
196 Waters, G., Harrison county, West Va.—Corn. 620
197 Hickman, J., Harrison county, West Va.—Corn. 620
198 Bassett, D., Harrison county, West Va.—Wheat and corn. 620
199 Morrison, D., Harrison county, West Va.—Corn. 620
200 Sayre, J., Jackson county, West Va.—Corn. 620
201 Hopkins, A. D., Jackson county, West Va.—Wheat. 620
202 Fisher, J. W., Gilmer county, West Va.—Corn. 620
203 Wilson, H., Hardy county, West Va.—Oats. 620
204 Bean, Peter, Hardy county, West Va.—Buckwheat. 620
205 McNeal, R., Hardy county, West Va.—Corn. 620
206 Mistle, Thos., Hardy county, West Va.—Corn. 620
207 Williams, G. P., Hardy county, West Va.—Wheat. 620
208 Bean, J., Hardy county, West Va.—Oats and wheat. 620
209 Handley, H., Greenbrier county, West Va.—Oats, corn, timothy, orchard grass, and orchard grass seed. 620
210 Alexander, W. A., Greenbrier county, West Va.—Wheat. 620
211 Koontz, G., Jefferson county, West Va.—Corn. 620
212 Turner, G. H., Jefferson county, West Va.—Wheat. 620
213 Flemming, R. E., Marion county, West Va.—Corn and wheat. 620
214 Gray, W., Marshall county, West Va.—Corn on stalk. 620
215 Valette, J. & M., Ohio county, West Va.—Corn. 620
216 Wilson, G. W., Ohio county, West Va.—Corn. 620
217 Dyer, J. P., Pendleton county, West Va.—Corn. 620
218 Cunningham, S., Pendleton county, West Va.—Corn. 620
219 Millar, Wm. C., Pendleton county, West Va.—Wheat. 620
220 Harris, T. M., Ritchie county, West Va.—Corn. 620
221 Browse, R. H., Pleasants county, West Va.—Corn and wheat. 620
222 Williams, J. S., Taylor county, West Va.—Corn and wheat. 620
223 Riley, John, Taylor county, West Va.—Wheat. 620
224 Sheppard, L., Wirt county, West Va.—Corn. 620
225 Settle, W., Fayette county, West Va.—Corn. 
   a Corn. 620
   b Tobacco. 623
No. 69. **CANADIAN LOG HOUSE.**

Size, 75 feet by 56 feet.

**Canadian Commission.**

See Part IV., page 134.

Is one story high, constructed of logs, and located close by the British Government buildings. It constitutes an exhibit of the timbers of Canada.

No. 70. **MISSOURI STATE BUILDING.**

Architect, L. C. Miller, St. Louis.—Size, 58 feet by 48 feet, with tower.

Location, State Avenue, George's Hill. Headquarters of Board of State Centennial Managers, organized by State Legislature; President, Thomas Allen; Secretary, J. L. Tracy. Exhibits in Main Hall, Education Department, Mineral Annex, Agricultural Hall.

Nos. 71, 72, 73. **BRITISH GOVERNMENT BUILDINGS.**

Architect, Thomas Harris, of London.—Size, No. 1, 5000 sup. feet; No. 2, 1200 sup. feet.

These edifices have been erected for the use of the members of the Royal Commission. The large one is the residence of the Commissioners and delegates, while the smaller furnishes accommodations for the members of the staff. They are built in a picturesque, half-timbered style, essentially English, and are located north of Machinery Hall. A bake-house and laundry are also attached to the above.

No. 74. **NEW YORK STATE BUILDING.**

Architects, Croff & Camp.—Size, 60 feet by 34 feet.

The Commissioners of the State of New York have offices in this building. It is a two-story structure, surrounded by about half an acre of ground. It is situated on State Avenue, north of the British buildings.

No. 75. **COLONEL LIENARD'S GEORAMA.**

Designer, Col. Lienard, Paris.—Size, area 1550 square feet.

An open-air exhibit, models of the cities of Paris and Jerusalem, in gypsum. The contour of the ground is shown, and the streets appear fully delineated. It is in the centre of Fountain Avenue, at the head of the lake.
SPECIAL BUILDINGS.

No. 76. POP-CORN BUILDINGS.
Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 41 feet by 32 feet each. J. A. BAKER, Dayton, Ohio.

One of these buildings is situated on Fountain Avenue opposite the northern extremity of the lake; the other is on Agricultural Avenue, east of and opposite the New England Farmers’ Home and Modern Kitchen. They are devoted exclusively to the sale of pop-corn, and are built of wood, one story high.

No. 77. CIGAR STANDS.
The stands are located at various points north of the Avenue of the Republic, and west of Belmont Avenue.

No. 78. SODA WATER STANDS.
These stands are situated at various points north of the Avenue of the Republic, and west of Belmont Avenue.

No. 79. TUNISIAN CAFÉ AND BAZAAR.
A decorated pavilion with stained glass windows, designed for the display of Tunisian products. Situated on Fountain Avenue, north of Pennsylvania State building.

No. 80. CHRISTOPHER COLUMBUS MONUMENT.
Located at corner of Belmont and Fountain Avenues. It was erected by the Columbus Monument Association. It is of colossal size, and represents the Genoese navigator in a standing posture, with the right hand resting on a globe, and the left holding a chart; an anchor and rope indicating his occupation.

No. 81. DRINKING FOUNTAIN.
Size, 25 feet in diameter.
Erected by the SONS OF TEMPERANCE of Pennsylvania.

This fountain is built of wood, the structure inclosing it being circular in form, and it is situated at the junction of Fountain and Belmont Avenues. The Singer & Talcott drinking fountain is a marble fountain situated between the Bethlehem Bazaar and Tunisian Café.

No. 82. “TROIS FRÈRES PROVENÇAUX” RESTAURANT.
Architect, LEHMAN, of Paris.—Size, 177 feet by 110 feet.
LOUIS GOYARD, Proprietor.

A two-story frame structure, situated on the corner of Belmont and Fountain Avenues. It has large garden surroundings, and is a duplicate of the restaurant of the same name in Paris as regards its management.

No. 83. NEW YORK “TRIBUNE” BUILDING.
Architect, E. E. RATH.—Size, 30 feet by 21 feet.
NEW YORK TRIBUNE, New York.

A small octagonal wooden building, with verandas and a high tower-like roof. It is located close to the French Restaurant and the lake, and is used as an office for the correspondents and reporters of “The Tribune.”

No. 84. WORLD’S TICKET OFFICE.

Situated immediately north of the eastern end of Machinery Hall. It is hexagonal in form, and contains a main hall and four private offices. Tickets to all parts of the world are offered for sale, and ornamental articles manufactured in Palestine are exhibited.
SPECIAL BUILDINGS.

No. 85. PRESSED FUEL COMPANY'S BUILDING.
Polygon, 24 feet in diameter.
E. F. LOISEAU, Philadelphia.

Constructed of iron and situated in a garden plot on the Avenue of the Republic, west of the lake and opposite to Machinery Hall. It exhibits the fuel in a state of combustion, to demonstrate its economy and adaptability.

No. 86. SPANISH GOVERNMENT BUILDING.
Decagonal, .50 feet in diameter.
A one-story frame building, situated on the Avenue of the Republic, west of the Catholic Total Abstinence Fountain. Intended as headquarters of the Spanish soldiers.

86½. SPANISH EXHIBITION BUILDING.

Architect, ALEXANDER B. BARY.—Size, 80 feet by 100 feet.

Constructed of wood, in a style similar to Machinery Hall; adjacent to Spanish Engineers' Pavilion.

Educational Systems, Methods, and Libraries.

1 Goig & Co., Jaime, Aleira, Province of Valencia.—Books for primary instruction. 300
2 Rodriguez Mañanes, Pedro, Zamora.—Explanation of engravings and patterns for cutting garments. 300
3 Fabregas y Bru, José, Havana, Island of Cuba.—Writing dess. 3.0
4 Superior Normal School, Salamanca.—Programme for children's schools. 300
5 Illera y Marúz, Manuel, Salamanca.—Rational programme for lectures in normal school. 3.0
6 Rodriguez Martin, Vicente, Sevéras, Province of Salamanca.—Linear designs. 3.0
7 Sanchez, Pilar, Sevilla.—Objects for the instruction of children. 3.0
8 Board of Primary Instruction, Victoria, Province of Alava.—Treatise on primary instruction. 3.0
9 Azpiazu, José Antonio de, Victoria, Province of Alava.—Method of penmanship. 3.0
10 Solano y Vitor, Pablo, Valencia.—Books for primary instruction. 3.0
11 Aguilar, Simon, Valencia.—Books for primary instruction. 3.0
12 Solis, Prudencio, Valencia.—Books for primary instruction. 3.0
13 Perales, Baltasar, Valencia.—Books for primary instruction. 3.0
14 Montells y Nadal, Jacinto, Sevilla.—Books for primary instruction. 3.0
15 Gazapo y Loma, Juan Manuel, Madrid.—Syllable book. 3.0
16 Collado, Cayetano, Madrid.—Intuitive instruction. 3.0
17 Borja y Alarcon, Pedro, Madrid.—Geographical stick. 3.0
18 Ladies' Seminary, Madrid.—Work by pupils, and writing by the professors. 3.0
19 Moliner, Enrique, Madrid.—Alphabet. 3.0
20 Gonzalez y Luna, Ildefonso, Jaen.—Specimen of penmanship. 3.0
21 Diaz y Martinez, Manuel, Jerez de la Frontera, Province of Cadiz.—Apparatus for primary instruction. 3.0
22 College of Mesers. Peffort, Barcelona.—Work done by pupils. 3.0
23 National Institute for the Deaf and Dumb, and Blind, Madrid.—Method of instruction. 3.0
24 Nebreda y Lopez, Carlos, Madrid.—Works for the instruction of the deaf and dumb, and blind. 3.0
25 Institute for the Deaf and Dumb, and Blind, Sevilla.—Documents of the college. 3.0
26 Campillo y Correa, Narciso, Madrid.—Rhetoric and poetry. 3.0
27 Cornellas y Grau, Clemente, Madrid.—French grammar, etc. 3.0
28 Escolapios de San Antonio, Madrid.—Boo.s. 3.0
29 Garcia Ayuso, Francisco, Madrid.—Arabian grammar, study of philology, etc. 3.0
30 Garriga Marrill, Pedro, Madrid.—Tachigraphy. 3.0
31 Gil y Soldevilla, Isidro, Madrid.—Course of photography 3.0
32 Galdo, Manuel Maria Jose de, Madrid.—Manual of natural history. 3.0
33 Institute of Secondary Instruction of San Isidro, Madrid.—Memoirs. 3.0
34 Martinez Cubells, Enrique, Madrid.—Lessons in geometry. 3.0
35 Montero Montero, Antonio, Madrid.—Programmes, catalogues, etc., of the polytechnic school. 3.0
36 Martinez y Ascanso, Bernardo, Madrid.—Course of geography, and history of Spain. 3.0
37 Moya, Ambrosio, Madrid.—Lessons in arithmetic. 3.0
38 National Library, Madrid.—Books published, and awarded works. 3.0
39 Institute of Secondary Instruction of the Noviciate, Madrid.—Complete collection of memoirs. 3.0
40 Pereda y Martinez, Sandalo de, Madrid.—Programme of natural history. 3.0
41 Puerta, Gabriel de la, Madrid.—Treatise on chemistry, medicine, etc. 3.0
75 Cortejarena & Aldecbó, Francisco de, Madrid.—Manual of obstetrics. 306
76 Sanchez y Merino, Ramón, Madrid,—General treatise on fevers. 306
77 Santero y Moreno, Tomás, Madrid.—Medical clinic. 306
78 Fernandez de Figares, Manuel, Granada.—Manual of experimental physics. 306
79 Local Institute of Secondary Instruction, Baeza, Province of Jaén.—Photographs of its interior and exterior. 306
80 Mingote, Policarpo, Leon.—Course of geography. 306
81 Ruiz de la Peña, Francisco, Leon.—Latin translation, grammatical system, etc. 306
82 Prieto, Anastasio, Logroño.—Regulation for the Normal School. 306
83 Saenz Navarrete, José, Logroño.—Documents referring to the foundation and progress of his college. 306
84 Royal Academy, Madrid.—Collection of its works. 306
85 Carreras, Mariano, Madrid.—Physical economy. 306
86 Fernandez de Castro, Manuel, Madrid.—Treatise on electricity, metallurgy, etc. 306
87 Cortázár, Daniel, Madrid.—Treatise on mathematics. 306
88 Comelero, Francisco A., Madrid.—Treatise on the Latin language. 306
89 Chamorro, Rafael, Madrid.—System of explaining heat, light, electricity, etc. 306
90 Page, Eugenio Roman, Badajoz.—Register of property. 306
91 Graells, Francisco, Barcelona.—Geometric books. 306
92 Magra y Jaime, Juan, Barcelona.—Elementary treatise on physiology. 306
93 Superior Normal School of Masters, Barcelona.—Books. 306
94 Fernandez Fontecha, Francisco, Madrid.—Course of astronomy and navigation. 306
95 Foly y Velasco, Federico, Cádiz.—Text-books. 306
96 Oferrall, Javier, Cádiz.—French selections. 306
97 Moreno y Espinosa, Alfonso, Cádiz.—Compendium of universal history. 306
98 Rubio y Diaz, Vicente, Cádiz.—Elements of mathematics. 306
99 Literary University, Santiago, Province of La Coruña.—Books. 306
100 Pimentel y Donaire, Miguel, Madrid.—Legislative collection on primary instruction. 306
101 Vilclla y Font, Sebastian, Madrid.—Fables of Pedro. 306
102 Saco y Arce, Juan A., Orense.—Grammar. 306
103 Lasala Martínez, Atanasio, Orense.—Elements of arithmetic and algebra. 306
104 Gaité Nulés, Joaquín, Orense.—Elements of arithmetic and geography. 306
105 Luciro Gonzalez, Juan, Orense.—Works on philosophy. 306
106 Antiguedad, Celestino, Palencia.—Books on primary instruction. 306
### SPECIAL BUILDINGS.

<table>
<thead>
<tr>
<th>Title</th>
<th>Author, Location, Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>107 Normal School, Palencia.—Books on primary instruction</td>
<td></td>
<td>306</td>
</tr>
<tr>
<td>108 Flores Arrate, Leon, Palencia.—Writing books</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>109 School of Music &amp; Recitation, Madrid.—Memoirs</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>110 Direction of Customs, Madrid.—Statutes</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>111 Romero y Andia, Antonio, Madrid.—Musical instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>112 Lopez Almagro, Antonio, Madrid.—Method of playing the harmonium</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>113 Gil y Justo Moné, Juan, Madrid.—Method of melodies</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>114 Marzo y Fco, Enrique, Madrid.—Method of playing the hoboe</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>115 Mata, Manuel de la, Madrid.—Method of playing the piano</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>116 Nuñez Robres, Lázaro, Madrid.—The music of the people</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>117 Ayllon, Rafael, Madrid.—Musical works</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>118 Borrell, Mariano, Madrid.—Arts and Industry</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>119 Rebolledo, José A., Madrid.—Treatise on construction of houses</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>120 Novoa y Lopez, Angel, Pontevedra.—The pontifical infallibility</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>121 Barrios, Cándido, Madrid.—Works on artillery</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>122 School of Engineers of Highways, Canals, &amp; Ports, Madrid.—Works</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>123 School of Mountain Engineers, San Lorenzo de El Escorial, Province of Madrid.—Memoirs of the school</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>124 Corps of Engineers, Madrid.—Books, memoirs, and projects</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>125 School of Mining Engineers, Madrid.—Books</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>126 Veterinary School, Madrid.—Books and pictures</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>127 High School of Architecture, Madrid.—Books, catalogues, and designs</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>128 Conservatory of Arts, School of Commerce, etc., Madrid.—Memoirs of the school</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>129 Gonzalez Hidalgo, Joaquin, Madrid.—Scientific works on natural history</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>130 Llorente y Lázaro, Ramon, Madrid.—Compendium of the bibliography of Spanish veterinary system</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>131 Ramirez, Concepcion, Madrid.—Treatise on the penal code</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>132 Magaz, Juan, Madrid.—Elementary treatise on human physiology</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>133 Seco Baldor, José, Madrid.—Study of the cholera of past centuries</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>134 Calleja Sanchez, Julian, Madrid.—Scientific anatomy</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>135 Bailly Baillejé, Carlos, Madrid.—Catalogues of the museums and laboratories of the medical faculty</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>136 Gastaldo, José, Madrid.—Catastroph and its treatment</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>137 Jaraño de Alarcón, Francisco, Madrid.—Models and plans of the principal schools</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>138 Calvo y Pereyra, Mariano, Madrid.—Architectural works</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>139 Elizalde, José Antonio, Madrid.—Course of descriptive geometry</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>140 Vallin y Bustillo, Acisclo, F., Madrid.—Theory of unknown quantities</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>141 Rodriguez, Eduardo, Madrid.—Manual of general physics</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>142 Maldonado Macanaz, Joaquin, Madrid.—General principles of the art of colonization</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>143 Gonzalez Marti, Manuel, Madrid.—Manual of the infantry service</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>144 Arsenal, Madrid.—Military works</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>145 Mechanics'Athenæum, Tarragona.—Rules</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>146 Society “Centra de Lecturo,” Reus, Province of Tarragona.—Memoirs and School</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>147 Gonzalez Hidalgo, Joaquin, Madrid.—Works on the mollusks of Spain, Portugal, and the Pacific</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>148 Garcia Maceira, Antonio, Zamora.—Treatise on the sugar cane</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>149 Literary University, Granada.—Anatomical treatise</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>150 Board of Agriculture, Industry, &amp; Commerce, Oviedo.—Memoirs of the Asturian exhibition, 1869</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>151 Gonzalez Domingo, Cecilio, Salamanca.—Invitations for the Exhibition at Philadelphia</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>152 Cuevas, José Alfonso, Játiva, Province of Valencia.—Synopsis table of the history of Spain</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>153 Normal School, Toledo.—Works on teaching</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>154 Normal School, Valencia.—Works on teaching</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>155 Casan Alegre, Joaquin, Valencia.—Universal history</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>156 Ollero, Andrés F., Valencia.—Descriptive geography and domestic economy</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>157 Hernandez, Agapito, Madrid.—Books on primary education</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>158 Fraile y Valles, Gumsindo, Sevilla.—Arithmetics</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>159 Bastida, Puyals de la, Vicente, Madrid.—Books on primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>160 Villegas, Enrique, Córdoba.—Books for primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>161 Ollero, Andrés F., Cuenca.—Treatise on education</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>162 Normal School, Guadalajara.—School memoirs</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>163 Diego, Pedro de, Madrid.—History of Spain</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>164 Besson, Eduardo Augusto, Burgos.—Books for elementary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>165 Normal School, Cádiz.—Textbooks</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>166 Aguilar Mayor, Mariano, Lerida.—Books for primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>167 Garcia, Nicanor, Villaiba, Province of Lugo.—Books for primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>168 Central Normal School, Madrid.—Books for primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>169 Vallin y Bustillo, Acisclo, Madrid.—Books for primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>170 Garderena, Mariano, Madrid.—Books on primary instruction</td>
<td></td>
<td>3-6</td>
</tr>
<tr>
<td>171 Cuenca, Hermenegildo, Cádiz.—Reading books for schools</td>
<td></td>
<td>3-6</td>
</tr>
</tbody>
</table>
172 Normal School, Avila.—Books. 3:6
173 Normal High School, Barcelona.—
Books. 3:6
174 Tranque y Cassi, Lorenzo, Barcelona.
—Book on instruction. 3:6
175 Araño y Majo, Miguel, Barcelona.
—Books on primary instruction. 3:6
176 Rodriguez, Eduardo, Lopez, Barcelona.
—Method to reform writing. 3:6
177 Tubert y Carrera, Juan, San Martin de Provençals, Province of Barcelona.
—Books. 3:6
178 Economical Society of Friends of the Country, Seville.—Catalogue and memoirs. 3:6
179 Society for the Protection of Animals and Plants, Cádiz.—Publications. 3:6
180 Royal Academy of History, Madrid.—Books. 3:6
181 Royal Academy of Fine Arts, Madrid.—Books. 3:6
182 Academy of Physical & Moral Sciences, Madrid.—Publications. 3:6
183 Academy of Medicine, Madrid.—Spanish Pharmacopoeia. 3:6
184 Special School for Painting, Sculpture, and Engraving, Madrid.—Memoirs, programmes, and statistics. 3:6
185 Astronomical & Meteorological Observatory, Madrid.—Annual and meteorological observations. 3:6
186 Spanish Society of Natural History, Madrid.—Annuals. 3:6
187 Mineral Society, Salamanca.—Memoir. 3:6
188 Mercantile Athenæum, Madrid.—Books, rules, and periodicals. 3:6
189 Spanish Society of Professors of Sciences, Madrid.—Rules and reviews. 3:6
190 Economical Society, Madrid.—Copies of the pamphlet “El Centeno” and of the Review. 3:6
191 Association for the Protection of Young Artisans, Madrid.—Memoirs. 3:6
192 Academy of Sciences, Havana, Island of Cuba.—Documents and works. 3:6
193 Royal Academy of Sciences & Arts, Barcelona.—Books and dissertations. 3:6
194 Athenæum of Barcelona.—Reports. 3:6
195 Society of Industrial Engineers, Barcelona.—Publications. 3:6
196 Roys, Mariano, Zaragoza.—Treatise on irrigation. 3:6
197 Castelvi, Bartolomé, Zaragoza.—Books. 3:6
198 Chao, Alejandro, Havana, Island of Cuba.—Life of Lord Byron. 3:6
199 Royal Academy of Sciences & Arts, Barcelona.—Rules and memoirs. 3:6
200 Catalanian Agricultural Institute of San Isidro, Barcelona.—Rules and reviews. 3:6
201 Económical Society of Friends of the Country, Barcelona.—Papers. 3:6
202 Society of Barcelona of Friends of Instruction, Barcelona.—Rules, memoirs, and documents. 3:6
203 Academy of Tachigraphy.—Documents. 3:6
204 Society of Patrons of National Production.—Documents. 3:6
205 Geographical & Statistical Institute.—Publications. 3:6
206 Reynai, Lorenzo, Tarragona.—Synopsis of the English language. 3:6
207 Cuchi, Tomás, Tarragona.—Special treatises. 3:6
208 Ford y Cusido, widow of, Tarragona.—Commercial Review. 3:6
209 Gil Sumbiella, Luis, Valencia.—Treatise on stereography. 3:6
210 Perez M. Miguel, Mariano, Medina del Campo, Province of Valladolid.—Almanacs. 3:6
211 Borao, Gerónimo, Zaragoza.—Dictionary. 3:6
212 Cuesta, Pedro, Zaragoza.—Works on medicine and pharmacy. 3:6
213 Sainz, Juan Antonio, Zaragoza.—Works on medicine and pharmacy. 3:6
214 Mondria, Mariano, Zaragoza.—Works on medicine and pharmacy. 3:6
215 Martinez Anguiano, Pedro, Zaragoza.—Works on medicine and pharmacy. 3:6
216 Robert y Serrat, José, Zaragoza.—Elements of general anatomy. 3:6
217 Torres y Garcia, Roman, Zaragoza.—Books for primary and superior instruction. 3:6
218 Villar Garcia, Martin, Zaragoza.—History of Latin literature. 3:6
219 Puente Villancio, José, Zaragoza.—Manual of the history of the middle ages. 3:6
220 Religious Benito, Pontevedra.—Treatise on education. 3:6
221 Gonzalez-Regueral, Severiano, Pontevedra.—“La Reforma,” periodical. 3:6
222 Somoz Piñeiro, Ramon, Menza, Province of Pontevedra.—Treatise on systems applied for the irrigation of pastures. 3:6
223 Angel Crehuet, widow of, Salamanca.—Prolegomena of law. 3:6
224 Navarro Izquierdo, Luciano, Salamanca.—Treatise on geometry. 3:6
225 Oscariz y Lasaga, Victor, Santander.—Pamphlets of literary studies. 3:6
226 Royal Academy of Seville.—Speeches, catalogues, and poetry. 3:6
227 Society of Andalusian Bibliophiles.—Books. 3:6
228 Gironés & Orduña, Seville.—Poetry. 3:6
229 Valdarque, Rafael, Seville.—Poetry. 3:6
230 Asensio y Toledo, José Maria, Seville.—Literary works. 3:6
231 Sanchez, Pilar, Seville.—“Ernestina,” geographical novel. 3:6
232 Meseguer, Manuel, Amposta.—Scientific Review of Tarragona.—Text-books. 3:6
233 Alvarez Romualdo, Tortosa, Province of Tarragona.—Works on instruction. 3:6
234 Avela, Eduardo, Madrid.—Farmers’ almanacs. 3:6
235 Flores, José Maria, Madrid.—Books and maps. 3:6
236 Yves, Carlos, Madrid.—Books and periodicals. 3:6
<table>
<thead>
<tr>
<th>Page</th>
<th>Title</th>
<th>Author(s)</th>
<th>Location</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>136</td>
<td>SPECIAL BUILDINGS.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>237</td>
<td>Maffei, Eugenio, Madrid.—Mineral bibliography.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>238</td>
<td>Fuente, Vicente de la, Madrid.—Life of Santa Teresa de Jesús.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>239</td>
<td>Santamaría de Paredes, Vicente, Madrid.—The defense of right of property.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>240</td>
<td>García Ayuso, Francisco, Madrid.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>241</td>
<td>Gay y MarzáI, Carlos María, Madrid.—Treatise on tachigraphy.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>242</td>
<td>Ruiz de Salazar, Emilio, Madrid.—&quot;El Magisterio Español,&quot; periodical, and &quot;La Familia,&quot; review.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>243</td>
<td>Massat, Alfredo, Cartagena, Province of Murcia.—Description of metalliferous soils.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>244</td>
<td>Pereiro Rey, Manuel, Orense.—Application of sulphur.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>245</td>
<td>Pérez, Joaquín, Orens.—Descriptive pamphlet of the steeple of the cathedral.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>246</td>
<td>Álvarez Gimenez, Emilio, Pontavedra.—Studies on dramas and comedies.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>247</td>
<td>Pimentel, Antonio, Pontevedra.—Pamphlets.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>248</td>
<td>His Majesty the King of Spain, Madrid.—Catalogues.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>249</td>
<td>Carlos, A. de &amp; Son, Madrid.—Literary works and &quot;La Ilustración,&quot; periodical.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>Dirección General de Cavallería, Madrid.—Work on breeding horses.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>251</td>
<td>Dirección de Public Instruction, Madrid.—Books.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>252</td>
<td>Dirección de Hydrography, Madrid.—Books.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>253</td>
<td>Medina &amp; Navarro, Madrid.—Periodicals and books.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>254</td>
<td>Cámara, Miguel, H. de, Madrid.—&quot;La Guirnalda,&quot; periodical.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>255</td>
<td>Monasterio, Mariano, Madrid.—Work on construction.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>256</td>
<td>Vergara, Mariano, Madrid.—&quot;El Averiguador,&quot; periodical.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>257</td>
<td>Frontaura, Carlos, Madrid.—&quot;Los Niños,&quot; review.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>258</td>
<td>Galdós &amp; Cámara, Madrid.—National episodes.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>259</td>
<td>Utor, Luis María, Madrid.—Modern agriculture.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>260</td>
<td>Crespo y Posas, Leonardo, Madrid.—Studies.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>261</td>
<td>Llacayo, Augusto, Madrid.—Books on medicine and military surgery.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>262</td>
<td>Almirante, José, Madrid.—Dictionaries.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>263</td>
<td>Perojo, José del, Madrid.—Contemporary Review.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>264</td>
<td>Eguiláz Yanguas, Leopoldo, Madrid.—Study on the value of Arabic letters in the Spanish alphabet.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>265</td>
<td>Carderera, Mariano, Madrid.—Dictionary of education.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>266</td>
<td>Murillo, Mariano, Madrid.—Bulletin of the library.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>267</td>
<td>Fernández de Castro, Manuel, Madrid.—Electricity and railroads.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>268</td>
<td>Fernández Peña, Pedro, Madrid.—Geographical atlas.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>269</td>
<td>García Blanco, Antonio M., Madrid.—Text works.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>270</td>
<td>Codera, Francisco, Madrid.—Work on numismatic errors.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>271</td>
<td>Rada y Delgado, Juan de Dios de la, Madrid.—Work on &quot;Vertu y Antiquités.&quot;</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>272</td>
<td>Áldama, Lucas de, Madrid.—Treatise on industry and mines.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>273</td>
<td>Pascual, Manuel Joaquín, Madrid.—Scientific works.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>274</td>
<td>Mata y Fontanet, Pedro, Madrid.—Scientific and literary works.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>275</td>
<td>Suárez, Victoriano, Madrid.—Scientific and literary works.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>276</td>
<td>Aguilera y Martínez, Eusebio, Nalda, Province of Logroño.—School books and special treatises.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>277</td>
<td>Gomez Ayazza, Nicolás, Logroño.—Text-books, and &quot;El Riojano,&quot; periodical.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>278</td>
<td>Martínez Aleson, Tiburcio, Logroño.—Work on teaching children.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>279</td>
<td>Soto Freire, Manuel, Lugo.—History of Galicia and introducory manual.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>280</td>
<td>Panero Martinez, Manuel, Lugo.—&quot;The Heart of Childhood.&quot;</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>281</td>
<td>Pérez Villamil, Ramon Antonio, Lugo.—Pamphlet on weights and measures.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>282</td>
<td>Rodríguez Villa, Antonio, Madrid.—Etiquette of the house of Austria.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>283</td>
<td>Marichalar, Amalio, y Manrique, Cayetano, Madrid.—History of the legislation of Spain.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>284</td>
<td>Cortés y Morales, Balbino, Madrid.—Dictionary of legislation and jurisprudence.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>285</td>
<td>Bailly Baillière, Carlos, Madrid.—Books.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>286</td>
<td>Cruz Ruiz, Ciriac, Madrid.—Greek grammar.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>287</td>
<td>Leguina, Enrique, Madrid.—Book, &quot;Illustrious Sons of Santander.&quot;</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>288</td>
<td>Concejo, Gregorio Maria, Madrid.—Philosophy of the creation.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>289</td>
<td>Martínez Acubilla, Indalecio, Madrid.—Moral guide of youth.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>290</td>
<td>Palacios, Patricio, Córdoba.—Universal history and elements of geography.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>291</td>
<td>Rey y Gorrito, Pedro, Córdoba.—Theory of unknown quantities.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>292</td>
<td>Surós, Antonio, Gerona.—Text and school books.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>293</td>
<td>Obrador y Font, Sebastian, Gerona.—Treatise on Latin roots.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>294</td>
<td>Lozano, de Vilches, Enriqueña, Granada.—Literary works.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>295</td>
<td>University, Granada.—Works, speeches, and memoirs.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>296</td>
<td>Ribot, Esteban &amp; Bros., Granada.—Memoir.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>297</td>
<td>Vidal Domingo, Antonio, Huesca.—History and geography.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>298</td>
<td>Serra y Navarro, Mariano, Jaen.—Report on the condition of agriculture in Jaen.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>299</td>
<td>Board of Public Instruction, Lérida.—Books.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>Prieto, Atanasio, Logroño.—Treatise on arithmetic.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
<tr>
<td>301</td>
<td>Corral y Pastor, Aniceto, Alesanco, Province of Logroño.—Compendium of Castilian grammar.</td>
<td></td>
<td>3:6</td>
<td></td>
</tr>
</tbody>
</table>
302 Diez, Domingo, Logroño.—Key to moral theology, etc. 366

303 Provincial Institute, Burgos.—Statistics, memoirs, etc. 366

304 Beson, Eduardo Augusto de, Burgos.—Scientific works. 366

305 Dupuy, L., Santiago, Cádiz.—Books on industry. 366

306 Astronomical Observatory, San Fernando, Province of Cádiz.—Annas and almanacs. 366

307 Miró, Juan, Jarez de la Frontera, Province of Cádiz.—Books for instruction. 366

308 Vallarino, Baltasar, Cádiz.—Book, "The Anchor Weighed." 366

309 Leon, Márquez, Ramón, Cádiz.—"Crónica de los Cervantistas," review. 366

310 González, Manuel, Gran Canaria, Canary Islands.—Natural history. 366

311 Berthelot, Sabino, Canary Islands.—Plans, designs, and books on natural history. 366

312 Torres y González, Bernardino, Tomelloso, Province of Ciudad-Real. Treatment of intestinal strangulation. 366

313 Torres y Fernández, Santos, Tomelloso, Province of Ciudad-Real.—Treatment of inguinal ruprures. 366

314 Puente y Rocha, Juan de Dios de la, Córdoba.—Memoir on birds, useful or destructive to agriculture. 366

315 Massa y Sanguineti, José, Córdoba.—Elementary lessons in physics and chemistry. 366

316 Loma y Corradi, Blas de, Alicante.—Review of public instruction. 366

317 Herreros Berenguer, Mariano, Alicante.—On the decimal system. 366

318 Chastron, Leon, Alicante.—Works of D. Leon Chastron. 366

319 Carratalá & Gadea, Alicante.—Typographical album. 366

320 Garcia Arias y Usano, Benito, Avila.—Biblical pictures. 366

321 Pou, Luis, Palma, Balearic Islands.—Book, "La Sal." 366

322 Vidal y Roger, Andrés, Barcelona.—Weekly periodical. 366

323 Jover y Puig, Antonio, Barcelona.—Books on tachigraphy. 366

324 Bastíos, Antonio J., Barcelona.—Books on labor, instruction, and education. 366

325 Rius, Antonio, Barcelona.—Italian grammar. 366

326 Pasarans y Viláis de Pujol, Elisa, Barcelona.—Books. 366

327 Maspsons y Labrós, Francisco, Barcelona.—Popular Catalan tales. 366

328 Pelayo Briz, Francisco, Barcelona.—Catalanion works. 366

329 Lopez Fabra, Francisco, Barcelona.—"Don Quixote de la Mancha." 366

330 Paula Folch, Francisco, Barcelona.—Medical books. 366

331 Tolra, José, & Co., Barcelona.—Pamphlets. 366

332 Porcar y Tió, Jaime, Barcelona.—Works on education and morals. 366

333 Llerens Bros., Barcelona.—Dictionaries. 366

334 Liadós y Rius, Magín, Barcelona.—"El Porvenir de la Industria" (periodical). 366

335 Moreno y Roig, Barcelona.—History of the Church, etc. 366

336 Matallana, Mariano, Barcelona.—Manual for conversation on railroads. 366

337 Casals, Miguel, Barcelona.—Monthly publications. 366

338 Milà y Fontanai, Manuel, Barcelona.—Poetry. 366

339 Horticultural Society, Barcelona.—Horticultural Review. 366

340 Trilla & Serra, Barcelona.—"La Madejía" (periodical). 366

341 Alvarez Carretero, Antonio, Burgos.—Books. 366

342 Hernandez Martin, Antonio, Burgos.—Works on the instruction of the deaf and dumb. 366

343 Avila, Calixto, Burgos.—Guide of Burgos and Jura de Santa Gadea. 366

344 Archillas y Lopez, Ricardo, Baexa, Province of Jaen.—Paper read at the opening of the Baexa Institute. 366

345 Ginez de los Rios, Hermenegildo, Baexa, Province of Jaen.—Memoirs and projects. 366

346 Serra y Navarro, Mariano, Jaen.—Memoir on the condition of agriculture in the province. 366

347 Torres y Puig, Alejandro, Baeza, Province of Jaen.—Memoir. 366

348 Direction of Customs, Madrid.—Ordinances, models, and documents. 366

349 Alvarez de Araujo y Cuéllar, Angel, Madrid.—Books. 366

350 Gaspar, Editors, Madrid.—Collection of books from the Universal Museum. 366

351 High Normal School of Masters, Salamanca.—Memoir. 366

352 Guichot, Joaquín, Seville.—History of the town of Seville, etc. 366

353 Gozart y Seva, Printers, Alicante.—Catholic seminary. 366

354 Camilo Jover, Nicasio, Alicante.—"El Constitucional" (Liberal daily paper). 366

355 Suso, Manuel, Alicante.—"La Revelación" (spiritual periodical). 366

356 Corporation of Barcelona.—Reports of public schools. 3. 6

357 Provincial Institute for Secondary Instruction, Palma.—Memoirs. 366

358 Sanchez Almenacid, Mariano, Cuenca.—Memoir of the Institute. 366

359 Ballester, Guillermo, Madrid.—Memorandum and regulations of the Hispanic-American College. 366

360 Director of the Institute for Secondary Instruction, Fontevedra.—Memoirs. 366

361 Institute for Secondary Instruction, Seville.—Books, catalogues, and reports. 366

362 Alará, Mariano, Vilarrodona, Province of Tarragona.—Statistical data. 366

363 Provincial Institute, Tarragona.—Memoirs. 366

364 Institute for Secondary Instruction, Toledo.—Memoirs. 366

365 Navarro Reverter, Juan, Valencia.—"From the Turia to the Danube," Memoirs of the Vienna Exhibition. 366
SPECIAL BUILDINGS.

386 Institute for Secondary Instruction, Zamora.—Memoirs.
387 Naranjo y Garza, Felipe, Madrid.—Works on mineralogy.
388 National Archeological Museum, Madrid.—Historical descriptive information.
389 Colmeiro, Manuel, Madrid.—History of political economy in Spain.
390 Commission of Naturalists of the Pacific, Madrid.—Works on natural history.
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392 Tuero, Josés Maria, Madrid.—Book, "Hir icanes."
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394 High Normal School of Masters of the Salamanca.—Books, models, plans, designs, etc.
395 Normal School of Masters, Seville.—Memoirs.
397 Moreno Villena, Pedro, Valencia.—Treatise on political economy.
398 Calleja Sanchez, Julian, Valladolid.—Works on anatomy.
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Institutions and Organizations.
401 Diaz Acevedo, Cleto, Havana, Island of Cuba.—Procedure for the preservation of objects of natural history; zoological objects.
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403 Romero Andia, Antonio, Madrid.—Operatic music.
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405 Ocón, Eduardo, Malaga.—Popular Spanish songs.
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Scientific and Philosophical Instruments and Methods.
407 Gallardo Bastant, Luis, Barcelona.—Electric chronometer.
408 Astronomical Observatory of San Fernando, Cadiz.—Instruments.
409 Coello y Quesada, Francisco, Madrid.—Maps of Spain and its possessions.
410 Collantes de Teran, Francisco, Seville.—System of classification of automatic medals.
411 Foulon, Jose, Las Cortes de Sarria, Province of Barcelona.—Electric indicator.
412 Lamana y Gonzalez, Saturnino, Logroño.—Metric decimal indicator.
413 Bartolomé & Agustín Castelvi, Zaragoza.—Grain measures.
414 Onis, Juan de, Masnou, Province of Barcelona.—Chronometer.

395 Flonis y Pujol, Juan, Masnou, Province of Barcelona.—Nautical chronometer.
396 Aguirre, Francisco, Soria.—Clock.
397 Gallardo Bastant, Luis, Barcelona.—Electric piles.
398 Aguirre, Francisco, Soria.—Electric piles.
399 Echenique y Torres, Florencio Zaragoza.—Portable telegraphic apparatus for campaigns.
400 Jorba, José, Barcelona.—Piano attachment.
401 Guarro, Mariano, Barcelona.—Piano.
402 Sancho Velasco, Agapito, Burgos.—Music boxes.
403 Arias, Vicente, Ciudad-Real.—Guitars.
404 Flores Laguna, José, Madrid.—Music boxes.
405 Romero y Andia, Antonio, Madrid.—Clarinet and system.

Engineering, Architecture, Maps, etc.
406 Garriga y Rocas, Miguel, Barcelona.—Architecture.
407 Isabella II. Canal, Madrid.—Photographs of works.
408 Gonzalez del Valle, Manuel, Segovia.—Model of a bridge.
409 Alvear y Lara, Francisco, Havana, Island of Cuba.—Project for the supply of potable water.
410 Revenga, Antonio, Valencia.—Design of bridges.
411 Corps of Military Engineers, Madrid.—Books, plans, models.
412 Bernaldez, Emilio, Madrid.—Miliary books.
413 Heriz, Enrique, Barcelona.—Models of parks, with pamphlet.
414 Tranque y Cassi, Lorenzo, Barcelona.—Map of physical geography.
415 Faz Mosquera, Manuel de la, Jaen.—Topographical map of the province.
416 Provincial Deputation, Lugo.—Geometrical map of the Galician provinces.
417 War Depository, Madrid.—Maps and plans.
418 Direction of Hydrography, Madrid.—Hydrographic atlas.
419 Gonzalez del Valle, Manuel, Segovia.—Topographical map of the province.
420 Observatory of the Royal College of Belen, Havana, Island of Cuba.—Meteorological observations.

Physical, Social, and Moral Condition of Man.
421 Lopez y Gomez, Salvador, Seville.—Work on gymnasiaums.
422 Mutual Aid Society, Orense.—Rules.
423 Feu, P., & Sons, Madrid.—Collection of medals.
424 National Mint, Madrid.—Antique and modern coins.
425 Cervera, Valerio, Madrid.—"The Permanent Suffrage" (pamphlet).
426 Typographical Establishment of Oliva, Salamanca. 345
427 Provincial Hospitality, Seville.—Rules of the building, pictures, etc. 346
428 Provincial Board of Agriculture, Industry, and Commerce, Santander.—Memoirs, catalogues, and programmes. 349

Painting.
429 Bibilioni, José, Barcelona.—Design in Indian ink. 341
430 Sánchez, Pedro, Cádiz.—Aquarelles. 341
431 Guisasola, Federico, Pontevedra.—Aquarelles. 341

432 Provincial Academy of Fine Arts, Cádiz.—Drawings by the pupils. 340
433 Provincial Deputation, Cádiz.—Calligraphic picture. 340
434 López Valdemoro Ortiz de Lazcano, Madrid.—Crayon drawing. 340
435 Aramburu, Ricardo, Seville.—Crayon picture. 340
436 Reynoso, Emilio, Havana, Island of Cuba.—Calligraphic works. 340
437 Gelabert, R., & Bro., Barcelona.—Engravings. 341
438 Lemus, Eugenio, Madrid.—"Dama," engraved on copper. 341
439 Maura, Bartolomé, Madrid.—"Surrender of Irreda," engraved on copper. 341
440 Martínez Espinosa, Juan, Madrid.—Engravings. 341
441 Salcedo, Pedro, Morata, Province of Madrid.—Plan of the Escorial. 341
442 Aranz, José, Havana, Island of Cuba.—Stone engraving. 341
443 Vidal y Roger, Andrés, Barcelona.—Music, engraved and printed. 342
444 National Calcoigraphy, Madrid.—Cuts. 342
445 Sá y Roca, Ramon, Barcelona.—Cuts. 342
446 Mencha y Rodríguez, Faustino, Logroño.—Lithographed figure. 342
447 Carderera y Solano, Valentín, Madrid.—Spanish iconography. 342
448 Fortanet, T., Madrid.—Printed books. 342
448a Museum of Artillery, Madrid.—Collection of plates. 342
449 Ariza y Campano, José, Seville.—Photographic picture. 343
449a González y Montblanch, Modesto, Barcelona.—Lithography. 343
450 Mateu, José María, Madrid.—Chromolithographic plates. 344
451 Aranz, José, Havana, Island of Cuba.—Chromolithographs and oleographs. 344
451a Blasquez, E.—Album of chromos. 344

Photography.
452 Maríguezuren, Heribert, Barcelona.—Photographs. 439
453 Nolasco, Narciso, Barcelona.—Photographs. 439
454 Moragas, Manuel, Gracia, Province of Barcelona.—Photograph of astronomical clock. 439

455 Cañón, Leopoldo, Jerez de la Frontera, Province of Cádiz.—Heliochromo. 456
456 Nuñez, A. F., & Son, Barcelona.—Photographs. 456
457 Provincial Commission, Lugo.—Photographic reproductions of buildings. 456
458 Rodríguez Cortes, César, Lugo.—Photographic reproduction of engravings. 456
459 Spracchio, José, Málaga.—Album, with views. 456
460 Alviach & Co., Madrid.—Photographs. 456
461 Juliá y García, Eusebio, Madrid.—Photographs. 456
462 Laurent, J., & Co., Madrid.—Photographs. 456
463 Díaz Otero, Eduardo, Madrid.—Photographs. 456
464 National Mint, Madrid.—Photographs. 456
465 Institute of Secondary Instruction, Seville.—Photographic view. 456
466 Sebastía Vila, Pedro, Seville.—Photographs. 456
467 Arce, Inocencio, Barcelona.—Photograph. 456
468 Economical Society of Friends of the Country, Seville.—Photographs. 456
469 Arce, Inocencio, Barcelona.—Photographic reproductions. 456
470 Almela y Vinet, Francisco, Seville.—Application of varnish to photographs. 456

Industrial and Architectural Designs, Models, and Decorations.
471 Mestres, José O., Barcelona.—Architectural monuments. 441
472 Soler, Federico, Barcelona.—Commemorative project. 441
473 Guastavín, Rafael, Barcelona.—Architectural plans. 441
474 Garriga y Roca, Miguel, Barcelona.—Architectural plans and designs. 441
475 Tenas, Ramon, Barcelona.—Project of a church. 441
476 Rovira y Rabassa, Antonio, Barcelona.—Project of a monument. 441
477 Alonso, Arsenio, Madrid.—Project of a triumphal arch. 441
478 Duque, Eugenio, Madrid.—Projects of monuments. 441
479 Marin Baldo, José, Madrid.—Project of a monument at Colon. 441

Decoration with Ceramic and Vitreous Materials, Mosaic and Inlaid Work.
480 Bustamente & Gallo, Madrid.—Mosaic in wood. 450
481 Rodriguez, Desiderio, Cienfuegos, Cuba.—Inlaid table. 450
482 Cuevas, Fernandez, Pascual, Bizbuesca, Province of Burgos.—Pictures of birds, made with their feathers. 450
483 Ruiz, Manuel, Cádiz.—Picture of human hair, and picture made of wafers. 450
484 Lozano y Villarrejo, Mateo, Madrid.—Album. 454

SPANISH EXHIBITION BUILDING. 139
Serrano y Arenas, Purificación, Havana, Island of Cuba.—Fancy work. 454
Camacho de Díaz, Soledad, Havana, Island of Cuba.—Paper work made by means of scissors. 445

Arboriculture and Forest Products.

Forest District of Avila.—Collection of woods. 600
Medinaceli, Duchess, widow of, Las Navas y Valdemarquenda, Province of Madrid.—Trunk of pine tree. 600
Claro, José María, La Calera, Province of Badajoz.—Cork. 600
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Inspection of Woods & Forests, San Juan, Puerto Rico.—Woods. 600
Gonzalez, Manuel, Aquadilla, Puerto Rico.—Ornamental woods. 601
Quiroga Lopez, Benigno, Province of Lugo.—Construction and ornamental woods. 600
Inspection General of Woods & Forests, Havana, Island of Cuba.—Ornamental woods. 601
Verdu Perez, Joaquín, Monóvar, Province of Alicante.—Bastard saffron. 602
Monroig, daughter and heir of Ramon, Barcelona.—Dye-stuffs. 602
Sande Olives, Jerónimo, Garroñillas, Province of Cáceres.—Dyes wood. 602
Aguilera, Francisco, Priego, Province of Córdoba.—Sumac. 602
Lozano y Escobar, Romualdo, Buenaventura, Province of Cuenca.—Sumac. 602
Gallego, Domingo, Buenaventura, Province of Cuenca.—Sumac powder. 602
Corporation of Romanos, Province of Guadalajara.—Sumac. 602
Ayuso de las Heras, Angel, Valdearenas, Province of Guadalajara.—Madder root. 6.02
Acero, Antonio, Jaen.—Sumac. 602
Guerra M. de Soto, Anaclero, Portugal, Province of Valladolid.—Madder root. 602
Gallega, Félix, Traspiedra, Province of Valladolid.—Sumac. 602
Inspection General of Woods & Forests, Havana, Island of Cuba.—Dye woods. 602
Medinaceli, Duchess, widow of, Madrid.—Resinous products. 603
Gonzalez, Manuel, Las Palmas, Canary Islands.—Resins. 603
Aviles y Merino, Francisco, Cordoba.—Fennel resin. 603
551 Corps of Forest Engineers, Salas, Province of Burgos.—Resinous products. 603
552 Corporation of Armillanes, Province of Guadalajara.—Pitch. 603
553 Corporation of Mountain Engineers, Madrid.—Resins. 603
554 Ferrándiz, Juan, San Vicente, Province of Albacete.—Salt works. 604
555 Gonzalez Conde, Diego, Mahora, Province of Albacete.—Saffron. 602
556 Delgado, José, Tarazona, Province of Albacete.—Dried saffron. 602
557 Perez, Albert, & Co., Monóvar, Province of Alicante.—Anis. 602
558 Gonzalez, Manuel, Gran Canaria, Canary Islands.—Seeds. 602
559 Castro y Chirino, Alfonso de, Isle of Hierro, Canary Islands.—Seeds. 602
560 Cabezauelas, Count of, Campo de Criptana, Province of Ciudad-Real.—Saffron. 602
561 Rodriguez, Antonio, Manzanares, Province of Ciudad-Real.—Saffron. 602
562 Rodriguez, Luis, Manzanares, Province of Ciudad-Real.—Saffron. 602
563 Gonzalez y Rubio, Maximo, Ciudad-Real.—Saffron. 602
564 Muñoz Mendez, Eugenio, Huémanes, Province of Guadalajara.—Apricot seed. 605
565 Barnuevo, Manuel, Múrcia.—Pine seed. 605
566 Onis, Federico, Cantalapiedra, Province of Salamanca.—Flax seed. 605
567 Fernandez, Manuel, Tembleque, Province of Toledo.—Saffron. 605
568 Corporation of Baños, Province of Cáceres.—Chestnut burrs. 605
569 Sanz Pasalodos, Julian, Portillo, Province of Valladolid.—Pine tree cones. 605
570 Sanz, Mariano, Pedrajaz de San Esteban, Province of Valladolid.—Pine seed. 605
571 Tablares, Felipe, Megues de Iscar, Province of Valladolid.—Pine seed. 605

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572 Municipal School for Girls, Province of Manila.—Programme, etc., and pupils' work. 300
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574 College of San José, Province of Manila.—Books and drawings. 300
575 Municipal Athenæum for Children, Province of Manila.—Album, programme of instruction, and books. 300

576 Jordana y Morera, Ramon, Inspector-General of Woods & Forests, Province of Manila.—Work on the production of the public forests of the Philippine Islands. 3:6
577 Vidal & Soler, Sebastian, Chief-Engineer of Woods & Forests, Province of Manila.—Books on forestal, woods, and climate of the Philippine Islands. 3:6
578 Inspection-General of Woods & Forests.—Books on arboriculture. 3:6
579 Loyzaga & Co., Province of Manila.—"El Comercio" (evening paper), "Revista Mercantil" (semi-monthly paper). 306
580 Ramirez & Girandier, Province of Manila.—"El Diario de Manila" (daily periodical). 3:6
582 The Future of the Philippines, Province of Manila.—"El Porvenir Filipino" (periodical). 3:6
583 Ramirez & Girandier, Province of Manila.—"La Ilustracion" (semi-monthly paper). 3:6
584 Gimenez & Preysler, Province of Manila.—"El Oriente" (semi-monthly illustrated paper). 3:6

Institutions and Organizations.

585 Prieto, Federico, Tabaco, Province of Albay.—Human skulls. 312
586 Sales, Juan, Province of Manila.—Models of negroes, Spanish mestizos, Philippine Indians, etc. 312

Engineering, Architecture, Maps, etc.

587 Inspection-General of Public Works, Manila, Province of Manila.—Plans of public works. 330
588 Municipal Athenæum, Province of Manila.—Meteorological observations. 335

Physical, Social, and Moral Condition of Man.

589 Nueva Cáceres, Bishop of, Province of Nueva Cáceres.—Books on religious instruction. 348

Aerial, Pneumatic, and Water Transportation.

590 Inspection-General of Woods & Forests.—Models of boats and vessels. 594
591 Jackson, Eduard, Province of Manila.—Model of lancha and life-boat. 594
592 Arsenal of Cavite, Province of Cavite.—Models of boats and vessels. 594

No. 87. UNITED STATES SIGNAL OFFICE.

This exhibit consists of a field telegraph train, with battery, wire wagons, lance trucks, a portable signal tower, and other signaling appliances. It is situated on State Avenue, opposite the English Government buildings.

No. 88. TENNESSEE STATE HEADQUARTERS.

A circular tent, containing specimens of minerals, also a portable charcoal stove patented and exhibited by Rice Moore, of Nashville, Tennessee. Situated on State Avenue, between the Maryland and Iowa buildings.
No. 89. **MISSISSIPPI STATE BUILDING.**

Size, 42 feet by 25 feet.
Situated on State Avenue, opposite and west of the Japanese Dwelling. The wood used in this structure is from the State of Mississippi, and numbers some hundred varieties in all.

No. 90. **GEORGE'S HILL RESTAURANT.**

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 112 feet by 72 feet, TALMAN & KOHN, Philadelphia.
Located in the western portion of the grounds, on George's Hill, in the vicinity of the State buildings. It is a one-story structure, built of wood, and is also called the Hebrew Restaurant.

No. 91. **BISHOP RICHARD ALLEN'S MONUMENT.**

Size, base 6 feet by 6 feet; height, 16 feet.

No. 92. **BOSTON “DAILY ADVERTISER,” AND BOSTON “HERALD.”**

Size, 29 feet by 16 feet.
A one-story frame building, situated on Fountain Avenue opposite northwest corner of Machinery Hall; used as the headquarters of the correspondents and attaches of the newspapers erecting it.

No. 93. **AMERICAN NEWSPAPER EXHIBITION.**

Architect, M. J. MORILL, Brooklyn, N. Y.—Size, 70 feet by 46 feet.

JOSEPH ROWELL & Co., New York City.

A two-story frame structure of Swiss architecture, on Fountain Avenue, near the lake. It contains a large hall, and a reading-room supplied with newspapers from all parts of the United States. In April, 1876, the United States published regularly 8129 newspapers, a number which exceeds the combined issues of all the other nations of the earth. Regular files of most of these newspapers, and sample copies of all, are alphabetically arranged for exhibition, and a printed catalogue of the whole may be obtained for twenty-five cents. Messrs. George P. Rowell & Co. conduct an agency for the reception of advertisements for all American newspapers, at their office, No. 41 Park Row, New York.

No. 94. **CALIFORNIA STATE BUILDING.**

Size, 55 feet by 105 feet.
A two-story frame building, situated on State Avenue, opposite the British Government buildings. It contains accommodations for the State Commissioners and visitors, also a large hall for the purpose of exhibiting specimens of the agricultural productions of California.

No. 95: **CENTENNIAL FIRE PATROL, No. 1.**

This building is situated at the corner of Belmont and State Avenues, and contains two steam fire engines and one truck.
No. 96. TURKISH CAFÉ.
Architect, PIERRE MONTANI.—Size, 51 feet by 65 feet.

Turkish Commission.
An octagonal frame building, with a coffee-room, parlors, and bazaars, situated on a walk between Fountain Avenue and the Avenue of the Republic, near their junction north of Machinery Hall.

No. 97. FRANK LESLIE'S PAVILION.
This building is situated at eastern end of lake, on Belmont Avenue, adjoining the office of Cook, Son, & Jenkins. It is octagonal in shape, Moorish in design, and highly ornamented. It is used as an office of Frank Leslie's publications.

No. 98. IOWA STATE BUILDING.
Size, 40 feet by 53 feet.

This is a two-story frame building, with portico in front and bay windows on both sides, located on State Avenue between the Missouri and Tennessee buildings, and used as a headquarters for Commissioners from this State.

No. 99. RHODE ISLAND STATE BUILDING.
Architects, Wm. R. WALKER and T. J. GOLD, Providence, R. I.

A building of combined Swiss and Gothic architecture, situated on State Avenue, north of the Mississippi State building.

No. 100. VERMONT STATE BUILDING.
Architect, LAMOS, Ticonderoga, Vt.

A building of Doric architecture, northwest of Machinery Hall, and near Fountain Avenue. It contains an Estey organ, from Brattleboro', Vt., and files of Vermont newspapers.

No. 101. MEMORIAL HALL (ART GALLERY).
See Part II., page 9.

No. 102. ART ANNEX.
See Part II., page 10.

No. 103. THE B’NAI B’RITH MONUMENT.
Erected by the Israelites to religious liberty, and situated between the Art Gallery and its annex.

No. 104. PHOTOGRAPHIC EXHIBITION BUILDING.
See Part II., page 137.

No. 105. VIENNA BAKERY, OR COMPRESSED YEAST BUILDING.
Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 146 feet by 105 feet.

GAFF, FLEISCHMANN, & Co., Blissville, Long Island, N. Y.

Designed to exhibit the advantages of using compound yeast in baking. It also contains a coffee house.

No. 106. ANNEX TO MAIN BUILDING (CARRIAGES, STOVES, etc.).
See Part I., page 374.
No. 107. SWEDISH SCHOOL-HOUSE AND METEOROGRAPH.

Architects, ISÆUS & JACOBSSON.—Size, 40 feet by 50 feet.

Situated in the Swedish Government grounds, north of the Main Exhibition Building. A one-story frame house, containing school-rooms and the interior arrangements of a Swedish school-house. The framework for the building was imported from Sweden, and is on exhibition by G. O. Wengstion, of Stockholm.

METEOROGRAPH.—A one-story latticed structure east of Swedish school-house, surmounted by semi-globular cups, connected with apparatus in the interior, showing the velocity of the wind.

No. 108. JAPANESE BAZAAR.

This building is situated on Lansdowne drive, immediately north of Department of Public Comfort, and is designed for sale of Japanese wares.

No. 109. JUDGES' HALL.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 152 feet by 113 feet.

A two-story frame building, situated north of the Main Exhibition Building, containing ten committee rooms and four private rooms for the judges; also one large hall in the centre, and a smaller hall in the rear. It is intended for the accommodation of the International Board of Judges. The President of the Centennial Commission and the Chief of the Bureau of Awards have offices in this building.

No. 110. CENTENNIAL PHOTOGRAPHIC ASSOCIATION BUILDING.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 150 feet by 30 feet.

The Photographic Association have erected a one-story frame building, located north of the Main Exhibition Building on the east side of Belmont Avenue. It contains one room for the exhibition of photographs, and three rooms for photographers for working purposes.

No. 111. SHEET METAL PAVILION.

Size, 22 feet by 40 feet.
Architect, E. C. RYER.

Situated on Lansdowne drive and Belmont Avenue, opposite lake. Marshall Bros. & Co., Girard Avenue below Front Street, Philadelphia, Pa., exhibit the utilization of galvanized and leaded sheets in the construction of this building. American polished, cleaned, and refined sheets, galvanized cemetery and house work, and corrugated iron. The building itself is a specimen of the workmanship of the Kittredge Cornice and Ornament Co., Salem, O., and illustrates the application of sheet metal to architectural purposes.

No. 112. GERMAN EMPIRE PAVILION.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 83 feet by 33 feet.

Constructed of stone, one story high, furnishing accommodations for the Imperial Commissioners as well as German visitors. It is located on Lansdowne drive, between Belmont and Agricultural Avenues.

No. 113. PENNSYLVANIA RAILROAD OFFICE.

Architect, J. M. WILSON, Engineer of Bridges and Buildings, Pennsylvania Railroad Co.—Octagon, 75 feet in diameter.

A two-story frame building, situated on the northeast corner of Belmont Avenue and the Avenue of the Republic, adjoining the Judges' Hall. It is designed for the general ticket office of the four great trunk lines, viz.: New York Central, Erie, Baltimore & Ohio, and Pennsylvania Railroads. Tickets are sold to all points, and information is furnished regarding routes of travel.
The western wing of the Public Comfort Building. It contains offices and committee rooms, and conveniences for newspaper correspondents.

No. 115. Brazilian Empire Pavilion.
This structure is of wood, situated on Lansdowne drive, adjoining the German Government building, and intended for use of the Brazilian Commission.

No. 116. The Dairy Association Building.
Architects, H. J. Schwarzmann, Hugh Kafka.—Size, 76 feet by 25 feet; pavilion, 80 feet by 30 feet.
Situated on the north side of Lansdowne Valley, southwest of Horticultural Hall. It is a two-story rustic building, and the surrounding grounds are laid out as a garden in which is a pavilion for the additional accommodation of visitors.

No. 117. Restaurant Lafayete.
Architect, H. J. Schwarzmann.—Size, 130 feet by 30 feet.
This is a two-story wooden building, located northwest of the Art Gallery, between Lansdowne drive and the brook. It is conducted on the French plan.

No. 118. Department of Public Comfort.
Architects, Balderston & Hutton, Philadelphia.—Size, 264 feet by 112 feet.
Department of Public Comfort Company, Limited.
W. Marsh Kasson, Chairman, Philadelphia.
Located on the corner of the Avenue of the Republic and Agricultural Avenue, opposite the northwestern corner of the Main Exhibition Building, and fronting the Esplanade. It is a two-story frame building, containing a reception room and ladies' parlor, free to all, barber shop, coat and baggage room, lunch counter, and lavatories. Tickets for places of amusement are on sale, and a daily register of all visitors is kept. The western section of the building is occupied by the President of the Centennial Commission. Office desk room is afforded to exhibitors. The centre portion of the building is surmounted with an open-air gallery, giving a view of the grounds.

No. 119. Empire Transportation Company's Building.
Architects, Wilson Bros. & Co., Philadelphia.—Size, 70 feet by 60 feet.
Empire Transportation Co., Philadelphia.
This structure is located north of the eastern end of the Main Exhibition Building, and exhibits by models the method of transportation used by the Empire Transportation Company and its auxiliaries in the United States.

No. 120. French Government Pavilion.
Architect, De Dartein, France.—Size, 100 feet by 50 feet.
Department of Public Works, France.
Is constructed of brick and iron, and exhibits models in relief and designs of all the public works of France executed during the last few years; also a collection of books and publications relative thereto. It is situated west of the Art Gallery, on Lansdowne drive.

No. 121. Centennial Fire Patrol.
Architect, H. J. Schwarzmann.—Size: (1.) 60 feet by 50 feet, (2.) 84 feet by 74 feet.
The Fire Patrol is accommodated in two buildings, built of wood, one story high,
containing halls for the engines, stalls for the horses, and dormitories for the firemen. The smaller house is at the northeast corner of the Main Exhibition Building, and the larger at the intersection of Lansdowne drive and Belmont Avenue. They are supplied with steam fire engines, hose trucks, ladders, and patent fire extinguishers.

No. 122. THE PENNSYLVANIA EDUCATIONAL HALL.

Architects, Peters & Burger.—Size, 148 feet by 100 feet.

The object of this Hall is the exhibition of the educational interests of the State of Pennsylvania. It is situated north of the Art Gallery, fronting on the Lansdowne drive. The building is octagonal in shape, and contains thirty-two alcoves for the display, a large assembly room, and a reception room. The following summary represents the exhibits:

1. Representations of kindergarten, primary, grammar, and high schools, with their appropriate furniture, fittings, text-books, apparatus, and work.
   Systems of graded schools, with views and models of buildings, charts of statistics, specimens of apparatus, and volumes of scholars' work.
   Schools of counties, with county and township maps of school-houses, photographs of buildings, charts of statistics, and scholars' work; plans of school buildings, with systems of heating, lighting, and ventilating, and designs.
   Department of Public Instruction charts, showing statistics and outline of public school system, reports, forms, certificates, and laws.
   Text-books, school furniture and merchandise, school apparatus and philosophical apparatus; school ornamentation, consisting of a fountain, a series of Rogers' groups, vases, hanging baskets, statues, engravings, etc.

2. Academies and Seminaries, with pictures of buildings, specimens of apparatus, cabinet collections, drawings, and paintings.
   Universities and colleges, with pictures of buildings, maps of grounds, views of interior rooms, charts of history and statistics, courses of study, text-books, and productions of professors and alumni.
   Technical schools and departments, with drawings, casts, models of bridges, specimens of apparatus, etc.

3. Normal Schools.—Views of buildings and grounds, models, courses and methods of study, catalogues and reports, charts of statistics, and students' work.
   Schools of Design.—Drawings, models, etc.
   Commercial Schools.—Specimens of penmanship, etc.

4. Institution for the Blind.—Apparatus for teaching, intellectual and industrial work done by the blind.
   Institution for the Deaf and Dumb.—Apparatus and methods of teaching.

5. Orphan Schools.—Views of buildings, scholars' intellectual and industrial work, books of record, forms and charts.
   School for the Feeble-minded.—Textbooks, apparatus, methods, etc.

6. Sunday-schools.—Collections of Sunday-school material, incentives, maps, charts, forms, and models.


Brief Description of the Objects on Exhibition.

1. Penmanship: (A.) Seven (7) sets of resolutions engrossed by order of the Philadelphia Board of Public Education, at different times during the past thirty years and borrowed from the owners for the purpose of showing the high order of talent employed by the college. (B.) The improvement in writing of fourteen hundred (1400) pupils of the college, showing the success of the penman as a teacher. (C.) A "reward of merit" engrossed by the penman, the like of which is given once a month to the pupil who makes the most improvement in writing during the month. (D.) A large piece of "Specimens of Spencerian Penmanship," and a set of resolutions, complimentary of the Principal, written by the penman, and a "deceiving picture" made with pen, brush, and pencil, by the professor of drawing, each illustrating the power and ability of the execution. (E.) A piece of ornamental penmanship, with a bouquet in the centre drawn with the pen, with which the drawings in the work done for the Board of Education, show the penman's skill in pen-drawing. II. Book-keeping: (A.) A case of samples of merchandise used by the pupils of the college in the transaction of business among themselves in the Actual Business Department, thus furnishing each pupil with an original and independent set of transactions for his books. (B.) Samples of college currency used in the payment of bills, together with copies of the various business papers used by the students. III. Course of Instruction: (A.) A small piece of lettering naming the subjects taught. (B.) A diploma setting forth the subjects of examination for graduation. IV. Objects of Institution and Classes who patronize it: A large piece of penmanship setting forth the same in detail.

Particular Merit which the Exhibitor Claims for His Exhibit.—I. The highest order of talent in the penman in all the departments of work done with the pen. II. Superior plans for the improvement of the writing of pupils in addition to the excellence of the teacher. III. Ingenious and successful plans for teaching book-keeping and imparting a sound, practical, and economical preparation of young men for business life.
No. 123.  **TELEGRAPHIC BUILDING.**

Architects, BALDERSTON & HUTTON, Philadelphia.—Size, 80 feet by 75 feet.

**DEPARTMENT OF PUBLIC COMFORT COMPANY,** Limited.

W. MARSH KASSON, Chairman, Philadelphia.

The reception room of the Public Comfort building opens from the east into the telegraphic department, which furnishes communication with every portion of the world. Is a one-story frame building opposite the northwest corner of the Main Exhibition Building, fronting the Esplanade. All of the instruments and appliances of the latest design are on exhibition and in use.

1 Phillips, Wm. J., Philadelphia, Pa.—Printing telegraph instrument, combining the bell, dial, and printing telegraph in one instrument.

2 Phillips, Eugene F., Providence, R. I.—Covered wire for telegraphic purposes.

3 Gray, Elisha, Chicago, Ill.—Electro-harmonic telegraph, including apparatus for transmitting tunes and eight or more messages simultaneously.


5 Gray & Barton, Western Electric Telegraph Co., Chicago, Ill.—Printing telegraph instrument, with unison attachment.

6 Frost & Hanline, Philadelphia, Pa.—Automatic thermostat for fire-alarm telegraph.

7 Brooks, David, Philadelphia, Pa.—Underground cables for telegraph wires.


9 American District Telegraph Co., Philadelphia, Pa.—District telegraph signal-boxes, with self-starting registers for messengers, guides, and interpreters.


**No. 124. AMERICAN FUSEE COMPANY'S BUILDING.**

Size, 14 feet by 14 feet.

W. R. DAVENPORT, New York.

Situated on Lansdowne drive, north of the Judges’ building.

**No. 125. GLASS MAGAZINE.**

Architect, H. J. SCHWARZMANN.—Size, 40 feet by 40 feet.

KLAUTSHECK, THOMAS, & STUART, Philadelphia.

This magazine is erected adjoining the Photographic Association Building, opposite the lake. It is constructed mainly of glass from the factories of the above firm, and contains a full assortment of plate and window glass, and glass shades for the accommodation of exhibitors; is two stories high, and is connected by a bridge with Belmont Avenue.

**No. 126. MOORISH VILLA.**

Constructed in Morocco by native workmen; exhibited by Dr. Max Schmiidt, for the display of native products and fancy articles; conducted by Abd el Kader ben Katib. It is situated on Lansdowne drive, opposite Sheet Metal Pavilion.

**No. 127. AMERICAN BIBLE SOCIETY PAVILION.**

Architect, I. C. SIDNEY.—Size, 17 feet by 23 feet.

Located near Lansdowne Valley, south of Horticultural Hall, close to the bridge; oval in shape, and surrounded by a carved roof with a projecting cornice. It bears the inscription, “The Bible without note or comment.” In front is an open Bible, and over it the text from Jeremiah xxii. 29: “O earth, earth, earth, hear the word of the Lord.” Only Bibles and Testaments are sold.

**No. 128. HUNTERS' CAMP.**

"FOREST AND STREAM" Publishing Co., N. Y., Wm. C. HARRIS, Manager.

This camp illustrates sportsmen’s life in the backwoods, and contains what is known as a permanent camp, built of logs and bark, with all the appurtenances of hunting and fishing, including portable boats, sporting firearms, rods and fishing
tackle ready for use, portable cooking apparatus, specimens of game birds, a kennel of sporting dogs, etc., etc. An additional feature is a lake or pond stocked with game fish, and a running stream containing brook trout. It is located in the ravine south of Horticultural Hall.

No. 129. OFFICE WATER DEPARTMENT.
A frame building situated on Belmont Avenue, next to the Glass Magazine.

No. 130. SODA WATER STANDS.
These are located at various points east of Belmont Avenue and south of Fountain Avenue.

No. 131. CIGAR STANDS.
These are situated at various points east of Belmont Avenue and south of Fountain Avenue.

No. 132. SINGER SEWING MACHINE BUILDING.
Architect, James Van Dyke, Elizabeth.—Size, 81 feet by 56 feet.
Singer Manufacturing Co., New York City.
Contains an exhibit of every style of machine manufactured by the Singer Manufacturing Company, and samples of work. It is constructed of wood, and is located on Lansdowne drive, north of the Art Gallery.

No. 133. MEDICAL DEPARTMENT.
Architect, H. J. Schwarzmann.—Size, 65 feet by 32 feet 6 inches.
This department is instituted for the immediate gratuitous relief of accidents and sudden cases of illness occurring within the Exhibition grounds. It is located in Lansdowne ravine, equidistant from the Main Building and Horticultural Hall, and contains two wards of three beds each, for male and female patients. An ambulance is provided for the removal of patients to their homes or to city hospitals.

Officers.
William Pepper, M.D., Medical Director.
Theodore Herberte, M.D., Secretary and Resident Physician.
Jacob Roberts, M.D., Member of Staff.
S. W. Gross, M.D., Member of Staff.
H. C. Wood, M.D., Member of Staff.
R. G. Curtin, M.D., Member of Staff.
Hamilton Osgood, M.D., Member of Staff.
De Forrest Willard, M.D., Member of Staff.

No. 134. PORTUGUESE GOVERNMENT BUILDING.
Architects, H. J. Schwarzmann, Hugh Kafka.—Size, 55 feet by 51 feet.
A one-story wooden structure, with cupola, located on the northeast corner of Agricultural Avenue and Lansdowne drive, and used to accommodate Commissioners and visitors from Portugal.

No. 135. BANKERS' EXHIBIT.
Architect, James H. Windrim, Philadelphia.—Size, 69 feet by 41 feet.
Erected by the banks, bank officers, and bankers of the country for the exhibition of coins and currency. It is located east of the Art Gallery, and between the Photographic Gallery and the Vienna Bakery.
SPECIAL BUILDINGS.

No. 136. FRENCH GLASS EXHIBIT.
R. DE BERGNE.
This building is constructed entirely of glass, and situated on Lansdowne drive, adjoining Moorish Villa. Is designed to show window glass, tiles, marble, onyx, etc.

No. 137. KINDERGARTEN.
Located north of Carriage Annex on Lansdowne drive, designed to show object teaching. Is a wooden structure, one story high.

No. 138. CENTENNIAL POLICE STATION.
Situated at northeast corner of Main Building, designed for accommodation of police, with cells for prisoners.

No. 139. PHILADELPHIA PAVILION.
Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 88 feet by 66 feet.
For the accommodation of the municipal government of the city of Philadelphia. It contains a hall and parlors, and a room devoted to the use of the Park Commission. It is a one-story frame building, situated on Lansdowne drive, east of Horticultural Hall.

No. 140. MUSIC PAVILION.
Pavilion with ornamented dome, situated in Lansdowne Ravine, near the bridge, For use of bands.

No. 141. BURIAL CASKET BUILDING.
The exhibit consists of various designs of funeral caskets, shrouds, etc. It is a one-story frame house with turrets, and is situated on Lansdowne drive near the bridge, and north of Art Gallery Annex.

No. 142. PERFORATED METALS.
This is a one-story brick building with skylight, located between the Carriage Annex and Lansdowne drive, and designed to show the practicability of using perforated window blinds in dwellings.

No. 143. RUBBER ROOFING.
This building is situated on Lansdowne drive, between the Carriage Annex and Pennsylvania Educational Hall. It is octagonal in shape, and surmounted by a tower ten feet high. The exhibit consists of rubber roofing.

No. 144. OFFICE OF CUBAN ACCLIMATION GARDEN.
See Part IV., page 134.
Architect and Manager, JULES LACHAUME.—Size, 12 feet by 25 feet.
This structure is designed to show tropical produce, seeds, vegetable physiology, and rustic work, and is situated directly south of Horticultural Hall.

No. 145. NAVAL GROUP.
This bronze statue is situated on the plaza immediately west of Art Gallery.

No. 146. DYING LIONESS.
This bronze work of art is in the plaza due east of Art Gallery.
No. 151. HORTICULTURAL HALL.
    See Part IV., page 147.

No. 152. AGRICULTURAL HALL.

No. 153. WOMEN'S PAVILION.
    See Part III., page 85.

No. 154. FROBEL'S KINDERGARTEN.
    Architect, JAMES P. SIMS.—Size, 45 feet by 18 feet.
    Situated northeast of the Women's Pavilion. Contains specimens of school work, and illustrates the operation of kindergarten teaching.

No. 155. NEW JERSEY STATE BUILDING.
    Architect, CARL PFEIFFER, New York.—Size, 56 feet by 82 feet.
    A two-story wooden building erected for the accommodation of the New Jersey State Commissioners, containing offices and private rooms. It is situated on Belmont Avenue, adjacent to the Women's Pavilion. Messrs. Hall & Son, of Perth Amboy, N. J., furnished the brick in the chimney, and Messrs. Maurer & Brevier, of Perth Amboy, the tiles used in the roofing of the building.

No. 156. THE "SOUTH" RESTAURANT.
    Architects, H. J. SCHWARZMANN.—Size, 182 feet by 92 feet.
    E. MERCER, Atlanta, Ga.
    Situated on the northwest corner of State and Belmont Avenues, and is a one-story frame building.

No. 157. KANSAS AND COLORADO STATE BUILDING.
    Architect, E. F. KARR.—Size, 132 feet square.
    This structure is intended for the accommodation of the Commissioners from the States of Kansas and Colorado, and also for exhibition purposes. It is a two-story wooden building, containing an exhibition hall, private rooms and offices, and is situated east of the Southern Restaurant. The Kansas exhibit consists of agricultural products, minerals, silk cocoons, building stone, cotton, plaster of Paris, birds and animals.
    The Colorado exhibit embraces mineral, geological, and ornithological specimens, petrifications, views of Colorado scenery, the Maxwell cabinets of minerals, birds and animals of the Rocky Mountains, etc.

No. 158. NEW ENGLAND FARMER'S HOME AND MODERN KITCHEN.
    Size, 49 feet by 35 feet.
    MRS E. B. SOUTHWICK, Boston.
    A representation of a New England farmer's home 100 years ago, combined with a modern kitchen, thus illustrating 1776 and 1876. It is one story high, and situated on the corner of State and Agricultural Avenues.

No. 159. THE AMERICAN RESTAURANT.
    Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 300 feet by 200 feet.
    TOBIASON & HEILBRUN, Philadelphia.
    Situated between Agricultural and Horticultural Halls. The seating capacity is five thousand. The banquet room accommodates six hundred guests. The waiters
SPECIAL BUILDINGS.

151

Speak various languages. There is a pavilion devoted to ice cream, etc. A bill of fare will be served either à la carte or table d'hôte.

No. 160. GERMAN RESTAURANT.

Architect, H. J. SCHWARZMANN.—Size, 200 feet by 150 feet.

PHILIP J. LAUBER, Philadelphia.

Contains three acres for garden arrangements, and is situated north of Horticultural Hall, on Lansdowne drive.

No. 161. TEA AND COFFEE PRESS EXTRACT BUILDING.

Architects, HAYES & McIVOR, Elmira, N. Y.—Size, 100 feet by 45 feet.

A two-story frame building, composed of four observatories connected by verandas. Located opposite the southeast corner of the Agricultural Building, and devoted to the exhibition of the process of making coffee, tea, and other extracts, by means of pressure caused by the expansion of the materials used.

No. 162. BUTTER AND CHEESE FACTORY.

Size, 100 feet by 116 feet.

A model factory, three stories high, built of wood, and situated east of the Agricultural Building, between it and Lansdowne drive.

No. 163. SODA WATER STANDS.

These structures are located at various points east of Belmont and north of Fountain Avenues.

No. 164. CIGAR STANDS.

These stands are found at various points east of Belmont and north of Fountain Avenues.

No. 165. FARM WAGON ANNEX.

See Part IV., page 135.

No. 166. POMOLOGICAL ANNEX.

See Part IV., page 135.

No. 167. BREWERS' BUILDING.

See Part IV., page 136.

No. 168. APIARY.

See Part IV., page 140.

No. 169. PACIFIC GUANO COMPANY'S PAVILION.

MR. JOHN M. GLIDDON, Manager.

This is, in style, similar to a Moorish kiosk. The exhibit consists of various products of the soil, guano in its various processes of manufacture, models of company's works at Wood's Hole and Chisolius Island, fossil remains, etc., while several acres of ground, in close proximity to their pavilion, are planted in cotton, cane, tobacco, etc., to demonstrate the efficacy of their manufacture. The building is situated on Fountain Avenue, east of Women's Pavilion.

No. 170. ANNEX TO HORTICULTURAL HALL, OR SPECIAL FLOWER PAVILION.

This building is made of glass and iron, located immediately north of Horticultural Hall, and is intended for the display of specialties in flowers.
No. 171. WIND MILLS.
See Part IV., page 140.

No. 172. "PRACTICAL FARMER" (NEWSPAPER OFFICE).
See Part IV., page 140.

No. 173. HAY PRESS.
One Dedrich portable engine, six horse-power, for running hay presses. The presses take in loose hay, baling and banding 20 tons to the hour, or 280 bales.

No. 174. CENTENNIAL POLICE STATION.
A frame building situated east of Hay Press and Agricultural Hall, intended for accommodation of Centennial Guards.

No. 175. SAFETY ELEVATED RAILWAY.
ROY STONE, Proprietor.
This railroad is situated over Belmont Ravine, north of Horticultural Hall. It was designed by Roy Stone, and first erected at Phoenixville, Pa. Examined and fully approved by eminent engineers. Brought here as an exhibit and for conveyance of passengers under the concession to West End Railroad Co. Intended for rapid transit in cities, or for very cheap country railroad for passengers and freight.

No. 176. BOILER HOUSE.
Situated east of Agricultural Hall, and furnishes steam for engine in that building.

No. 177. VIRGINIA STATE BUILDING.
A frame structure one story high, with veranda all around, situated on State Avenue east of the Kansas and Colorado building, facing Horticultural grounds.

No. 178. THE PROTECTIVE FIRE APPARATUS COMPANY OF NEW YORK.
Size, 8 feet by 10 feet.
This is a one-story wooden building, situated on Agricultural Avenue, west of Agricultural Hall, and is designed to display fire extinguishers.

No. 179. POP-CORN STAND.
Situated at corner of Agricultural Avenue, near station of Narrow-Gauge Railroad.

No. 180. FOUNTAIN OF THE JORDAN L. MOTT IRON WORKS OF NEW YORK.
Located east of Horticultural Hall. This is an iron fountain 45 feet in diameter and 26 feet high. There are four figures at the base, and the top is surmounted by the design of "Venus Rising from the Sea."
In the interior of the different buildings are located several fountains of varied designs.
INDEX OF EXHIBITORS.

DEPARTMENT V. AND SPECIAL BUILDINGS.

A.

Abbe, Mrs. , Cushions, 89.
Abbey, L., Vestments, 59.
Abbott, Mrs. E. F., Dressing stand, 92.
Abbott, J. M., Holly, 159.
Abendroth & Root, Boiler, 52.
Abookoff Steel Foundry, Axes, etc., 70.
A. C. C., Embroidered cushion, 101.
Acero, A., Sumac, 140.
Ackerman, Mary, Painting, 94.
Adams, Miss Elizabeth, Painting, 94.
Adams, J., & Co., Life boat, etc., 59.
Adams, J. L., Tobacco cutter, 59.
Adams & Keen, Leather, 116.
Adams & Shaler, Leather, 113.
Adelskold, C., Model, 66.
Adler & Clement, Shoes, 106.
Administration of Mining District, Plan, 69.
Admiralty Electroplate Establishment, 69.
Admiralty Tyowa Works, Tackle, etc., 50.
Agrarian Committee, Machine, 67.
Agricultural Department U. S., 79.
Agriculture, Board of, Memoirs, 134.
Aguilar, Mayor M., Books, 134.
Aguilar, S., Books, 132.
Agüiler, F., Sumac, 140.
Agüila y Martinez, School books, 136.
Aguirre, F., Clock, 138.
Aiken, Henry, Hydrostatic machine, 26.
Air Burning Co., Ironing table, 55.
Aldooff & Alexzondoff, Leather, 116.
Aлагаás, Province of, Embroidered work, 102.
Alará, Mariano, Book, 137.
Alixuet, Printing presses, 60.
Albright, A., Harness, 109.
Albright & Stroth, Coal separator, 17: Fire plugs, etc., 11.
Alcott, T. J., Water wheel, 36.
Aldama, de, Book, 136.
Alexander Bros., Belting, 38, 53.
Alexander, Miss E., Illumination, 97.
Alexander, E. H., Skins, 114.
Alexander, E. S. & M. S., Sulphur water, 127.
Alexander, W. A., Calk spar, 126.
Alexander, W. A., Wheat, 129.
Alexanderbrook, Air bags, 70.
Allisoff, M., Machine, 69.
Allen, Mary W., Chess table, 87.
Allen, S. B., Steam governor, 60.
Allen, T., President Missouri Com'n, 139.
Allen's, Josiah J., Sons, Anti laminia, etc., 39.
Alloué, E., Pumps, 62.
Allis, E. P., & Co., Engine, 38; Boiler feed regulator, 39; Separator, 49.
Allison & Bannan, Engines, 41.
Allison, W. C., & Sons, Tubing, etc., 45.
Almeida, A. B. d', Counterpane, 103.
Almela y Vinet, F., Photographs, 139.
Almirante, J., Dictionaries, 136.
Alonso, Arsenio, Plan, 139.
Alsing, J. K., Model, 65.

Alvarez Carretero, Antonio, Books, 137.
Alvarez de Araujo y Cuellar, Angel, Books, 137.
Alvarez Gimenez, E., Studies, 136.
Alvarez, Romualdo, Books, 135.
Alvear y Lara, F., Water supply, 138.
Amblor, W., Machines, 54.
Amer, Wm., & Co., Leather, 115.
American Buttonhole Overseaming & Sewing Machine Co., Machines, 30; Work, 89.
American Cable Screw Wire Co., 111.
American District Telegraph Co., 147.
American Dredging Co., Dredges, 52.
American Engine Co., Engines, 34.
American File Co., Files, 28.
American Tice Co., Fuses, 147.
American Inland Wood Co., 124.
American Life Saving Suit Co., 51.
American Meter Co., Meters, 19.
American Oil Cabinet Co., 39.
American Paper Car Wheel Co., 47.
American Road Steamer Co., 35.
American Sheet & Boiler Plate Co., 124.
American Ship Yard Co., 52.
American Shoe Tip Co., Toc protector, 111.
American Steamship Co., Models, 52.
American Tube Works, 44.
American Tubular Iron & Steel Ass'n, 38.
American Twist Drill Co., 23, 52.
American Watch Tool Co., Lathes, 24.
American Whip Co., Whips, etc., 110.
Amersfoordt, Mrs. H. M., Oratorio, 106.
Ames & Frost, Dovetailing machine, 19.
Ams Iron Works, Engines, 34.
Amherst Stone Co., Stone, 122.
Amoskeag Manufacturing Co., Engines, 53.
Andersdotter, M., Embroidery, 100.
Anderson, Miss Ellen D., Shutter fastener, 87.
Anderson, J. P., Graters, 49.
Andersson, A., Paintings, 103.
Andrew, J. E. H., Tobacco machines, 36.
Andrews, W. D., Boiler, 52.
Angel Crebnet, Widow of, Book, 135.
Ankarsrums Works, Switches, 66.
Aneir, J., Blacking, 105.
Anthony, Miss Margaret M., Painting, 93.
Anthony, Mrs. Sarah E., Embroidery, 89.
Antiquiad, C., Books, 133.
Appert-Mandart, Hooks and clasp's, 61.
Appleby Bros., Steam cranes, 55.
Appold, G., & Sons, Leather, 115, 115.
Aptometer Steam Pump Co., 42.
Aramburu, Ricardo, Picture, 139.
Araño y Mayo, Miguel, Books, 135.
INDEX.

Bolen, Crane, & Co., Press, 42.
Boll, H. B. F., Milling machinery, 17; Engine, 37; Models, 50.
Bollinger, O. J., Water wheel, 36.
Bollulos del Condado, Corporation of, 140.
Bonn, E., Iron ore, 103.
Bond, D., Drawings on stone, 96.
Booncy, Sarah E., Muff, 88; Birds, 98.
Boora, Germain, Dictionary, 135.
Iorja y Alaron, P., Studies, etc., 132, 138.
Borrell, M., Arts, 134.
Boter, M., Limestones, 127.
Boston & Fairhaven Iron Works, Presses, 32.
Boston Piston Meter Co., Meter, 42.
Boteler, A. R., Ore, 126; Ochre, 128.
Bourne, Miss B., Paintings, 100.
Bowes, E., & Son, Pumps, 58.
Bowron, Wm. M., Furnace, 18.
Bowser, J. C., Engine and boiler, 110.
Boyd, G., Coffee roaster, 50.
Boyer, Mrs. Kate, Painting, 94; Designs, 97.
Boynton & Bancroft, Soles, 106, 108.
Boynton, Mrs. E. E., Tea kettle, 87.
Bradford, Anne H., Painting, 95; Shells, 97.
Bradford, H., Coal separator, 17.
Bradford, W. H., Models, 56.
Bradlee & Co., Cable chain, 50.
Bradley, Manufacture of crystallization forms, 90.
Bradley Manufacturing Co., Hannam, 23.
Bradley, Mrs. N. M., Suspenders, 89.
Bradward, C. R., Copier, Distributor, 33.
Branch, Miss M. M., Wood carving, 91.
Branching Milling Machine Co., 27.
Brame, H., Tools, 60.
Branden Manufacturing Co., Scales, etc., 46.
Brashers, Miss Lillian, Flower stand, etc., 92.
Braugh, J. J., Tobacco, 130.
Braith, E., Skins, 114.
Braun, Miss Sophia, Punctuation cover, 89.
Braun, H., Marine alga, 95.
Brayton, G. B., Engine, 37.
Brazil Commission, Flowers, 102.
Brazil, P., elder mill, etc., 58.
Breed, W. F., Shoes, 108.
Breguet, Machines, 60.
Brehmer, E. F. A., Machine, 65; Stamps, 66.
Bridgewater Iron Co., Forging, 46.
Brierly, Sons, & Reynolds, Signals, 56.
Brisbane, A., Pneumatic tubes, 119.
Bris, P. F., Songs, 133.
Broadbent, T., Hydro extractor, 55.
Bromley, J., & Sons, Carpets, 98.
Brooke, H., Glass models and presses, 27.
Brookes, W., & Sons, Saddlery, 116.
Brooks, C. S., Cutting system, 88.
Brooks & Cooper, Anvils, 54.
Brooks, D., Cables, 45.
Brooks, E. A., Shoes, 166.
Brooks Locomotive Works, 45.
Brooszitzine, N., & Sons, Leather, 116.
Brose, Madame S. C., Models, 88.
Brothers, Mrs. H. B., Chrysanthemums, 97.
Brotherhood, Mrs. H. B. M., Poem, 91.
Brown, Miss Needlework, 99.
Brown, Ang., P., Boiler fixture, etc., 39.
Brown & Carver, Card cutters, 33.
Brown, Edward, Pyrometers, 39.
INDEX.

Chairmen of Wards in Phila, 86.
Chambers, Spencer, Felting, 34, 53.
Chamberlain, Mrs., Water colors, 99.
Chamberlain, Mrs. A. H., Drawings, 96.
Chambers, Bro., & Co., Brick machine, 26: Newpaper folder, etc., 33.
Chambers, E., Fencing, 114.
Chamorro, K., Book, 133.
Champion Fence Co., Iron fence, 124.
Champion Fire Extinguishing Co., 43.
Champney, M. H., Stockings, 88.
Chandler, A. G., Carved wood work, 97.
Chandler, Hon. Z., Secretary of Interior, 72.
Chao, Alejandro, Book, 135.
Chapin, Miss Photograph, 97.
Chapin, Miss Commercial Painting, 95.
Chapman, H., Hydro extractor, 41.
Chapman, Miss Laura M., Lap table, 87.
Chapman Valve Manufacturing Co., 45.
Chard & Hope, Lubricator, 39.
Charland, W., Ship model, 59.
Chariton, J., Clamp, 38.
Chase, B. F., Glass blowing machines, 27.
Chase, F. D., Dock iron, 42.
Chase MFG. Co., Cutting machine, 24.
Chase, Pliny E., Foot lathes, 25.
Chase Turbine MFG. Co., Machines, 20, 36.
Chastron, Leon, Books, 137.
Chatillon, J., & Sons, Scales, 46.
Chaudron, J., Apparatus, 64.
Chauveau, Engines, 60.
Checny, Miss Daisy, Tidy, 89.
Chenailler, Evaporator, 63.
Child, C. C., Presses, 32; Paper cutter, 33.
Chilian Commission, Machinery, 120.
Chisholm, R. N., Car coupler, 58.
Chomel, I. A., Swinging berth, 50.
Chorny, F., Embossing, 61.
Christoffel, T. E., Tube cleaners, etc., 39.
Cicile, Larube, Bottle cleaners, 61.
Cincinnati School of Design, Metal work, 90; Wood carving, 91.
Claffin, W. M., Shoes, 107.
Clapp, Mrs. W. S., Photograph, 96.
Clapp, Mrs. J. M., MFG. Co., Fire engines, 44.
Clark, Miss A. F., Fire screen, 98.
Clark Bros., Pipe tongs, 27.
Clark Bros. & Co., Hardware, 27.
Clark, John A., Drop pan, 24.
Clark, Miss S. A., Paintings, 101.
Clark, Rufus F., Cylinder oiler, 39.
Clark, Standfield, & Co., Models, 96.
Clark Thread Co., Spool machine, 21, 28.
Clarke, Kate W., Painting, 93.
Clarke, R. Lasts, 57.
Clarós, J. M., Cork, 140.
Clay, C., Minerals, 126; Woods, 129.
Cleveland Machinery, Grog, 96.
Cleveland Paper Box Machine Co., 33.
Cleveland Screw & Tape Co., Screws, 27.
Cleveland Steam Gauge Co., Gauges, 39.
Clinton, L., Crayons, 96.
Clothier, Miss Minnie J., Lace, 88.
Clough Stone Co., Stone, 123.
Clough & Williamson, Machine, 24.
Clough Valley Coal, 127.
Coats, J. & P., Machines, 54.
Cobb, Z., & Sons, Engine, 37; Steel springs, etc., 46.
Coblenz, Electrotype, 69.
Cochrane, J., Cleamt, 48.
Codera, F., Treatise, 136.
Coe, C. W., Screw cutter, 24.

Collo y Quesada, F., Maps, 138.
Collins & Woodruff, Maps, 41, 52.
Cohen, C. J., Envelope machine, 34.
Colhfeld, S., Apparatus, 70.
Colburn, L. J., Confectionery, 49.
Colfax Coal, 138.
Cole, W. D., Stufing, 105.
Colford, H., Spark catchers, 59.
Colford, Miss Isora, Boots, racks, 92.
College of Mississippi, Pfieffer, Work, 132.
Collier, L., Confectioners' machines, 56.
Collier, Miss Lizzie M., Teapot rest, 92.
Collignon Bros., Canes-seat work, 87.
Collday, Jos. O., & Bro., Lathe, 22.
Colordo, C., Instruction, 132.
Colford, Miss Helen, Book covers, 92.
Columbia Car Spring Co., Car springs, 48.
Colvin, Margaret P., Washing machine, 87.
Cleveland Bros. & Sugar, 49.
Cleveland Lead Co., Pipe, etc., 45.
Coman, Mrs. B., Charcoal sketch, 96.
Combined Power Co., Geared machinery, 22.
Comeran, F. A., Treatise, 133.
Comstock, L. W., Niles, 109.
Compton, G., Cotton boom, 98.
Conahuta, F. C., Painting, 93.
Conant, Mrs. Orpha, Hat, 88.
Conceiro, G. M., Treatise, 136.
Conde & Co., Pumping engine, 41.
Condit, Hansom, & Van Winkle, Machine, 18.
Conklin, N. A., Mill, 49.
Conner, Miss F., Lace, 99.
Conner, J. W., Boilers, 34.
Connolly & Power, Shoes, 107.
Conor, Mrs. I., Illuminations, 101.
Conrad, F., & Mooney, Leather, 112.
Conservatory of Arts, Books, 134.
Consul, 61.
Constant, Mrs., Leather work, 99.
Convent of Sacred Heart, Plan, 99.
Coogan, O., Machine, 111.
Cook, Miss H. M., Coating, 23; Book, 97.
Cook & Pulver, Lubricators, 53.
Cook, Son, & Jenkins, Ornaments, 131.
Cooke, J., & Co., Lamps, 86.
Cooper, Miss Alice, Prie-dieu, 92.
Cooper, John H., Model, 21.
Cooper, Jones, & Cadbury, Lathes, 23; Pumps, 40; Plumbers' supplies, 45.
Cooper, R. Shoe, 106.
Cooper, F. R. N., & Co., Nail machine, 57.
Cope, E. T., & Sons, Water wheel, 36.
Copping, G. H., Lozenge machine, 59.
Corinth University Machine Shop, Lathe, 24.
Engine, 37.
Cornellas y Grau, C., Grammar, 132.
Corely, E., Machines, 60.
Corner & Cooper, Cotton stamps, 29.
Corner & MacFaul, Dictionnary, 133.
Cornsall, Mrs. Elamia, Chart, 88.
Corps of Engineers, Madrid, Books, 134.
Corral y Pastor, A., Publication, 1, 60.
Corbally, W. J., Coal, 127.
Corrientes, Provincial Com. of, Oars, 69.
Cort, Mrs. C. A., van, Torpedo boat, 51.
Cortazar, D., Treatise, 133.
Cortejarena & Aldebo, Manual, 133.
Cortes, Corporation of, Wood, 149.
Coshcohon Stone Co., Sandstone, 123.
Costa, C. P. da, 68.
Costello, P. P., Leather, 113.
Cotman, W., Ship models, 59.
Cottrell & Babcock, Press, 32.
Couture, Machines, 60.
Covetit & Frouin, Stern model, 59.
Cox des Roseaux, Oil cups, etc., 61.
Cowell, Miss A. C., School models, 90.
Cowen, Mrs. S. J., Book case, 87; Books, 91.
Cowen, J., Book, 52.
Cox, H. W., Pumps, 58.
Cox & Sons, Tools, 25; Water wheel, 36.
Coxe Bros. & Co., Coal breaker, 17.
Craig, W., Hackles, etc., 39.
Craig, T., Trunks, 101.
Craig & Brevoort, Condensers, 40.
Cramer, Miss, Embroidery, 99.
Crane, Abby T., Wood engravings, 96.
Crane Bros. M'fg Co., Engines, etc., 41.
Crane & Co., Fits, 10.
Crawford, Miss, Tatting b natives, 99.
Crawford, G. B., Bracket, 128.
Creed, E., Boots, 106.
Crespo y Ozas, L., Studies, 136.
Cresta, T. C., Plaques, 38.
Crichton, A. K., Illuminated books, 98.
Crittenden, L. S., Horse blanket, etc., 110.
Croft & Camp, Architects, 130.
Crosby, W., Pants, 49.
Crosby Steam Gauge Company, 44.
Cromwell, R., Hand car, 46.
Crotta, G., Metal, 104.
Crounch & Fisk, Trunks, 101.
Cruckshank, A. B., Seats, 56.
Cruz, Ruiz C., Grammar, 136.
Cuarto, Injector, 61.
Cuban Acclimation Garden, Seeds, etc., 149.
Cuchi, Tomas, Treatise, 135.
Cuenca, H., Books, 134.
Cuesta, Pedro, Works, 135.
Custodias, F., Stanzas Pascual, Pictures, 139.
Cuyxus, J. A., Table, 134.
Culmer Spring Co., Railway springs, 47.
Culver, Mrs. J. O., Art cabinet, 93.
Cumbe & Donald, Model, 49.
Cummins, Geo. L., Grindstone frames, 25.
Cunningham & Co., Leather, 115.
Cunningham, Alice H., Decorated china, 95.
Cunningham, S., Chairs, 129.
Curtis, Jessie, Drawings, 95.
Cushing, N. B., Punching machines, 24.
Cushman, C. S., Stitching attachment, 112.
Cutlan Shoe Sewing Machine Co., 112.
Cutler, Misses N. M. & M. A., Glove box, 91.

D.
Dailey, M. E., Trestle, 58; Ship model, 59.
Dall & Callaway, Stakes, 129.
Dalessandro, B., Life preserver, 67.
Dalshemer Bros., Shoes, 107.
Dalshemer, Leon, & Bro., Shoes, 108.
Danforth Locomotive & Machine Co., Silk machinery, 28; Locomotives, 45.
Daniels, T. E., Fire escape, 43.
Davitt, Robert, T., Printing, 94.
Dasbach, J. E., Gas machine, 19.
Date, J., Diving apparatus, 58.
Daussch, J. G., Watchmakers' tools, 62.
Davenport, E. W., Painting, 95; Water color, 97.

Davenport, Fairbairn, & Co., Car wheels, 47.
Davey, Mrs. Israel, Slate stand tops, 87.
Davis, A., & Co., Leather, 98.
Davey, Faxon & Co., Boiler, etc., 55.
David Bros., Forges, 60, 61.
Davidson Rubber Co., 100.
Davis, C. S., Cotton goods finisher, 28.
Davis & DuBois, Tallow engine cups, 99.
Davis, Georgie A., Drawings, etc., 95.
Davis, J. E., Water heater, 40.
Davis, Marcus, Ores, 26.
Daves, J. B., Marking in ink, 96.
Davis & Richardson, Slate machine, 26.
Davis Sewing Machine Co., 39.
Dawley & Derby, Hats, 108.
Day, George H., Lime screens, 18.
Day, T., Leather, 114.
Dayton, Miss M. G., Photographs, 96.
De Bergoe & Co., Glass, tiles, etc., 149.
Dechamps, C., Boiler apparatus, 61.
Decker, D., Leather, 113.
Decrow, A. W., Yealde, 31; Brake, etc., 46.
De Parthen, Architect, 145.
DeFord & Co., Leather, 113.
Degener & Weiler, Printing presses, 32.
De Haven, A. R., & Son, Shoes, 107.
Delgado, F., Wood, 49.
Delgado, J., Saffron, 141.
Dell, J. C., Scales, 46, 49.
De Long Bros., Leather, 112.
Delirez, Felix, Cards, 64.
Dempsiey, Tobacco, 130.
Dempsiey, J. E., Cercals, 130.
Denningson, J. N., Steam fire engine, 43.
Denrach, S. B., Illuminated maps, 98.
De Pilgrim, Miss V., Redstead, 92.
Deplanque, Son, &c., Merly millstones, 61.
Derks-Schloep, E. J., Types, 64.
Derley, C., Typewriter, etc., 65.
Dervaux, A., Feeding apparatus, 64.
Desmond, T., Gig, 50.
Desmouls, Quennness, & Le Brun, Apparatus, 60.
Desmond Gas Coal Company, Coal, 127.
Dethiou, Gilles, & Co., Cards, 64.
De Tontay, A., Models, 64.
Devereaux, A., & Son, Leather, 114.
De Vera, L. E., Shoes, 107.
Dexter Spring Co., Carriage spring, 36.
Diamond Glass Co., Glass, 124.
Diamond State Iron Co., Bars, 46.
Diaz Agero, J., Corks, 149.
Diaz Otero, Eduardo, Photographs, 139.
Diaz y Martinez, M., Instruction, 132.
Dick, C. J. A., Bronze ingots, 23.
Dickenson, A. M., Shell work, 97.
Dickerson, Mrs. Y. G., Camp chair, 87.
Dickinson, H., Ore, 126.
Dickinson, E., 129.
Dickson, J. & Co., Engraving on rubber, 38.
Dickson Mfg Co., Locomotives, 45, 46.
Diego, P. de, History, 134.
Dienelt & Eisenhardt, Carpet loom, 29.
Dietz, E., Van, Bed cover, 100.
Diez, Domingo, Book, 137.
Dining, H., Ship models, 59.
Direction of Customs, Madrid, Statistics, 134.
Director of Instruction, Memoirs, 137.
Dixon, Henry, & Sons, Saws, 19.
Dixon, T. S., Blower, 42.
Dixon, Maria R., Painting, 94.
INDEX.

159

Dixon, W. T., & Bro., Shoes, 166.
Dodd, Mrs. Wm., Casket, 92; Table, 93.
Doddridge Music & Art School, Paintings, 128.
Dodge, Mrs. A. C., Counterpane, 90.
Doherty, Miss Clara, Fruit plate, 92.
Dohle, H., Shoes, 108.
Dole, L., & Co., Belting, 64.
Dolmage, Lemierre, Belting, 61.
Domestic Sewing Machine Co., 31, 111.
Dominquez Mendez, B., Wood, 140.
Dominick, Mrs. G., Wall pocket, 92.
Donaldson, Lacy, Panels, 93.
Drayley, Alice, Painting, 95; Wood engraving, 96; Design, 97.
Draper, G., & Son,branning flame, 29.
Dreikisch, W., & Co., Bars, 107.
Dress Reform Co., Shoes, 106.
Drown, Mrs. C. L., Glass signs, 97.
Drummond, Mrs. L., Carving system, 57.
Dubois, W., & F. Joseph, Machine, 64.
Ducker, Baron F. F. von, Drawing, 62.
Dudgeon, Richard, Punches, 24; Engine, 37.
Hydraulics, 52.
Duffy, J. W., Mineral water, 128.
Duagonjon, sr., Saws, 60.
Dulin, C., Petroleum, 126.
Dunham Iron Co., Wood machines, 22.
Dunlap, Miss Sarah, Wall pocket, 92.
Dunn, P., Nail machine, 57.
Dunn & Sanson, Ship models, 59.
Dunning, Miss, Tray, 90.
Dunning, Miss M., File painting, 95.
Dunston Engine Works Co., Breaker, 54.
Dupuy, L., Books, 137.
Duque, Eugenio, Plans, 139.
Durand, F., & Marais, Brick machines, 60.
Durieux & Co., Wheels, etc., 64.
Durscheidt, Mill stones, 61.
Dury, Machine, 61.
Dutch Temple Co., Loom temples, 25.
Dyer, J. P., Corn, 129.
Dyer, Miss Fannie E., Child's apron, 88.

Edoux, L., Special system, 61.
Edison's Steam Recording Gauge Mfg. Co., 40.
Edson, T. P., Life保险, 98.
Edson, M. B., Gauges, 53.
Efinoff, Vamps, 116.
Ehrenpohl, C., Embroideries, 18a.
Ehret, M., Jr., Waterproof roofing, 121.
Eicholt, John H., Gas generator, 18.
Ekman, C., Wheels, 66.
Elias & Pritz, Leather, 114.
Elk River Iron & Coal Co., 126, 128, 129.
Ellis, F., Saws, 59.
Ellis, C. R., Heater, 35.
Ellis, W. I., Blower, 55.
Eminianoff, A., Boot legs, 116.
Emerson Stone Saw Co., Circular saw, 25.
Emerson's, T., Sons, Shoes, 108.
Empire Portable Forge Co., Forges, 23.
Empire Transportation Co., Models, 145.
Employment Society, Afghan, 83.
Enfer, A., jr., Forges, etc., 61.
Enfer, E., Forges, 60, 61.
Engineer's Shop, St. Petersburg, 70.
England & Bryan, Anihau, 111.
Englis, J., & Son, Steamship models, 51.
English, W., Canoe, 59.
Enter Co., Coal, 127.
Epstein, Miss L., Fancy work, 99.
Erie City Iron Works, 34, 38.
Eriven, C. W., & Bro., Engines, 37.
Escofild, de Antonio, Books, 132.
Estada, A., Types, 60.
Eureka Bark Mill Co., Bark mills, 22.
Eureka Fire Hose Co., 43.
Eureka Manufacturing Co., Lathe, 19.
Evans, Ditzell, & Co., Pipes and tubing, 44.
Evans, T. R., Boots, 106; Lasts, etc., 112.
Everaea, J., & Sisters, Laces, 100.
Ewart Manufacturing Co., Drive chains, 47.
Exeter Machine Works, Boiler, 35; Blowers, 52.

F.

Fabregas y Bru, J., Desk, 132.
Faculty of Medicine, Works, 133.
Fagersta Iron and Steel Works, Axes, 66.
Fairbairn, Kennedy, & Naylor, Borer, 51.
Carding engine, 55.
Fairbanks, Miss I., Lace, 90.
Fairbanks & Ewing, Scales, etc., 46.
Fairbrother, H. L., & Co., Belting, 43.
Leather, 114.
Fales, G. S., Belt, 53.
Fales, Jenks, & Son, Combined by flame, 23.
Falk, Louis, Fire escape, 43.
Falle, L., & Co., Boots, 106.
Falling Rock Coal Co., 127.
Faria, M. D., de, Cushion, 102.
Farnham, Mrs. Sarah A., Painting, 94.
Faruqhassan, Miss, Painting, 100.
Farr, George, Model, 26.
Farrell, Misses, Lace, 92.
Farrell, Mrs. K., Worsted work, 99.
Fauchiniti, A., Painting, 101.
Faye & Kessler, Apparatus, 60.
Faust, A. D., & Son, Leather, 113.
DEPT. V.—MACHINERY.

Fay, Sarah R., Blanket, 88.
Fearon, T., Boats, 50.
Fearn, D., & Son, Shoes, 166.
Felder, C., Plating machines, 31.
Fergus, J. & J., Bottling machine, 44.
Ferguson, Edith, Painting, 94.
Ferguson, Mrs. Mary L., Paintings, 93.
Ferguson, G., 136.
Fernandez, Cardin, Mathematics, 133.
Fernandez de Castro, M., Treatise, 133; Electricity and railroads, 136.
Fernandez Figueroa, Manual, 133.
Fernandez, Fontecha, Astronomy, 133.
Fernandez, M., Saffron, 141.
Ferrandiz, J., Salt water, 141.
Ferrari, E., Apparatus, 67.
Ferre, S. P., Printing press, 32.
Ferreira, M., Crochet case, 102.
Ferrell & Jones, Steam pump and engine, 41.
Ferris & Miles, Machine tools, punching machines, 23; Blowing engine, 42.
Feu, P., & Sons, Medals, 138.
Fichtenberg, Powder bellows, 18.
Field, Miss E. C., Panel, 93.
Fields, W., Coal wagon, 37; Steel rails, 47; Models.
Fine Art School, Programmes, 133.
Fine Arts, Provincial Acad. of, Drawings, 139.
Finnegan, J. H., Stone, 123.
Finnegan, M. S., 20.
Firmenich, J., Boiler, 51.
First & Prybil, Carving machine, 19.
Fish, Warren L., Sewing machines, 31.
Fisher, J. W., 129.
Fisher & Norris, Rail joints, 48; Vises, 52.
Fisher, W., Ochre, 128.
Fisk, J. E., Machine, 111.
Fitch, Geo. M., Machinery, Lathes, 25, 52.
Fitts, B., Whistle, 53.
Fitts, E. E., Globes, 90.
Flagg, S. G., & Co., Carriage hardware, 17.
Gray iron, 22; Fittings, 45.
Fleck, A., Steam engine, 58.
Fleming, G., & Sons, Engine, 58.
Fleming Complete, 190.
Fleming, T., & Son, Teeth, 54.
Fletcher & Dwyer, Burnishers, 105.
Fleury, J. M., Mill, 60.
Flint, C. M., Saw mill, 22.
Flórez y Pujol, Chronometer, 138.
Flores Arrate, J., Books, 134.
Flores Laguna, J., Music boxes, 138.
Flores, José María, Book, etc., 135.
Flower, J., & Bro., Hydrant, nut machine, 44.
Flower, W., Life saving apparatus, 51.
Flynt, Mrs. Olivia P., Under garments, 88.
Foley, Miss M., Bas blechs, 101.
Folleinsbe, G. S., Pump, 41.
Folsum, A., Wind wheel, 36.
Foly y Velasco, Books, 133.
Fontaine, H., Engines, 60.
Fontyn, G., Shovel, 107.
Forbes, J. W., Quartz battery, 37.
Forco, Mrs. F. H., Cabinet, 93.
Ford, O. D., Sandstone, 123.
Forrest, C., Review of Electrotype, 135.
Forrepaugh, W. F., & Bro., Leather, 112.
Forest District of Avila, Woods, 140.
Forsaith, J., & Co., Spring hammers, 23; Folding machine, 35.
Forstner, Benjamin, Wood auger, 19.
Forsyth, Mrs. S. M., Hosery, 88.
Fortanet, T., Books, 139.
Foss & Pewey, Cotton card, 29.
Foster & Quiggle, Shoes, 108.
Foulds, Thomas, jr., Elevator, 43.
Foulon, J., Indicator, 138.
Fowler, F. G., Propeller, 39.
Fox, Jane A., & Son, Drainer, 87.
Fraile y Valles, Arithmetic, 134.
Fraley, Miss Mollie E., Painting, 93.
Francis, F., Ship model, 51.
Francis & Loutrel, Folding machine, 33.
Ferguson, Mrs. A., Water color, 95.
Frantz, D., & Son, Leather, 113.
Freal, Machines, 61.
Freeborne, Sir M., Sculpture, 91.
Freedland, R., Soap machine, 57.
Freeman, Miss F., Sculpture, 101.
Freiberg, H., Leather, 114.
French, A., & Co., Car springs, 47.
French, Elizabeth J., Magnetic appliances, 91.
French Government, Models, 145.
French, Julie Blanche, Bedsteads, 87.
Frech, Mrs. B., Autumn leaves, 100.
Frey, Miss C. F., Water colors, 98.
Frick & Co., Portable engine, 34.
Friedland, M., Pumps, 79.
Frochel’s Kindergarten, School work, 130.
Frontaura, C., Review, 136.
Frost & Hauline, Thermostat, 147.
Fuente, Elena, Dresses, 59.
Fuente, V. de la, Biography, 136.
Fuller, Warren, & Co., Stoves, 118.
Fulton Foundry Company, Turn-table, 17.
Furman, M. A., & Son, Carding machines, 29.
Furst, B., Needlework, 100.

G.

Gadd, T., Cams, 54.
Gaff, Fleischmann, & Co., Yeast, 143.
Galite Nuñez, J., Books, 133.
Galgard, J., de, Natural history, 132.
Gale, A. D., Harness, etc., 110.
Galleggio, D., Suman, 140.
Galligher, Bernard, Drills, 23.
Gallinero, Corporation of, Wood, 140.
Galloway, W. & J., & Sons, Boilers, 53.
Gally, M., Printing presses, 32, 33.
Gallav, and Towel and pillow shams, 101.
Garica Ardebela, J., Tables, 133.
Garica Arias y Uscio, Bento, Pictures, 137.
Garica Eugenio F., Grammar, 132.
Garica Maciuca, A., Treatise, 134.
Garica, N., Books, 134.
Gardella, L., Plan, 69.
Gardiner Drill Co., Machines, 17.
Gardiner, Miss Mary Jane, Cutter, 88.
Gardner Bros., Shoes, 168.
Gardner, Miss J., Books, 149.
Garlandal, Refrigerating apparatus, 61.
Garloe, A. E., Carbonate of iron, 126.
Garmount, W., Ship model, 59.
Garne, I. H., Brick machine, 26.
Garreia Francisco D., Arboriculture, 140.
Garria, M., Tachigraphy, 132.
Garria y Roca, M., Plans, etc., 138, 139.
Gas Motor Factory, Motors, 62.
Gaspar, Editors, Books, 137.
Gasparini, G., Machine, 67.
Gasalde, J., 134.
Gaston Coal Mines, Coal, 127.
Gates, J., Belt, 53.
Gates, J. & Sons, Beltig, 38.
Gautley, Coal, 127.
Haskins Steam Engine Co., 35
Hassam, Miss Harriet A., Ribbon, 89
Hathaway, Mrs. Mac, Scarf, 88
Hathaway, Mrs. P. V., Native flora, 98
Hathorn, Davis, Campbell, & Davey, 41
Haufler & Heller, Skins, 115
Hauney, Henry F., Tube brushes, etc., 39
Hauser, J., Blacking, 105
Hauthaw, C. L., & Sons, Dressings, 105
Hautin Sewing Machine Co., Machine, 111
Havana Academy of Sciences, Works, 135
Havens, W. H., Saw tables, 19
Hawkins, T., Humes, 108
Hayley, A., Dredge, 52
Hayley & Branson, Knitting machine, 31
Hayley, H. Q., Water motors, 37
Haworth, J., Tubing, 36
Haynes, T. & Sons, Pump, 55
Hazelhurst, Samuel, Brick moulds, 26
Hazlewood, M., Painting, 94
Hcald, D., Shook, 129
Hatch, T. H., Tools, 54
Heard & Sons, Design, 124
Heaton, D., Button fastener, 111
Heedland, J., Machines, 66
Heegreville, P., Shovel, 101
Heim, A., Web Co., 53, 107
Helweg & Co., Boots, 107
Hemmer, L. P., Washing machine, 62
Hench, A. L., Leather, 112
Hench, Geo., Leather, 112
Henderson, Annie W., Roses, 94
Henderson, C. M., Boots, 107
Henderson, D. E., Painting, 128
Henderson Hydraulic Car Brake Co., 46
Henderson Machine Co., Planer, 52
Hanna & Dewees, Dies, etc., 111
Handley, L., Oats, 129
Hammer, A. W., Folding, 35, 53
Hammer, C. T., Dryer, 49
Hammer, G. J., Gifts, 57
Hansell, W. S., & Sons, Harness, etc., 110
Harbert, Elizabeth B., Books, 91
Harbert & Raymond, Saw mill, 22
Harber Master, Office of the, Model, 69
Hardie & Hampson, & Co., 112
Harling, Miss C., Embroideries, 98
Hardy Machine Co., Card grinders, 25
Hardy Patent Pick Co., Picks, 54
Hardy Mccray, Photograph, 97
Harkin, R., Hooks for tanners, 111
Harran & Hollingsworth, Ship models, 51
Harley, E. G., Darner, 90
Harman, Mrs. E. F., Dress designer, 88
Harress & Chilton, Scean screen, 99
Harrington, C. B., Yacht, 51
Harris, C. S., Fan, 49
Harris, Griffin, & Co., Gas meters, 18
Harris, J., & Co., Slinging machine, 57
Harris, Samuel, Sifting machines, 23
Harris, Th., Needle sharpener, 57
Harris, Thomas, Architect, 130
Harris, T. M., Corp., 129
Harrisburg Car Manufacturing Co., 46
Harrison Boiler Works, Boilers, 34, 52
Harrison, E., Mill, 49
Harrison, Mrs., Pictures, 100
Hart, A., Patent, Pen and ink sketch, 96
Hart, S. L., Car axle, 47
Harrison, W. H., Elevator, 42
Harrold, G. W., Steam trap, 36
Hart, Roswell, Machines for hoops, 22
Hartford Iron Furnance apparatus, 30
Hartford City Coal and Salt Co., Coal, 127
Hartford Foundry and Machine Co., 37
Hartford Steam Boiler Inspection, 35
Hartshorne, Mrs., Fancy work, 99
Hartshorne, Easton, & Lathe mill, 22
Harvey, R. T., Iron ore, 126
Harvey, W. T., Cereals, 130
Haskell, A. P., Cereals, 130
Haskell, B. C., & Dickerman, Trimmings, 107
Haskell Steam Engine Co., 35
Hassam, Miss Harriet A., Ribbon, 89
Hathaway, Mrs. Mac, Scarf, 88
Hathaway, Mrs. P. V., Native flora, 98
Hathorn, Davis, Campbell, & Davey, 41
Haufler & Heller, Skins, 115
Hauney, Henry F., Tube brushes, etc., 39
Hauser, J., Blacking, 105
Hauthaw, C. L., & Sons, Dressings, 105
Hautin Sewing Machine Co., Machine, 111
Havana Academy of Sciences, Works, 135
Havens, W. H., Saw tables, 19
Hawkins, T., Humes, 108
Hayley, A., Dredge, 52
Hayley & Branson, Knitting machine, 31
Hayley, H. Q., Water motors, 37
Haworth, J., Tubing, 36
Haynes, T. & Sons, Pump, 55
Hazelhurst, Samuel, Brick moulds, 26
Hazlewood, M., Painting, 94
Hcald, D., Shook, 129
Hatch, T. H., Tools, 54
Heard & Sons, Design, 124
Heaton, D., Button fastener, 111
Heedland, J., Machines, 66
Heegreville, P., Shovel, 101
Heim, A., Web Co., 53, 107
Helweg & Co., Boots, 107
Hemmer, L. P., Washing machine, 62
Hench, A. L., Leather, 112
Hench, Geo., Leather, 112
Henderson, Annie W., Roses, 94
Henderson, C. M., Boots, 107
Henderson, D. E., Painting, 128
Henderson Hydraulic Car Brake Co., 46
Henderson Machine Co., Planer, 52
Hendry & Bartholomew, Bird cages, 98
Henry, Mrs. Annie M., Paintings, 93
Henry, Prof. J., Smithsonian Institute, 72
Henschaw, E., Tools, 107
Herald, S. & Co, Steam pumps, 41
Hepworth, S. S., Extractor, 49
Herald, D., Canoes, 59
Herezinski, W., Straps, 70
Herz., E., Models, 38
Her Majesty The Queen, Napkins, 98
Hermann, G., Machines, 61
Hernandez, A., Books, 134
Hernandez, Martin Antonio, Works, 137
Hernandez Serrano, Mariano, Review, 137
Herrick, Caroline K., Panel, 94
Herrick, Lizzie A., Carved eggs, 91
Herrin, W. P., & Co., Skins, 113
H. R. H. Princess Louis of Hesse, and H. R. H. Princess Marie Louise, 92
Hersey, Washburn, & Co., Leather, 113
Hettle & Thompson, Wire heddles, 28
Heslop, Mrs., Fancy wool work, 99
Hesse, C., Metal capsules, 70
Hessel, Mrs. G. F., Flower stand, 92
Hetzler, Herman, Speed indicator, 39
Heubel, Miss Melanie, Picture, 89; Wax work, 97
Heuling, A., Creepers, 107
Hewett, Mrs., Book form, 91; Poem, 97
Hewitt & Brennan, Swings, 122
Hewitt & Follensbee, Machines, 28
Hewitt, W., Model, 55
Hey, H. T., Gauger, 19
Hey, M., Beer pump, 44
Heydecker, Wm., Hames, 110
Heywood, C. L., & Co., Fire escape ladder, 43; Bridge guard, 48
Hight, A., Harrowery, Leather, 112
Hickman, J., Corn, 129
Hickman, Towsley, & Swan, Gas utilizer, 18
Hickok, W. O., Paper ruling machines, 32
Higgin, J., Baggage, 55
Hiddien, E. S., Leather boards, etc., 112
Higgin, H. Van, Meter, 42
High Normal School, Books, 138
High School of Architecture, Books, 134
Highways, School of Engineers of, 134
Hill & Clark, Boat books, 56
INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

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INDEX.

INDEX.

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INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.

INDEX.
Manila Municipal Athenæum, 141.
Manila Municipal School for Girls, 141.
Mansfield, M., Limestone, 127.
Mann, W. H., Paging machine, 32.
Manning, R., Winder plates, 109.
Mansfield Elastic Frog Co., Frogs, 48.
Mapleton Tannery, Leather, 112.
Marini, Madame A., Marble busts, 100.
Mardor, C., Leather, 114.
Marengo, J. & A., Cigarette machine, 59.
Marichal, A. Y., History, 136.
Marley, P., Herbarium, Photographs, 139.
Marin Baldo, José, Plan, 139.
Marquand, Miss Laura M., China, 95.
Marquis, F. H., Ship models, 59.
Mars, J., Oats, 125.
March, Mrs. Charles P., Embroidery, 88.
Marshall, C., Medical cabinet, 90.
Marshall, T. J., & Co., Dandy rolls, etc., 55.
Martin, C., Anchors, 66.
Martin, Carnes, E., Woods, 140.
Martin, Celestín, Looms, etc., 64.
Martin, Charles, Steam engine, 58.
Martin, Mrs. E., Painting, 97.
Martin, Henry, Brick machine, 26.
Martin, Mrs. J. H., Flowers, 90.
Martin & Riedle, Leather, 114.
Martin, Mrs. S. L., Panels, 93.
Martin, T. J., Cards, 64.
Martinez Acubilla, I., Book, 136.
Martinez Aleson, T., Book, 136.
Martinez Anguianero, Pedro, Works, 135.
Martinez Cubells, F., Geometry, 132.
Martinez Espinosa, Juan, Engravings, 139.
Marzo y Fee E., Method, 134.
Masa y Sanguineti, José, Books, 137.
Mason, V., Corn, 123.
Mason, John L., Dayere, 23.
Mason Machine Works, Locomotive, 46.
Mason, Volney W., & Co., Pulleys, 38; Elevator, 42.
Maspons y Labrós, Francisco, Books, 137.
Massachusetts educational exhibit, 96.
Massachusetts State Com n, Water craft, 51.
Massachusetts State Normal Art School, 45, 91.
Massachusetts, Women's Centennial Committee of, Hosiers, 89.
Maze, Albert W. M., Model, 26.
Mabille, Valère, Railway plant, 64.
Macabie, Feeder, 61.
Macarthy, J., Bran picker, 49.
Macadamb, Miss E. L., Pressing flowers, 97.
Macdermott, Miss M., Painted photograph, 96.
Luther, Mrs. J. B., Mosses, 98.
Lydall, J. W., Motion lamps, 29.
Lynd, Col. S. C., Ordnance corps, 72.
Lyman, Miss Abby, Water colors, 95.
Lyman, W., Rowing gear, 50.
Lynd, A., Harness, 110.
Lynde, J. D., Boiler, 35; Engine, 37; Gov-

M.

ernors, etc., 39.

Manheim, Wm., Harness loops, etc., 110.
INDEX.

Oldenborgh, Mrs. M. J., Wax work, 100.
Oliveira, A. H. d', Cushion, 102.
Oliveira, M. de, Shawl, 101.
Oliver, F. H., Ship models, 59.
Oliver, J., Ship models, 59.
Oliver, S., Jr., Shoes, 184.
Ollocco, A. F., Geography, 134.
Olmstead, Miss Mamie, Painting, 95.
Olmstead, Mrs. Anna M., Paintings, 95.
Olofson, Josephine, 87.
O'Neal, Chevr€on, & Co., Tobacco, 130.
Oneida Steam Engine, Drill chucks, 25.
O'Neill, A., Pipe, 45; Iron pipe, 118.
Onis, F., Seed, 141.
Onis, J., de, Chronometer, 138.
Oppenheimer, J. D., Hair goods, 39.
Orway & Clark, Boots, 108.
Origone, P., Design, etc., 67.
Ormsbee, M., L. & W., S., 51.
Orphans' School of St. Thevere, Stole, 101.
Orrum, M. L., Mandrels, 27.
Osborn, Miss H. Frances, Painting, 94.
Osborne, C. S., Tools, 110.
Osborne, F., Jr., & Co., Leather, 115.
Osborne, H., Car axles, 58.
Osborne, J., Marble, 127.
Oscariz y Lasaga, Victor, Pamphlets, 135.
Osbochoer, J., & Co., Wine, 139.
Osenbruck & Co., Cigar moulds, 62.
Osgood, A. J., Metallic packing, 49.
O'verha, A. J., Registering devices, 32.
Ossipoff, M., Tallow, 39.
Osterhout, W. H., Leather, 113.
Ostrand, H., Drawing, 66.
Ostrom Bros., Leather, 116.
Otis Bros. & Co., Engine, 38; Elevator, 43.
Owens, Rebecca C., Mill, 88.

P.
Pacifie Guano Company, Guano, 151.
Pack, Miss Mary L., Cabinet, 92.
Packer, C. W., Cutting machines, 33.
Page, B. & P. Co., Belt, 53.
Page Belting Co., Belting, 38.
Page, E. K., Register, 133.
Page, E. W., Oars, 50.
Page, Mrs. Elizabeth M., Dirt catcher, 87.
Page, Miss N., Needlework, 98.
Pahlman, S., Embroidery, 100.
Paillet, Corks, 61.
Palacios, P., History, 136.
Parker, Addison, Navy panels, 94.
Parker, G. H., Army equipments, 109.
Parker, Samuel R., Stave machine, 19.
Parker, Miss H. M., Parasol cover, 98.
Parlin, Mrs. John S., Tidy, 89.
Parlin & Decker, Leather, 113.
Palmer European Pat. Tentering Co., 28.
Pancoast & Maule, Steam apparatus, 39.
Parrana, Ladies of Presence of, Bouquet, 102.
Parrels, T., Yacht, 51.
Parresi, E. G., Furnace, 67.
Park, Miss, Tatting and knitting, 99.
Patrick, A. R., V., 60.
Parker, Miss M. E., Lace shawl, 98.
Parkhill, Miss H. R., Ornaments, 90; Sea weeds, 98.
Porcher, W., Printing presses, 32.
Parrott, Mrs. Natt., Pillow shams, 89.
Parrow, N. D., Mineral waters, 128.
Parisas y Vicios de Pujol, Elisa, Books, 137.
Pastor, P. H., Sons, Needles, 62.
Patent Forged Steel Spring Ring Co., 28.
Patrick, R., Pump, 58.
Patterson, C. R., Blocks, 21; Fan, 42.
Patterson, Mrs. S. C., Clock, 91.
Patton, J. Desha, Governor, 18.
Paul, Miss Kate, Painting, 93.
Paul, Mrs. C. F., Honiton collar, 88.
Paula Foleh, Francisco, Books, 137.
Payne, B. W., & Sons, Engines, 35.
Paz Mosquera, M. de la, Map, 138.
Pech, W., Machine, 31.
Pease, F. S., Pneumatic pump, 41; Oil, 52.
Pease, J. H., Historical chart, 45.
Peck, E. A., Crayons, 96.
Peck, Jr., & Co., Brass cocks, etc., 45.
Peet Valve Co., Valves, 44.
Peirce, M. F., Water wheel, 36.
Pelayo Briz, Francisco, Works, 137.
Peluoue, E., & Andouin, P., Condenser, 60.
Penneypacker, M., Hoisting machine, 42.
Penniman, Miss E. A., Paintings, 101.
Pennsylvania Comb'd Iron & Steel Ass'n, 38, 52.
Pennsylvania Diamond Drill Co., Drill, 17.
Pennsylvania Railroad Co., Locomotive, 46; Old locomotives and cars, 121.
Pennsylvania, State of, Educational, 146.
Pennsylvania Steel Co., Ingots, 48.
Pennsylvania Tack Works, Machines, 22.
Perales, B., Books, 132.
Pereyra y Martinez, Painting, History, 132.
Perero, Rey, Application of sulphur, 136.
Perez, A., & Co., Anis, 141.
Perez, J., Descriptive pamphlet, 136.
Perez M. Miguel, Mariano, Almacén, 135.
Perez, V. R., Treatise, 136.
Perisi, A., & Son, Mechanical invention, 67.
Perkins, Mrs. E. W., Bas-relief, 91.
Perkins, Fanny, Painting, 94.
Perley, Miss H. A., Point lace, 99.
Perrecaux, L. G., Valves, 61.
Perrett, M., Apparatus, 60.
Perry, E. L., Kaf, 50.
Perry, Laura C., Slate panels, 94.
Pervoff, S., Leather, 116.
Peterson & G., Machines, 126.
Peters & Burger, Architects, 146.
Peters, W. L., Photograph, 128; Paint, 128; Boards, 129.
Petersen, W. F., Woods, 128.
Pettit, Henry, Architect Machinery Hall, 9.
Peytona Canal Car Co., Coal, 127.
Phebus, S. L., Crayon, 96.
Philadelphia Hydraulic Works, Pump, 53.
Phila., Reading, & Pottsville Tel. Co., 147.
Phila. & Reading R. R. Co., Locomotive, 46.
Phillips, W. J., Telegraph, 147.
Phillips, E. B., Marking in indelible ink, 95.
Phillips, E. F., Telegraph wire, 147.
Phillips, Miss Richmund L., Table, 87.
Phillipp, Mrs. R., Harrises, etc., 110.
Picking, J., Hoists, 54; Pumps, etc., 55.
Picking, N. A., Clay, 127; Photograph, 128.
Pielola, C. D., Well-boring machine, 17.
Pierce, Miss C., Needlework, 99.
Pierce, Mrs. M. R., Case, 90; Stands, 98.
Pierron & Dehaite, Weaver, 60.
Pinmarsh, A., Pamphlets, 136.
Pimentel y Donaire, M., Books, 133.
Piper, T., Engine and gauge, 58.
Pirapitinga, Baroness de, Embroidery, 101.
Pittman, Miss Agnes, Carvings, 91, 92.
Pittman, Mrs. & Miss Carvings, 91, 92.
Pitts, D. H., Armor, 58; Windlass, 59.
Plaisted, Miss Anna D., Sacket, 89.
Platt Bros. & Co., Gin, 54.
Platt, Wm. K., & Co., Fire extinguishers, 43.
Plumb, Burdett, & Barnard, Machines, 57.
Pluiano, L., Treatise, 131.
Pneumatic Dispatch Co., Tube, 42.
Pollock, Miss, Painting, 94.
Polytechnic College of Phila., Locomotive, 46.
Pool & Hunt, Paint mixer, 17; Water wheel, 36; Shifting, 38; Pump, 41.
Pooler, T. G., Steam engine, 70.
Pop Manufacturing Co., Scroll saw, 52.
Popoff, J. & E., Peg breaker, 57.
Popper, J. & D., Boiler fittings, 63.
Popcar y Hig. Jaime, Works, 137.
Porter, Bell, & Co., Locomotive, 46.
Porter, C. E., Fountain nozzle, 44.
Porter, Miss Rebecca T., Painting, 93.
Porter, Rose, Books, 91.
Porter, Miss Sarah, Paintings, 95.
Porter, Mrs. Susan C., Painting, 94.
Post & Co., Gauges, 93; Car trimmings, 48.
Postens, E., Soda water apparatus, 44.
Post Office D., S. S., 79.
Postem Cement Mills, Boxes, etc., 127.
Potter, C. J., Jr., & Co., Printing presses, 32.
Potter & Hoffman, Packing, 39; Tools, 48; Iron, 52.
Potts Bros., Boiler iron, 35.
Pou, Luis, Book, 137.
Poveda, Corporation of, Wood, 140.
Powell, R., Improvement in vessels, 50.
Powell, W., & Co., Valves, lubricators, 44.
Powrs, S. H., Hand loom, 57.
Powors, W. P., Belting, 38.
Pozzi, V., Jewelry, 100.
Pratt & Whitney, Fire Apparatus Co., 152.
Pratt, A. B., Knucks, 25; Machine, 28.
Pratt, A. B., Co., Boots, 106.
Providence Saw Works, Machine, 19.
Provincial Board of Agriculture, Industry, and Commerce, 130.
Provincial Commission, Photographs, 139.
Provincial Deputation, Picture, 139.
Provincial Hospitality, Pictures, etc., 139.
Provincial Institute, Memoirs, etc., 137.
Pryor, Mrs. H., Fan work, 99.
Puente Villancio, Jose, Book, 135.
Puente y Rocha, J. de D. de la, Book, 137.
Puerta, G. de la, Treatise, 132.
Puftter, A. D., Book, 131.
Purkis, Miss E. W., Tatting, etc., 89.
Purvis, E., Steam valve, 40.
Pusey, Jones, & Co., Machines, 23, 39, 37, 33, 38, 51, 110.
Pusey, Scott, & Co., Leather, 115.
Putnam & Estey, Emery wheels, 25.
Pyramid Pin Co., Machines, 32.
Pyrotechnical Laboratory, Fuses, 68.

Q.
Quebec Advisory Board, Ship models, 59.
Quigley, Philip, Contractor Machinery Hall, 9.
Quiroga, L., Jr., Painting, 131.
Quiroga Lopez, Woods, 140.

R.
Radcliff, R. S., Coal, 127; Schoolwork, 128.
Radde, W., Pipe, 45.
Raffael, J., Car, wheels, etc., 48.
Raffey, Susan L. J., Painting, 93.
Rall, R., Marble, 127.
Ralston, Miss Florence, Tidy, 89.
Ramos Wheel & Foundry Co., 47.
Ramborger, A. D., Dental work, 90.
Ramirez, C., Treatise, 134.
Ramirez & Girandier, Periodical, 141.
Ramos Lamehite, Book, 133.
Ramsay, E., Herbarium and paintings, 100.
Ramsay, Robert H., Gas machine, 19; Shifting apparatus, 58.
Rand, A. W., Gas machine, 19.
Randall, F. M., Pump, etc., 43.
Randolph, W., Farnisher and excavator, 17.
Rappe, Baroness E., Frames, 100.
Rosenstein, W. H., Leather, 112.
Rea, E. H., Architehts, 131.
Rauer, A., Patterns, 69.
Ray, D. P., Leather, 112.
Raymond Coal Co., Coal, 127.
Raynor, S., & Co., Envelope machine, 34.
Rebelo de V., Distilling apparatus, 50.
Redier, S. S., Lasts, etc., 112.
Reed, Annie, Painting, 94.
Reed, T. F., & Sons, Dressings, 105.
Reed, H., Tannery, 111.
Reed, J. A., Boilers, 34.
Reed, S. G., Portable gas attachment, 23.
Reeves, John W., Soap machine, 18.
Reford, J. W., Distilling apparatus, 50.
Regina, B., Embroideries, 100.
Reibert, Babetta, Bell pulls, 87.
Reimel, L., Uppers, 107.
Reinhardt, C., Scales, 46.
Reiter, W., Handwriting, 43.
Remington, E. H., Painting, 93.
Remar, Wires and strings, 61.
Rene, J., Leather, 89.
Renni, Mrs. C. E., Lace, 99.
Requa, E. M., Bell, 90.
Respaldiza, D., Books, 133.
Restoroff, F. & T., Bedding, 139.
Reed, H., Tannery, 111.
Reed, J. A., Boilers, 34.
Reed, S. G., Portable gas attachment, 23.
Reeves, John W., Soap machine, 18.
Reford, J. W., Distilling apparatus, 50.
Regina, B., Embroideries, 100.
Reibert, Babetta, Bell pulls, 87.
Reimel, L., Uppers, 107.
Reinhardt, C., Scales, 46.
Meter, 43.
Remington, E. H., Painting, 93.
Remar, Wires and strings, 61.
Rene, J., Leather, 89.
Renni, Mrs. C. E., Lace, 99.
Requa, E. M., Bell, 90.
Respaldiza, D., Books, 133.
Restoroff, F. & T., Bedding, 139.
Reed, H., Tannery, 111.
Reed, J. A., Boilers, 34.
Reed, S. G., Portable gas attachment, 23.
Reeves, John W., Soap machine, 18.
Reford, J. W., Distilling apparatus, 50.
Regina, B., Embroideries, 100.
Reibert, Babetta, Bell pulls, 87.
Reimel, L., Uppers, 107.
Reinhardt, C., Scales, 46.
Sanchez y Merino, R., Treatise, 133.
Sancho Velasco, A., Music boxes, 136.
Sancho, C., Province of Flowers, 102.
Sandall, J., Valve, 58.
Sande Olivares, J., Dyers’ weed, 140.
Sandvikens Iron Works, Rod and axles, 65; Wheels, 66.
Sand, I., Institute, Memoirs, 132.
San José, College of, Manila, 147.
San José, Municipal School of, Tapestry, 101.
San Paulo, Convent das Mercês, Branch, 102.
Sansom, K. B., Cutting machine, etc., 55.
Santa Marta, Marquis of, Cork, 140.
Santander, Institute of, 133.
Santero y Moreno, T., 133.
Santos, Cauto dos, Iron, 68.
Sanz, M., Pine conies, 141.
Sanz Pasalodos, J., Pine conies, 141.
Sartain, Emily, Paintings, 93; Engravings, 96.
Saw, W. L., Shoes, 62.
Sawrey, J.,, Corn, 129.
Scales, Mrs., Berlin wool work, 99.
Scales, R., Tobacco machine, 59.
Schafer, Bro., Deskey’s Box, 124.
Schäffer & Budenberg, Machines, 62.
Schaller, G., Morocos, 116.
Schanz, C., Hook and ladder truck, 43.
Scheiner, J. P., 140.
Schellberg, B. F., Leather, 112.
Schemedes, W. W., Carver, 49.
Schieren, C. A., Belting, 36.
Schierloth, C., Compound, 23.
Schoff, W. L., Shoes, 97.
Schlickeyen, C., Brick machines, 62.
Schmalz, F. G., Glove machines, 62.
Schrédu, J., Tidy, 90.
Schmidt, Josephine, Landscapes, 93.
Schmitt, Madam K., Jewelry, 90.
Schelkopf, J. F., & Son, Leather, 114.
Scherm, W. H., Leather, 114.
Scholz, Socrates, Logging saw, 22.
Schollenberger, W., & Sons, 115.
Schon, Mathias, Tire upsetting machine, 24.
School of the Immaculate Conception, 101.
School of Mining Engineers, Books, 134.
School of Mountain Engineers, Books, 134.
School of Music and Recitation, 134.
Schools of Drawing and Design, Carved frame, 91; Crayons, 96; Photographs, 97.
Schram, W., Looms, 114.
Schultz, E., Apparatus, 62.
Schuman, F., & Son, Leather, 114.
Schuman, J. W., Leather, 114.
Schumte & Goehr, Jenny machine, 40.
Schwartzman, H. J., Architect, 85, 131, 143.
Schweer, Charles, Shafting machine, 25.
Scholfield & Stevenson, Leather, 115.
Scott, Mrs. E. M., Painting, 94.
Scott, H., Ochre, 128.
Scott, Mrs. John, Guipure barb, 88.
Scott, Miss S., Toilet box, 90.
Scott, Mrs. T., Inkkerchief, 88.
Scott-Uda, Mrs. Ladder, 53.
Soudier, Miss Tille, Cardboard, 92.
Seamon, H., Tobacco, 130.
Sears & Warner, Shoe goods, 108.
Seawron, W., Railway construction, 56.
Sebitt, J., Rock, 127.
Seavey, Foster, & Bowman, Silk, 116.
Sebastian Vila, Pedro, Photographs, 139.
Secor, J., Sign, Books, 144.
Sedgley & Stevens, Pearlrodite, 48.
Segebauer, H., Embroideries, 100.
Segovia, Institute of, 133.
Injectors, 36; Registers, 52.
Sells, H., Cider mill, etc., 58.
Semenetz, R., Boots, 106.
Semple, M. H., Steam cutter, 33.
Sermont, D. A. M., Cork, frame 102.
Settle, J. G., Whet, 120; Flax, 130.
Sevrenhonnikoff, S., Leather, 116.
Seville, Normal School of Masters, 138.
Sewall, Day, & Co., Rope, etc., 50.
Seymour & Whitcomb, Moulding machines, 21.
Shaler, Miss Minnie, Carved chess board, 92.
Shapleigh, Mrs. E. B., Hand made rugs, 87.
Shapley & Wells, Engines, 37.
Sharp & Staples, Oils, 126.
Sharp & Tudor, Leather, 115.
Shattuck & Binger, Skins, 114.
Shaw, C. A., Lasts, 106.
Shaw, Miss E., Pressed ferns, 98.
Shaw & Sons, Shoes, 108.
Shaw, Mrs. James jr., Infant’s socks, 88.
Shaw, Thos., Lathe tools, 27; Gauges, 34.
Shaw, W., Logotypes, 55.
Shareer, H., Machines, 54.
Sheed, H., Deskey’s Box, 44.
Sheffield, Mrs. S. K., Footstool, 89.
Sheffelman, Miss M. B., Picture, 97.
Shepherd, Mrs. Emeline, Handkerchief, 88.
Shepherd, Mrs. E. M., Lace, 89.
Shepperd, J. E., 148.
Sherman, Miss F. M., Lithograph, 96.
Sherwood, Amanda S., Griddle greaser, 87.
Shiloff, L. P., Car lock, etc., 70.
Shipman, J., 97.
Shippen, Mrs. R. R., Porcelain table top, 95.
Shore Bros., Boiler feed, 34.
Short, J., Motion loom, 29.
Short, Mrs. S., Wash, 67.
Short, S., Mangle, 31.
Shriver, A. K., & Sons, Leather, 112.
Shuster, J. T., Boiler, 54.
Ship, J., Machine thread, 34.
Sickles, F. E., Models, 52.
Siebe & Gorman, Diving apparatus, 56.
Siemens, C. W., Mills, 54.
Sill, Miss Anna, F. History, 91.
Silby Mfg. Co., Pump, 40; Engines, 43, 53.
Silva, Z. de, Kobe, 101.
Silveira de Souza, Sisters, Flowers, 102.
Silver & Deming Manufacturing Co., Machine, 20; Drills, 27; Choppers, 50.
Silver Lake Co., Steam packing, 40.
Silvana, Tripo di, Tools, 68.
Simon, E., & Bro., Trunks, 108.
Simonds Manufacturing Co., 27.
Simonds, N. J., Bevel, 107.
Simson, J. E., Mineral water, 127.
Sinclair, G. W., Beano, 130.
Singer, J., Car coupler, 46.
Sinsel, W., & Co., Ash, 36.
Sisters of the Visitaton, Chenille flowers, 90.
Skinner & Wood, Boiler, 36.
Skuse, M. P. & A., Irish point lace, 88.
Slates, Mrs. E. J., Gold broderies, 89.
Sleuster, J. T., Felting, 53.
INDEX.

Slishal, F., Horse shoes, 68.
Slocum, Mrs. M. E., Plant protector, 98.
Slothour & Mintzer, Engines, etc., 41, 53.
Small & Fisher, Barrel liter, 58.
Smark, J., Drilling machines, 57.
Smart, J., Pump, 59.
Snelan, Mrs., Paintings, 99.
Smith, C. D., Boiler, 35.
Smith, D., Stokers, 54.
Smith, J., Fire screen, 90.
Smith, E. A., Fire screen, 97.
Smith, H. B., Machinery, 21; Tools, 32.
Smith, H. F., Fountain, 58.
Smith, J. A. V., Spinner dies, 89.
Smith, J. Barton, & Co., Rasps, etc., 112.
Smith, Julia E., Translation of Bible, 91.
Smith, J. G., Engine, 58.
Smith, L. F., Lighter indicators, 40.
Smith, Mrs. O., Range, 87.
Smith, Oberlin, & Bro., Drills, 24.
Smith, P. P., Ochre, 128.
Smith, S. D., Grate bar, 35.
Smith & Starkey, Matches, 55.
Smith, Wm. M., Machines, 110, 111.
Smithsonian Institution, U. S., 80.
Smithy, Mrs. M. H., Embroidery, 89; Indelible ink marker, 95.
Snider, D. M., Filing, 53.
Snyder, W. B., Steam engine, 34.
Society of Andalusian Bibliophiles, 135.
Society of Arts, 10, 22. (See Index)
Society of Patrons of National Production, Documents, 135.
Soderberg, M., Burner, 100.
Soderqvist, R., Gas apparatus, 65.
Sola y Roca, Ramon, Cuts, 139.
Soler, Federico, Price, 139.
Solin Bros., G rease, 116.
Sommerville, J. N., Leather, 112.
Somozza Pichero, Ramon, Book, 135.
Sorakin, T., Leather, 116.
Souther, A., Lamps, 64.
Soud, J. E. de, Metallases, 68.
Spahn, Emil P., Models, 48.
Spanish Society of Natural History, 135.
Spanish Society of Sciences, 135.
Spanogel, S., Leather, 115.
Spangler, A., & Pelly, Leather, 112.
Sparr, J. von, Drill, 62.
Spaulding, E., Leather, 113, 114.
Special School for Painting, Sculpture, and Engraving, Madrid, Memoirs, 135.
Speilhman, G., Meat chopper, 59.
Spencer, R., Saddle clothes, 110.
Spicharz, P. J., Kid, 116.
Spiral Elliptic Works, Machine, 24.
Spiral Tubing Co., Machine, 28.
Spofford, Mrs. J. H., Supporter, 87; Saddle, 90.
Spreafico, Jose, Album, 139.
Spring, Mary, Landscapes, 94.
Springer, Mrs. L., Wax work, 97.
Springfield Iron Works, Wheels, 34, 36.
Stack, I. I., Ore, 126.
Stacy, George, Fastenings for stonecutters, 46.
Steele, Miss, Stone Dressing, Manila, Co., 25.
Staley, T. J., Tobacco, 130; Schoolwork, 128.
Stamson, O., Sewing machines, 57.
Standard Laundry Machinery Co., Washing machines, 37; Copying machine, 33.
Standard Steel Works, Tires, 47.
Stangeland, E., Machine, 49.
Stansbury, Mrs. J. C., Thread lace, 89.
Stanton Rock Coal Co., Coal, 127.
Star Rubber Co., 159.

Starr, J. W., & Son, Gas works, pipe, 19; Castings, 45, 110.
Starr, W. M., Water wheel, 36.
Steam Engine Works, Caboose, 70.
Steam Generator Manufacturing Co., 34, 52.
Steam Stone Cutter Co., Machines, 25.
Steamarns Manufacturing Co., Saw mill, 22.
Stearns, Mrs. A. B., Diagrams, 88.
Steele Bros., Glass engraving, 27.
Steele, Mrs. M. C., Roy set, 87.
Steiger, Mrs. Hannah, Lock barrel cover, 87.
Steigert, L., Horizontal engine, 34.
Steinwand, C., Skin, 113.
Stenway & Sons, Piano frames, 46.
Stengel, G., Leather, 115.
Steffens, Miss Maud, Paintings, 93.
Stephens, W. A., Machine, 111.
Stephenson, J., Inlaid table, 100.
Stephenson, M., Drills, 57.
Sterling, Mrs. Charlotte, Dish washer, 87.
Sterling, Mrs. E. J., Ties, 97.
Sterm, Miss, Music Wall pocket, 92.
Stewieller, L., Machines, 31; Elevator, 42.
Stenbergh, J. H., Machines, 17, 23.
Stevens, Elizabeth M., Painting, 93.
Stevens, W. X., Shears, 23.
Stewart, Alice, Water colors, 94.
Stewart, J. P., Collars, 110.
Stewart, Ralph, & Co., Paking machines, 42.
St. Hyacinthe, Convent of, Plant, 99.
Stille, Mrs. E. M., Model, 57.
Stileman, R. T. H., Water gates, etc., 45.
Stiles & Barker Press Co., Drop hammers, 23.
Stiles, Mrs. E. W., Desk, 87; Inkstand, 90.
Stoddart, J., Track guard, 48.
Stilwell & Bierce, Lathes, 32; Heater, 52.
Stilwell & Bierce Manufacturing Co., Water wheel, 36; Heater, etc., 39.
Stimpson, E. B., Machine, 111.
Stitz, Peter, & Co., Limestone, 123.
St. John's Guild, Embroidery, 88.
Stocking, Z. S., Sandstone, 123.
Stoddart & Field, Skiving machines, 110.
Stokes & Parrish, Hoisting machine, 120; Boiler, 121.
Stout, E. & Co., Leather, 112.
Stout, Lucy, Women's Journal, 91.
Stone, Mary L., Block drawing, 95.
Stoner, J. B., Lighthouse, 50.
Stoth, Miss Mary, Dress table, 87.
Stout, H. L., Carbonate of iron, 126.
Stout, Mills, & Temple, Water wheels, 36.
Stow & Burnham, Cabin, 38.
Stowe, A. F., Machines, 112.
St. Petersburg River Yacht Club, Boats, 80.
St. Petersburgh, Smithery of, Bolts, 69.
Straus, M., Leather, 114.
Straw, A. F., Fire engines, 43.
Street, E. A., Pump, 43.
Stribley & Co., Shoes, 105.
Stribley, Miss May, Picture frame, 92.
Strickland, Misses, Embroidery, 99.
Strickler, J. S., Marble, 122.
Strider, W., Marble, 127.
Stridsberg & Bork, Saw blades, 65.
St. Sebastian, School of, Tapestry, 101.
St. John's College, Manila, Co., 25.
Studley, Mrs. Thos. E., Painting, 93.
Studwell, Sanger, & Co., Backs, 115.
Sturtevant, B. F., Blower, 42; Apparatus, 110;
Suana y Castellet, E., Latin, 133.
Suarez, V., Scientific works, 126.
Suermoudt, Mrs. A., Counterpane, 100.
Sung, W., Rower, 54.
DEPT. V.—MACHINERY.

Westinghouse Air Brake Co., Brakes, 46.
Wetzlar, A., Leather, 114.
Weyhe, W., Pumps, 62.
Wharton Railroad Switch Co., Switch, 48.
Wheeling, 176.
Whittier, Whitney, 89.
Whitehead, Whiteford, White, 89.
Wilson, Mrs. H., Bouquet, 97.
Wilson, Mrs. R., Crayon, 66.
Wilson, Newton, & Co., Sewing machines, 55.
Wilson, R. F., Fly nets, 110.
Wilson, W. H., Firemen's hats, etc., 43.
Wimpfheimer, Mrs. C., Loom, 30.
Winans, H. N., Boiler powder, 35.
Windmiller, Spoons, 62.
Windham, J., Architect, 77.
Wiswall, H., Rotary pumps, 40.
Withrow, J., Marbles, 127.
Wladimir Tannery, Leather, 116.
Wood, E., Leather, 114.
Wolf, A. N., Water wheel, 36.
Wolf, M., Types, 70.
Wolf, S., Shoes, 116.
Wolfe, A., Sand, 127.
Woolman's Art School, N. Y., Work, 90, 96.
Women's Executive Committee, Easel, 87.
Seal, 88; Volume of Herald, 91.
Wood, A. M., Ochrre, 128.
Wood, G. W., Lifting jack, 47.
Wood, J., Steam pump, 40, Frogs, 48.
Wood, J. W., Leak stopper, etc., 56.
Wood, Miss Martha & Paintings, 94.
Wood, R. D., & Co., Hydrants, pipes, 44.
Wood, T., Star loom, 28.
Woodbury, J. A., Car wheels, 47.
Woodruff & Pumps, Stop valves, 44.
Woodruff, A. H., Locomotive gear, 40.
Woodruff, J., Dampers, 39, 53.
Woodward, Laura, Painting, 93.
Woodward, T. B., Mills, 49.
Woodrige, A., Shoes, 108.
Wormley, Mrs. A. E., Engravings, 96.
Worthington, H. P., Engine, 53.
Worthington & Sons, Stone, 123.
Wratissau, Miss M., Water colors, 101.
Wright, S. W., Horse collar, etc., 110.
Wright, J., Motor, 36.
Wright, B. & Sons, Tools, 54.
Wright & Rogers, Locomotive, 36.
Wright, W., Boilers, etc., 55.
Wrigley, Mrs. J., Jacquard loom, 28.
Wulstein, H., Granulator, 49.
Wunderlich, Reinhard, Leather, 114.
Wünschmann, R., Machine, 62.
Wyatt, Charles B., Bevel knife, 26.
Wyatt, J. L., Ship model, 51.
Wyman, J. D., Soldering iron, 28.

Y.

Yale Lock Man'y, Hoisting machinery, 43, 55.
Yeager, D. A., Harness, 70.
Yerkes, Carley Books, 135.
Yevleff, A., Skins, etc., 69.
Yoho, Mrs. D., Mat, 90.
York Mfg Co., Washer, 31; Wheels, 36.
Yorktown Bugs, M. Co., Form, 70.
Yoster, S. H., Frames of paper cuttings, 97.
Young, Hugh, Stone-sawing machine, 26.
Young, J., Model, 128.
Young, J. & S., Separator, 49.
Young Ladies' Institute, Pupils' work, 100.
Young Ladies' Society, Blanket, etc., 89.
Young, William, Machine, 24; Pumps, 40.
Yule, G., Wool forming machines, 30.
| Zaffarini, Cav. C., Machine, 67.  |
| Zanini, P., Machine, 67.  |
| Zantzinger, D. W., Steamship model, 51.  |
| Zaun, J., & Son, Shoes, 107.  |
| Zeigler Bros., Shoes, 107.  |

| Zimmerman, Mrs. D., Bead work, 99.  |
| Zimmermann, J., Needles, 62.  |
| Zindgraf & Hohenadel, Paint mill, 18.  |
| Zipp, P. C., Leather, 115.  |
| Zoblé, Mrs. S. G., Wood engraving, 96.  |
| Zwietusch, O., Fire extinguisher, 44.  |
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- Garner & Co., Print Works, Haverstraw, N. Y.
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OF
Baugh's Standard Manures.

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<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baugh's Raw Bone Phosphate</td>
<td>(Ammonia 3 to 4 per cent. Sol. Bone Phos. 20 to 24&quot;)</td>
</tr>
<tr>
<td>Baugh's High Grade Manure for Tobacco and Grain</td>
<td>Ammonia 6 to 7 per cent. Potash 5&quot; 6&quot;</td>
</tr>
<tr>
<td>Baugh's A. A. Nitrogen</td>
<td>Ammonia 13½ to 15 per cent.</td>
</tr>
<tr>
<td>Baugh's Phospho-Fish Guano</td>
<td>Ammonia 3 to 4 per cent. Sol. Bone Phos. 12 to 14 &quot;</td>
</tr>
<tr>
<td>Baugh's High Grade Acid Phosphate</td>
<td>Sol. Phosphoric Acid 10 to 12 per cent.</td>
</tr>
<tr>
<td>Baugh's Pure Dissolved Bones</td>
<td>Pure Animal Bones and 66° Oil of Vitriol.</td>
</tr>
<tr>
<td>Baugh's Ammoniated Dissolved Animal Bones</td>
<td>Ammonia 3 to 4 per cent. Sol. Bone Phos. 18 to 20 &quot;</td>
</tr>
<tr>
<td>Baugh's Pure Ground Raw Bones</td>
<td>Guaranteed Pure.</td>
</tr>
<tr>
<td>Baugh's Pure Bone Meal</td>
<td>Ammonia 4 per cent. Bone Phos. 44 &quot;</td>
</tr>
<tr>
<td>Philadelphia Ground Bone</td>
<td>Ammonia 3 to 4 per cent. Bone Phos. 35 &quot;</td>
</tr>
<tr>
<td>No. 1 Fine Bone Dust</td>
<td>Ammonia 2 per cent. Potash 3 &quot;</td>
</tr>
<tr>
<td>Ammoniated Estrella Guano</td>
<td>Bone Phos. 40 &quot;</td>
</tr>
<tr>
<td>Challenge Super Phosphate</td>
<td>Sol. Phosphoric Acid 30 per cent. Bone Phos. 66 &quot;</td>
</tr>
<tr>
<td>German Potash Salts &quot;Kainit&quot;</td>
<td>Analysis furnished.</td>
</tr>
<tr>
<td>Pure Ground Land Plaster</td>
<td>Guaranteed Pure.</td>
</tr>
<tr>
<td>Sulphate of Potash</td>
<td>Analysis furnished.</td>
</tr>
<tr>
<td>Sulphate of Soda</td>
<td>Commercial.</td>
</tr>
<tr>
<td>Sulphate of Ammonia</td>
<td>24 per cent.</td>
</tr>
<tr>
<td>Nitrate of Soda</td>
<td>14 to 15 per cent. of Nitrogen.</td>
</tr>
<tr>
<td>Muriate of Potash</td>
<td>83 per cent. Mur. Potash.</td>
</tr>
<tr>
<td>Agricultural Salt</td>
<td>Stained Liverpool.</td>
</tr>
<tr>
<td>Oil of Vitriol</td>
<td>66°.</td>
</tr>
<tr>
<td>Ground S. C. Guano</td>
<td>Kiln Dried.</td>
</tr>
</tbody>
</table>

Special attention given to filling orders for Goods by recipe formulas.

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MANUFACTURERS and IMPORTERS,
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INTERNATIONAL EXHIBITION.

1876

Official Catalogue.

PART IV.

AGRICULTURAL AND HORTICULTURAL HALLS AND ANNEXES.

DEPARTMENT VI.—AGRICULTURE.
DEPARTMENT VII.—HORTICULTURE.

REVISED EDITION.

PHILADELPHIA:
Published for the Centennial Catalogue Company
By JOHN R. NAGLE AND COMPANY.
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CONTENTS.

List of Buildings and Special Exhibits ............................................. 6
Subject Index, National Exhibits ..................................................... 8
The Agricultural Building ................................................................. 9
Key to the Notation ........................................................................... 9
Ground Plan of Agricultural Hall ..................................................... 10
Synopsis of the Classification ............................................................ 11
Classification of Department VI., Agriculture .................................... 12
Catalogue of the Department of Agriculture ....................................... 15
Annexes and Special Exhibits in the Department of Agriculture .......... 134
Stated Displays .................................................................................. 141
Live Stock Circular ............................................................................ 142
The Horticultural Building ................................................................. 147
Ground Plan of Horticultural Hall .................................................... 148
Classification of Department VII., Horticulture .................................. 149
Catalogue of the Department of Horticulture .................................... 151
Statistical Appendix .......................................................................... 163
BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[Note.—The buildings bear the numbers prefixed to them in this table, being the numbers adopted by the Centennial Guide Book Co. (Limited).]

### Buildings South of the Avenue of the Republic.

<table>
<thead>
<tr>
<th>No.</th>
<th>Building Name</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Main Exhibition Building</td>
<td>I. 23</td>
</tr>
<tr>
<td>2.</td>
<td>Machinery Hall</td>
<td>III. 9</td>
</tr>
<tr>
<td>3.</td>
<td>Machine Shop</td>
<td>III. 117</td>
</tr>
<tr>
<td>4.</td>
<td>American Boiler House</td>
<td>III. 117</td>
</tr>
<tr>
<td>5.</td>
<td>Corliss Boiler House</td>
<td>III. 117</td>
</tr>
<tr>
<td>6.</td>
<td>British Boiler House</td>
<td>III. 117</td>
</tr>
<tr>
<td>7.</td>
<td>Shoe and Leather Exhibition Building</td>
<td>III. 105</td>
</tr>
<tr>
<td>8.</td>
<td>Office Centennial Board of Finance</td>
<td>III. 117</td>
</tr>
<tr>
<td>9.</td>
<td>Office U. S. Centennial Commission</td>
<td>III. 117</td>
</tr>
<tr>
<td>10.</td>
<td>Centennial National Bank</td>
<td>III. 117</td>
</tr>
<tr>
<td>11.</td>
<td>Weimer Machine Works</td>
<td>III. 118</td>
</tr>
<tr>
<td>12.</td>
<td>Bartholdi Fountain</td>
<td>III. 146</td>
</tr>
<tr>
<td>13.</td>
<td>Catholic Total Abstinence Union Fountain</td>
<td>III. 146</td>
</tr>
<tr>
<td>15.</td>
<td>Gillender &amp; Sons, Glassware Manufactory</td>
<td>III. 118</td>
</tr>
<tr>
<td>16.</td>
<td>Camp of West Point Cadets</td>
<td>III. 118</td>
</tr>
<tr>
<td>17.</td>
<td>Iron Pipe</td>
<td>III. 118</td>
</tr>
<tr>
<td>18.</td>
<td>Liberty Store Works</td>
<td>III. 119</td>
</tr>
<tr>
<td>19.</td>
<td>Annex, Saw Mill</td>
<td>III. 119</td>
</tr>
<tr>
<td>20.</td>
<td>Boiler House</td>
<td>III. 119</td>
</tr>
<tr>
<td>21.</td>
<td>Railway Engine House</td>
<td>III. 119</td>
</tr>
<tr>
<td>22.</td>
<td>St. Cecilia Organs</td>
<td>III. 119</td>
</tr>
<tr>
<td>23.</td>
<td>Automatic Railway</td>
<td>III. 119</td>
</tr>
<tr>
<td>24.</td>
<td>Monument—American Soldier</td>
<td>III. 119</td>
</tr>
<tr>
<td>25.</td>
<td>Gunpowder Plive-Driver</td>
<td>III. 119</td>
</tr>
<tr>
<td>27.</td>
<td>West End Railway Offices</td>
<td>III. 119</td>
</tr>
<tr>
<td>28.</td>
<td>Pneumatic Tubes</td>
<td>III. 119</td>
</tr>
<tr>
<td>29.</td>
<td>New England Granite Co.'s Exhibit</td>
<td>III. 120</td>
</tr>
<tr>
<td>30.</td>
<td>Railroad Crossings</td>
<td>III. 120</td>
</tr>
<tr>
<td>31.</td>
<td>State of Nevada Quartz Mill</td>
<td>III. 120</td>
</tr>
<tr>
<td>32.</td>
<td>Store House</td>
<td>III. 120</td>
</tr>
<tr>
<td>33.</td>
<td>Friction Drum</td>
<td>III. 120</td>
</tr>
<tr>
<td>34.</td>
<td>Stokes &amp; Parrish, U. S. Hoisting Machine</td>
<td>III. 120</td>
</tr>
<tr>
<td>35.</td>
<td>Chilean Amalgamating Machinery</td>
<td>III. 120</td>
</tr>
<tr>
<td>36.</td>
<td>Campbell Printing Press</td>
<td>III. 120</td>
</tr>
<tr>
<td>37.</td>
<td>Old Locomotive and Car</td>
<td>III. 121</td>
</tr>
<tr>
<td>38.</td>
<td>Car House</td>
<td>III. 121</td>
</tr>
<tr>
<td>39.</td>
<td>Police Station</td>
<td>III. 121</td>
</tr>
<tr>
<td>40.</td>
<td>Averill Paint Co.</td>
<td>III. 121</td>
</tr>
<tr>
<td>41.</td>
<td>Centennial Catalogue Co.</td>
<td>III. 121</td>
</tr>
<tr>
<td>42.</td>
<td>Stokes &amp; Parrish, Boiler House</td>
<td>III. 121</td>
</tr>
<tr>
<td>43.</td>
<td>Ehret's Waterproof Roofing</td>
<td>III. 121</td>
</tr>
<tr>
<td>44.</td>
<td>Tombstones</td>
<td>III. 122</td>
</tr>
<tr>
<td>45.</td>
<td>Terra Cotta Pipe</td>
<td>III. 122</td>
</tr>
<tr>
<td>46.</td>
<td>Mineral Annex, 1 and 2</td>
<td>III. 122</td>
</tr>
<tr>
<td>47.</td>
<td>Fireproof Ventilated Buildings</td>
<td>III. 122</td>
</tr>
<tr>
<td>48.</td>
<td>Swings</td>
<td>III. 122</td>
</tr>
<tr>
<td>49.</td>
<td>Ornamental Stone Work</td>
<td>III. 122</td>
</tr>
</tbody>
</table>

### Buildings North of the Avenue of the Republic, and West of Belmont Av.

<table>
<thead>
<tr>
<th>No.</th>
<th>Building Name</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>51.</td>
<td>United States Government Building</td>
<td>III. 73</td>
</tr>
<tr>
<td>52.</td>
<td>Bartholdi Electric Light</td>
<td>III. 122</td>
</tr>
<tr>
<td>53.</td>
<td>United States Hospital</td>
<td>III. 73</td>
</tr>
<tr>
<td>54.</td>
<td>Howe Monument</td>
<td>III. 122</td>
</tr>
<tr>
<td>55.</td>
<td>United States Hospital Tent</td>
<td>III. 73</td>
</tr>
<tr>
<td>56.</td>
<td>Jerusalem Bazaar</td>
<td>III. 122</td>
</tr>
<tr>
<td>57.</td>
<td>United States Laboratory</td>
<td>III. 73</td>
</tr>
<tr>
<td>58.</td>
<td>Office Philadelphia &quot;Times&quot;</td>
<td>III. 123</td>
</tr>
<tr>
<td>59.</td>
<td>Pennsylvania State Building</td>
<td>III. 123</td>
</tr>
<tr>
<td>60.</td>
<td>Hungarian Wine Pavilion</td>
<td>III. 123</td>
</tr>
<tr>
<td>61.</td>
<td>Ohio State Building</td>
<td>III. 123</td>
</tr>
<tr>
<td>62.</td>
<td>Police Station</td>
<td>III. 124</td>
</tr>
<tr>
<td>63.</td>
<td>Indiana State Building</td>
<td>III. 124</td>
</tr>
<tr>
<td>64.</td>
<td>Sponge Fishers of Turkey</td>
<td>III. 124</td>
</tr>
<tr>
<td>65.</td>
<td>Illinois State Building</td>
<td>III. 124</td>
</tr>
<tr>
<td>66.</td>
<td>Bethlehem Bazaar</td>
<td>III. 124</td>
</tr>
<tr>
<td>67.</td>
<td>Wisconsin State Building</td>
<td>III. 124</td>
</tr>
<tr>
<td>68.</td>
<td>Fog Horn and Bell</td>
<td>III. 124</td>
</tr>
<tr>
<td>69.</td>
<td>Michigan State Building</td>
<td>III. 124</td>
</tr>
<tr>
<td>70.</td>
<td>New Hampshire State Building</td>
<td>III. 125</td>
</tr>
<tr>
<td>71.</td>
<td>Massachusetts State Building</td>
<td>III. 125</td>
</tr>
<tr>
<td>72.</td>
<td>Delaware State Building</td>
<td>III. 125</td>
</tr>
<tr>
<td>73.</td>
<td>Maryland State Building</td>
<td>III. 125</td>
</tr>
<tr>
<td>74.</td>
<td>Arkansas State Building</td>
<td>III. 125</td>
</tr>
<tr>
<td>75.</td>
<td>Japanese Dwelling</td>
<td>III. 125</td>
</tr>
<tr>
<td>76.</td>
<td>West Virginia State Building</td>
<td>III. 125</td>
</tr>
<tr>
<td>77.</td>
<td>Canadian Log House</td>
<td>IV. 134</td>
</tr>
<tr>
<td>78.</td>
<td>Missouri State Building</td>
<td>III. 130</td>
</tr>
<tr>
<td>79.</td>
<td>British Government Building</td>
<td>III. 130</td>
</tr>
<tr>
<td>80.</td>
<td>British Government Building</td>
<td>III. 130</td>
</tr>
<tr>
<td>81.</td>
<td>British Government Building</td>
<td>III. 130</td>
</tr>
<tr>
<td>82.</td>
<td>New York State Building</td>
<td>III. 130</td>
</tr>
<tr>
<td>83.</td>
<td>Liénard's Relief Plans, Paris, Jerusalem, Italy, etc.</td>
<td>III. 130</td>
</tr>
<tr>
<td>84.</td>
<td>Pop-corn Stand</td>
<td>III. 131</td>
</tr>
<tr>
<td>85.</td>
<td>Cigar Stand</td>
<td>III. 131</td>
</tr>
<tr>
<td>86.</td>
<td>Soda Water Stand</td>
<td>III. 131</td>
</tr>
<tr>
<td>87.</td>
<td>Tunisian Cafe and Bazaar</td>
<td>III. 131</td>
</tr>
<tr>
<td>88.</td>
<td>Columbus Monument</td>
<td>III. 131</td>
</tr>
<tr>
<td>89.</td>
<td>Drinking Fountains</td>
<td>III. 131</td>
</tr>
<tr>
<td>90.</td>
<td>Restaurant &quot;Trois Frères Provençaux,&quot;</td>
<td>III. 131</td>
</tr>
</tbody>
</table>
| 91. | Office New York "Triune,
| 92. | World's Ticket Office, Cook, Son, & Jenkins        | III. 131  |
| 93. | Loiseau's Pressed Fuel Company                     | III. 132  |
| 94. | Spanish Government Buildings                       | III. 132  |
| 95. | United States Signal Office                         | III. 141  |
| 96. | Tennessee State Building                           | III. 141  |
| 97. | Mississippi State Building                         | III. 142  |
| 98. | George's Hill Restaurant                           | III. 142  |
| 99. | Bishop Allen Monument                              | III. 142  |
BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[Note.—Descriptions of the Buildings will be found at the indicated part and page of the Official Catalogue.]

Buildings North of the Avenue of the Republic, and West of Belmont Av.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>92</td>
<td>Office of the Boston &quot;Advertiser&quot; and Boston &quot;Herald,&quot;</td>
</tr>
<tr>
<td>93</td>
<td>Rowell's Newspaper Exhibition Building</td>
</tr>
<tr>
<td>94</td>
<td>California State Building</td>
</tr>
<tr>
<td>95</td>
<td>Centennial Fire Patrol, No. 1</td>
</tr>
<tr>
<td>96</td>
<td>Turkish Café</td>
</tr>
<tr>
<td>97</td>
<td>Office Frank Leslie's Publications</td>
</tr>
<tr>
<td>98</td>
<td>Iowa State Building</td>
</tr>
<tr>
<td>99</td>
<td>Rhode Island State Building</td>
</tr>
<tr>
<td>100</td>
<td>Vermont State Building</td>
</tr>
</tbody>
</table>

Buildings East of Belmont Avenue, and South of Fountain Avenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Art Gallery</td>
</tr>
<tr>
<td>102</td>
<td>Art Gallery Annex</td>
</tr>
<tr>
<td>103</td>
<td>B'nai B'rith Monument of Religious Liberty</td>
</tr>
<tr>
<td>104</td>
<td>Photographic Art Building</td>
</tr>
<tr>
<td>105</td>
<td>Vienna Bakery and Coffee House</td>
</tr>
<tr>
<td>106</td>
<td>Principal Annex to Main Exhibition Building</td>
</tr>
<tr>
<td>107</td>
<td>Swedish Government Building</td>
</tr>
<tr>
<td>108</td>
<td>Japanese Bazaar</td>
</tr>
<tr>
<td>109</td>
<td>The Judges' Hall</td>
</tr>
<tr>
<td>110</td>
<td>Centennial Photographic Co.</td>
</tr>
<tr>
<td>111</td>
<td>Sheet-metal Pavilion</td>
</tr>
<tr>
<td>112</td>
<td>German Government Building</td>
</tr>
<tr>
<td>113</td>
<td>Railroad Ticket Office</td>
</tr>
<tr>
<td>114</td>
<td>Office United States Centennial Commission</td>
</tr>
<tr>
<td>115</td>
<td>Brazilian Government Building</td>
</tr>
<tr>
<td>116</td>
<td>The Dairy</td>
</tr>
<tr>
<td>117</td>
<td>Restaurant &quot;La Fayette,&quot;</td>
</tr>
<tr>
<td>118</td>
<td>House of Public Comfort</td>
</tr>
<tr>
<td>119</td>
<td>Empire Transportation Co.</td>
</tr>
<tr>
<td>120</td>
<td>French Government Building</td>
</tr>
<tr>
<td>121</td>
<td>Centennial Fire Patrol, No. 2</td>
</tr>
<tr>
<td>122</td>
<td>Penn'a Educational Building</td>
</tr>
<tr>
<td>123</td>
<td>Telegraph Office</td>
</tr>
<tr>
<td>124</td>
<td>American Ensee Company</td>
</tr>
<tr>
<td>125</td>
<td>Klutscheck, Thomas, &amp; Steward's Glass Magazine</td>
</tr>
<tr>
<td>126</td>
<td>Moorish Villa</td>
</tr>
<tr>
<td>127</td>
<td>American Bible Society</td>
</tr>
<tr>
<td>128</td>
<td>Hunter's Camp</td>
</tr>
<tr>
<td>129</td>
<td>Office Water Department</td>
</tr>
<tr>
<td>130</td>
<td>Soda Water St.</td>
</tr>
<tr>
<td>131</td>
<td>Cigar Stands</td>
</tr>
<tr>
<td>132</td>
<td>Singer's Sewing Machines</td>
</tr>
<tr>
<td>133</td>
<td>Centennial Medical Depart'mt</td>
</tr>
<tr>
<td>134</td>
<td>Portugal Government Building</td>
</tr>
<tr>
<td>135</td>
<td>Bankers' Building</td>
</tr>
<tr>
<td>136</td>
<td>French Glass Exhibit</td>
</tr>
<tr>
<td>137</td>
<td>Kindergarten</td>
</tr>
<tr>
<td>138</td>
<td>Centennial Police Station</td>
</tr>
<tr>
<td>139</td>
<td>Philadelphia City Building</td>
</tr>
<tr>
<td>140</td>
<td>Music Pavilion</td>
</tr>
<tr>
<td>141</td>
<td>Burial Caskets</td>
</tr>
<tr>
<td>142</td>
<td>Perforated Metal Building</td>
</tr>
<tr>
<td>143</td>
<td>Rubber Roofing</td>
</tr>
<tr>
<td>144</td>
<td>Cuban Acclimation Office</td>
</tr>
<tr>
<td>145</td>
<td>Naval Group</td>
</tr>
<tr>
<td>146</td>
<td>The Dying Lioness</td>
</tr>
</tbody>
</table>

Buildings East of Belmont Avenue, and North of Fountain Avenue.

<table>
<thead>
<tr>
<th>No.</th>
<th>Part Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>151</td>
<td>Horticultural Hall</td>
</tr>
<tr>
<td>152</td>
<td>Agricultural Hall</td>
</tr>
<tr>
<td>153</td>
<td>The Women's Pavilion</td>
</tr>
<tr>
<td>154</td>
<td>The Women's School House</td>
</tr>
<tr>
<td>155</td>
<td>New Jersey State Building</td>
</tr>
<tr>
<td>156</td>
<td>Restaurant of the South</td>
</tr>
<tr>
<td>157</td>
<td>Kansas and Colorado State Building</td>
</tr>
<tr>
<td>158</td>
<td>New England Farmer's Home 100 years ago, and Modern Kitchen</td>
</tr>
<tr>
<td>159</td>
<td>Great American Restaurant</td>
</tr>
<tr>
<td>160</td>
<td>German Restaurant</td>
</tr>
<tr>
<td>161</td>
<td>Tea and Coffee Press</td>
</tr>
<tr>
<td>162</td>
<td>Butter and Cheese Factory</td>
</tr>
<tr>
<td>163</td>
<td>Soda Water Stand</td>
</tr>
<tr>
<td>164</td>
<td>Cigar Stand</td>
</tr>
<tr>
<td>165</td>
<td>Farm Wagon Building</td>
</tr>
<tr>
<td>166</td>
<td>Pomological Building</td>
</tr>
<tr>
<td>167</td>
<td>Brewers' Building</td>
</tr>
<tr>
<td>168</td>
<td>Model House Apiary</td>
</tr>
<tr>
<td>169</td>
<td>Guano Company</td>
</tr>
<tr>
<td>170</td>
<td>Special Flower Exhibit Building</td>
</tr>
<tr>
<td>171</td>
<td>Wind Mills</td>
</tr>
<tr>
<td>172</td>
<td>Office &quot;Ohio Farmer,&quot;</td>
</tr>
<tr>
<td>173</td>
<td>Hay Press</td>
</tr>
<tr>
<td>174</td>
<td>Police Station</td>
</tr>
<tr>
<td>175</td>
<td>Elevated Railroad</td>
</tr>
<tr>
<td>176</td>
<td>Boiler House</td>
</tr>
<tr>
<td>177</td>
<td>Virginia State Building</td>
</tr>
<tr>
<td>178</td>
<td>Protective Fire Apparatus</td>
</tr>
<tr>
<td>179</td>
<td>Pop-corn Stands</td>
</tr>
<tr>
<td>180</td>
<td>J. L. Mott Co. Fountain</td>
</tr>
</tbody>
</table>
### SUBJECT INDEX, NATIONAL EXHIBITS.

#### DEPARTMENT VI.

**AGRICULTURE.**

No. 152. AGRICULTURAL HALL.

Size, parallelogram, 820 by 540 feet.

Architect, JAMES H. WINDRIM, Philadelphia.

Contractor, PHILIP QUIGLEY, Wilmington, Del.

Wrought iron furnished by ALLISON & SONS, Philadelphia.

Erectors, BELL BROTHERS.

The Agricultural Exhibition Building stands north of Horticultural Hall, on the eastern side of Belmont avenue. A novel combination of materials is illustrated in its construction. It consists of a long nave crossed by three transepts, all composed of Howe truss arches of Gothic form. The four courts inclosed between the nave and transepts, as also the four spaces at the corners of the building, having the nave and transepts for their sides, are roofed in and form spaces for exhibits. The building covers an area of above ten acres. Stock yards for the exhibition of horses, cattle, sheep, swine, poultry, etc., are in the vicinity of the exhibition grounds.

The contract was made July 26th, 1875, and the building was begun in September 1875, and finished in April, 1876. It cost $260,000.

KEY TO THE NOTATION.

The location of objects in the Agricultural Building is shown by a letter and figure, indicating the nearest column of the building. The letters—A, B, C, to T—designate the successive ranges of columns, proceeding eastward from the western wall across the width of the building; the figures, the number of the column in each range, counting northwardly from the southern wall, the entire length of the building, from 1 to 28. Thus C 5 is the column in the third range from the west, and the fifth from the southern end of the building. The northeasternmost column is T 28.

The class of the classification (see pages 12-14) to which each exhibit belongs is indicated by the small figures at the end of the line.
AGRICULTURAL HALL.

Scale, 225 ft. to 1 in.

Total Length, 540 ft. Width, 820 ft. Height, 75 ft.
## SYNOPSIS OF THE CLASSIFICATION.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DEPARTMENTS</th>
<th>CLASSES</th>
<th>GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Mining and Metallurgy.</td>
<td></td>
<td>110—119 Minerals, Ores, Stone, Mining Products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1120—120 Mining Engineering.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>200—205 Chemical Manufactures.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>206—216 Ceramics, Pottery, Porcelain, Glass, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>217—222 Furniture, etc.</td>
<td></td>
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<td></td>
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<td>226—234 Yarns and Woven Goods of Vegetable or Mineral Materials.</td>
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<td>235—241 Woven and Felted Goods of Wool, etc.</td>
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<td></td>
<td></td>
<td>242—249 Silk and Silk Fabrics.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>250—257 Clothing, Jewelry, etc.</td>
<td></td>
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<td></td>
<td>258—264 Paper, Blank Books, Stationery.</td>
<td></td>
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<td></td>
<td>265—271 Weapons, etc.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>272—279 Medicine, Surgery, Prothesis.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>280—284 Hardware, Edge Tools, Cutlery, and Metallic Products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>292—296 Carriages, Vehicles, and Accessories.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>300—309 Educational Systems, Methods, and Libraries.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>310—319 Institutions and Organizations.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>330—339 Engineering, Architecture, Maps, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>340—349 Physical, Social, and Moral Condition of Man.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>400—409 Sculpture.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>410—419 Painting.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>420—429 Engraving and Lithography.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>430—439 Photography.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>440—449 Industrial and Architectural Designs, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>450—459 Ceramic Decorations, Mosaics, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>500—509 Machines, Tools, etc., of Mining, Chemistry, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>520—529 Machines and Implements of Spinning, Weaving, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>530—539 Machines, etc., used in Sewing, Making Clothing, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>540—549 Machines for Printing, Making Books, Paper Working, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>550—559 Motors, Power Generators, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>560—569 Hydraulic and Pneumatic Apparatus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>570—579 Railway Plant, Rolling Stock, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>580—589 Machinery used in Preparing Agricultural Products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>590—599 Aerial, Pneumatic, and Water Transportation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>600—609 Machinery, and Apparatus, especially adapted to the requirements of the Exhibition.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>610—619 Arboriculture and Forest Products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>620—629 Agricultural Products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>630—639 Land Animals.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>640—649 Marine Animals, Fish Culture, and Apparatus.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>650—662 Animal and Vegetable Products.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>665—669 Textile Substances of Vegetable or Animal origin.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>670—679 Machines, Implements, and Processes of Manufacture.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>680—689 Agricultural Engineering and Administration.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>690—699 Tillage and General Management.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>700—709 Ornamental Trees, Shrubs, and Flowers.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>710—719 Hot Houses, Conservatories, Graperies.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>720—729 Garden Tools, Accessories of Gardening.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>730—739 Garden Designing, Construction, and Management.</td>
<td></td>
</tr>
</tbody>
</table>
CLASSIFICATION.

DEPARTMENT VI.—AGRICULTURE.

ARBORICULTURE AND FOREST PRODUCTS.
Class 600.—Timber and trunks of trees, entire or in transverse or truncated sections, with specimens of barks, leaves, flowers, seed vessels, and seed.
Masts, spars, knees, longitudinal sections of trees, railway ties, ship timber, lumber roughly sawn; as planks, shingles, lath, and staves.
Timber and lumber prepared in various ways to resist decay and combustion; as by injection of salts of copper and zinc.
Class 601.—Ornamental woods used in decorating and for furniture; as veneers of mahogany, rosewood, ebony, walnut, maple, and madrona.
Class 602.—Dyewoods, barks, and galls for coloring and tanning.
Class 603.—Gums, resins, caoutchouc, gutta percha, vegetable wax.
Class 604.—Lichens, mosses, fungi, pulu, ferns.
Class 605.—Seeds, nuts, etc., for food and ornamental purposes.
Class 606.—Forestry.—Illustrations of the art of planting, managing, and protecting forests. Statistics.
Class 607.—Fruit trees and shrubs.

POMOLOGY.
Class 610.—Fruits of temperate and semi-tropical regions; as apples, pears, quinces, peaches, nectarines, apricots, plums, grapes, cherries, strawberries, and melons.
Class 611.—Tropical fruits and nuts, oranges, bananas, plantains, lemons, pine-apples, pomegranates, figs, cocoanuts.

AGRICULTURAL PRODUCTS.
Class 620.—Cereals, grasses, and forage plants.
Class 621.—Leguminous plants and esculent vegetables.
Class 622.—Roots and tubers.
Class 623.—Tobacco, hops, tea, coffee, spices, condiments, herbs.
Class 624.—Seeds and seed vessels.

LAND ANIMALS.
Class 630.—Horses, asses, mules.
Class 631.—Horned cattle.
Class 632.—Sheep.
Class 633.—Goats, alpaca, llama, camel.
Class 634.—Swine.
Class 635.—Poultry and birds.
Class 636.—Dogs and cats.
Class 637.—Wild animals.
Class 638.—Insects, useful and injurious. Honey bees, cochineal, silk-worms.
MARINE ANIMALS, FISH CULTURE, AND APPARATUS.

CLASS 640.—Marine mammals,—Seals, cetaceans, etc., specimens living in aquaria, or stuffed, salted, preserved in alcohol, or otherwise.

CLASS 641.—Fishes, living or preserved.

CLASS 642.—Pickled fish, and parts of fish used for food.

CLASS 643.—Crustaceans, echinoderms, beche de mer.

CLASS 644.—Mollusks, oysters, clams, etc., used for food.

CLASS 645.—Shells, corals, and pearls.

CLASS 646.—Whalebone, shagreen, fish-glue, isinglass, sounds, fish-oil.

CLASS 647.—Instruments and apparatus of fishing.—Nets, baskets, hooks, and other apparatus used in catching fish.

CLASS 648.—Fish culture.—Aquaria, hatching pools, vessels for transporting roe and spawn, and other apparatus used in fish breeding, culture, or preservation.

ANIMAL AND VEGETABLE PRODUCTS.

(Used as food or as materials.)

CLASS 650.—Sponges, seaweed, and other growths used for food or in the arts.

CLASS 651.—The dairy.—Milk, cream, butter, cheese.

CLASS 652.—Hides, furs, and leather, tallow, oil, and lard, ivory, bone, horn, glue.

CLASS 653.—Eggs, feathers, down.

CLASS 654.—Honey and wax.

CLASS 655.—Animal perfumes; as musk, civet, ambergris.

CLASS 656.—Preserved meats, vegetables, and fruits. Dried, or in cans or jars.

Meat and vegetable extracts.

CLASS 657.—Flour; crushed and ground cereals, decorticated grains.

CLASS 658.—Starch and similar products.

CLASS 659.—Sugar and syrups.

CLASS 660.—Wines, alcohol, and malt liquors.

CLASS 661.—Bread, biscuits, crackers, cakes, confectionery, cocoa, chocolate, etc.

CLASS 662.—Vegetable oils, oil cake.

TEXTILE SUBSTANCES OF VEGETABLE OR ANIMAL ORIGIN.

CLASS 665.—Cotton on the stem, in the boll, ginned, and baled.

CLASS 666.—Hemp, flax, jute, ramie, etc., in primitive forms and in all stages of preparation for spinning.

CLASS 667.—Wool in the fleece, carded, and in bales.

CLASS 668.—Silk in the cocoon and reeled.

CLASS 669.—Hair, bristles.

MACHINES, IMPLEMENTS, AND PROCESSES OF MANUFACTURE.


CLASS 671.—Planting.—Manual implements, corn-planters and hand-drills. Animal power machinery, grain and manure drills, corn and cotton planters. Steam power machinery, grain and manure drills.


CLASS 673.—Preparatory to marketing.—Thrashers, clover-hullers, corn-shellers, winnowers, hay, cotton, flax, jute, ramie, wine, oil, and sugar making apparatus. Cleaners and smutters. Horse powers.
CLASSIFICATION

CLASS 674.—Applicable to farm economy.—Portable and stationary engines, chaffers, hay and feed cutters, slicers, pulpers, corn mills, farm boilers and steamers, incubators, edged tools, mills; meat choppers.

CLASS 675.—Dairy fittings and appliances.—Churns for hand and power, butter-workers, cans and pails, cheese-presses, vats, and apparatus, ice-cream freezers, cedar-ware.

AGRICULTURAL ENGINEERING AND ADMINISTRATION.

CLASS 680.—Laying out and improving farms.—Clearing (stump extractors), construction of roads, draining, irrigating, models of fences, gates, drains, out-falls, dams, embankments, irrigating machinery, stack building and thatching.

CLASS 681.—Commercial fertilizers, phosphatic, ammoniacal, calcareous, etc.

CLASS 682.—Transportation.—Wagons, carts, sleds, harness, yokes, traction engines, and apparatus for road making and excavating.

CLASS 683.—Farm buildings.—Models and drawings of farm houses and tenements, barns, stables, hop-houses, fruit-driers, ice-houses, windmills, granaries, barracks, apiaries, cocooneries, aviaries, abattoirs, and dairies.

TILLAGE AND GENERAL MANAGEMENT.

CLASS 690.—Systems of planting and cultivation.

CLASS 691.—Systems of draining and application of manures.

CLASS 692.—Systems of breeding and stock feeding, training.

CLASS 693.—Veterinary surgery and appliances.
INDEX TO ADVERTISEMENTS.

Asbestos Materials ................................ Facing third page of cover.
Baugh & Sons ........................................ Third page of cover
Bliss, B. K., & Sons .................................... 22
Blatchley, Charles G .................................... 22
Centennial Restaurant ................................... 161
Corry & Co ............................................... 161
Dreer, Henry A .......................................... Facing second page of cover.
Drown, W. A., & Co ..................................... 15
French Restaurant ....................................... 161
Gloucester Iron Works .................................. 23
Graham, Emlen & Passmore ............................ 23
Haseltine Galleries ..................................... 15
Higgin, Thomas, & Co. ................................. 161
Hooper, Cleeve, Jr ...................................... 161
Landreth, David, & Sons ............................... 15
Pennsylvania Rail Road ................................ 154
The Sun Newspaper ...................................... 155
The American Newspaper Union ...................... 160
Wanamaker's Ready Made Clothing ................... Fourth page of cover.
DAVID LANDRETH & SONS'

Agricultural Warehouse,
21 and 23 South Sixth St., Philadelphia.

SEED FARMS:
Pennsylvania, New Jersey, Virginia, Wisconsin.

ESTABLISHED 1810.

W.A. DROWN & CO.
Superior
Umbrellas
and
Parasols.

Warerooms:
246 Market Street,
Philadelphia.

498 & 500 Broadway,
New York.

Manufactories in Philadelphia.

TRADE-MARK.

HASELTINE GALLERIES,
1125 and 1127 Chestnut St., Philadelphia.
UNITED STATES.

Forest Products, Pomology, Agricultural Products.

Arboriculture and Forest Products.

1 Begg, Jonathan, Gilroy, Cal.—Collection of conifers of the Pacific Coast. E 25. 600
3 Western North Carolina Land Company, Charlotte, N. C.; branch office, 32 S. Third st, Phila. —Lands heavily wooded, rich in minerals, and well-adapted to grazing and agricultural purposes. Hard and soft woods in variety, and of gigantic growth; medicinal herbs, magnetic and hematite iron ores, manganese, gold, mica, etc. E 19. 600
4 State of Indiana.—Timber, all kinds found in the State. G 20. 600
5 State Board of Iowa (collective exhibit), Fairfield, Iowa. —Woods, native and cultivated; wood seeds, soils. C 15. 600
5a Rowand, Hillman, & Son, Kirkwood, N. J.—Charcoal. E 26. 600
6a State of New Jersey.—Native woods. E 17–18. 600
6b State of Wisconsin.—Forest products. F 20–21. 600
6c New Hampshire State Centennial Board.—Native woods. E 20–21. 600
6d Land Department Central Pacific R. Co.—Wooden. F 15 to 19. 600
7 Woods, Perry, & Co., Cleveland, Ohio.—White pine lumber. F 25. 600
8 State of Oregon, Portland, Oregon.—Native woods, medicine roots, and bark; shingles. E 22. 600
9 Eastern Burnettizing Co., Boston, Mass.—Burnettized lumber for bridges, wharves, railroads, and all positions where wood is liable to decay. F 26. 600
10 State of Delaware (collective exhibit), Dover, Del.—Timber in the rough and dressed. F 17. 600
11 Albemarle Swamp Land Co., North Carolina.—Cedar and Cypress shingles, staves, etc. F 26. 600
12 Davis, Wire, & Co., North Carolina.—Ribbed cedar and Cypress shingles. F 28. 600
13 State of West Virginia (collective exhibit).—Forest products. F 19. 600
14 Gove, E., Bath, Maine.—Basswood panels. F 23. 600
14a Cross & Mehlung, Grand Rapids, Mich.—Imitation of walnut burl, etc. E 26. 601
14b Macatee & Bro., Front Royal, Va.—Ground summit. F 28. 600
14c Williams, R. H., Milford, Del.—Quercitron bark. F 26. 602
16 Smythe, Earle, & Co., New York, N. Y.—Crude elastic gum, with botanical specimens of same. E 28. 603
16a Day, Austin G., Seymour, Conn.—India-rubber producing plants, from tropical countries; crude India-rubber; crude kerite, or substitute for rubber. H 27–28. 603
17a Delta Moss Co., New Orleans, La.—Southern moss. E 25. 604
18 Michigan State Agricultural College (collective exhibit).—Forestry. E 25. 606

Pomology.

19 Atlantic Co. for the Culture of Cranberries, Weymouth, N. J.—Cranberries, natural and preserved. J 28. 610
20 State Board of Iowa, Fairfield, Iowa.—Apples and pears in wax models. C 15. 610
20a Bannieh, John H., Egg Harbor City, N. J.—Strawberries and plants; grapes. K 14. 610
21 Collings, E. Z., Waterford, N. J.—Cranberries in jars, showing different varieties. C 20. 610
21a West Jersey Land & Cranberry Co., Atco, N. J.—Cranberries and vines. C 20. 610
21b Michigan Pomological Society, Detroit, Mich.—Apples. (Name of Agricultural Building.) 610
21c Bonzano, H., New Orleans, La.—Pecan nuts. H 28. 611

Agricultural Products.

22 State Board of Iowa, Fairfield, Iowa.—Corn, small grains, grass seeds, vegetable seeds, etc. C 15. 620
23 Branson, David H., Guthrieville, Pa.—Indian corn. N 10–11. 620
24 Beeson, Jacob, & Co., Detroit, Mich.—Samples of grain. J 17. 620
25 State of Massachusetts (collective exhibit), Boston, Mass.—Agricultural products. E and F 23. 620
26 Possiponti, Angola, Harrisburg, Pa.—Straw for the manufacture of straw-goods. E 15. 620

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12–14.
Agricultural Products.

27 Thompson, C. B., Chillicothe, Ohio. —Broom corn. F 15. 620
27c Seneca County Agricultural Society, Geneva, N. Y.—Grains, grass, seeds, etc. F 16. 620
   a Corn, wheat, barley, rye, oats, buckwheat, peas, beans, grasses, etc. 620
   b Potatoes, vegetables. 622
27e State of Wisconsin.—Agricultural products. F 20-21. 620
28 U. S. Hullers Oat Co., Williamsport, Pa.—Oats without hull, oat-flour, and feed. H 15. 620
28a Culbertson, J., Brandon, Miss.—Rice and corn. F 15. 620
28b Schoonmaker, Henry, Cedar Hill, N. Y.—Cereals. H 15. 620
28c Hornly, Alex., Craigville, N. Y.—Cereals G 26. 620
28d Land Department Central Pacific R. R. Co.—Grain. B 15-19. 620
28f Lachicotte, P. R., & Sons, Georgetown, S. C.—Carolina rice. H 16. 620
28g Smith, J. C., Chicago, Ill.—Variety of grasses raised in the State. G 22. 620
28h Mohawk & Hudson Manufacturing Co., Hartford, N. Y.—Pressed hay. S 8. 620
28i Montana Territory, Montana.—Cereals. G 15. 620
   a White, red, and amber wheat, oats, rye, buckwheat, Indian corn, grass, seed, etc. 620
   b Cloverseed, white and colored, butterbeans. 624
   a Cereals, grasses, and tobacco. 620
   b Field and garden seeds. 624
31 State Ohio State Centennial Board (collective exhibit), Cleveland, Ohio. D and E 16.
   a Grains, grasses, etc. 620
   b Seeds. 624
31a State of West Virginia (collective exhibit). F 19.
   a Grasses and agricultural products. 620
   b Tobacco. 623
e Wheat, corn, oats, barley, and rye. 624
35a Felten, A. L., Philadelphia, Pa.—Vegetables. (Centre of none.) 621
36 Bliss, B. K., & Sons, Camden, 34 Barclay street, New York, N. Y.—Gardens. H 15. 622
38 Bourgeois, Edmund, New Orleans, La.—Perique tobacco, sole agent for Grand Point, St. James, La. Perique tobacco and Ledoux's Perique cigarettes. G 25. 623
41 Frishmuth Bros. & Co., Philadelphia, Pa.—Leaf tobacco; fine-cut and smoking tobacco. I 24. 623
45 Holbrook, Edward, Louisville, Ky.—Manufactured tobacco. H 25. 623
50 Batchelor Brothers, Philadelphia, Pa.—Cigars, tobacco-plants. G 23. 623
50a Harrauff & Engle, Elizabethtown, Pa.—Tobacco. G 24. 623
51 Trowbridge, W. H., Danville, Va.—Chewing and smoking tobacco. G 24. 623

For locations of objects indicated by letter and figure, see Key to Notation, p. 9; ground plan, p. 10.
Agricultural Products.


57 Marburg Bros., Baltimore, Md.—Smoking and leaf tobacco. G 26. 623

68 Volinla Farmers’ Club, Volinia, Mich.—General farm products, cereals, etc. F 25. 623

59 Seidenberg & Co., 54 and 55 Reade St., New York, N. Y. Factory, Key West, Fla.—Key West and Havana cigars. 1 23. 623

60 Shuck, Samuel, Bedford, Pa.—Anti-smoking cigars. 2 24. 623

60a Stewart, Isaac T., Philadelphia, Pa.—Tobacco. F 25. 623

60b Richey, Henry A., New York, N. Y.—Plug tobacco, etc. H 24. 623

60c Hart, R. T., McComb City, Miss.—Manufactured tobacco. J 25. 623

60d Cusick, Linn, & Co., Philadelphia, Pa.—Tobacco, etc. B 14-26. 623

60e Pickering, Thomas R., Portland, Conn.—Connecticut-seed leaf tobacco. H 25. 623


61a Consolidated Tobacco Co., San Francisco, Cal.—Tobacco. 1 24. 623

61b Grant, L. J., & Co., Richmond, Va.—Manufactured tobacco. F 25. 623


61d Lantiss, Israel L., Lancaster, Pa.—Tobacco. B 22. 523

61e Cochran & Gillespie, Philadelphia, Pa.—Leaf tobacco. H 25. 623

62 Bailey, Samuel M., Richmond, Va.—Plug tobacco. 1 25. 623

62a Hancock, Salmon, & Co., Richmond, Va.—Manufactured tobacco, and labels. J 26. 623

62b Lovett, Joseph L., Emilee, Pa.—Tobacco. H 24. 623

62c Lottier, Lawrence, Richmond, Va.—Manufactured tobacco. H and I 23. 623

63 Mayo, P. H., & Brother, Richmond, Va.—Plug tobacco. H 25. 623

64 Holbrook, Harry C., Louisville, Ky.—Plug tobacco. G 25. 623

65 Turpin & Brother, Richmond, Va.—Plug tobacco. H 25. 623


70 Lovell & Buffington, Covington, Ky.—Fine-cut chewing tobacco. G 25. 623


72 Kelner, F. W., & Son, Baltimore, Md.—Smoking tobacco. Manufacturers of all kinds of smoking tobacco. H 26. 623

72a Williams, Thomas C., & Co., Richmond, Va.—Plug tobacco. F 25. 623

72b Carroll, John W., Lynchburg, Va.—Chewing and smoking tobacco. H 25. 623

73 Gail & Ax, Baltimore, Md.—Smoking and fine-cut chewing tobacco; snuffs. I 26. 623


75 Armistead, Louis L., Lynchburg, Va.—Granulated smoking tobacco. I 24. 623


78 Alces, George, New York, N. Y.—Cigars. H 24. 623


85 Lodoux, C. Z., St. Jaines Parish, La.—Cigarettes. G 25. 623


87 Kühn, von, & Silberman, Philada., Pa.—Tobacco pipes. H 25. 623

88 Tobacco-Growers of Penn’s Manor, Morrisville, Pa.—Unsweeted tobacco. This tobacco (known as Duck Island) is grown in Bucks Co., Pa., and adjoining islands. We believe it equal in texture, quality, and flavor to any grown in the United States, except that produced from Havana seed. See circular, to be had at case. I 24. 623


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Land and Water Animals, Animal and Vegetable Products.

90 Fulton, Joseph W., Libertyville, Iowa.—Corn, grains, grass, and field seeds, vegetable seeds, etc. C 15. 624
91 Commercial Exchange Association, Philadelphia, Pa.—Flour, grain, seeds, etc. H 15. 624
91 State of New Jersey.—Wheat, rye, oats, corn, buckwheat, clover, and grass seeds. E 17-18. 624
91 Van Vranken, J. B., Marcellus, N. Y.—Teasels set in frame. H 15. 624
91 Clausen, Charles A., New York, N. Y.—Clover seed. G 15. 624
91 Johnson, Robbins, & Co., Wethersfield, Conn. Garden seed. G 15. 624
92 Thorow, H., Skaneateles, N. Y.—Teasels. H 15. 624
93 Rogers, C. B., Philadelphia, Pa.—Field and garden seeds. I 16. 624
94 Red Wing Mills, Red Wing, Minn.—Fife-wheat. I 26. 624
95 McLaughlin, J. M., & Son, Skaneateles, N. Y.—Teasels. H 15. 624
97 Henderson, Peter, & Co., New York, N. Y.—Field and garden seeds. I 16. 624
98 Illinois State Board of Agriculture (collective exhibit), Springfield, Ill.—Samples illustrating the agricultural, horticultural, geological, and other resources of the State. G 26-26. 624
98e Myers, Ephraim, Creagerstown, Md.—Tree, shrub, and flower seeds. C 15. 624

Land Animals.

a Big game useful and injurious. 635
b Insects, useful and injurious. 638
99a Barrett, J. O., Glen Beulah, Wis.—"Old Ab," the live war-eagle,—carried for three years during the war of the rebellion by the 8th Regt. Wis. Vols. J 17. 635
99a Axe, Edwin C., Philadelphia, Pa.—Stuffed birds. A 23. 653
99c McIlvaine, John H., Philadelphia, Pa.—Birds. E 26. 653
100 Beath, J. R., Philadelphia, Pa.—Stuffed birds. K 23. 655
101 Aldrich, P. W., Readville, Mass.—Stuffed birds. K 23. 655
102 Howlett, C. K., Hudson, Ohio.—Stuffed birds of America. K 23. 655
103 Brown, Clark D. W., Taxidermist and naturalist, Auburn, Ills.—Stuffed birds artistically arranged, representing the gathering of nations to the Centennial. Orders for groups, artistic or scientific, promptly filled and safely packed. K 24. 655
104 Crenshaw, George, Philadelphia, Pa.—Stuffed Hamburg fowls, with their young. K 24. 655
a Birds. 635
b Insects. 638
a Birds with their nests and eggs. 635
b Quadrupeds. 637
106 Rosenbaum, F., Watertown, Wis. a Wisconsin birds. K 23. 635
b Animals of Wisconsin. 637
a Mounted birds of North America. 635
b Mounted animals of North America. 637
108 Wallace, John, New York, N. Y.—Stuffed animals. K 24. 635
[Special displays of Live-Stock are ar- ranged to be held during September, October, and November.]

Water Animals, Fish Culture, and Apparatus.

109a Crenshaw, George, Philadelphia, Pa.—Stuffed fish. A 23. 641
109b Cuvier Club, Cincinnati, Ohio.—Fish. A 18. 642
110 Gates, H. C., WilkesBarre, Pa.—Eels and other live fish. A 22. 641
110a Seher, H. L., Philadelphia, Pa.—American and imported leeches. A 22. 642
112 Goodale, S. L., Saco, Maine.—Food extract from the juices of fish. J 23. 642
113 Rogers, John S., Gloucester, Mass.—Shark, stingray, and glue made from salt-fish skins. A 22. 646
114 Norwood, C., & Son, Ipswich, Mass.—Isinglass. A 22. 646
114a Wahl Brothers, Chicago, Ill.—Glue. K 22. 646
115 Muller, Gustave, Chicago, Ill.—Russian isinglass. A 22. 646
116 Norwood, C., & Son, Ipswich, Mass.—Isinglass. A 22. 646
117 Fox, George J., Philadelphia, Pa.—Split and glued bamboo trout fly reels. A 27. 647
118 Shipley, A. B., & Son, Philadelphia, Pa.—Fishing tackle. A 15. 647
119 Terrell, J. A., Bloomfield, Ky.—Angler’s transparent float. A 26. 647
120 Mansfield, G. H., & Co., Canton, Mass.—Braided fishing lines. Manufacturers of braided fishing lines. Water- proof silk lines in all sizes and lengths. Materials for fly fishing; oiled, raw, and fancy silk lines: linen and cotton lines, various sizes. We give personal attention to the business, and guarantee full lengths and best quality. Trade-mark on every line. A 26. 647

For locations of objects, indicated by letter and figure, see Key to Notation, p. 9; ground plan, p. 79.
Fish Culture and Apparatus, Animal and Vegetable Products.

120\textsuperscript{o} Cook, L. C., Philadelphia, Pa.— 
Trot rod and case. A 27. 647

121 Conroy, Bissett, & Malleson, New York, N. Y.— 
Fishing rods, reels, lines, flies, K 22. 647

121\textsuperscript{a} McBride, Miss Sarah J., 
Mumford, Pa.—Artificial flies for fishing. A 19. 647

122 City of Gloucester, Essex co., Mass.— 
Exhibit of her progress, development, and industries as the largest fishing port in the United States. A and B 20 and 21. 647

123 Slack, Mrs. J. H., Bloomsbury, N. J.— 
Flight of coste trays, combination hatching box. A 24. 648

124 Murphy & Broom, Philadelphia, Pa.— 
Aquarium tanks. C 26. 648

125 Clarke, N. W., Northville, Mich.— 
Artificial fish & hatching apparatus. A 24. 648

126 Taxis, E. W., Philadelphia, Pa.— 
Aquarium tank. A 21. 648

126\textsuperscript{a} Pacific Guano Co., Boston, Mass.— 
Aquarium with living fish. A and B 28. 648

126\textsuperscript{b} Craig, Daniel, Philadelphia, Pa.— 
Parlor aquarium. A 21. 648

Animal and Vegetable Products.

127 Crawford & Walton, Philadelphia, Pa.— 
Bleached sponge. F 26. 650

128 American Condensed Milk Co., New York, N. Y.— 
Condensed milk. J 21. 652

128\textsuperscript{a} Sensenberger, Wm., Philadelphia, Pa.— 
Preserved milk. J 21. 652

128\textsuperscript{b} American Condensed Milk Co., New York, N. Y.— 
Preserved milk. J 21. 652

129 Napheys, George C., & Son, Philadelphia, Pa.— 
Refined leaf lard. K 20. 652

130 Chalmers, James, & Sons, Williamsville, N. Y.— 
Gelatine. K 22. 652

131 Wilcox, J. W., & Co., New York.— 
Refined leaf lard, hard stearine, and hard oil. K 21. 652

132 Stein, Hirsh, & Co., Chicago, Ill.— 
Egg albumen, blood albumen, casein and dried blood. J 22. 652

133 Brown, William H., Peabody, Mass.— 
Prepared sizing, glue. K 20. 652

134 Franklin Glue Works, Pittsburgh, Pa.— 
Glue, neat's-foot oil. K 20. 652

135 Upton, George, Boston, Mass.— 
Glue in sheets, broken, ground, and powdered. K 20. 652

136 Peter Cooper's Glue Factory, New York, N. Y.— 
Glue, gelatine, neat's-foot oil. K 22. 652

137 Lister Brothers, Newark, N. J.— 
Glue, tallow, etc. C 25. 652

138 Cassard Bros. & Co., Baltimore, Md.— 
Refined lard. K 21. 652

138\textsuperscript{a} Wahl Brothers, Chicago, Ill.— 
Gelatine, neat's-foot oil, horns, hoofs, and bones. K 22. 652

138\textsuperscript{b} Butchers' Slaughtering & Melting Association, Brighton, Mass.— 
Steamed bones, horns, hoofs, etc. K 22. 652

138 Holcomb, E., Grand Rapids, Mich.— 
Deer-skin lace leather. K 24. 652

138\textsuperscript{c} Ward, N., & Co., Boston, Mass.— 
Cattle bones, tallow, grease, hoods, neat's-foot oil, etc. A 26. 652

138 Upton, Elijah W., Peabody, Mass.— 
Glue. K 29. 652

139 Meriam Packing Co., Boston, Mass.— 
Hides, tallow, etc. 652

139\textsuperscript{a} Mess beef, concentrated roast beef, and canned turtle. 652

140 State of Oregon (collective exhibit), Portland, Oregon— 
A glue, condensed cider. 652

140\textsuperscript{b} Dried fruit. 652

140\textsuperscript{c} Farin, & oatmeal. 657

140\textsuperscript{d} Milligan & Higgins Glue Co., N. Y.— 
Glue. K 19. 652

140\textsuperscript{e} Stearine, P., Adams, N. Y.—Deerheads. E 28. 652

141 Mellen & Co., New York, N. Y.— 
Reinovated live-geese feathers H 17. 653

142 Harbison, W. C., New Castle, Pa.— 
White Mountain honey. J 23. 654

142\textsuperscript{a} Hurst, Lewis, Kewancee, Ill.— 
Fruit honey. J 24. 654

143 Fritschen, Joseph, Carlstadt, N. J.— 
Sunbleached & refined wax, and candles. J 23. 654

144 Lewis, W. K., & Brothers, Boston, Mass.— 
Preserves, pickles, catsups, condensed milk, canned fruits, meats, and vegetables. J 22. 656

145 Portland Packing Co., Portland, Maine.— 
Canned vegetables, fruits, meats, poultry, and shell-fish. J 23. 656

146 Warner, Rhodes, & Co., Philadelphia, Pa.— 
Canned fruits and vegetables, fresh and preserved. J 24. 656

147 Atmore & Son, Philadelphia, Pa.— 
Mincemeat and English plum-pudding. J 24. 666

Mincemeat canned goods. J 23. 656

150 Anderson & Campbell, Camden, N. J.— 
Canned fruits, vegetables, fruit-butter, and mincemeat. J 24. 656

150\textsuperscript{a} Bigelow, John, Boston, Mass.— 
Labeling machine. J 22. 656

150\textsuperscript{b} Macfarlane, N. H., & Co., New York, N. Y.— 
Refined lard. K 29. 654

150\textsuperscript{c} Ashbourne, Alex. P., Philadelphia, Pa.— 
Pulverized cocanut. 656

150\textsuperscript{d} Cocanut vinegar. 661

150\textsuperscript{e} Armstrong, Herran M., & Co., Louisville, Ky.— 
Fork products K 22. 656

151 Boyd, G., & Co., Philadelphia, Pa.— 
Dried grain and fruit. C 22. 656

153 Reeves, Parvin, & Co., Philadelphia, Pa.— 
Canned vegetables. J 23. 656

154 Wright, Joshua, & Son, Philadelphia, Pa.— 
Mincemeat. J 24. 656

155 Wilson Packing Co., Chicago, Ill.— 
Hermatically sealed cooked meats; corned beef, ham, tongue, and fresh beef. J 23. 656

Aromatic hams, white-sugar cured and delicately flavored. J 20. 656

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
157 Githens & Rexsamer, Philadelphia, Pa.—Canned fruits and vegetables. J 23. 656
160 Gordon & Dilworth, New York, N. Y.—Preserved domestic and foreign fruits, jellies, canned goods, sauces, syrups, and general table delicacies. J 23. 656
161 Chambers, Jos. M., Dover, Delaware.—Canned goods; dessert fruits a specialty. Strawberries, raspberries, cherries, pineapples, peaches, Bartlett pears, tomatoes, etc. The location (Dover, Delaware) of this canning house gives the all-important advantages which are essential to ensure the superior quality and flavor of canned goods. The fruit is allowed to fully mature on the trees before being picked, thereby securing a richness of flavor. As the fruit ripens it is carefully picked, pared by hand, and each piece carefully placed in the cans, filling them as full as possible not to mash or bruise the fruit, after which the cans are filled with heavy syrup made from the best granulated sugar. No deleterious substances or patent preserving-powders used. All lovers of good dessert send for circular. I 24 and 22. 656
162 Snedeker, David, New York, N. Y.—Preserved fruit, vegetables, meat, etc. I 24. 656
163b Annapolis Canning Co., Annapolis, Md.—Canned goods. J 23. 656
164 Richardson & Robbins, Dover, Del.—Canned and preserved fruits, potted meats, etc. J 24. 656
165 Fruit-Growers’ Trade Co. of New Jersey, New York, N. Y.—Cranberries, natural and preserved, canned tomatoes, etc. D 24. 656
166 Clarkson, F. M., & Son, Bridgeville, Del.—Evaporated and conserved fruits and vegetables. J 42. 656
167 Borden, John G., Brewsters, N. Y.—Canned milk, coffee, and cocoa, extract of beef, etc. J 22. 656
167b Turner, J., M’t’g Co., New York, N. Y.—Sauce. K 9. 656
167c Greenfield, Nelson, New York, N. Y.—Flavors and coloring for confectionery. K 27. 656
167d Archdeacon, W., Chicago, Ill.—Pickles, preserves, jellies, sauces, and canned goods. J 22. 656
167f Selsor & Brother, Philadelphia, Pa.—Canned fruits and vegetables; catsups. J 25. 656
167g Farmers’ Fruit Preserving Co. of Kent co., Del., Lebanon, Del.—Canned fruits and vegetables. J 24. 656
167h Smith, Wright, St. Louis, Mo.—Table sauce. J 21. 656
169 Flood, Wm. M., Philadelphia, Pa.—Mutton in alcohol. A 27. 656
171 New York Desiccating Co., New York, N. Y.—Preserved coconut for pies, cakes, etc. I 24. 656
172 Libby, McNeal, & Libby, Philadelphia, Pa.—Canned cooked meats. 656
172a Schepp, Leopold, New York, N. Y.—Desiccated coconut. K 28. 656
172b Cook, J. W. & V., Portland, Oregon.—Canned salmon. J 25. 656
175 Little Creek Canning Co., Little Creek, Del.—Canned fruits and vegetables. J 23. 656
176 Jones, John Winslow, Portland, Maine.—Canned green corn, lobster, mackerel, salmon, and beef. B 24. 656
177 Cassard, Geo., Baltimore, Md.—Pepper hams. K 21. 656
180 La Croix, James, East Medway, Maine.—Canned vegetables, apples, etc. J 23. 656
181 Brooks, C. D., Boston, Mass.—Pickles, preserves, canned goods, etc. J 21. 656
182 MacGowan, John K., Philadelphia, Pa.—Table sauce. J 21. 656
182a King, William, Brooklyn, N. Y.—Table sauce. J 20. 656
182c Black & Krebs, Baltimore, Md.—Sugar-cured hams, refined hard. K 21. 656
183 Underwood, W., & Co., Boston, Mass.—Canned meats, fish, fruits, vegetables, etc.; pickles, catsups, sauces, etc. J 22. 656
185 Burnham & Morrill, Portland, Maine.—Canned meats, soups, fish, and vegetables. J 23. 656

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 10.
Animal and Vegetable Products.

186 Harris, Milo, Jamestown, N. Y.—Dried fruits. D 19. 656
187 Dingee, Squire, Chicago, Ill.—Pickles, chow-chow, and sauces. 656
188 Holgate, Geo., & Co., Oshkosh, Wis.—Preserved fruits and vegetables; preserved meats in joint. J 23. 656
189 Williams, John, South Haven, Mich.—Evaporated fruits and vegetables. D 24. 656
190 George, P. T., & Co., Baltimore, Md.—Hams, lard, and lard oil. Pork packers and curers of the Maryland hams, and manufacturers of refined lard and lard-oil. Lard prepared for the Brazil and West India markets a specialty. K 656
191 Evans Bros., Cincinnati, Ohio.—Hams, shoulders, etc. J 15-16. 656

"These "fruits" and "vegetables" are prepared practically in the fields where grown. Only fully ripe and carefully-assorted fruits are packed. The tins are uniformly filled full of fruit; the interstices are then filled with spring-water and re-filling white sugar, which, mingling in the juices of the fruit, forms a heavy, rich syrup. "Vegetables." The preserving-houses are located directly in the midst of a rich, fertile agricultural country, upon the shores of Lake Erie, where sweet corn, sweet peas, tomatoes, etc., are grown in great abundance and perfection, the tempering lake breezes exercising a highly beneficial climatic influence. The peculiar delicacy of flavor these vegetables possess is owing to this favored location and their being perfectly fresh, not allowed to wilt or pass through any heating or sweating process; are invariably packed the same day they are picked, usually within two hours after. "Sweet corn" is packed, young and tender, solidly in the cans, in its own milk. Nothing goes into the can save the sweet tender corn. It will always be found the same.

193 Perry, Day, & Co., New York, N. Y.—Canned fruits, meats, fish, etc. J 15. 656
194 Jacob, Cha., jr., & Co., Cincinnati, Ohio.—Hams, shoulders, breakfast bacon, mess pork, mess and dried beef, beef tongues, etc. J 15-16.

195 Keck, J. L., & Bros., Cincinnati, Ohio.—Pickled meats, lard, etc. J 15-16. 656
197 Evans, Lippincott, & Cunningham, Cincinnati, Ohio.—Bacon, hams, mess pork, lard, and breakfast bacon. J 15-16. 656

199 Morrison, James, & Co., Cincinnati, Ohio.—Hams, bacon, mess pork, lard, English meats, etc. J 15-16. 656
201 Cereals Manufacturing Co., New York, N. Y.—Crushed wheat, flour, meal, etc. 658.
202 Lagomarsino & Cuneo, Philadelphia, Pa.—Macaroni, vermicelli, fancy paste, farina, etc. J 26. 657
203 Outcalt, John, Spotswood, N. J.—Hominy, samp, corn flour from corn grown on Monmouth and Princeton battle-fields, Graham flour, wheaten grits, etc. 658
207 Schumacher, Fred., Akron, Ohio.—Oatmeal, barley, farina, cracked wheat, flour, hominy, meal, feed, and grain. J 26. 657
208 Becker, George V., & Co. (Croton Mills, Cherry st.), New York, N. Y.—Self-raising flour, back wheat, griddle-cake flour, farina, and cracked wheat. 657

Heckers’ Superlative family flours, which received the First Premium at the World’s Fair, London; and the World’s Fair, New York. Very popular with those desiring “fine bread and biscuit as can be produced.”

Heckers’ Self-raising Flour, for Bread, Biscuit, Puddings, Cakes, etc., by adding only cold water or milk. This valuable improvement, introduced in 1850, by Heckers & Brother, was awarded the only Gold Medal given for Self-Raising Flour, Heckers’ Griddle Cake Self-Raising Flour. For Griddle Cakes, Muffins, Fritters, Waffles, Doughnuts, and for any use where a batter is required.

Acid used in making Heckers’ Self-Raising Flour.

Heckers’ Farina, a delicate and appropriate food for all seasons.

Heckers’ Wheaten Grits, invaluable to dyspeptic and sedentary persons.

209 Red Wing Mills, Red Wing, Minn.—Flour. J 26. 657
210 Baltimore Pearl Hominy Co., Baltimore, Md.—Breakfast hominy, meal, flour, samp, etc. J 28. 657
211 Deener, Cissel, & Welsh, Georgetown, D. C.—Flour. J 95. 657
212 Pollock, James, Vincennes, Ind.—Flour. J 24. 657
213 Pretzsel, Samuel F., Philadelphia, Pa.—Oatmeal and oatina. J 25. 657
214 Jewell Brothers, Brooklyn, N. Y.—Plain and self-raising flour, babies’ cereal food. J 48. 657
215 Heatton, Edward, New Haven, Conn.—Granum. I and J 15. 657
216 Taylor, A. A., Toledo, Ohio.—Flour. J 24. 657

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 18 * 14.
Animal and Vegetable Products.

206c Baldwin, Homer, Youngstown, Ohio.—Flour. J 25. 660
206d Bedell & Conklin, Brooklyn, N. Y.—Meal, flour, hominy, etc. J 25. 660
206f Porter & Mowbray, Winona, Minn.—Flour. J 24. 660
206g Eisenmayer & Co., St. Louis, Mo.—Flour. J 25. 660
206h Thilenius & C., Cape Girardeau, Mo.—Flour. K 23. 660
208 Stuart & Douglas, Cedar Rapids, Iowa.—Oatmeal. J 22. 660
210 Kingaford, T., & Son, Oswego, N. Y.—Laundry starch, corn starch, etc. J 13-14. 663
212 Erkenbrecher, Andrew, Cincinnati, Ohio.—Starch, plain, perfumed, and flavored, St. Bernhard pure, refined pearl wheatens, pulverized, "cornena" (copyrighted), corn flour for culinary purposes, "gloss satetna" (copyrighted) for laundry use. Manufacturer of perfumed and flavored starch. J 17, 18, 19. 663
213a Fox, George, Cincinnati, Ohio.—Starch. J 22. 660
213b Stone & Co., Chicago, Ill.—Zoline starch glass. K 17. 663
214a Hutter, Robert, Philadelphia, Pa.—Grape sugar, etc. D 24. 659
215 Post, C. C., Burlington, Vt.—Maple sugar and syrup. C 24. 659
216 Murdock, Albert L., Boston, Mass.—E 25. 659
   a Beet sugar. 660
   b Peat. 660
216a McDonald, M. C., Philadelphia, Pa.—Crystal drips syrup. J 25. 669
217a Agnew, Eisenbeis, & Co., Allegheny, Pa.—Table, pickling, and aromatic vinegars. H 25. 660
219 Hincke, Julius, Egg Harbor City, N. J.—Domestic wines. American grape wines, from Hincke's vineyards, all vintages since 1866, highly recommended for table use, as well as for invalids. K 12. 660
220 ana Wine Co., Hammondsport, N. Y.—Champagne, still wines, and brandy from native grapes. K 12. 660
224 Sattler & Co., Baltimore, Md.—Whisky. K 18. 660
224a Speer, Alfred, Passaic, N. J.—Native wines. K 29. 660
224c Shafer, J. Calvin, New York, N. Y.—Fruit syrups, juices, brandy, and cordial. K 16. 660
224d/ Brecht, C. F., Philadelphia, Pa.—Wines and brandies. K 12. 660
224e Smith, Isaac, Centre Island, N. Y.—Apple wine. K 7. 660
224f/ White Elk Vineyards, Keokuk, Iowa.—Wines. K 16. 660
228 Poeschel, M., & Scherer, Hermann, Mo.—Native wines. K 13. 660
230 Keller, J. S., Owingsburg, Pa.—Wine and whisky. K 13. 660
231 Wehr, C. Werk, & Son, Middle Bass Island, Ohio.—Native wines. K 8. 660
233 Keller, M., Los Angeles, Cal.—Wines and brandies. K 7. 660
237 Beller, Jacob, Detroit, Mich.—Native grape wines, currant and elderberry wines. K 7. 660
240 Hughes, H. R. & M., Pittston, Pa.—Stock ale. K 18 and Brewers' Building. 660

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 19.
Importers and Dealers in Garden, Field and Flower Seeds,
Dutch Bulbous Roots, Summer Flowering Bulbs, Horticultural Implements.

SEEDS FOR THE FARM AND GARDEN.

Seed Potatoes - A Specialty.

The following catalogues are published during the year, and will be mailed to all applicants on receipt of prices affixed. Regular customers supplied gratis.

No. 1. BLISS'S SEED CATALOGUE AND GUIDE TO THE FLOWER AND KITCHEN GARDEN. Contains upwards of 200 pages, with many beautiful illustrations, including splendid colored lithographs of favorite flowers and vegetables, and a descriptive list of upwards of two thousand varieties of flower and vegetable seeds. Also a list of upwards of one hundred varieties of French hybrid gladiolus, and other summer flowering bulbs, grapes, strawberries, raspberries, and other small fruits, etc., etc. Price, including postage, 35 cents; an edition elegantly bound in muslin, $1.00.

No. 2. BLISS'S GARDENER'S ALMANAC AND ABRIDGED CATALOGUE of garden, field and flower seeds, 116 pages, beautifully illustrated, mailed to all applicants enclosing 10 cents.

No. 3. BLISS'S ILLUSTRATED POTATO CATALOGUE contains a descriptive list of all the new varieties recently introduced, with many other desirable sorts, also much useful information upon their cultivation. 32 pages, 10 cents.

No. 4. BULB CATALOGUE. (Illustrated.) published September 1st, containing a choice collection of double and single hyacinths, arranged in their several colors; tulips, in many varieties, both double and single; polyanthus Narcissus, Crown Imperials, Jonquils, Snow Drops, Lilies, etc. Price, 10 cents.

Address, B. K. BLISS & SONS, 34 Barclay Street, New York.

B. K. BLISS & SONS,
 IMPORTERS AND DEALERS IN
 Garden, Field and Flower Seeds,
 Dutch Bulbous Roots, Summer Flowering Bulbs, Horticultural Implements.

REQUISITES FOR THE FARM AND GARDEN.

SEED POTATOES - A SPECIALTY.

The following catalogues are published during the year, and will be mailed to all applicants on receipt of prices affixed. Regular customers supplied gratis.

No. 1. BLISS'S SEED CATALOGUE AND GUIDE TO THE FLOWER AND KITCHEN GARDEN. Contains upwards of 200 pages, with many beautiful illustrations, including splendid colored lithographs of favorite flowers and vegetables, and a descriptive list of upwards of two thousand varieties of flower and vegetable seeds. Also a list of upwards of one hundred varieties of French hybrid gladiolus, and other summer flowering bulbs, grapes, strawberries, raspberries, and other small fruits, etc., etc. Price, including postage, 35 cents; an edition elegantly bound in muslin, $1.00.

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Address, B. K. BLISS & SONS, 34 Barclay Street, New York.

P. O. Box No. 5712.
GLOUCESTER IRON WORKS,
GLOUCESTER CITY, NEW JERSEY.

Cast Iron Gas & Water Pipes, Stop Valves, Fire Hydrants, Gas Holders, &c.

Office, Philadelphia, No. 6 North Seventh St.

The Philadelphia Lawn Mowers.

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<th>WIDTH.</th>
<th>POWER REQUIRED</th>
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These Lawn Mowers being but little over half the weight of the old style machines, they are far easier handled and very much lighter draft. They are on exhibition in Agricultural Hall, Columns L and 13 and 14.

GRAHAM, EMLEN & PASSMORE,
631 Market St., Philadelphia.

BIERNATZKI & CO., Hamburg, Germany. { European Agents.

Animal and Vegetable Products.


242 Naglee, H. M., San José, Cal.—Brandy. K 10. 660

243 Troemer Extract of Malt Co., Fremont, Ohio.—Extract of barley malt. K 18. 660


245 Levy, James, & Bro., 27 and 33 Sycamore street, Cincinnati, Ohio.—Bourbon and rye whiskies; specialty, Kentucky whiskies, both in bond and non-bond paid. K 16. 660

245a Lawrence, Daniel, & Sons, Boston, Mass.—Fum. K 13. 660

245b Le Franc, Charles, San José, Cal.—Wine and brandies. K 14. 660


248 Huck, John A., Chicago, Ill.—Wines. K 12. 660

249 Mahé, Gustave, San Francisco, Cal.—Golden wine. Extract from the report of the Committee of Industrial Exhibition of the Mechanics' Institute, San Francisco, California: "Mr. Mahé's wine is made from what is called the Mission Grape, without any admixture of foreign grapes. It is singularly light and pure and has obtained the First Premium and only Medal awarded to the California Wine, at the Tenth Industrial Exhibition of the Mechanics' Institute, San Francisco. Mr. Mahé's property consists of about one hundred acres, forty-five of which are planted with vines. Of the seventy thousand feet of vineyard, twelve thousand are in vines nine years old, eight thousand five years old, thirty-five thousand in their fourth year, and the remaining fifteen thousand are three years old. Mr. Mahé estimates that when these vines are in full bearing (which will be in two or three years' time), they will yield an average of from thirty to thirty-five thousand gallons of wine. In 1871 eight thousand feet in bearing yielded eight thousand five hundred gallons. The whole vineyard is planted with the grape known as the California Mission. The cellars, which are two and three stories deep, have a capacity of a hundred thousand gallons in casks and bottles together. The wine is to be kept in the cellar at least three years, that length of time being necessary to give it the greatest part of its valuable qualities, and Mr. Mahé intends to give it to the consumer in glass only, that he may be satisfied it cannot be used in any but its natural pure state."

"At the vintage, which is always in October, from the 15th to the 20th, the grapes, as soon as they have been gathered and brought to the press, are stripped from the stems. The stems are carefully thrown aside, and the grapes fall from the stripping machine into a mill, which breaks the grape without crushing the seeds. From this mill the broken grapes fall on the press, from which the juice passes directly through India-rubber pipes into large casks, are laid on the floor to receive it. There the juice ferments, and is drawn off three times the first year, twice the second year, and once only the third year; and always in January. The third year the wine is bottled in the month of February, and is not offered for use till six months later, about September. "The pulp and solid part of the grapes left in the press are subjected to the action of a hydraulic press of sixty thousand pounds' force worked easily by one man. The distillation of the Golden Wine shows the following per centage of alcohol: vintage of 1869, 12 per cent.; vintage of 1870, 11 per cent.; vintage of 1871, 11½ per cent. It contains, therefore, the same proportion of alcohol as the wines of Bordeaux."

In order to enable the visitors to the Exhibition to appreciate the qualities of the wine of California, we have established in Agricultural Hall, near our exhibit, at the north entrance, a buffet, where an excellent lunch, including a half bottle of Golden Wine, will be daily served, at the price of one dollar. Our fellow-citizens and our foreign friends are respectfully invited to honor us with a call. L. PONTON DE ARCE, Manager. K 14. 660

250 Steuben County Vineyard Association, Bath, N. Y.—Native grape wine. K 21. 660

251 Criqui, Joseph, Newark, N. J.—Wine. K 9. 660

252 Kelley’s Island Wine Co., Kelley’s Island, Ohio.—Champagnes and claret wines, etc.; Catawba brandy. K 11. 660


254b Miller, George, & Sons, Philadelphia, Pa.—Confectionery. K 25. 661


259 Croft, Wilbur, & Co., Philadelphia, Pa.—Confectionery, lozenges, glace fruit, etc. K 26. 661

260 Morse, G. Byron, Philadelphia, Pa.—Plain and fancy cakes, milk and cream biscuits, buns, barm, etc. K 61. 661


262 Hartman, John, Philadelphia, Pa.—Crackers, cakes, and biscuits. K 24. 661

263 Weaver, J. R., Philadelphia, Pa.—Confectionery. K 27. 661


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 19-14
Animal and Vegetable Products, Textile Substances.


268 Laurent, F., N. W. cor. Arch and Sixth sts., Philadelphia, Pa.—Confectionary and decorative ornaments for cakes. Manufacturer of fine confectionery and ornaments for decorating cakes, such as bride’s, centre-pieces, flowers, roses, gum-paste leaves, etc. K 28. 661


270 Thors & Brother, Trenton, N. J.—Crackers, butter, oyster, wine, and scroll biscuit. K 24. 661


273 Carrick, David, & Co., Philadelphia, Pa.—Crackers, cakes, ship-bread, etc. K 23. 661

274 Exton, Adam, & Co., Trenton, N. J.—Butter, oyster, and wine crackers. K 23. 661


277 Snider Bros. & Co., Cincinnati, Ohio.—Cream biscuit K 23. 661


278 Smith’s Homeopathic Pharmacy, New York, N. Y.—Alcohol and soluble chocolate, and chocolate confectionery. K 27. 661


Textile Substances of Vegetable or Animal Origin.

281 Murdock, Albert L., Boston, Mass.—Cotton from all countries. E 25. 665


281 Pritchard, A., Galveston, Texas.—Raw cotton. E 24. 665


282 Cheatham, John T., Bethany, Ga.—Cotton for planting. F 24. 665

282 Campbell, George, Westminster, Va.—Wool. E 14. 665

282 Maxwell, Edward, Delta, La.—Cotton. E 24. 665

282 Cotton Exchange, Memphis, Tenn.—Raw cotton E 24. 665

282 Kellogg, Adam, Kellogg’s Landing, La.—Bale of cotton. E 24. 665

282 McLaughy, B. R., Verona, Miss.—Cotton E 24. 665

282 Gurney, Wm., Charleston, S. C.—Cotton and cotton plant. J 17. 665

282 Maxwell & Goodman, Delta, La.—Cotton. H 17. 665

282 Levy, Edward S., New Orleans, La.—Raw cotton J 20. 665

282 Sledge, McKay, & Co., Memphis, Tenn.—Raw cotton E 24. 665

282 St. Louis Cotton Exchange, St. Louis, Mo.—Raw cotton D 24. 665

282 New Orleans Cotton Exchange, New Orleans, La.—Raw cotton. 665

283 State of West Virginia (collective exhibit).—Hemp and flax. F 19. 665

284 George Stratford, Jersey City, N. J.—Oakum. J 17. 665

285 Davey, W. 0., & Sons, Jersey City, N. J.—Oakum. H 17. 665

286 Mills’s, B., Sons, Jersey City, N. J.—Oakum. H 17. 665

287 Collyer, Robert H., Chicago, Ills.—China grass. S 10. 665

288 State of Oregon, Portland, Oregon.—Wool and woolen fabrics. E 22. 667

289 Bond, George W., Boston, Mass.—Commercial woools. I 19. 667

290 Northern Ohio Woolen Mills, Cleveland, Ohio.—All-wool shoddies. J 18. 667


290 Hiatt, E. J., & Brothers, Chester Hill, Ohio.—Merino wool in fleece. F 24. 667


293 Herzog, J., & Co., San Francisco, Calif.—“Eureka hair” (patented), good and clean substitute for curled hair. “Will not harbor moths or other vermin,” cool and healthy material for mattresses and upholstery. H 17. 669

294 Franklin Glue Works, Pittsburgh, Pa.—Curled hair. K 20. 669

295 Wilkens, William, & Co., Baltimore, Md.—Bristles, horse-hair, fibre, curled hair, etc. H 17. 669

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 10.
Machines, Implements, and Processes of Manufacture.

a Pleat-cultivator, etc. 670
b Corn-sheller, root-cutter, etc. 674
320 Brewster, Dodge, & Huse, Peru, Ill.—Wheel-corn-cultivator, steel plows for old ground and for breaking prairie-sod. Q 26. 670
322 Richmond Plow Works, Richmond, Ind.—Steel plows. L 23. 670
323 Moline Plow Co., Moline, Ill.—Wood-beam plows, steel-beam plows, and cultivators. Q 26-28. 672
324 Laurence & Chapin, Kalamazoo, Mich.—Plows. M 24. 670
325 Muschert, B. F., Morrisville, Pa.—Cultivator plow. M 23. 670
326 Strombeck, Charles W., Syracuse, N. Y.—Harrow. L 27. 670
327 Bidwell, J. C., Pittsburgh, Pa.—Plows, and steel castings. S 23. 670
328 Ellis, Minot, Greenfield, Mass.—Swivel plows. L 24. 670
329 Feenders, Harm., Charles City, Iowa.—Clod-cutter. Q 12. 673
331 Lamborn, Lewis, Hamorton, Pa.—Cultivator with attachment for eradica-

ting potato bugs. N 23. 670
332 Cagwin & Young, Joliet, Ill.—Spading-plow. M 23. 670
333 Auburn My'g Co., Auburn, N. Y.—Agricultural hand implements. Inter-
spection of axle X and main transept. 670
334 Rogers, C. B., Philadelphia, Pa.—Cultivators, berry and fruit baskets. M 26. 670
335 Kroh, C. & P. G., Kroghville, Wis.—Cultivator. M 24. 670
a Plows. 670
b Power corn-shellers. 674
337 Benson, B. S., Baltimore, Md.—Steam plow. N 9. 670
338 Speer, Alexander, & Sons, Pitts-

burg, Pa.—Iron and steel plows. M 26. 670
339 South Bend Iron Works, South Bend, Ind.—Chilled plows and attach-
ments, specimens of chilled metal. P 26. 670
340 Hull, David H., Syracuse, N. Y.—Machine for stripping and booking to-

bacco. M 22. 670

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14
Machines, Implements, and Processes of Manufacture.

334 Binder & Schweising, Mauch Chunk, Pa.—Adjustable corn-plow. L 23. 670
   a Horse wheat-hoe. 670
   b Seed-drill. 671
337 Root, D., Son & Co., Mount Joy, Pa.—Steel and iron plows, cultivators, and agricultural steels. L 28. 670
   a Gang plows and attachments, cultivators, harrows, and horse-hoes. 670
   b Seed-drills, planters, etc. 671
   a Plows, cultivators, harrows, and horse-hoes. 670
   b Seed-sowers. 671
   c Corn-sheller and separator. 673
   d Horizontal and vertical burl-stones, brick-machines, seed-hullers. 674
342 Avery, B. F., & Sons, Louisville, Ky.—Plows, cultivators, etc. N 25. 670
344 Harnish, Edward P., Felton, Del. L 22.  
   a Cultivator. 670
   b Corn-planter. 671
   a Sulky-plow. 670
   b Mowing-machine. 672
346 Hutchinson, Samuel, Griggsville, Ill.—Adjustable harrow. P 25. 670
   a Plows and other agricultural implements. 670
   b Hay-cutters, corn-sellers, mills, presses, etc. 674
   c Flour. 675
350 Ames, Oliver, & Sons, North Easton, Mass.—Shovels, spades, scoops, and drainage tools. S 26. 670
351 Griffiths, George, Philadelphia, Pa.—Shovels, spades, handles, coal-hods, and pans. These goods are as produced at factory. We exhibit a spade used by Washington's army at Valley Forge. It was dug up by the late Rev. Dr. Brainerd. The handle replaced by one of style used at that date. T 27. 670
351b Orchard City Agricultural Works, Burlington, Iowa. P 28.  
   a Plows. 670
   b Rakes. 672
351c Ways Agricultural Company, Richmond, Ind. S 25.  
   a Cultivators. 670
   b Drills. 671
   c Mowers and reapers. 672
   a Beam-plow. 677
   b Churn worked by a dog. 675
352 Bergstesser, E. L., Hubbersburg, Pa.—Corn-planter. K 17. 671
353 Rowland, T., & Sons, Philadelphia, Pa.—Shovels and spades. T 17. 670
354 Walton, Sigas, Moorеств, N. J.—Garden and field cultivator. L 25. 670
   a Sulky-plow. 670
   b Cotton-seed planter. 671
357 Bayliss, Edwin, Massillon, Ohio. T 25.  
   a Wheel-harrow, iron cultivator, and shovel-plow. 670
   b Harvester. 672
   a Harrows. 672
   b Potato-planter and digger. 673
359 Brown, Hinman & Co., Columbus, Ohio. T 25.  
   a Weeding-hoes, garden-rakes, manure and spading forks. 672
   b Scythe-snaths, grain-crades, hay-forks, etc. 672
   a Hand and horse cultivators. 672
   b Berry-crates. 674
   a Cast-steel hoes, rakes, and potato-hooks. 670
   b Hay and manure forks, scythe-snaths, etc. 672
   a Plow. 670
   b Corn-sheller. 671
   a Threshing-machine, dust-conveyer, and separator. 670
   b Self-taking hay-rake, mower, and reaper. 672
   c Sausage-cutter, stuffer, etc. 672
   a Plows and agricultural implements. 670
   b Corn-shellers, hay-spreaders, etc. 674
   c Cider-mills, meat-cutters, etc. 672
   a Plows, cultivators, hoes, shovels. 672
   b Mower, horse and hand rakes. 673
   c Cotton-gins. 673
   d Milk-cooler. 675
   a Plows, cultivators, and tools for culture. 670
   b Seed-planter. 671
   c Threshing-machines, horse-powers. 673
   d Cotton-gins, steam-engines, and agricultural steels. 674

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 70.
Machines, Implements, and Processes of Manufacture.

- Plows, harrows, rollers, clod-crushers, etc. 670  
- Hay-rakes. 670  
- Corn-shellers. 673  
- Cider and wine mills. 671

- Plows. 670  
- Mower, horse-rake, etc. 672  
- Corn-sheller. 673  
- Fodder-cutter. 674

- Ithaca or American wheel horse-rake. 670  
- Centennial self-acting wheel horse-rake. 670  
- Saratoga or New York wheel horse-rake. 672  
- Clover-huller, threshing, and cleaner, thresh-er and shaker, straw-preserving thresh-er, one and two horse and lever powers. 673  
- Feed-mill, cutter, wood-saving machine, horse pitchforks, etc. 674  
- Dog, calf, or donkey power, for churning, etc. 675

372 Allen, S. L., & Co., No. 119 South Fourth St., Philadelphia, Pa.—Farm and garden tools. Manufacturers of the Hillborn, Jr., hand seed-drills and wheel-hoes. Also of improved horse-hoes and cultivators, insect fumigators, etc. M 20. 671

373 Farmers’ Friend Manufacturing Co., Dayton, Ohio.—Grain-drill and grass seed sower, grain-drill and broad-cast seed sower combined, grain-drill and fertilizer combined. N 17. 671

374 Mast, P. P., & Co., Springfield, Ohio.—Grain-drills and seed-sowers, broadcast seeder and cultivator, riding or walking cultivator, and plow-shovels. M 17. 671

375 McSherry, D. E., & Co., Dayton, Ohio.—Grain and seed drills. We claim a positive force-feed, constructed in such a manner as not to allow any grain to pass through the slot, but carried out by the spiral wheel working inside of a cap or case underneath the hopper; provided with a patent washer, which prevents the grain from being broken, and causing a regular flow of seed. It is regulated by the change of cog-wheels, which is simple, durable, and making positive quantities. The quantities per acre are not raised by the roughness of the ground or the box being full or nearly empty. It has also been used successfully in drilling corn, beans, peas, etc. It is provided with a grass seed box, which can be used either in front or rear of machine. An iron lifter is attached, which is strong, neat, and durable, by means of which the hoes are raised out of the ground, and at the same time thrown out the machine by means of it. The drill is attached to a long hoe, iron drag-bars which can be changed from single to double rakes, or vice versa. Attached to this is an iron shaft, which is held permanent by bolts, therefore not detracting from the strength of the frame. There is a light, strong frame, constructed with six pieces of timber, one iron axle running the whole width of it. It has a surveyor-chart, that measures the ground actually sown. It has high wheels, broad tread. We also have a spring hoe, known as the Willochira patent. Weight of drill about 525 pounds.

The Rice drill has a positive force-feed, constructed with a spiral wheel, provided with ten washers or disks, one at each end of feed-wheel, working inside of cap or case underneath the hopper, causing a regular flow of seed. The quantity is regulated by change of cog-wheels, making positive quantities. The frame is constructed of six pieces of timber, making it strong and durable. It is provided with a pair of shafts for one horse only. Has an iron axle running the whole width of frame. It has high wheels, broad tread, and weighs about 400 pounds.

Broad-cast seeders. This is a positive force-feed, constructed with a spiral wheel and flange, working inside cap, thereby causing a regular flow of seed, and only allows such grain to pass out as is carried by the wheel. The washers at the end of the wheel protect the grain from being broken or injured. The quantity is regulated by changing cog-wheels, making a positive quantity sown. The roughness of the ground or the box being full or nearly empty has no effect on the discharge of seed. It has six iron spouts for the grain to pass through and scatter in front of the hoes. Has twelve hoes, six on each side, six feet apart. The points are fixed and are reversible; can be regulated to the depth desired. Has iron drag-bars, to which the hoes are attached. These being under the main frame, with a lifter attached to raise them out of the ground. It has a grass and flax seed attachment, and has an iron axle running the whole width of the frame. Has high wheels, broad tread, and weighs about 450 pounds. M 18. 671

376 Campbell, J. & J. A., Harrison, Ohio.—Drill. M 23. 671


380 Claridge, John, Mt. Sterling, Ohio.—Corn and cotton-seed planter. M 17. 671

- Brookmill, corner-brace, saw-sett, and lathe. 671  
- Apple-parer. 674


383 Selby, James, & Co., Peoria, Ill.—Corn-planter. M 22. 671


384 Bickford & Huffman, Macedon, N. Y.—Grain-drill and attachments. L 18. 671

Last fall Bickford & Huffman were invited by chief of Centennial bureau to perform seeding of grain for the field trial to take place this year at Philadelphia. Seeding accomplished with following results: 80 acres; measured by line-measurement of 45 56 acres. Field to be sown with wheat 5 pecks to the acre. Quantity required 46 bushels 515 pounds; quantity sown, 55 bushels 27 54 pounds—an excess of only 10 bushels; leaving an entire field of 45 56 acres, or less than 7 56 pound excess per acre. To account for which, if it need

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
be accounted for, three headlands, upon which were lapped three tubs, were sown. This result was considered very satisfactory, and demonstrates the accuracy of the quantity-wheel. The fertilizer attachment, which has been transferred to the rear, is an improvement, and makes the distribution even and uniform. The machine is nicely balanced, and the weight removed from the horse's neck.

395 Hall, H. L., Chicago, Ill.—Combined seed-sower and cultivator. L 19. 671

396 Vandiver Corn-Planter Co., Quincy, III.—Corn-planter. M 19. 671

397 Stokes, F. N., Urbana, Ohio—Planter, fertilizer, and pulverizer. K 18 and 19. 671

397a Cooper, Mark, Union, S. C.—Combined fertilizer, reiner, and seed-planter. M 22. 671


398 Hoosier Drill Co., Milton, Ind.—Wheat-drill with grass-seed attachment, corn-drill. K 15. 671

398a Screw Mower and Reaper Co., Philadelphia, Pa.—Grain drills. 671

398b Mowing and reaping machines. 672

398c Hay and stalk cutters. 674

399 Johnson & Gere, Owego, N. Y.—Grain-drill and attachments, fertilizer-sower. L 19. 671

399a Gibbs & Lee, Brooklyn, N. Y.—Steam spader. M 24. 671

399b Rothchild, Joseph, Shelbyville, Ky.—Corn-planter. K 18. 671

399c Eagle Manufacturing Co., Davenport, Iowa. M 26. 671

399d Walking cultivator. 671

399e Sulky rake. 672


400a Bliss, B. K., & Sons, seedsmen, 34 Berkeley St., New York, N. Y.—Randolph's hand seed-sower, for sowing all kinds of garden-seeds with accuracy and dispatch, can be easily operated by a lady or child. Highly recommended by experienced gardeners and farmers. Its cost is trifling, compared with the advantages resulting from its use. The saving in time and seeds will undoubtedly repay the outlay in the planting of a single week. $1.25 each. Sent by mail, postpaid, to any address in the U. S. upon receipt of $1.50. Randolph's fertilizer distributor, for distributing all kinds of concentrated fertilizers, ammoniates, guano, ashes, plaster, or chemical manures, without touching the material with the hands, a matter of some importance when caustic substances are used. One man can do the work of three by the ordinary method. Price, $5. B 26. 671

401 Crowell, J. B., & Co., Green Castle, Pa.—Grain, guano, and grass-seed drills. L 12. 671

402 Willoughby, James D., Philadelphia, Pa.—Grain-drill, with and without fertilizer attachment. L 22. 671


An excellent two-horse count row corn-planter; six chamber rotary drop; universal wrought-iron coupling; broad steel runners; woven wire open heel; simple in construction; certain in operation. Send for illustrated circular.

405 Renthler, D. & H., Bellefonte, Ill.—Grain and seed drills. M 19. 671

406 Heamer, Andrew J., Pittsfield, Ill.—Hedge-trimmer. M 14. 671

407 Seymour, John B., Philadelphia, Pa.—Noose seed-planter. T 8. 671


a Self-seeding hand-drill. 671

b Meat-chopper. 674

408a Keystone Manufacturing Co., Sterling, Ill. L 19. 671

b Corn-planter. 671

b Corn-sheller, cider mill and press. 673

409 Esterly, George, & Son, Whitehouse, Wis. P 20 and 21.

a Cultivator and seeder combined. 671

b Harvester, self-raking reaper. 672

410 Brown, George W., Galesburg, Ill. A 13.

a Corn-planter. 671

b Field corn-stalk cutter. 672


a Broadcast seed-sower. 671

b Apple-parsers, peach-parsers, cherry-stoners, etc. 674


a Grain, seed, and fertilizing drills. 671

b Clover huffer and cleaner. 673

b Feed-cutter. 674

412a Williams Bros., Ithaca, N. Y. P 12.

a Fertilizer and grain-sower. 671

b Horse hay-rake. 671

b Portable engine. 671

412b Rank, Amos, & Co., Canton, Ohio—Mowers, reapers, etc. K 13. 67.

412c Perry, John G., Kingston, R. I.—Mowers. P 22. 671


413a Eagle Mowing & Reaping Machine Co., Albany, N. Y.—Mowing and reaping machines. T 18. 672


a Drop. 675.

b Mowers, reapers, harvesters, etc. 676

413d Warder, Mitchell, & Co., Springfield, Ohio—Reapers and mowers. P 15. 672

413e Thomas, John H., & Sons, Springfield, Ohio.—Sulky-spring tooth hay-rake. L 15. 672

For locations of objects indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 10.
Machines, Implements, and Processes of Manufacture.

413a Kelly, William E., New Brunswick, N. J.—Reciprocating screw mowing-machinery. R 17. 672

413c Chaplin, C. H., Tecumseh, Mich.—Reaper. L 14. 672

413e Schenck, P. C., jr., Nesbitt, N. J.—Mower and reaper. K 15. 672

413d Wells, French, & Co., Chicago, Ill.—Potato-digger. R 24. 672

413f Whiton, David E., West Stafford, Conn.—Mowing-machine. R 14. 672

413f Mills, Peck, & Co., Otsego, Mich.—Field and garden hoes. R 23. 672

413f Whitney, Fassler, & Kelly, Springfield, Ohio.—Reapers and mowers. 0 16. 672

415a Prout, H. N., Westfield, Mass.—Adjustable hoeing-machine. Q 28. 672

415b Ohmer, Augustus J., Hamilton, Ohio.—Hand mowing-machines. M 13. 672

415c Dodds, John, Dayton, Ohio.—Sulky horse hay-rakes. M 15. 672

415d Barnes, George, & Co., Syracuse, N. Y.—Mower-knives, reaper-sickles, spring keys, and coppers. M 15. 672

415e Taylor, B. C., Dayton, Ohio.—Wheel horse hay and grain rake. L 14. 672

415f Coates, A. W., Alliance, Ohio.—Lock-lever horse hay-rake. L 15. 672

415g Whittemore Bros., Boston, Mass.—Hay-rake and feed-cutter. L 20. 672

415h Chadborn & Coldwell, Newburgh, N. Y.—Lawn-mower; smoked-beef cutter. N 13. 672

415i Wisner, J. E., Friendship, N. Y.—Self-dumping rake. M 14. 672

415j Converse, Bolivar C., Springfield, Ohio.—Reaping-machine. R 16. 672

415k Eagle Company, Riverton, Conn.—Grain, grass, and bush scythes, grasshooks, corn and hay knives. T 25. 672

415l Huber Manufacturing Co., Marion, Ohio.—Revolving hay-rake. L 16. 672

415m Dutton, R., Yonkers, N. Y.—Reaping and mowing machine. R 25. 672

415n Rochester Agricultural Works, Rochester, N. Y.—Reapers and mowers. T 14. 672

415o Seiberling, J. F., Akron, Ohio.—Mower and attachments. Q 14. 672

415p Whitman & Miles Manufacturing Co., Akron, Ohio.—Mowing and reaping machine knives, sickles, and sections. T 18. 672

415q Aultman, Miller, & Co., Akron, Ohio.—Mower with table-reeper reaper. Q 15. 672

415r Royce, John S., Cuyahoga, N. Y.—Reapers. Q 25. 672

415s Gordon, James F., Rochester, N. Y.—Self-binding harvester. P 17. 672

415t Spunk, James L., & Co., Minneapolis, Minn.—Mowers and reapers. Q 14. 672

415u Bellaire Manufacturing Co., Bel- laire, Ohio.—Mower and reaper. P 14. 672


415w Tschop, Albert, Harrisburg, Pa.—Self-dumping wheel hay-rake. L 15. 672

415x Hewit, John C., Pennsgrove, N. J.—Potato-digger. M 16. 672


415z Haynes, W. H., North Sudbury, Mass.—Hay-elevator. M 21. 672


416c Field & Carpenter, Port Chester, N. Y.—Self-discharging hay-rake. L 15. 672

416d Ball, Samuel, Cogan’s Station, Pa.—Grain-cradle. L 22. 672

416e Strait, H., Troy, N. Y.—Potato-digger. O 26. 672


416g Clegg, Wood, & Co., Dayton, Ohio.—Self-discharging hay-rake. L 15. 672

416h Hills’ Arichmedean Lawn-Mower Co., Hartford, Conn.—Lawn-mowers, N 13. 672

416i Norton, James, Hightstown, N. J.—Potato-digger, and Rigg’s patent gang-plow, for cultivating corn, cotton, potatoe, etc., manufactured by Wyckoff & McDonald, Hightstown, N. J. M 16. 672

416j Fisher, Henry, Canton, Ohio, U. S. A.—Patent prairie-mower knife-grinders, for sharpening harvester-knives; patent farm and plantation bells; patent ladies, hay-knives, harvester-knives, sections, etc. Illustrated descriptive circulars sent free upon application. T 24. 672

416k Gibbs & Sterrett Manufacturing Co., Corry, Pa.—Mower and attachments hay-conveyor. Q 17 and 18. 672


416m Pennock Manufacturing Co., Kenneit Square, Pa.—Corn-sheller and hay-fork. Q 12. 672

416n Wright, James W., Minneapolis, Minn.—Grain-harvester and binder. N 22. 672

416o Superior Mower & Reaper Works, A. H. Mower & Son, Proprietors, Westfield, W. Va.—Mowing—*chme without cog-wheels or shafts; a worm-wheel or the axle drives a double-threaded steel screw, which directly operates the knife. P 16. 672


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Machines, Implements, and Processes of Manufacture.

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 10.
31

Machines, Implements, and Processes of Manufacture.

473 Champion Machine Co., Springfield, Ohio.—Reapers, mowers, rakers, and droppers. Q 15. 672

474 Hanes, John, Moorestown, N. J.—Corn-sheller. T 23. 672

475 Lewis, James H., Detroit, Mich.—Potato-digger. N 15. 672

476 Richardson Manufacturing Co, Westerly, R. I.—Combined mower & reaper, hay-tedder, etc. M 14. 672

478 Collyer, Robert H., Chicago, Ill.—Flax machinery. S 10. 672

479 Lee, James, Jr., Stonersville, Berks Co., Pa.—Hay-tedder with cr without rake. Merit; superior manner in which it turns the hay. L 15. 672


481 Gulick, Edwin, New Brunswick, N. J.—Safety-seat for harvesters and mowers. T 8. 672

483 Vermont Farm Machine Co., Bellows Falls, Vt.—Gleaner, horse, hay, and grain rake. K 15. 672

484 Dunn Edge Tool Co., West Waterville, Me.—Scythes, axes, grass-hooks, hay, straw, and corn knives. K 24, 672

485 Riggs, M. B., Palmyra, N. Y.—Potato-digger. L 26. 672

486 Stevens, Ansel, Gorham, Maine.—Mower. T 21. 672

487 McMentry, John, Lexington, Ky.—Reaper and mower. P 17. 672

488 McPherson, D., Caledonia, N. Y.—Automatic grain-binder. R 17. 672

489 Patrons' Manufacturing Association, Indianapolis, Ind.—Direct draft mower. L 25. 672

490 Aultman, C., & Co., Canton, Ohio. Q and R 22. 672

a "New" Buckeye mower. 672
b Improved Buckeye mower. 672
c Improved Buckeye mower and dropper. 672
d Improved Buckeye mower and table-rake reaper. 672

491 Stratton & Collum, Meadville, Pa.—Self-feeding machines. S 25. 673

492 Sandwich Manufacturing Co., Sandwich, Ill. 673

a Harvester. 672
b Self-feeding corn-sheller. 672

c The Adams and French harvester differs from other riding and binding machines in not using canvas or belts, and cuts and elevates grain, wet, green, or dry. There are many good reasons why this harvester is considered by experienced mechanics and farmers to possess many excellences, which have been recently added in the various improvements, some of them being entirely new, giving it very decided advantages. First, it uses no canvas or belts; the vibrating rakes carry the grain uniformly, evenly, and with great accuracy. Second, the raking apparatus is peculiarly constructed, so that it cannot be affected by weeds or dampness; and this feature the farmer will recognize. Third, it has capacity for three bundles when time presses; this capacity is of very great importance, as time is money, especially in the Western States, where this machine is mostly sold.

It is manufactured in Sandwich, Ill., and principally sold in Kansas, Nebraska, Illinois, Missouri, Iowa, and Oregon. The Adams patent self-feeding power corn-sheller, known as picker-wheel machine, is a strictly automatic corn-shelling machine. The corn is shelled from the cob in much the same way it would be done by hand, and without subjecting the ear to any undue pressure, in consequence of which the cobs are not broken and mixed with the grain and the kernels are not cracked and ground. The annual production of corn is immense; and to properly and expeditiously prepare it for our market is a herculean task, but, aided by these thorough and cleaning shellers, the corn is rapidly made ready, and is in the best possible condition, the quality of the work being above just criticism. To this is added the adaptability of the machines to all qualities of corn, frosted, sound, or soft, and performing a great amount of work in a given time, with a given power, leaving the cob whole, suitable for fuel when needed, and the corn perfectly clean. The self-feeding is a saving of much labor and considerable expense, and commends the machine wherever introduced. The farmers' shelter is a compact little machine, but cannot take the place of the self-feeders being designed for individual use, avoiding the delays of making use of self-feeders, often owned by a number, who are compelled to wait one on another. S and T 20-21.

493 Rue, George W., Hamilton, Ohio. N 15. 672

a Garden-cultivator. 670
b Potato-digger. 672

c Self-raking reaper and mower. 672

494 Pritz, A., & Sons, Dayton, Ohio. S 16. 672

a Grin-drill. 670
b Field-roller. 671
c Self-raking reaper and mower. 672

The Centennial Dorsey self-raking reaper and mower, combined with corn-sheller and rake. A. Pritz & Sons, manufacturers, have added to this reaper a perfect controllable self-rake, and one that can be operated by the driver to rake off at will, or the sheaf can be held as long as desired.
The "Centennial Dorsey" will be made with five rakes, either of which can be made to rake the sheaf or act as a reel, as the driver may see fit. The reason when left alone, will make one sheaf every revolution of the rakes, but the driver can instantly and very easily make any rake make a sheaf. In heavy grain a sheaf of sixty bushels may be made of an acre, from five to five sheaves in every sixteen feet of ground gone over, and in light grain the rakes can be held until the proper amount of grain may be on the platform. The Centennial Dorsey rake being under the control of the driver, any size sheaf can be made. This reaper is strong and durable; has no side draught; has none weight on the rakes and drive-wheel; is easily managed, being entirely automatic and under the control of the driver.

495 Harbert & Raymond, Philadelphia, Pa. Po. 10. 672

a Mowers and hay-rakes. 672
b Threshing-machine and clover-mill. 673
c Portable steam-engine, portable saw-mill, and hay-cutters. 674

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 12-14.

a Burt's Union horse-power. The pivots and axles are all hardened and durable. Large truck wheels, and runs easy and at low elevation. Lawn mower, recent invention. 672

b Rocking saw-table, pendulum-balanced, rapid and safe, for sawing cord-wood. Wood-splitter, cheap, simple, and efficient. 674


a Rake. 672

b Corn-sheller, stalk-cutter, hand-saw-mill. 674

c Chun. 675

498 Richardson, William H., Philadelphia, Pa.—Corn-husking machine, machine for cutting standing corn and husking. T. 22. 673

499 Pitts, H. A., Sons, Manufacturing Co., Chicago, Ill.—Thresher, separator, and cleaner, horse-power. S 19. 673

500 New Era Manufacturing Co., Elmwood, Ill.—Grain-grader, grain-separator, smut ball extractor, scrouer, and wheat-brush machine. T. 23. 673


502 Keller, Henry, Sank Centre, Minn.—Farm mills. T. 25. 673

503 Kiibler, N., Pittsfild, Ill.—Farm mills. M. 25. 673

504 Freeman & Clark, Racine, Wis.—Farm mill; grain and seed separator. T. 28. 673

505 Birdsell Manufacturing Co., South Bend, Ind.—Thresher, cleaner, huller, etc. L. 18. 673

506 Ellis, Hoffman, & Co., Pottstown, Pa.—Endless chain horse-power threshers and cleaners. L. 11-12. 673

507 Lidy, Geo. F., & Co., Waynesboro', Pa.—Fanning-mill, grain and seed separator. T. 26. 673

508 Albion Coffee-Huller Co., New York, N. Y.—Coffee hulling, polishing, and separating machine. O. 22. 673

509 Brayle, James, Buffalo, N. Y.—Threshing-machine and double pinion horse-power. T. 7 and 8. 673


a Grain-drill and shovels. 671

b Grain-fan and seed-separator. 673

511 Case, J., & Co., Racine, Wis.—Threshing-machine. T. 9. 673

512 Tubbs, Hoyt, Osceola, Pa.—Grain separator and cleaner, separator and fanning-mill. S. 8. T. 23. 673

513 Pierpont, Wm., Salem, N. J.—Threshing-machine with grain and seed separator. S. 7. 673

514 Stone, Sarah M., & Porter, Samuel G., Lancaster, Pa.—Grain-fan. T. 27. 673


a Horse-power, threshers and cleaners, threshers and shaker, cutting boxes. 673

b Corn-shellers. 674


517 Heberlein & Sons, Lansdale, Pa.—Horse-powers, threshers, separators, and cleaners. O. 7. 673

507 Cartrite, Barnard, Norwalk, Ohio.—Fanning-mill, box of grain and fixtures. T. 28. 673

508 Kenosha Fanning-Mill Co., Kenosha, Wis.—Fanning-mill. S. 28. 673

509 Miller, A. S., Republic, Ohio.—Fruit-ladder. T. 23. 673


511 Spencer, L., Martin's Ferry, Ohio.—Thresher and cleaner, double cleaners, horse-power, etc. O. 8. 673


513 Nichols, Shepard, & Co., Battle Creek, Mich.—Grain-thresher, separator, and cleaner. K. 7 and 8. 673

514 Kenyon, Silas R., Newark, N. J.—Corn-husking machine. S. 26. 673


516 Cockle Separating Manufacturing Co., Milwaukee, Wis.—Separating machines. Q. 11. 673

517 Hagerstown Steam Engine and Machine Co., Hagerstown, Md.—Grain threshing, separating, cleaning, and bagging machine. K. 26. 673

518 Harder, Minard, Cobleskill, N. Y.—Railway horse-power, threshers and cleaner, model of railway horse-power. M. 7. 673

The two Grand Gold Medals were awarded Harder's two horse-power, and thresher and cleaner, at the great National Implement Trial, Auburn, N. Y., for "low and easy movement of the horses, fifteen rods less than one and one-half miles" travel per hour; thorough and conscientious workmanship and material in every place; nothing slighted; mechanical execution of the very best kind, as shown by official report of Judges, distributed at column M 7, Agricultural Hall, International Exhibition.


a Agricultural implements. 673

b Freezers. 675

518 Read, Calvin D., & Ellis D., Ayer, Mass.—Corn-sheller. N. 22. 673

5118 Wakeman, R., Port Deposit, Md.—Hay or cotton press. M. 10 and 11. 673

5112 Scarrowd, H. V., Philadelphia, Pa.—Cotton-gin and feeder. L. 14. 673

5114 Bassett, Nathan, Philadelphia, Pa.—Cotton-gin and fanning-machines. T. 23. 673


5116 Cardwell, J. W., & Co., Richmond, Va.—Rice-thresher. K. 7. 673

5118 Jones, John A., Mt. Pleasant, Del.—Potato-assorter. L. 27. 673

5119 Sheeler, Buckwater, & Co., Royers Ford, Pa.—Horse-power and threshing-machine. K. 10-11. 673

520 Kahnweiler, David, New York, N. Y.—Cotton-seed huller. S. 11. 673

For locations of objects, indicated by letter and figure, see Key to Notations, p. 6; ground plan, p. 10
Machines, Implements, and Processes of Manufacture.

512. Judkins, Mark D., Osasko, Minn.—Self-sucking grain-separator. T. 8. 673
523. Westinghouse, G., & Co., Schenece-
tady, N. Y.—Grain-threshing machine. T. 28. 673
The exhibitor claims these advantages: a complete cylinder and concave, no loosening of teeth, unusual separating capacity, and perfect cleaning apparatus.
524. Pumphrey, W. F., Fairfield, Iowa.—Seed-hull and grain-separator. S. 7. 673
525. Wood, O. K., & Co., West Chazy, N. Y.—Grain and seed separator and fanning-mill combined. T. 28, wall. 673
   a. Endless chain, two horse-power, for general purposes.
   b. Drag sawing-machine, feed-cutters, etc. 674
   a. Grain thresher, separator, and cleaner. 673
   b. Portable farm-engine. 673
Mounted railway tread-power and circular wood-saw. Notable features of power, centre balance, elevation easily varied when running, wrought iron, centre roller drive, motion controlled by governor, runs steady with belt off, least traverse wheels, remarkable durability, greatest power at given elevation, never removed from truck, etc. 674
529. Blymeyer Manufacturing Co., Cincin-
   a. Thresher and cleaner, corn-cob crushers, etc. 673
   b. Corn mills, steam-engine, sugar-evaporator, etc. 674
530. Wagoner, Elijah, Westminster, Md.—Feed-cutter and masticator. S. 7. 673
531. Evans & Baird, West Chester, Pa.
   a. Horse-railway power and thresher. 673
   b. Dairy churn and power. 675
531. Rankin Manufacturing Co., Alle-
gheny, Pa.—Hand and power meat-chop-
ers, sausage-stuffers, portable engines, etc. L. 12. 674
532. Post, C. C., Burlington, Vt.—Imple-
ments for making maple sugar. C. 24. 674
533. Slocum, W. H., & Bro., Philadel-
phia, Pa.—Apple-parer and corer, meat-
cutter, raisin and currant cleaner. T. 23. 674
534. Hughes, H. D., Radnor, Pa.—Flour barrel. A. 22. 674
535. Evans, Wm. P., Malvern, Pa.—Wheat-feeder, oscillating engine, etc. J. 25. 674
536. Mosher, A. J., Portland, Me.—Bag-
holder. A. 27. 674
537. Best, John, Lancaster, Pa.—Agricultu-
ral engines. K. 8. 674
538. Branden Manufacturing Co., Bran-
den, Vt.—Howe scales. P. 23. 674
539. Frederick, L. W., Hall, Ind.—Wagon. S. 23. 674
533. Fairbanks & Ewing, 715 Chestnut st., Philadelphia, Pa.—Scales (manu-
facturers, E. and T. Fairbanks & Co., St. Johnsbury, Vt., railroad track, weigh-lock, hay, coal, platform, and counter scales of all descriptions, fine gold and druggists' scales; also improved test-
ing-machines for ascertaining the strength of materials, etc. Principal warehouses: Boston, New York, Philadelphia, Balti-
—Automatic incubator for hatching eggs. B. 23. 674
535. Cooper, J. G., Scranton, Pa.—Wagon-spring brake. S. 20. 674
536. Donner & Suhl, San Francisco, Cal.—Hay and stook cutter. M. 23. 674
537. Skinner & Wood, Erie, Pa.—Boiler and engine. K. 8. 674
538. Chandler & Taylor, Indianapolis, Ind.—Farm-engine and saw-mill. R. 11 and 12. 674
539. Boyer, Wm. L., & Bro., Philadel-
phia, Pa.—Farm grit-mills, railway horse-power, feed-cutter, lawn-mowers, saw-table, broom-winder. R. 24. 674
540. Nittinger, A. jr., & Son, Philadel-
phia, Pa.—Butchers' machinery, tools, and supplies. T. 24. 674
541. J. C. Hoadley Co., Lawrence, Mass.
—Portable steam-engines. L. 7. 674
542. Empire Portable Forge Co., Troy, N. Y.—Portable fan-blowing forges for
farms. T. 22. 674
—Tree pruner. Q. and R. 23. 674
544. West Grove Manufacturing Co.
West Grove, Pa.—Liquid atomizer. N. 10. 674
545. Wharry, John R., Moundsville,
West Va.—Vegetable and fruitlicer. N. 21. 674
546. Ross, John, Williamsburg, N. Y.
—Grain-mills, paint and drug mills, etc. R. 23. 674
547. Hotsenpiller & Co., Springfield,
Ohio.—Hominy-mill. M. 21. 674
548. Corbett, A., Hicksville, N. Y.
—Poultry incubator. C. 24. 674
549. Bergner, George, & Co., Wash-
ington, Ill.—Apple and peach parer, ap-
pie cutter andlicer. R. 20. 674
550. Smith, John M., & Sons, Philadel-
phia, Pa.—Cedar water-tank, Scotch mashinng-machine, valve for brewers and malt-houses. M. 12. 671
551. R. V. Vanderbilt, Henry S., Washing-
ton, D. C.—Lifting-jack. T. 17. 674
552. Stoddart, J. C., Lockport, N. Y.
—Steam calliope. (Estab. end of Main Tran-
sact.) 674
553. Dederick, P. K., & Co., Albany,
N. Y.—Hay and cotton presses, bale-tie
machines, coal-tubs, dumping-car, brick and tile machine, etc. Q. 10. 674

For classes of exhibit, indicated by numbers at end of entries, see Classification, pp. 12-14.
544 Furst & Bradley Manufacturing Co., Chicago, Ill.—Plows, harrows, hay-rakes, etc. Breaking and old-ground plows, sulky or riding plows, gang-plows, corn-cultivators, sulky hay-rakes, etc.


550 Dickey, A. F., Racine, Wis.—Fan-mills, for cleaning all kinds of grain perfectly separating all foul substances; also grades the grain, putting best out at the side of the fan, and balance in front; also cleans and separates all kinds of seeds. Will pay for itself in one season's use. Send for catalogue and prices. T 27.


554 Hazard, Thomas, Wilmington, Ohio.—Straw-cutters, O 22.

555 Bruner, M., jr., Fremont, Ohio.—Ladder. L 19 and 12.


560 Foster, Calvin A., Fitchburg, Mass.—Meat-chopper and apple-parer. S 93.

560a Nevins, Wm., Titusville, Pa.—Combined machine for marking, ridging, planting, etc.; potato-digger. L 22. 76.


566a Wakeman, R., Port Deposit, Md.—Power-press. Q 11.


566f Ross, John, Williamsburgh, N. Y.—Flour-mills, farm-mills, paint-mills, and mixers. R 23.


566i Cooper, I. G., Scranton, Pa.—Hay and straw cutter. J 7.


566k Baugh & Sons, Philadelphia, Pa.—Mills for crushing and grinding bones, minerals, woods, etc. K 25.


567b Skinner, E. W., Sioux City, Iowa.—Adjustable sugar-cane crusher. T 12.


567g Morse, Dudley, Norwich, N. Y.—Hay-fork and wagon-jack. H 23.


574 For presses for paper, cloth, etc., see Machinery Hall, E 39.

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 10.
a Feed-cutter, straw-cutter for paper-mills. 674
b Crank paddle-churn. 673
575 Treat, J. A., Cleveland, Ohio.—L 12.
a Washing boiler, and automatic blind gnv.
674
b Factory churn. 675
576 Speakman, Miles, & Co., West
a Corn-sheller, insect-destroyer, pruning-shears, etc.
674
b Butter-worker and butter-printing table. 675
—Milk-tubes. M 12. 675
Silver patent tubes for milking cows without using the hands. No stripping required, saving time and labor. Set of four sent postpaid on receipt of two dollars. Also, capon and veterinary instruments.
578 Packer, Charles W., Philadelphia, Pa.—Ice-cream freezers. O 12. 675
579 Simmons & Sons, Bloomington, III.—Ice-cream freezer. M 10. 675
581 Olmstel, John W., Northport, N. Y.—Ice-cream freezer. M 10. 675
582 Weinhagen, H., New York, N. Y.
—Cream gauges, grape-sugar test, wine-testing apparatus, and dairy fixtures. M 12. 675
—Churns. M 11. 675
584 Koehler, J. G., Philadelphia, Pa.—Cedar-ware, churns, measures, etc. M 10. 675
585 Clement & Dunbar, Philadelphia, Pa.—Cedar-ware, churns, and ice-cream freezers. O 11. 675
—Horizontal ice-cream freezer, cucumber-wood pumps. O 11. 675
587 Carter, Henry C., New York, N. Y.
—Butter-pail. M 10. 675
588 Markham, H. C. & D. C., Lyons
Falls, N. Y.—Curd-sink. M 12. 675
589 Hollister, King, & Young, Factory
Point, Vt.—Shipping boxes. M 12. 675
—Ice-cream refrigerator and ice-cream shipping-apparatus. O 12. 675
586a Fisher, J. H., Chicago, Ill.—Refrigerator. K 11. 675
586c Chick, W. H. & Co., St. Louis, Mo.
—Churns, egg-beater, and ice-cream freezers. M 11. 675
587 Keen & Hagerty, Baltimore, Md.
—Ice-cream freezers, cake-mixer, and egg-beater. O 10. 675
588 Emmert, William P., Freeport, Ill.—Butter-churns, tread-power, etc. M 12. 675
589 Elliget, James, Cleveland, Ohio.
—Bottles, kegs, mugs, and pitchers. M 10. 675
—Butter-worker. L 11. 675

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 19-14.

591 Rogers, Francis P., Philadelphia, Pa.—Milk-cans, pans, buckets, strainers, butter-kettles, etc. L 11. 675
591a Anchor Manufacturing Co., Philadel-
phia, Pa.—Barrels and kegs. 1 26. 675
591b Judge, Owen, Scranton, Pa.—Bar-
rel-heads. J 28. 675
591c Dibble, Andrew J., Franklin, N. Y.
—Churns, milk-pans. L 8. 675
591d Downs, W. H., East Newport, Maine.—Churns. L 11. 675
591e Hollister, King, & Young, Factory
Point, N. Y.—Butter package. M 12. 675
592 White Mountain Freezer Co., La-
conia, N. H.—Ice-cream freezer, ice-crusher. M 4. 675
592a Ellisworth, John T., Barre, Mass.—Oscillating churn. M 11. 675
592b Pianegan, A. J., Minneapolis, Minn.—Butter-package. M 10. 675
592c Burkhardt, Geo. J., & Co., Philadel-
phia.—Cedar reservoir and dye-tub. M 17. 675
592d Le Valley, Darius A., Pawtucket, R.
—Revolving milking-stool. H 17. 675
—Ice cream can holder. L 12. 675
592f Seed, Frederick, Cincinnati, Ohio.
—Churn. L 11. 675
592g Guernsey, Daniel, Watertown, N. Y.
—Gilt-edge milk-pans and cooler. L 10. 675
592h Shaw, Philander, Scituate, Mass.
—Butter-working machine, butter-mould, and stamp, M 12. 675
592i Cornish & Curtis, Port Atkinson, Wis.—Rectangular churn and butter-worker; without floaters or agitators of any kind; durable, and easy to work. Endorsed by prominent dairymen everywhere. M 11. 675
592j Murdoch, Albert L., Boston, Mass.
—Dairies of the different breeds of cattle. H 17. 675
592k Justice, L. B., Philadelphia, Pa.—Machine for making ice cream, water ices, frozen fruits, etc. O 10. 675
The celebrated "Blanchard Churn" has been proved and im-proved and approved for over a quarter of a century, and over a hundred thousand of them are now in successful operation. It is simple, durable, effective, and cheap. Send to the manufacturers for churns, agencies, or descriptive circulars. "Get the best." 675
592m Thompson, S. W., jr., Detroit, Mich.—Barrel-shooks. C 20. 675
592n Hardin, L. S., Louisville, Ky.—New method of setting milk for making butter. M 12. 675
592o Ettlersond, John W., Churchillville, Pa.—Churn, butter-worker, and cream-regulator. M 11. 675

UNITED STATES.

Machines, Implements, and Processes of Manufacture.
Agricultural Engineering and Administration.

603 Ashley, H. A., Springfield, Ohio.—
Ditching-machine. D 20. 680

604 Bean, H. & B. F., Pawling, Pa.—
Picket fence. D 24. 680

605 Ripley, Theodore, Hallowell, Maine.—Shovel scraper. C 20. 680

606 Pressley, G. W., Hammonton, N. J.—
Stump-puller and rock-lifter. C 17. 680

607 Murdock, John, & Son, Posevyle, Ind.—Wheat ricker. M 15. 680

608 Bowen, C. M., Maine Avenue, N. J.—
Stump grub, and rock extractor. D 17. 680

610 Randolph, Theodore F., Morris-
town, N. J.—Ditcher and excavator. C 18. 680

609 Hall, S. W., Elmira, N. Y.—Fenc-
ing-machine, machine-made worm-fence, bracket, and wire fences. O 23. 680

611 Cotton, A. C., Vineland, N. J.—
Stone and stump extractor. D 17. 680

612 Drake & Parmley, Painesville, Ohio.—Fence-post base. D 18. 680

13 Rhodes & Waters, Elyria, Ohio.—
Post-hole digger. C 19. 680

614 Starbuck, Nathan, Wilmington, Ohio.—Mounted ditcher. C 17. 680

615 Thompson, Woodard, Gardiner, Me.—Self-loading and unloading hod-road scraper, model of scraper, and model of railway joint. C 19. 680

616 Leatherbarrows, John, Philadelphia, Pa.—Wrought-iron and wire fenc-
ings. D 17. 680

617 Pioneer Iron Works, Brooklyn, N. Y.—Portable iron railroad and steam road-roller. D 22. 680

618 Landis, Israel L., Lancaster, Pa.—
Fence and gate models, step-ladder. B 22. 680

619 Frey, Abram, Philadelphia, Pa.—
Portable fence. B 23. 680


621 Treat, J. A., Cleveland, Ohio.—
Carriage gate. (Outside of Agricultural Building.) 680

618 Chicago Scraper and Ditcher Co., Chicago, Ill.—Scraper and ditcher for roads, making, repairing, and excavating. C 20. 680

619 Potts, William W., Swedeland, Pa.—

620 Rumford Chemical Works, Providence, R. I.—Fertilizers, bone charcoal, etc. K 21. 681

621 Josiah J. Allen’s Sons, Philadelphia, Pa.—Guano, bone, and other fertil-
izers. D 28. 681

624 Fisher, W. A., Bryn Mawr, Pa.—
Fertilizers. D 26. 681

622 Bradley Fertilizer Co., Boston, Mass.—Fertilizers. H 28. 681

624 Jarvis & Hooper, Detroit, Mich.—
Fertilizers. B 26. 681


624 United States Fertilizing & Chemical Co., 40 Chestnut street, Phila-
delphia, Pa.—Phosphatic salts, bone, and fertilizers. Sole owners of Pratt’s patent “acid grinding” process, by which the greatest percentage of available bone phosphat-
e of lime is obtained. The “national soluble bone” manufactured under this process is guaranteed to contain not less than from 28 to 33 per cent, of available bone phosphate of lime. Also manufac-
turers of agricultural chemicals generally. C 28. 681

625 Baugh & Sons, Philadelphia, Pa.—
Raw bone superphosphate, ground raw bones; nitrogen. C 28. 681


627 Ames, Manning, & Ames, Hagers-
town, Md.—Buffalo-bone meal for agricul-
tural purposes. C 26. 681

628 Crocker, L. L., Buffalo, N. Y.—
Fertilizers for grain, tobacco, cotton, etc., plant-food for plants and flowers. C 26. 681

629 Peck Brothers, Northfield, Conn.—
Bone dust. D 28. 681

630 Franklin Glue Works, Pittsburg, Pa.—Bone-dust, etc. K 20. 681

631 White, Geo. E., 159 Front Street, New York, N. Y.—Superphosphates, acid bone-black, raw materials for fertilizers, and agricultural chemicals. This house furnished all the fertilizers purchased by the Centennial Commission for its farms where the mowers and reapers are tested. D 28. 681

632 Swift & White, New York, N. Y.—
Superphosphate of lime, ground bone, dried ground meat, and refined pondent. C 28. 681

633 Pacific Guano Co., Boston, Mass.—
Commercial fertilizers. A and B 28. 681

634 Mapes, Charles V., New York, N. Y.—Guano, bone, phosphate, etc. E 28. 681

635 Lister Brothers, Newark, N. J.—
Superphosphate of lime, guano, ground bone, bone charcoal, sulphate of ammo-
ia, agricultural salts, and other fertilizers. C 25. 681


638 Harrisonburg Fertilizer Co., Harris-
burg, Pa.—Flour of bone, ground bone, superphosphate, animal compost, and li-
bricators. B 25. 681

639 Walton, Whann, & Co., Wilmington, Del.—Artificial fertilizers, bone-meal, and ground bone. C 25. 681

640 Eyser, James, & Son, Cleveland (Ohio.)—Fertilizer, check, and neck- and rake fastenings. M 10. 682

For locations of objects, indicated by letter and figure, see Key to Notation, p. 6: ground plan, p. 10.
Agricultural Engineering and Administration.

640 Remington, E., & Sons, Ilion, N. Y.—Carriage gearing. P 29. 682
640a Drown, W. A., Philadelphia, Pa.—Umbrellas for wagons, carriages, and mowers. R 17. 682
640b Tibbles, George N., Jersey City—Power or speed traction engines. C 17. 682
641 Bradbury, Henry, Philadelphia, Pa.—Bucking boxes. I 26. 682
641a Higginson Manufacturing Co., Higganum, Conn.—Trucks. L 25. 682
642 Allen, R. H., & Co., New York, N. Y.—Farm cart, water barrel, garden bars, etc. Q and R 25. 682
642a Tubular Barrel & Truck Co., Jersey City, N. J.—Barrow and trucks, coating tubs. R 29-28. 682
644 Beecher, C. T., Waterbury, Conn.—Whittletree gear. N 22. 682
646 State of Massachusetts, Boston, Mass.—Maps and plans of farm buildings. E and P 23. 683
646a Jewett, Solomon W., Rutland, Vt.—Architectural models. D 24. 683
648 Bost, Caleb E., Davidson College, N. C.—Beehive. J 28. 683
648a Goldsmith, Francis J., Painesville, Ohio.—Invertible troughs. B 22. 683
648c Isham, Charles R., Peoria, N. Y.—Glass honey-boxes. A 37. 683
649 Gay & Bryant, Dresden, Ohio.—Portable digger. C 19. 683
651 Collings, E. Z., Waterford, N. J.—Cranberry-plants growing, representing cranberry-bog. C 20. 683
653 Lockwood, James L., & Co., Stamford, Conn.—Portable fruit-drier. C 24. 683
655 Murphy, R. R., Fulton, Ill.—Honey extractor, for removing honey from the comb. C 24. 683
656a Halderman, Frank, Mahanoy City, Pa.—Bird cage. K 7. 683
657 Murphy & Broom, Philadelphia, Pa.—Bird-cages, wire garden-furniture, rustic work, etc. C 36. 683
659 Harris, Milo, Jamestown, N. Y.—Domestic fruit-dryer, model of lumberkin and of coal-oil still. D 23. 683
660 Ryder, B. L., Chambersburg, Pa.—American drier or pneumatic evaporator. D 24. 683
661a Jones Fruit Evaporating Co., Chicago, Ill.—Pneumatic evaporator. C 23. 683
661b Eellsbury & Hayward, Winona, Minn.—Minnesota fruit and illustrations. C 24. 683
661c Cowder & Jones, Norristown, Pa.—Wind-mill with water-wheel. (Outside of building.) 683
661d Chapman, Frank W., Morrison, Ill.—Honey-extractor. A 27. 683
661e Millett, D. Caldwell, Holmesburg, Pa.—Live and box. C 25. 683
661g Chapman, John Winslow, Hyannis, Mass.—Barrel-heading, etc. A 22. 683
662a Bouscaven, G., Cincinnati, Ohio.—Model of apparatus to extract saccharine juices of plants by diffusion. T 22. 683
662b Deltz, George A., Chico Cal.—California fruit-dryer. C 18. 683
662c Ellis, Charles R., New York, N. Y.—Glass and marble tank. A 20. 683
663 Williams, John, South Haven, Mich.—Model of evaporator. D 24. 683
664 Goodrich, C. C. & F. W., Portland, Conn.—Tobacco-hook with wilting-frame and builders’ horse. Harvest your tobacco without laying it on the ground. D 25. 683
665 Kappe, W. J. H., Quincy, Ill.—Transportation coop for live poultry. D 25. 683
666 Hendryx & Eartholomew, Ansonia, Conn.—Bird cages and trimmings. D 25. 683
669 Elpher, Edmund, Montezuma, N. Y.—Grain-seed wreath-picture, representing the harvest of 1872. H 15. 683
669a Scantlin, Thos., & Sons, Evansville, Ind.—Sugar-evaporator, self-sealing oil-tank. C 23. 683
669b Kennard, Amos, Clearfield, Pa.—Cant-hook for rolling logs in saw-mills. M 14. 683
670 Foot, Scevill D., New York, N. Y.—Portable fruit-preserver. I 23. 683
671 Vermont Farm-Machine Co., Bellows Falls, Vt.—Sugar-evaporator, and fixtures for making sugar. K 15. 683

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
For locations of objects, indicated by letter and figure, see Key to Notation, p. 6; ground plan, p. 10.
UNITED STATES.

Veterinary Appliances.

698 National Horse Nail Co., Vergennes, Vt.—Horseshoe nails. B 24. 693

699 Gornes, John M., St. Louis, Mo.—Horseshoes. B 24. 693

700 Carroll, William, Philadelphia, Pa.—Horseshoes. B 24. 693

701 Day, Austin G., Seymour, Conn.—Horseshoes. B 24. 693


701b Ashbourne & Co., Philadelphia, Pa.—Cocoanut-cream oil and soap. 201

702 Tower, L. C., Chester, Pa.—Thermometers. A 16. 320

703 Collison, H. C., Dover, Del.—Syrup drip for measuring-vessels. S 25. 320


For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.


706 Protective Fire Apparatus Co., New York, N. Y.—Apparatus for extinguishing fires. (South side of Agricultural Hall.) 594

Agricultural Hall is protected by this apparatus.

The Protective Fire Apparatus consists of four systems:

System 1. Injecting into burning buildings or compartments of vessels pure carbonic acid gas.

System 2. Impregnating water with carbonic acid gas as it flows through the main water-pipe or fire-plugs, thereby throwing through the hose upon the fire a continuous stream of carbonic acid gas.

System 3. Throwing by hose-attachment impregnated water from the apparatus itself.

System 4. Injecting beneath the surface of oil or fluids carbonic acid gas.

All for the purpose of extinguishing fire.

706a Murtfeldt, Miss, Kirkwood, Mo.—Botanical specimens of Missouri. I 22. 729

707 Janes & Kirtland, New York, N. Y.—Ornamental fountain. (Intersection of nave and main transept.) 722
### GREAT BRITAIN.

(South of South Transept, east of Nave.)

<table>
<thead>
<tr>
<th>Agricultural, Animal, and Vegetable Products.</th>
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</thead>
<tbody>
<tr>
<td>Arbiculture and Forest Products.</td>
</tr>
<tr>
<td>1 Nicoll, Donald, London.—Starch and</td>
</tr>
<tr>
<td>200 compounds rendering fabrics and wood</td>
</tr>
<tr>
<td>200 unflammable; carbon combined with</td>
</tr>
<tr>
<td>200 caoutchouc, for the preservation of</td>
</tr>
<tr>
<td>200 wood and iron. 600</td>
</tr>
<tr>
<td>Agricultural Products.</td>
</tr>
<tr>
<td>2 Delf, W., Colchester.—Wheat. 620</td>
</tr>
<tr>
<td>3 Field, W., Liverpool.—Oats. 620</td>
</tr>
<tr>
<td>Animal and Vegetable Products.</td>
</tr>
<tr>
<td>5 Chapman, Edwin, &amp; Co., London.—</td>
</tr>
<tr>
<td>200 Koumiss, a beverage prepared from cow's</td>
</tr>
<tr>
<td>200 milk; koumiss extract, for converting</td>
</tr>
<tr>
<td>200 milk into koumiss. 652</td>
</tr>
<tr>
<td>6 Evans &amp; Stafford, Leicester.—Stilton</td>
</tr>
<tr>
<td>200 cheese. 652</td>
</tr>
<tr>
<td>7 Hooker, J., London.—A large tin of</td>
</tr>
<tr>
<td>200 milk which has been exposed to the air</td>
</tr>
<tr>
<td>200 for five years; also desiccated milk,</td>
</tr>
<tr>
<td>200 condensed milk, and other preparations</td>
</tr>
<tr>
<td>200 made with milk. 652</td>
</tr>
<tr>
<td>9 Green, John, London.—Gelatine for</td>
</tr>
<tr>
<td>200 cigar-boxes, printers, engravers, and</td>
</tr>
<tr>
<td>200 artificial-flower makers. 652</td>
</tr>
<tr>
<td>14 Lovey, Edward, Ponsnook, Cornwall.—</td>
</tr>
<tr>
<td>200 Beehives, with samples of honey and</td>
</tr>
<tr>
<td>200 wax. 654</td>
</tr>
<tr>
<td>15 Schneider, Edward Albert, London.—</td>
</tr>
<tr>
<td>200 Liquid essence of beef. 656</td>
</tr>
<tr>
<td>16 Nicoll, Donald, London.—Tea and</td>
</tr>
<tr>
<td>200 coffee combined with milk and sugar,</td>
</tr>
<tr>
<td>200 contained in soluble capsules for</td>
</tr>
<tr>
<td>200 distribution in single cups; aërated</td>
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<tr>
<td>200 beverages in vessels to allow rapid</td>
</tr>
<tr>
<td>200 distribution in single draughts;</td>
</tr>
<tr>
<td>200 preserved food. 656</td>
</tr>
<tr>
<td>17 Geyelin &amp; Co., London.—Concentrated</td>
</tr>
<tr>
<td>200 animal and vegetable food. 656</td>
</tr>
<tr>
<td>18 Goodall, Backhouse, &amp; Co., Leeds.</td>
</tr>
<tr>
<td>200 a Yorkshire relish sauce. 656</td>
</tr>
<tr>
<td>200 b Orange quinine wine. 660</td>
</tr>
<tr>
<td>19 Keen, Robinson, Bellville, &amp; Co.,</td>
</tr>
<tr>
<td>200 London.—Preparations from mustard,</td>
</tr>
<tr>
<td>200 barley, oats, etc. 656</td>
</tr>
<tr>
<td>20 Pratt, James, London.—Sauce. 656</td>
</tr>
<tr>
<td>200 a Essences of coffee and coffee with</td>
</tr>
<tr>
<td>200 chicory. 656</td>
</tr>
<tr>
<td>200 b Aërated waters. 650</td>
</tr>
<tr>
<td>200 c Chemical products. 200</td>
</tr>
<tr>
<td>200 d Flavoring extracts. 203</td>
</tr>
<tr>
<td>22 Jaap, J., Glasgow.—Curry powders.</td>
</tr>
<tr>
<td>200 656</td>
</tr>
<tr>
<td>23 Menier, Emile, London.—Chocolates and</td>
</tr>
<tr>
<td>200 cocoa. 656</td>
</tr>
<tr>
<td>23a Yuille, Andrew, Glasgow.</td>
</tr>
<tr>
<td>200 a Essences of coffee and chocolate,</td>
</tr>
<tr>
<td>200 coffee and milk, condensed milk. 656</td>
</tr>
<tr>
<td>200 b Vinegar. 660</td>
</tr>
<tr>
<td>23b Mellin, Gustav, London.—Non-far-</td>
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<tr>
<td>200 inaceous food for infants and invalids.</td>
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<tr>
<td>25 Mackay, John, Edinburgh.—Fluid</td>
</tr>
<tr>
<td>200 flavoring quintessences and articles</td>
</tr>
<tr>
<td>200 of diet for table use. 656</td>
</tr>
<tr>
<td>26 Ledger, H., &amp; Co., London.—Pure</td>
</tr>
<tr>
<td>200 extract of meat. 656</td>
</tr>
<tr>
<td>27 Ball, James, London.—Sauce. 656</td>
</tr>
<tr>
<td>28 Lea &amp; Perrins, Worcester.—Sauce.</td>
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<tr>
<td>37 Crosse &amp; Blackwell, London.—Pickles—</td>
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<tr>
<td>200 sauces, vinegars, jams, jellies,</td>
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<tr>
<td>200 marasades; potted and preserved meats;</td>
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<tr>
<td>200 preserved fruits, soups, and fish;</td>
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<tr>
<td>200 oils for salads, etc.; preserved</td>
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<tr>
<td>200 provisions, sausages, vegetables, etc.</td>
</tr>
<tr>
<td>38 Field, W., Liverpool.—Oatmeal. 657</td>
</tr>
<tr>
<td>38a Richards &amp; Co., London.—Self—</td>
</tr>
<tr>
<td>200 raising flour. 657</td>
</tr>
<tr>
<td>39 Hunter, John, &amp; Son, Woodhall Mills—</td>
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<tr>
<td>200 Juniper Green, near Edinburgh.</td>
</tr>
<tr>
<td>200 Oatmeal and pot barley. 657</td>
</tr>
<tr>
<td>40 Plunkett, John, &amp; Co., P o r t l a n d</td>
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<tr>
<td>200 Works, Dublin.—Malt for brewing and</td>
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<tr>
<td>200 distilling, and roasted malt for</td>
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<tr>
<td>200 coloring and flavoring porter and ale.</td>
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<tr>
<td>41 McCann, John, B e a m o n d  Mills,</td>
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<tr>
<td>200 Drogheda.—Oatmeal and groats. 657</td>
</tr>
<tr>
<td>42 Maw, Thomas, Leeds.—</td>
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<tr>
<td>200 a Pickles and sauces. 656</td>
</tr>
<tr>
<td>200 b Syrups. 659</td>
</tr>
<tr>
<td>200 c Vinegar. 660</td>
</tr>
<tr>
<td>200 d Lozenges, baking powder. 661</td>
</tr>
<tr>
<td>42a Campbell, Thomas, Allenton, Pa.—</td>
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<tr>
<td>200 Malt and whiskey. 660</td>
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<tr>
<td>42b Haig, J., &amp; Co., Scotland.—Whisky.</td>
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<tr>
<td>200 660</td>
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<tr>
<td>43 Corry, William, &amp; Co., Belfast, Ireland.</td>
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<tr>
<td>200 a Aëratated waters from Cromac Springs,</td>
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<tr>
<td>200 Belfast. 660</td>
</tr>
<tr>
<td>200 b Non-metallic valves; plungers,connec-</td>
</tr>
<tr>
<td>200 tions, taps, and cylinder-linings. 660</td>
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<tr>
<td>44 Burke, Edward &amp; John, Dublin. —</td>
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<tr>
<td>200 English ales, Dublin stout, Irish and</td>
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<tr>
<td>200 Scotch whiskies. 660</td>
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<tr>
<td>44a Grant, Thomas, The Distillery,</td>
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<tr>
<td>200 Maidstone.—Cherry brandy. 660</td>
</tr>
<tr>
<td>44b Cork Distillery Co., Cork.—Whisky.</td>
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<tr>
<td>200 660</td>
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<tr>
<td>45 Wright, Herbert, &amp; Co., Diamond</td>
</tr>
<tr>
<td>200 Brewery, Dover.—Pale ale and stout. 660</td>
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<tr>
<td>46 Ind, Coope, &amp; Co., Burton-on-Trent,</td>
</tr>
<tr>
<td>200 Staffordshire.—Ale. 660</td>
</tr>
<tr>
<td>46a Inman Brothers, H u d d e r s f i e l d ,</td>
</tr>
<tr>
<td>200 Yorkshire.—Aëratted waters. 660</td>
</tr>
<tr>
<td>46b Bewley &amp; Draper, Dublin.—Aëratted</td>
</tr>
<tr>
<td>200 waters. 660</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Machines, Implements, Engineering, and Administration.

47 Bindley & Co., Burton-on-Trent.—Ales. 660
47a Tennent, J. & R., Glasgow.—Bottled ales. 660
48 Mott & Co., Leicester.—Cowslip wine. 660
49 Muir, Jas., & Son, Calton Hill Brewery, Edinburgh.—Ales. 660
49a Cantrell & Cochrane, Dublin.— Ginger ale, aerated beverages, etc. 660
50 Johnson & Co., Canterbury.—Pale ale. 660
50a Murree Brewery Co., Punjab, East India.—Bottled ales. 660
51 Pendock Brothers, Bristol.—Cider and perry. 660
52 Richardson, Earp, & Slater.—Trent and Northgate Brewery, Newark-upon-Trent.—Ale. 660
53 Stevens, Thomas, Wrexham, North Wales.—Ornamental confectionery, birthday and christening cake, meringue, medallions, ornamental sugar-stand; rich cake. 661
53a Fry, Joseph Storrs, & Sons, Bristol.—Chocolate and cocoa, and specimens illustrative of the process of manufacture. 661
54 Gissing, Anthony S., & Sons, Eye, Suffolk.—Fancy biscuits, baking powder. 661
54a Allen, Frederick, & Sons, London.—Confectionery and medicated confectionery. 661
54b Smith, Thomas, & Co., London.—Wedding-cakes, ornaments, novelties for parties. 661

Textile Substances of Vegetable or Animal Origin.

56 The Mill Hill Wool and Rag Extracting Co. (limited), Mill Hill Works, Huddersfield.—Wools made from old rags, etc. 667
57 Bowes, John L., & Bro., Liverpool.—Raw materials used in the woollen and worsted trade. 667
58 Smith, David, & Co. (limited), Kensington Works, Halifax, Yorkshire.—Cleaned wools and wools extracted from waste products. 667

Machines, Implements, and Processes of Manufacture.

60 Wills, Arthur Winkler, Park Mills, Birmingham.—Hoes, axes, etc. 670
62 Fison, J. P., Teversham Works, Cambridge.—Agricultural machinery; vertical steam engine and boiler, chaff cutter, centrifugal pump, steam threshing-machine and chain harrow, models of portable steam engine, movable hut, centrifugal pump, and furrow plows. 670
63 Fussell, James, Sons, & Co., Mell's Iron Works, near Frome, Somersetshire.—Edge tools used in agriculture. 670
64 Wilkinson, William, & Sons, Spring Works, Sheffield.—Sheep and garden shears. 672
64a Greening, N., & Sons, Warrington.—Braided wire for rice, flour, and other mills. 673
64b Brown, J. B., & Co., London.—Galvanized wire netting, etc. 673
66 Lloyd, T., & Sons, London.—Flour mills, dressing machines, grinding mill, and coffee mills. 673
66a Cheavin, G., Boston, Lincolnshire.—Filters. 673
66b Barnard, Bishop, & Barnards, Norwich.—Galvanized wire netting. 673
66c Needham & Kite, London.—Filter press for clarifying liquids. 673
67 Crook, Graham, & Co., Halifax.—Boilers. 674
67a Kay & Hilton, Liverpool.—French burr millstones for wheat grinding. 674
68 Clark & Dunham, London.—Mill stones and lubricators. 674
68c Chronometers for measuring and weighing grain. 322
68a Wellock, J., & Co., Bradford.—Waterproof material for cart and wagon covers. 682
69 Aveling & Porter, Rochester, Kent.—Agricultural locomotive engine, locomotive crane engine, steam road roller wagons for road locomotive engines. 682
70 Neighbour, G., & Sons, London.—Beehives and bee furniture. 683
71 Barnard, Bishop, & Barnards, Norwich.—Stable fittings. 683
72 Lovey, Edward, Cornwall.—Beehives. 683
73 Colthurst, Symons, & Co., Bridgewater.—Scouring bricks. 106
74 Star Plate Universal Polishing Powder Co., London.—Polishing powder. 106
75 Jaap, J., Glasgow.—Artificial yeast. 200
76 Higgin, T., & Co., Northwich.—Salt. 200
77 Harper, Twelvetras, & Co., London.—Soap powder. 201
78 Rawlinson & Son, Prescot.—Ultramarine, smalts, etc. 202
79 Eastwood & Co., London.—Red terra cotta chimney shafts. 206
80 Phillips, J., & Co., Devonshire.—Terra cotta bricks and drain pipes. 206
81 Johnson & Co., Sussex.—Terra cotta. 206
82 Edwards, J., & Son, Burslem.—Ironstone white ware and fancy decorated goods. 210
83 Edwards, J., Fenton.—Porcelain and ironstone china. 213

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
NEW ZEALAND.

(East Aisle, Columns 1 to 5.)

Agricultural Products, Textile Substances.

Agricultural Products.
1 Banks, E. H., Christchurch. — Oats and other cereals. 620
2 Wood, W. D., Christchurch. — Wheat. 620
4 Ruddenklan, J. G., Addington, Canterbury. — Wheat. 620
5 Wilkins, Robert, Christchurch. — Perennial rye grass and cocksfoot seed. 624

Textile Substances of Vegetable or Animal Origin.
6 Peter, W. S., Anama, Ashburton, Canterbury. — Merino wool. 667
7 Bealey, Samuel, Canterbury. — Merino and Romney Marsh wool. 667
8 Rutherford, A. W., Amuri, Nelson. — Merino wool. 667
10 Wason, J. Cathcart, South Rakaia, Canterbury. — Wools. 667
11 Hall, John, Horoiata, Canterbury. — Merino wool. 667
12 Rickman, F. M., Rangiora, Canterbury. — Romney Marsh wool. 667
13 Braithwaite, Arthur, Hutt, Wellington. — Romney Marsh wool. 667

NEW SOUTH WALES.

(East Aisle, Columns 1 to 5.)

Animal and Vegetable Products.

Animal and Vegetable Products.
1 Fallon, James T., Albury. — Wines. 660
2 Munro, A., Bebeah, Singleton. — Wines. 660
3 Carmichael, G. L. & J. B., Porphyry, Williams River. — Wines. 660
4 Brecht, Carl J. P., Rosemount, Demon. — Wines. 660
5 Powell, Edward, Richmond. — Wines. 660
6 Parnell, Montague, West Maitland, Hunter River. — Wines. 660
7 Wyndham, Wadham, Bukkulla, Inverell. — Wines. 660
8 Wyndham, George, Branxton, Hunter River. — Wines. 660
9 Doyle, J. F., Kaludah, Lochinvar. — Wines. 662

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
SOUTH AUSTRALIA, JAMAICA.

SOUTH AUSTRALIA.

(East Aisle, Columns 1 to 5.)

Machines, Implements, and Accessories of Manufacture.

<table>
<thead>
<tr>
<th>Machines, Implements, and Accessories of Manufacture.</th>
<th>3 Saunders, Robert, Manager of the Burra Burra Copper Mine, near Adelaide. —Model of improved ore dresser. 503</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 South Australian Commissioners, Adelaide.—Reaping Machine. 672</td>
<td>4 Hancock, H. R., Moonta Copper Mines, near Adelaide.—Jigging machine. 501</td>
</tr>
<tr>
<td>2 South Australian Commissioners, Adelaide.—Castings from South Australian iron ores. 111</td>
<td></td>
</tr>
</tbody>
</table>

CAPE OF GOOD HOPE.

(South of South Transept, east of Nave.)

Agricultural, Animal, and Vegetable Products, Textile Substances.

Agricultural Products.

1 Letterstedt & Co., Cape Town.—Wheat. 630
2 Clear, E., Cape Town.—Wheat. 630

Animal and Vegetable Products.

3 Dier & Dietz, Port Elizabeth.—Skins. 632
4 Barry, Arnold, & Co., Cape Town.—Wheat flour. 637

Textile Substances of Vegetable or Animal Origin.

5 Grewar, John W., Uitenhage.—Scoured wool. 667

6 Priest, W., Graff Reinet.—Fleece wool. 667
7 Rubidge, C., Graff Reinet.—Grease wool. 667
8 Stewart, A. C., & Co., Port Elizabeth.—Grease and scoured wool. 667
9 Court, P. W., Port Elizabeth.—"Fidus," snow-white, and grease wool. 667
10 Barry & Nephews, Cape Town.—Washed and scoured wool. 667
11 Barry, Arnold, & Co., Cape Town.—Washed and grease wool. 667
12 Dier & Dietz, Port Elizabeth.—Wool. 667
13 Barry & Newpews, Mossel Bay.—Aloes. 271

JAMAICA.

(South of South Transept, east of Nave.)

Pomology.

Pomology.

1 Thompson, Robert, Jamaica.—A succession of fruit by each steamer during the season, including oranges, limes, lemons, citrons, shadocks, forbidden fruit, ripley pines, sugar-loaf pines, black pines, bananas, mangoes, yams, coconuts, breadfruit, etc. 650

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Arboriculture and Forest Products.

1 Munro, D. R., St. Johns, N. B., Canada.—Collection of forest woods, shrubs, etc., evergreen and deciduous, indigenous to the province of New Brunswick, used for shipbuilding, constructional, cabinet, and ornamental purposes, polished, etc. Sixty-seven specimens, accompanied with foliage and cone, interesting and instructive to the student of nature. Collected and prepared by D. R. Munro.

2 Alder, M., Victoria, B. C.—Charcoal.


Pomology.


Agricultural Products.

11 Rennie, Wm., Toronto, Ont.  
   a Grains.
   b Seeds.

12 Morton, H., Guelph, Ont.—Oatmeal.

13 Wilson, Jas., Fergus, Ont.—Oatmeal.

14 Martin & Sons, Mount Forrest, Ont. —Oatmeal.


16 Scott & Co., Highgate, Ont.—Oatmeal.

17 McKay, Thomas, & Co., Ottawa, Ont.—Oatmeal.

18 Corn Exchange Association, Toronto, Ont.—Grain and oatmeal.

19 Weatherston, N., & Co., Toronto, Ont.—Grain.

20 Charlesworth, M., & Son, Egmondville, Ont.—Bar and shorts.

21 Morton, Geo., & Son, Knipton, Ont.—Malt.

22 Osborne, Wm., Hamilton, Ont.—Malt.

23 Slater, R. P., Galt, Ont.—Malt.

24 Northwood, Howard, Chatham, Ont.—Malt.

25 Kerr, J. R., Victoria, B. C.—Grass, oats, and wheat.

26 Tolmie, Dr., Victoria, B. C.—Wheat in the stalk.

27 Boyd, J., Victoria, B. C.—Grass and cereals.

28 Council of Agriculture, Montreal, Quebec.—Cereals.

29 Brodie & Harvey, Montreal, Quebec. —Corn, oatmeal, and buckwheat.

30 Advisory Board of P. E. Island, Charlottetown.—Cereals.

31 Canadian Commission.  
   a Corn-wheat grown by Indians of British Columbia, and cereals from Manitoba.
   b Indian or wild tea and wild hops from Manitoba.

32 Advisory Board of Nova Scotia.  
   a Cereals.
   b Seeds.


34 Muirhead & Gray, London, Ont.  
   a Barley and oatmeal.
   b Peas.


36 Downie, W., Saanich, B. C.—Hops.

37 Moses, D. S., Saanich, B. C.—Hops.

38 Wain, N., Saanich, B. C.—Hops.

39 Cook, Isaac, Saanich, B. C.—Hops.

40 Mann, J. W., Simcoe, Ont.—Grass and turnip seed.

41 Fuller, S. S., Stratford, Ont.—Flaxseed.

Land Animals.

42 Carnell, J. H., St. John, N. B.  
   a Stuffed birds and ducks.
   b Fur-bearing animals, etc.

   a Six cases Canadian birds.
   b One pair caribou.
   c Two caribou heads.
   d Two moose heads.
   e One black bear.

44 Norvell, G. F., Hamilton, Ont.—Stuffed birds.

45 Foley, C., Lindsay, Ont.—Stuffed birds.

Water Animals, Fish-Culture, and Apparatus.

46 Advisory Board of Nova Scotia.—Fisheries.
Animal and Vegetable Products, Textile Substances.

47 Crowe, A. H., Halifax, N. S.—Fishes. 641
47a McLeod, R. — Medusa head, star fish. 641
48 O'Leary, H., Richibucto, N. B. 641
a Salmon. 641
b Lobsters. 643
49 Mack, J. N., Halifax, N. S.—Smoked alewives. 642
50 Barber, J., Halifax, N. S. 642
a Canned mackerel. 642
b Canned lobsters. 643
51 Deas, J. S., Fraser River, B. C.—Canned salmon. 642
52 Noble, R. B., Richibucto, N. B. 642
a Mackerel, etc. 642
b Lobster. 643
53 Bain, J. D., Restigouche, N. B. 642
a Mackerel. 642
b Lobster. 643
54 Holbrook & Cummingston, New Westminster, B. C.—Canned salmon. 642
55 Christian, P., Halifax, N. S.—Canned lobsters. 643
56 Geological Survey, British Columbia.—Clam-shells used by Indians. 645
57 Erwin & Wise, British Columbia.—Isinglass. 646
59 Pitts, D. H., Halifax, N. S.—Reel for cod-fishing. 647

Animal and Vegetable Products.

60 Sharp, J. S., St. John, N. B.—Butter. 651
61 McLeod, R. E., & Co.—Cheeses. 651
62 Harvey, J., & Co., Hamilton, Ont.—Sheep-skins. 652
63 Crowe, A. H., Halifax, N. S.—Fish oils. 652
64 Netz, Christian. 652
a Lard. 652
b Pork and sausages. 652
65 Hatheway, F. A., St. John, N. B.—Moose and caribou heads. 652
66 Barnhill, B. B., St. John, N. B.—Moosehead. 652
67 Langley & Co., Victoria, B. C.—Oil. 652
68 Loggie, A., & Co., New Westminster, B. C.—Oodahcan or pure oil. 652
69 Doel, W. H., Toronto, Ont.—Hen’s nest. 653
70 Walsh, B., Halifax, N. S.—Pork. 656
71 Woodrell, W., Halifax, N. S.—Bf. 656
72 Belcher, J. W., Halifax, N. S.—Fruits in sugar. 656
73 Canadian Meat & Produce Co., Sherbrooke, Quebec.—Canned meats. 656
74 Bain, J. D., Restigouche, N. B.—Beef and soups. 656
75 Graham, John, Sussex, N. B.—Spiced rolled bacon. 656
76 Canadian Commission. 656
a Dried Indian berries. 656
b Indian bread. 661
76a Guthrie & Hevenor, St. John, N. B. 665
a Fruit preserves. 665
b Raspberry vinegar. 665
77 Mewhort, Jos., Montreal, Quebec.—Self-raising flour. 657
78 Parkyn, Jas., Montreal, Quebec.—Flour. 657
79 McDougall, John, Bowmanville, Ont.—Flour. 657
80 Wadsworth, J. P., Meaford, Ont.—Flour. 657
81 King, Joseph G., Port Hope, Ont.—Three samples gilt-edged, patent process flour; three samples gilt-edged flour; three samples patent process flour; three samples flour. 657
82 Corn Exchange Association, Toronto, Ont.—Flour. 657
83 Weatherston, N., & Co., Toronto, Ont.—Flour and meal. 657
84 Charlesworth, M., & Son, Egmondville, Ont.—Flour. 657
85 Brodie & Harvie, Montreal, Quebec.—Self-raising flour. 657
86 Catelli Bros., Montreal, Quebec.—Vermicelli and macaroni. 658
87 Spinnelli, M. R., Montreal, Quebec.—Macaroni and vermicelli. 658
88 Troop, O. V., & Co., Mammoth Vinegar Works, St. John, New Brunswick.—Vinegar. The various grades of vinegars from this factory are readily sold for medicinal, pickling, and culinary purposes in the maritime provinces. 660
89 Febur, Michel Le, Montreal, Quebec.—Vigars. 660
90 McLeod, McNabough, & Co.—Ales and porter. 660
91 Blackwood, R., & Co., Montreal, Quebec.—Champagne, cider, etc. 660
92 Croskill, G. H., Halifax, N. S.—Cordials. 660
93 Costin, P., Halifax, N. S.—Champagne cider. 660
94 Knight, J., Halifax, N. S.—Liquors. 660
95 Smith, R., & Co., Brantford, Ont.—Bottled wines. 660
96 Canada Wine-growers Association, Toronto, Ont.—Wines and brandies. 660
97 Hastings, James, Toronto, Ont.—Wines. 660
98 Farrell, A. P., Cayuga, Ont.—Wine. 660
99 Wilson, Charles, Toronto, Ont.—Ginger ales. 660
100 Waterhouse, Joseph, Chatham, Ont.—Ales and porter. 660
101 Labatt, John, London, Ont.—Ales and porter. 660
102 Davis, Thos., & Bro., Toronto, Ont.—Ales and porter. 660
103 Birely & Co., Hamilton, Ont.—Vinegar. 660
104 Casci, V., Toronto, Ont.—A wines. 660
b Plaster work. 660

Textile Substances of Vegetable or Animal Origin.

105 Nicol Bros., Belmont, Ont.—Flax. 666
106 Stahlischmidt & Co., Victoria, B. C.—Wool. 667

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 19-24.
Machines, Implements, Engineering and Administration.

107 Canadian Commission.—Indian wool from British Columbia. 667
108 Harvey, J., & Co., Hamilton, Ont.—Wool. 667

Machines, Implements, and Processes of Manufacture.
109 Richardson, Thos., Fergus, Ont.—Plow. 670
110 Acton Plow Co., Acton, Ont.—Plow. 670
111 Ross, George, Chatham, Ont.—Plows. 670
112 Monroe & Hogan, Seaforth, Ont.—Plow. 670
113 DuPeron, Chas., Stratford, Ont.—Harrow. 670
114 Gillis, George, Gananoque, Ont.—Harrow, cultivator, and harrow and cultivator combined. 670
115 Bell, Charles, Parkhill, Ont.—Plow. 670
116 Wilson & Piper, Strathroy, Ont.—Combined sulky-harrow and hay-rake. 670
117 Wilkinson, George, Aurora, Ont.—Furrow plows, wrought frame and iron plows. 670
118 McDonald, A. S., Osgoode, Ont.—Cylinder cultivator. 670
119 McLaurin, Edmund, Trafalgar, Ont.—Plow. 670
120 Yeandle, Thomas, Stratford, Ont.—Plows. 670
121 Grant, Peter, Clinton, Ont.—Horse-power pitchfork. 670
122 Connell Bros., Woodstock, N. B.—Plow. 670
123 Dennis, Rowland, London, Ont. a Plows. b Potato-digger. 672
124 D. W. John, Gananoque, Ont.—Harrow and cultivator. 670
126 Watson, John, Ayr, Ont. a Plows, roller. b Horse-power grain-drill, turnip-drill. c Grain-choppers, corn-sheller. d Straw-cutters, root-cutter and pulper. 674
127 Vessot, J. & S., Joliette, Quebec.—Combined sower, harrow, and roller. 671
128 Mann, James W., Simcoe, Ont.—Turnip-drill. 671
129 Martin, Stephen, Osgoode, Ont.—Potato-digger. 672
130 Gray, A. G., St. John, N. B.—Mower. 672
131 McKenzie, Wm., Charlottetown, P. E. I.—Potato-digger. 672
132 Harris, A., Son & Co., Brantford, Ont.—Mower, replacer and rake. 672
133 Sawyer, L. D., & Co., Hamilton, Ont.—Mower, replacer. 672
134 Green Bros., Waterford, Ont.—Single replacer. 672
135 Bawtenheimer, P. M., Hamilton, Ont.—Potato-digger. 672
136 Head, Thos., Dundas, Ont.—Potato-digger. 672
137 Elliot, Thos., Peterboro', Ont.—Combined hay-rake and loader. 672
138 Forsyth & Co., Dundas, Ont.—Combined mower and replacer, single replacer. 672
139 Sharnon & Foster, Stratford, Ont. a Mower and replacer combined. b Thresher and separator. 673
140 Massey Mfg. Co., Newcastle, Ont. a Mowing-machine and horse-rake. b Grain-crusher. 676
141 Selts, Hugh, Vienna, Ont.—Cidermills and presses. 673
142 Armstrong, E. F., Goderich, Ont.—Fanning-mill. 673
143 Haggert Bros., Brampton, Ont.—Horse-power separator. 673
144 Brickr, Jac., Berlin, Ont.—Threshing-separator. 673
145 Champion, A., Arkona, Ont.—Thresher and binder. 673
146 Wilson, Thos., Richmond Hill, Ont.—Fanning-mill. 673
147 Gerolamy, Wm. A., Owen Sound, Ont.—Fanning-mill. 673
148 Abell, John, Woodbridge, Ont. a Separator with carriers. b Portable engine. 674
149 Anderson, Alex., London, Ont.—Straw-cutters and hay-knives. 674
150 Luke & Tolton Bros., Guelph, Ont.—Straw-cutter, etc. 674
151 Maxwell, David, Paris, Ont.—Power and hand straw-cutters, root-cutters, and pulpers. 675
151a James, Jos., Forest, Ont.—Bagholder. 674
152 Ashley & Smith, Belleville, Ontario.—Manufacturers and sole assignees for the dominion of Canada of Fraser’s patent improved cheese- hoops and gaug-press. From live to fifteen cheeses may be pressed with one screw, each cheese receiving its full power; and one man can put ten cheeses to press after the hoops are filled as quickly as one man with the old press can put two cheeses to press. 675
153 Pitts, D. H., Halifax, N. S.—Horizontal churn. 675

Agricultural Engineering and Administration.
154 Strong, J. E., Newtonbrook, Ont.—Farm gate. 680
155 Mason, W. H., Guelph, Ont.—Crushed bones. 681
156 Attwood, A. C., London, Ont.—Beehive, etc. 683
157 Purdy & Green, Portland, N. B.—Lime. 103
158 Canadian Commission. a Tripoli earth from British Columbia. 104 b Head of a Waupette Indian, Manitoba. 312
159 Borthwick, W., Ottawa, Ont.—Mineral waters. 107
160 Gray, Young, & Sparling, Seaforth, Ont.—Salt. 20c

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Engineering and Administration.

<table>
<thead>
<tr>
<th>No.</th>
<th>Exhibitor</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>161</td>
<td>International Salt Co., Goderich, Ont.</td>
<td>Salt</td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>Coleman &amp; Gowanlock, Seaforth, Ont.</td>
<td>Salt</td>
<td></td>
</tr>
<tr>
<td>163</td>
<td>Harrison &amp; Evans, Goderich, Ont.</td>
<td>Salt</td>
<td></td>
</tr>
<tr>
<td>164</td>
<td>Rigg, Ben., Stratford, Ont.</td>
<td>Soap</td>
<td></td>
</tr>
<tr>
<td>165</td>
<td>McKelvey, Jas., St. Catharines.</td>
<td>Refrigerators</td>
<td></td>
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<tr>
<td>166</td>
<td>Canadian Commission.</td>
<td></td>
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<tr>
<td></td>
<td>a Indian yarn from B. C.</td>
<td></td>
<td>235</td>
</tr>
<tr>
<td></td>
<td>b Indian blankets from B. C.</td>
<td></td>
<td>237</td>
</tr>
<tr>
<td>167</td>
<td>Anderson, Alex., London, Ont., Canada</td>
<td>Bread-knives</td>
<td>281</td>
</tr>
<tr>
<td>168</td>
<td>Stephen, Alex., &amp; Son, Halifax, N. S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Brooms</td>
<td></td>
<td>286</td>
</tr>
<tr>
<td></td>
<td>b Pails</td>
<td></td>
<td>289</td>
</tr>
<tr>
<td>169</td>
<td>Brazil, Peter B., Barrie, Ont.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Sleigh</td>
<td></td>
<td>295</td>
</tr>
<tr>
<td></td>
<td>b Snow-plow</td>
<td></td>
<td>572</td>
</tr>
<tr>
<td>170</td>
<td>Bruce, Robt., St. Catharines, Ont.</td>
<td>Tree-pruner</td>
<td>726</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Metallurgy, Mining Engineering, Agricultural Products.

Minerals, Ores, Stone, Mining Products.
1. Laroché, A., Saulxures, Vosges. — Coal. 
17. Mailfert & Mathelin, Chartillon-sur-Seine, Côte d’Or. — Moulding sand for foundries. 
23. Durrschmidt, Lyons. — Emery in grains and powder. 

Metallurgical Products.
31. Terrenoise, La Vouéte, & Bessegges, Lyons. — Iron and steel castings. 
34. Secrétan, E., Paris. — Copper. 

Mining Engineering.

Arboriculture and Forest Products.

Pomology.

Agricultural Products.
5. Dumoutier, Ch., Claville, Eure. — Agricultural products. 

Water Animals, Fish Culture, and Apparatus.

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 18-19.
Animal and Vegetable Products.

10 Dupland, E., Ville-en-Bois, Loire-Inferieure.—Preserved sardines. 641
11 Jacquier & Saupiquet, Nantes.—Sardines in oil. 641
12 Maille & Tandreau, Paris.—Ancho- vies in oil. 641
13 Mare, C., Nantes.—Sardines. 641
14 Peltier & Paillard, Paris.—Sardines in oil. 641
15 Philippe & Co., Nantes.—Sardines in oil. 641
16 Terrien, Palais, Belle-Ile-en-Mer.—Sardines in oil. 641
17 Caillebotte & Dumagnou, Paris.— Sardines and pickled fish. 642
18 Dufour, A., & Co., Bordeaux.—Sardines. 642
19 Peltier & Paillard, Paris.—Sardines in oil. 642
20 Clement & Co., Paris.—Pears. 645

Animal and Vegetable Products.

21 Coupie, E., Roquefort Cheese-Facto- tory, Roquefort, Aveyron.—Cheese. 651
22 Bageau, H., Paris.—Waterproof glue for leather. 652
23 Corbel, Eug., & Co., Nantes.—Leather. 652
24 Clavé, Bertrand, Coulommiers, Seine-and-Marne.—Leather. 652
25 Burel, J., Paris.—Peltry; kid-skins. 652
26 Bayvet Bros., Paris.—Morocco, sheep, calf, goat, and kid skins. 652
27 Basset & Co., Paris.—Kid for shoes. 652
28 Allain, Jules, Paris.—Kid for shoes. 652
29 Leven, M., senior & junior, Paris.—Calf-skin. 652
30 Fortier, Beaulieu, Paris.—Leather for furniture. 652
31 Tréfousse & Co., Chaumont, Haute- Marne.—Leather and dyes for leather. 652
32 Sueur, F., jr., Paris.—Leather. 652
33 Sorro Bros., Millan, Aveyron.—Calf- skin. 652
34 COLLECTIVE EXHIBIT OF THE LEATHER MANUFACTURERS OF SAINT-SAENS, SEINE INFERIEURE.—LEATHER. 652

Lefebvre, Felix.
Lecourtis, Arthur.
Lemonnier, Jules.
Sergent, Edmond.
Fache-Have & Brother.
Frigot, Emile.
Lefebvre, Florentin.
Binet, Hippolyte.
Lenormand, Emile.
Morisset, Mrs.
Biot, Eugène.
Dumesnil, Paul.
35 Revillon Bros., Paris.—Peltries. 652
36 Daubin & Co., Paris.—Lard. 652
37 Duchesne Bros., Paris.—Morocco leather. 652
38 Peltier & Paillard, Paris.—Preserved meats. 656
39 Passion, Marc, Paris.—Preserved food. 656
40 Ségur & Obier, Périgueux, Dordogne.—Preserved food and paté de foie gras. 656
41 Vicat, J. H., Paris.—Mustard and pickles. 656
42 Terrien, senior, Palais, Belle-Ile-en- Mer.—Preserved food. 656
43 Mare, C., Nantes.—Green peas. 656
44 Lenoir, A., Paris.—Preserved game, poultry, etc.; patés. 656
45 Lecourt, Francois, Paris.—Preserved food. 656
46 Lantin, Augustin, Paris.—Preserved fruits and vegetables. 656
47 Lamarche & Veillon, Paris.—Preserved game and patés de foie gras. 656
48 Jacquier & Saupiquet, Nantes.—Preserved food. 656
49 Henry, Louis, Paris.—Patés de foie gras. 656
50 Grout, Jr., Paris.—Conserves. 656
51 Tivollier, Auguste, Toulouse.—Paté de foie gras. 656
52 Fau, J., Bordeaux.—Prunes. 656
53 Escoffier, J., Nice.—Preserved fruits. 656
54 Dronne, L. F., Paris.—Paté de foie gras and preserved meats. 656
55 Dione, A. C., Paris.—Preserved food. 656
57 Lamarche & Veillon, Paris.—Paté de foie gras. 656
58 Derivier, Julien, Paris.—Preserved food. 656
59 Dardeille & Co., Paris.—Preserved and dried vegetables. 656
60 Cormier & Véron, Paris.—Preserved food. 656
61 Colin, Joseph, Nantes.—Preserved food. 656
62 Chevalier, Appert, Paris.—Preserved food. 656
63 Caillebotte & Dumagnou, Paris.— Preserves 656
64 Boyer, P., & Co., Gignac, Hérault.— Truffles, capers, and olives. 656
65 Bornibus, Alexandre, Paris.—Mus- tard and pickles. 656
66 Bonfils Bros. & Co., Paris.—Preserved truffles. 656
67 Philippe & Co., Nantes.—Preserved food. 656
68 Fiton & Nouvialle, Bordeaux. a Preserved food and fruits. 666
b Liquors. 666
68a Barthe, G., Paris.—Flour. 657
69 Ecorcheville & Legrand, Paris. a Preserved fruits. 656
b Confectionery. 661
70 Dufour, A., & Co., Bordeaux. a Prunes. 656
b Wines. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Vegetable Products, Wines, Liquors.

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>City</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>71</td>
<td>Dandicolle &amp; Gaudin, Bordeaux.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>73</td>
<td>Maillé &amp; Tandeau, Paris.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>74</td>
<td>Lesage &amp; Pignard, Paris</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>75</td>
<td>Louit Bros. &amp; Co., Bordeaux.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>76</td>
<td>Mauprivez, A., Paris.—Tapioca.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>77</td>
<td>Say, C., Paris.—Refined Sugar.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>78</td>
<td>De jard in, E., Paris.—Orange syrup.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>79</td>
<td>Anthaune &amp; Sons, Bourget-les-Paris, Seine.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>80</td>
<td>Lefèvre &amp; Rémondet, Savigny-les-Beaune.</td>
<td>Beaune</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>81</td>
<td>Combier, J., Saumur, Maine-et-Loire.—Liquors.</td>
<td></td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>82</td>
<td>Chenu, Laffitte, &amp; Co., Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>83</td>
<td>Brizard &amp; Roger, Bordeaux.—Liquors.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>84</td>
<td>Passier, A., Sautenay, Cote d'Or.—Wines.</td>
<td>Cote d'Or</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>85</td>
<td>Gaillard, Dupuy, &amp; Co., Cognac.—Brandyes.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>86</td>
<td>Pinet, Castillon, &amp; Co., Cognac.—Brandyes.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>88</td>
<td>Montigny, de, &amp; Co., Reims.—Champagne wines.</td>
<td>Reims</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>89</td>
<td>Monthuclis, Franc, senior, Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>91</td>
<td>Meukow, A. C., Cognac.—Brandies.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>92</td>
<td>Merman, G. C., Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>93</td>
<td>Merman &amp; Maitre, Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>94</td>
<td>Merman, Jules, &amp; Co., Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>95</td>
<td>Mayer, Albert, Paris.—Liquors.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>96</td>
<td>Mercier, Eug., Epernay.—Champagne wines.</td>
<td>Epernay</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>97</td>
<td>Reignard, Paris.—Wines.</td>
<td>Paris</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>98</td>
<td>Promis, Justin, Bordeaux.—Wines and brandies.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>99</td>
<td>Poligny Society of Agriculture, Science, &amp; Art, Poligny, Jura.—Wines.</td>
<td>Poligny Jura</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>100</td>
<td>Poitevin, Ch., &amp; Co., Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>101</td>
<td>Rouillé, E., Bordeaux.—Wines.</td>
<td>Bordeaux</td>
<td>Wines, Liquors</td>
</tr>
<tr>
<td>102</td>
<td>Rojat, Jules, Nimes, Gard.—White wine vinegar.</td>
<td>Nimes</td>
<td>Wines, Liquors</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
137 Chiapella, Jérome, Bordeaux.—Wines. 660
138 Clavelle, Jules, Bordeaux.—Wines. 660
139 Clerc, J.B., Bordeaux.—Wines. 660
140 Collin, Ad., Chalons-sur-Marne.—Champagne wines. 660
141 Coudert, G., & Son, Limoges, Haute-Vienne.—Brandy. 660
142 Cunilfe, Dobson, & Co., Bordeaux.—Wines. 660
143 Curlier Bros. & Co., Paris.—Brandy. 660
144 Cusenier, E., & Co., Ornais, near Pontarlier.—Liquors. 660
145 Delyz & Doistau, jr., Pantin, Seine.—Liquors. 660
146 Thoreau, E., & Son, Chateau de la Chêne, near Saumur.—Champagne and red wines. 660
147 Tivet, B., Bordeaux.—Liquors and bitters. 660
148 Agricultural Union, Chateau-neuf, Charente.—Brandies. 660
149 Gourry & Co., Cognac.—Brandies. 660
150 Georget, J., & Co., Chalons-sur-Marne.—Champagne wines. 660
151 Giojuzza & Giobertini, Paris.—Wines. 660
152 Gerin, E., Saint Jean d'Angéley, Charente.—Brandy. 660
153 Garros, J.L., Bordeaux.—Wines. 660
154 Garnier, P., Noyon, Oise.—Liquors. 660
155 Gaérad, D. G., & Co., Cognac.—Brandies. 660
156 Frois, Leo, & Co., Bordeaux.—Wines. 660
157 Fournier, Jules, Epernay, Marne.—Champagne wines. 660
158 Fournier, A., Chateau de Figeac, Gironde.—Wines. 660
159 Foucher, L., & Co., Cognac.—Brandies and liquors. 660
160 Dessandier, F., & Co., Jarnac-Cognac.—Brandies. 660
161 Detrie-Grandjean, Saint Loup-sur-Semeuse, Haute Saône.—Kirschwasser. 660
162 Ditey, E., Paris.—Wines. 660
163 Dolin, Mrs., Chambéry, Haute Savoy.—Vermouth. 660
164 Druelle, Reims.—Champagne wines. 660
165 Dubois, E., & Co., Saint Jean d'Angéley, near Cognac.—Brandies. 660
166 Duquenel, Paris.—Wines and brandies. 660
167 Duret, Jules, & Co., Cognac.—Brandies. 660
168 Durozier, M., & Co., Cognac.—Liquors. 660
169 Laplante, Edard de, Guyotville, near Algeria.—Wines. 660
170 Faure, J., & Co., Cognac.—Brandies. 660
171 Faurie, J., sr., Narbonne.—Wines. 660

172 Ferret, Bros., & Co., Macon.—Wines. 660
173 Fil, Francois, Narbonne, Aude.—Wines. 660
174 Pisse, Thirion, & Co., Reims.—Champagne wines. 660
175 Seignouret Bros.—Bordeaux. a Wines and brandies. 660
b Olive oil. 660
176 Mestrezat & Co., Bordeaux. a Wines and brandies. 660
b Olive oil. 660
177 Reinhardt, L., & Co., Paris.—Bonbons. 660
178 Piardot, Alphonse, Paris.—Confectionery. 660
179 Chenut, P., Paris.—Confectionery. 660
180 Combet, Joseph, Paris.—Confectionery. 660
181 Mévier, Paris.—Chocolates. 660
182 Négre, Joseph, Grasse, Alpes Maritimes.—Confectionery. 660
183 Lombart, Paris.—Chocolates. 660
184 Marge, J., Lyons.—Pâtés. 660
185 Mottet, J., & Co., Marseilles.—Olive oil. 660
186a Chudaca, Léon, Alger.—Oil. 660
187a Plagniol, James de, Marseilles.—Olive oil. 660

Textile Substances of Vegetable or Animal Origin.

187 Chabert, J., & Co., Chomérac, Ardèche.—Raw silk. 668
188 Boudon, Louis, St. Jean-du-Gard, Gard.—Raw silk. 668
189 Arlets, Dufour, Lyons.—Raw silk. 668
190 Thomas, F., Pont des Charettes, Gard.—Céreons and raw silk. 668
191 Pellet, A. P., St. Jean-du-Gard, Gard.—Raw silk. 668

Machines, Implements, and Processes of Manufacture.

192 Rabache, A., Clunay-sur-Odon, Calvados.—Double plow. 670
193 Couture, Paris.—Stripping machines for textiles. 670
194 Druelle, Reims.—Corking apparatus for champagne wines. 670
195 Deny, Louis, Paris.—Cylinder press for sugar. 670
196 Maurice & Guerin, Epernay.—Corking machines. 670
197 Mabille Bros., Amboise, Indre and Loire.—Wine and oil presses. 670
198 Logette, Ay, Marne.—Clasps for bottles, and machines for using them. 670
199 Gervais, E., Bordeaux.—Corking machines. 670
200 Freal, Epernay, Marne.—Machines for filling bottles. 670
200a Dubois, Jules, St. Jean d'Angéley.—Bottling machine. 670
201 Fisse, Thirion, & Co., Reims.—Iron clamps and bottling apparatus. 670

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Machines, Engineering.

202 Mercier, Eug., Epernay.—Apparatus for vine-culture and for the manufacture of sparkling wines. 673
203 Malligand, Ed., jr., Paris.—Alcohol tester. 673
204 Pernollet, Jh., Paris.—Sieves, sorters, and root knives. 673
205 Tricourt, A., Reims.—Wine manufacturing machines. 673
206 Chenailler, Paris.—Evaporator. 673
207 Cicile, Larbre, Reims, Marne.—Machines for cleaning bottles. 673
208 Dornon, L., Lyons.—Gauzes for bolting-rooms and sieves. 674
209 Perard, V., Paris.—Sheep-shearing machine. 674
210 Fauqueux, A., La Ferté-Sous-Jouarre, Seine and Marne.—Mills. 674
211 Durvie, Ivry-la-Bataille, Eure.—Mechanical kneading-trough. 674
212 Scheidecker, Ch., Paris.—Shearing machines. 674
213 Roger, jr., & Co., La Ferté-Sous-Jouarre, Seine and Marne.—Mills. 674
214 Sensfelder, Arcueil, Seine.—Shearing machines. 674
215 Aubin & Baron, Paris.—Mills. 674
216 Bailly & Co., La Ferté-Sous-Jouarre, Seine and Marne.—Mills. 674
217 Bertrand, J., & Co., La Ferté-Sous-Jouarre.—Mills. 674

Agricultural, Engineering, and Administration.

218 Coignet, senior & junior, & Co., Paris.—Manure. 681
219 Midi Phosphate Manufacturing Co., Paris.—Phosphate of lime. 681
220 Jacquand, senior & junior, Lyons.—Animal charcoal, phosphates, etc. 681
221 Solfatare de Pozzuoli Manufacturing Co., Paris.—Artificial manure. 681
222 Sensfelder, Arcueil, Seine.—Artificial manure. 681
223 Tancrede Bros., Paris.—Animal charcoal. 681
224 Desfeux, Ph., Paris.—Models of agricultural sheds. 683

225 Brot, Leopold, Paris.
   a Furniture and mirrors with double shutters
      and triple front. 217
   b Mirrors with gilt frames. 219

For classes of exhibits, indicated by numbers at end of entries, see Classification pp. 12-14.
GERMANY.

(West of Nave, Columns 1 to 4.)

Forest, Agricultural, Vegetable, Animal Products.

Arboriculture and Forest Products.
1 Körper & Co., Mannheim.—Resinous products in a manufactured state. 623

Agricultural Products.
14 Aly, August, Hamburg.—Barley, oats, grits, buckwheat, etc. 620
2 Noll, Joh. Balth., Giessen.—Cigars. 623
3 Grosskopf, L., Koenigsberg.—Cigarettes. 623
4 Eckstein, A. M., & Sons, Göttingen.—Tobacco and cigarettes. 623
5 Gaus, August, Baden-Baden.—Tobacco and cigarettes. 623
6 Landfried, P. J., Rauenburg.—Cigars. 623
7 Scherzinger, W., Stollhofen.—Tobacco and cigarettes. 623
8 Lotzbeck Bros., Lahr.—Snuff and tobacco. 623
9 Naumann, L., Dresden.—Spices. 623
10 Muller, A., Dresden.—Cigarettes. 623

Animal and Vegetable Products.
13 Körper & Co., Mannheim.—Grease and oil. 623
16 Dessaauer, A., Aschaffenburg.—Parchment glue. 623
17 Winter, Fr., Offenbach-on-Main.—Ghee. 623
21 Leipsic Malt Factory, Schkeuditz, near Leipsic.—Malt. 623
22 Moskoph, Th., Fahr, near Neuwied.—Mustard. 623
24 Naumann, L., Dresden.—Extracts, essences, etc. 623
28 Schörke, A., Gorlitz.—Grape sugar, assorted syrups. 623

COLLECTIVE EXHIBIT OF GERMAN WINES. 660

29 Altenkirch, F., Lorch. 660
30 Dahlen, J. F. J., Lorch. 660
31 Germersheimer, Jac., Lorch. 660
32 Dahlen, F. K., Lorch. 660
33 Travers, Franz, Lorch. 660
34 Wittemann, Peter, Lorch. 660
35 Fendel, H. J., Lorch. 660
36 Jung, Joh. Ant., Assmanshausen. 660
37 Brück, Erwin, Assmanshausen. 660
38 Grün, Wilh., Assmanshausen. 660
40 Aumüller, Jac., Rüdesheim. 660
41 Brandmüller, J. B., Rüdesheim. 660
43 Dietrich & Co., Rüdesheim. 660
44 Dilthey, Sahl, & Co., Riödesheim. 660
45 Ehrhardt, C., Rüdesheim. 660
46 Ehrhardt, J., Rüdesheim. 660
48 Jung, J. J., Rüdesheim. 660
49 Jung & Co., Rüdesheim. 660
50 Krass, J. A., Rüdesheim. 660
51 Meuschel, J. W., sr., Rüdesheim. 660
52 Schulz & Reuter, Rüdesheim. 660
53 Winkel & Rothenbach, Rüdesheim. 660
54 Burgeff, N., Geisenheim. 660
55 Höhl Bros., Geisenheim. 660
56 Lade, Fritz, Geisenheim. 660
57 Quittman, A., Geisenheim. 660
58 Rothe & Thordrike, Geisenheim. 660
59 Metternich, Prince von, Johannisburg. 660
60 Forst, J., Johannisberg. 660
61 Klein, Joh., Johannisberg. 660
62a Germont, L. F., Winkel. 660
62 Müller, Goll., Winkel. 660
63 Cunibert, Baron von, Oestrich. 660
64 Pegg, Ernst, Oestrich. 660
65 Rasch, Oestrich. 660
66 Steinheimer, C. J. B., Oestrich. 660
68 Lauer & Krämer, Eltville. 660
69 Nielkens, A., Eltville. 660
70 Preusel & Bachmann, Eltville. 660
72 Schmidt & Kett, Eltville. 660
73 Kindlinger, V., Neudorf. 660
74 König, J. B., Rauenthal. 660
75 Siegfried, Rauenthal. 660
76 Rosenstein, B., Wiesbaden. 660
77 Zais, Wilhelm, Wiesbaden. 660
78 Diener, H., Hochheim. 660
80 Feist Bros. & Sons, Frankfort-on-Main. 660
81 Kehrmann, Fr., Coblenz. 660
82 Buhl, F. P., Deidesheim. 660
82a Jordan, L. A., Deidesheim. 660
82b Scheilhorn, Walbich. 660
83 Feis, Louis, Deidesheim. 660
84 Eckel Bros., Deidesheim. 660
85 Seyler, Fr., Deidesheim. 660
86 Frölich, F. A., Edenkoben. 660
87 Vornberger, J. M., Würzburg. 660
87a Labroise Bros., Neustadt-on-Main. 660
88 Lang, F. J., Würzburg. 660
89 Oppmann, J., Würzburg. 660
91 Valkenberg, P. J., Worms. 660
92 Langenbach, J., & Sons, Worms. 660
93 Bach, A. H., Mayence. 660
95 Dreydelsohn & Co., Mayence. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Wines, Textile Substances, Machines, Implements.

### DEPT. VI.—AGRICULTURE.

<table>
<thead>
<tr>
<th>Wines</th>
<th>Textile Substances</th>
<th>Machines, Implements and Processes of Manufacture</th>
<th>Agriculture Engineering and Administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>95a Saarbach, E., &amp; Co., Mayence.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95 Jäger &amp; Son, Rüdesheim.</td>
<td></td>
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</tr>
<tr>
<td>97 Meyer &amp; Coblenz, Bingen.</td>
<td></td>
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</tr>
<tr>
<td>98 Orb &amp; Weig, Westhofen.</td>
<td></td>
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</tr>
<tr>
<td>99 Herbster, J., Sulzburg.</td>
<td></td>
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<tr>
<td>100 Durlacher, S., &amp; Sons, Kippenheim.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>101 Schütt, A., Bühl.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>102 Rößler, A., Neuwieier.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103 Brogsitter, P. F., Ahrweiler.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>103a Kessler, C. E., &amp; Co., Esslingen.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104 Häusser, C. S., Hirschberg, Silesia.—Wine and cider.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105 Rhenish Sparkling Wine Co., Schierstein.—Wine.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>106 Herbrett &amp; Co., Mayence.—Wine.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107 Lindecke, A. G., Magdeburg.—Wines.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>107a Wetterhahn, G., Mayence.—Wines.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>108 Bäcker &amp; Fier, Treves.—Liqueurs and brandies.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>109 Behrens, Th., Kiel.—Wines and brandies.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Boyens, P. W., Tönning.—Liqueurs and spirits.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>111 Brumby, G., Luckau.—Bitters.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>112 Dammann, L., &amp; Cordes, Thorn.—Spirits, bitters, essences, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>113 Hoffmann, M. &amp; J., Pfalzburg.—Liqueurs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>114 Kadach, J., Berlin.—Bitters and cherry-juice.</td>
<td></td>
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<tr>
<td>115 Keiler, J. S., Dantzic.—Liqueurs.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>116 Landauer &amp; Macholl, Heilbronn.—Liqueurs.</td>
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<tr>
<td>117 Stein, G. &amp; L., Offenburg.—Liqueurs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>118 Stibbe, H., Cologne.—Liqueurs and essences.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>119 Underberg-Albrecht, H., Rheinberg.—Bitters.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120 Drouven, J., &amp; Co., Coblenz.—Liqueurs, arach punch-syrup.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>121 Gilka, J. A., Berlin.—Liqueurs and spirits.</td>
<td></td>
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<tr>
<td>122 Lehment, Fr. &amp; C., Kiel.—Liqueurs and spirits.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>123 Köpp, Th., &amp; Son, Wesel.—Spirit of vinegar and extracts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>124 Ulex, G. F., successors, Neuhau-son-on-the-Oste.—Bitters.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>125 Kantorowicz, H., Posen.—Liqueurs and fruit juices.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>126 Lazar Brothers, Königsberg, Prussia.—Fruit juices.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>127 Naumann, Fr., Delitzsch.—Liqueurs and fruit juices.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>128 Bernhardt, A., Breslau.—Essences and liquors.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>129 Schneider &amp; Schorn, Magdeburg.—Essence of Jamaica rum.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>130 Buck Bros., Lübeck.—Vinegar.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 10-14.
Forest, Agricultural, Animal and Vegetable Products.

### Arboriculture and Forest Products.

1. Weissmann, David, Adlersberg, & Isaac Leith, Přechinisko, Galicia.—Sounding-board wood. 660
2. Frankl, I. G. & L., Vienna.—Austrian timber for furniture manufacturers. 660

### Pomology.

4. Zierotin, Countess Gabriel von, Charles Pohl, chief gardener, Blündt, Maravić.—Gooseberry and currant bushes, two different fruits growing on the same stem. 610
6. Markó & Weyden, Budapest.—Turkish prunes. 611

### Agricultural Products.

7. Lyka, Demeter, Pázmánd, Hungary.—Wheat. 620
8. Solnitzky & Mittler, Brunn. 620
   a. Malt and barley. 620
   b. Pulses. 621
9. Gogl, Dr., Jr., Zeno, Krems.—Mustard. 623
10. Chleborad, Franz, Ladislav, Mrazditz.—Hops. 623
12. Tanzer Bros., Prague.—Hops. 623
13. Schwarz & Sons, Benjamin, Auschach, Bohemia.—Hops. 623
14. Schary, Johann Michael, Prague.—Hops. 623

### Water Animals, Fish Culture and Apparatus.

18. Topich, Antonio, Lissa, Dalmatia.—Preserved fish. 641

### Animal and Vegetable Products.

19. Kreitner & Sons, David, Hohenbruck, Bohemia.—Leather. 652
20. Izeineck, Adolph, Liechen, Bohemia.—Glove leather. 652
22. Ianesch, Edward, Klagenfurt, Karnten.—Leather. 652
23. Hoffman, I. and S., Klagenfurt, Karnten.—Leather. 652
24. Foges, I., Gaudenzdorf, near Vienna.—Leather, calf and goat skins. 652
25. Eckstein, H. M., Lieben.—Kid leather. 652
26. Cerinstein, Anton V., Pardubitz, Bohemia.—Cow leather and calf skin. 652
27. Breuer, Miromil, Elbeteinze, Bohemia.—Patent leather. 652
30. Suss, A. H., & Sons, Vienna.—Leather. 652
31. Schmitt, Franz, Rehberg, near Krems.—Leather. 652
32. Schmalzl, George, Gaudenzdorf, near Vienna.—Leather, skins. 652
33. Neuner, Christof, Klagenfurt and Trieste.—Leather. 652
34. Mehlsmidt, Franz, Prague.—Kid leather. 652
34a. Nachtmann, Jacob, Tannwald. 654
   a. Honey. 654
   b. Raspberry syrup. 659
   c. Wine and liquors. 660
36. Tschurtschenthaler, Alois, Botzen.—Conserved and dried fruits. 656
37. Sandwicher, Leopold, Gorzy.—Candied fruit. 656
37a. Gial, Josef Anton, Innbruck.—Condensed meat and milk. 656
38. Kaufmann, M., Brunn.—Moravian malt. 657
39. Solnitzky & Mittler, Brunn. 657
   a. Malt. 660
41. Rosenthal, L., Vienna.—Wheat, wheaten flour. 657
42. Chiozza, Luigi, Cervignano, near Trieste.—Maize products. 658
43. Frizi, Luigi, Trient.—Wine. 660
45. Auchmann, F., Marburg, Styria.—Champagne. 660
47. Achleb, Josef, The Farms, Kvasnai.—Liquor. 660
48. Abeles, Heinrich, Vienna.—Wine. 660
49. Magazzin, Matteo, Zara.—Liquors. 660
50. Luxardo, Girolamo, Zara, Dalmatia.—Liquors. 660
51. Lord & Co., F., Vienna.—Liquor. 660
53. Siebenburger Wine Association, Klausenburg.—Wines. 660
54. Cosmacendi, Antón, Zara.—Liquors. 660
55. Mumelter, Alois, Bozen.—Tyrolean wines. 660
56. Kriebhuber, Alois Edler von, Marburg, Styria.—Wine. 660
57. Königsdätler Bros., Neusatz, Hungary.—Spirit alcohol. 660
58. Ganz, Joseph, Dornberg, near Gorz.—Wine. 660
59. Fischer, Johann jr., & Franz Hubert, Presburg, Hungary.—Champagne. 660
60. Dreher, Anton, Kleinschwechat, near Vienna.—Beer. 660
61. Dalbello, Antonio, Spalato, Dalmatia.—Liquor. 660
62. Brewery Administration, Budweis, Bohemia.—Beer. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-15.
VI.—AGRICULTURE.

Animal and Vegetable Products, Textiles, Implements.

64 Borhegyi Bros., Gaya, Moravia.—Wine. 660
65 Wretzl, Michael, Marburg, Styria.—Wine. 660
66 A. Schwartzer's Successors, Edward & Emmerich Grossinger, Vienna.—Wine. 660
67 Sessler, Moritz & Leopold, Turnau, Hungary.—Wine. 660
68 Schnabel, Julius, Oravitz, Hungary.—Slivovitz brandy. 660
69 Schenkel, August, Gut Lukaufzen, near Luttenberg.—Wine. 660
70 Scarizza Giovanni, Spalato, Dalmatia.—Liquor. 660
71 Romer & Son, I., Vienna.—Wine. 660
72 Reiser, Dr. Othmar, Vienna.—Wine. 660
73 Prima Societa Enologica Dalmatia, Spalato, Dalmatia.—Wine. 660
74 Pokorny, Franz, Agram, Croatia.—Fruit distillery, wine. 660
75 Perko, Francis, Marburg, Styria.—Wine. 660
76 Noziecka, L. C., & W. Umgelter, Brunn.—Malt. 660
77 Mittler & Co., Brunn.—Malt. 660
78 Strakosch, Ignaz, Gross Seelowitz, Moravia.—Liquor essences. 660
79 Neuman & Sons, Emanuel, Waitzen, Hungary.—Vinegar essences. 660
80 Spreng, Fridolin, Graz.—Biscuits. 661
81 Brichita, Jacob, Trenesin, Hungary.—Juniper berries and oil. 662

Textile Substances of Vegetable or Animal Origin.
83 Russ & Co., M. H., Prague.—Hops. 666
84 Zeschks, L., Agram.—Rags. 666
85 Land & Forest Economy District Union, Neustadtl, Moravia.—Flax. 666
86 Narbuth, Johann, Palanka, Hungary.—Hemp. 666
87 Karolyi, Count Alois, Stampfen, Hungary.—Sheep wool in fleeces and rolls. 667
88 Hunyady, Count Emerich, Urmendi, Hungary.—Wool fleeces. 667
89 Sheep-wool Washing Co., Budapest.—Cleaned wool. 667

Machines, Implements, and Processes of Manufacture.
89 Auer, Josef, Senftenberg, near Krems.—Vine shears, gardeners' and insect scissors, pruning saw, and sheep shears. 670
91 Austrian Commission, Vienna.—Scythes and sickles. 672
92 Mosdorfer, Balthasar, Weiz, Styria.—Sickles. 672
93 Reibstein, Ignaz, Huben, Bohemia.—Beehives and utensils. 674

Agricultural Engineering and Administration.
94 Wärmer, Sigmund, Vienna.—Drain pipes. 680
95 Konstein, Gottfried, Prague.—Ether and essences. 681
96 Sheep-wool Washing Co., Budapest.—Potash. 681
97 Haas & Rosenfeld, Gaya.—Ether. 681

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.

(N. B.—Other Austrian Exhibits in this Department are installed in the Main Building, and catalogued in that volume.)
SWITZERLAND.

(Note.—The Agricultural Exhibit of Switzerland is installed in the Main Building, and catalogued in that volume.)

BELGIUM.

(Note.—The Agricultural Exhibit of Belgium is installed in the Main Building, and catalogued in that volume.)

NETHERLANDS.

(West of West Aisle, Columns 3 to 5.)

Agricultural, Animal, Vegetable Products.

<table>
<thead>
<tr>
<th>Class</th>
<th>Exhibitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arboriculture and Forest Products</td>
<td>Thyssen, C. J. F. — Sieve frames. 600</td>
</tr>
<tr>
<td></td>
<td>Kleintjes, J., Rotterdam. — Plant 100 years old. 631</td>
</tr>
<tr>
<td></td>
<td>Hulskamp, F. A., Amsterdam. — Cork. 604</td>
</tr>
<tr>
<td>Agricultural Products</td>
<td>Thorn, C. J. — Animal and Vegetable Products. 600</td>
</tr>
<tr>
<td></td>
<td>Goede, D., Alkmaar. — Cheese. 651</td>
</tr>
<tr>
<td></td>
<td>Vlieg, A. van, Bergambacht. — Cheese and butter. 651</td>
</tr>
<tr>
<td></td>
<td>Jong, M. &amp; K., Hoorn. — Edam cheese. 651</td>
</tr>
<tr>
<td></td>
<td>Heijnsbergen, P. van, Zaandam. — Liver-oil containing iodine and iron. 652</td>
</tr>
<tr>
<td></td>
<td>Klütgen, J. H., Rotterdam. — Bedfeelers. 653</td>
</tr>
<tr>
<td></td>
<td>Visser, J., Amersfoort. — Brown and white wax. 654</td>
</tr>
<tr>
<td></td>
<td>Surie, Widow J. W., &amp; Son, &amp; Co., Rotterdam. — Preserved eatables. 655</td>
</tr>
<tr>
<td></td>
<td>Nieuwenhuys, J. H., jr., &amp; Co., Amsterdam. — Conserved eatables in tins, boxes, and bottles. 656</td>
</tr>
<tr>
<td></td>
<td>Hoogenstraaten, D. A. J., Leiden. — Vegetables and fruit in cans and boxes. 656</td>
</tr>
<tr>
<td></td>
<td>Wolff, M. B., Amersfoort. — Flour, ground and unground. 657</td>
</tr>
<tr>
<td></td>
<td>Schober, J. H. S., Utrecht. — Flour. 657</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
### Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Product</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Van Marken, J. C., jr., Delft</td>
<td>657 Corn</td>
</tr>
<tr>
<td></td>
<td></td>
<td>660 Alcohol</td>
</tr>
<tr>
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<td></td>
<td>661 Corn Cakes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>662 Oil</td>
</tr>
<tr>
<td>32</td>
<td>Grootes, Pz. M., Westzaan.</td>
<td>658 Cacao</td>
</tr>
<tr>
<td></td>
<td></td>
<td>659 Chocolate, and chocolate.</td>
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<tr>
<td>34</td>
<td>Haagen, R. C. van, Utrecht.</td>
<td>658 Cacao, cacao-butter, and chocolate.</td>
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<tr>
<td>35</td>
<td>Egberts, B. H., Dalfsen.</td>
<td>658 SucCory</td>
</tr>
<tr>
<td>36</td>
<td>Duijvis, J., Koog-aan-de-Zaan.</td>
<td>658 Starch</td>
</tr>
<tr>
<td>37</td>
<td>Veenhoven, Schuringa, &amp; Co.,</td>
<td>658 Potato-flour</td>
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<td></td>
<td>Veldervank</td>
<td></td>
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<tr>
<td>38</td>
<td>Stoej van Marxveld, G., Baron, Vol-</td>
<td>658 Syrup in bottles.</td>
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<td>lenhoven.</td>
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<tr>
<td>39</td>
<td>Verweij, N., &amp; Co., Tiel.</td>
<td>658 Sugar of grape and potato-meal.</td>
</tr>
<tr>
<td>40</td>
<td>De Bont, M. J., Amsterdam.</td>
<td>658 Confectionery and chocolate, in forms and moulds.</td>
</tr>
<tr>
<td>41</td>
<td>Visser, J., Amersfoort.</td>
<td>658 Brown and white meal.</td>
</tr>
<tr>
<td>42</td>
<td>Pollen, L. P. M., Rotterdam.</td>
<td>658 Liqours</td>
</tr>
<tr>
<td>43</td>
<td>Schade van Westrum, J. C., Schiedam.</td>
<td>658 Gin.</td>
</tr>
<tr>
<td>44</td>
<td>Kiderlen, E., Delfshaven.</td>
<td>658 Alcohol and potash</td>
</tr>
<tr>
<td>45</td>
<td>Bal, J. J., Middelburg.</td>
<td>658 Red currant wine</td>
</tr>
<tr>
<td>46</td>
<td>Catz, S., Pekel, A.</td>
<td>658 Bitters and liquors</td>
</tr>
<tr>
<td>47</td>
<td>Groen, Gz. J. B., Amsterdam.</td>
<td>658 Bitters and wine</td>
</tr>
<tr>
<td>48</td>
<td>Stibbe, Lz. G., Kampen.</td>
<td>658 Fine liquors and bitters.</td>
</tr>
<tr>
<td>49</td>
<td>Nolet, J. J. G., Schiedam.</td>
<td>658 Gin and spirits</td>
</tr>
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<td>dam.</td>
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</tr>
<tr>
<td>51</td>
<td>Blankenheijm, J. J. M., &amp; Lede, C. A. E. van, Rotterdam.</td>
<td>658 Gin.</td>
</tr>
<tr>
<td>52</td>
<td>Hoppe, P., Amsterdam.</td>
<td>660 Gin, liquors, and distillations.</td>
</tr>
<tr>
<td>53</td>
<td>Bols, de Erven Lucas, Amster-</td>
<td>660 Fine liquors</td>
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<td>dam.</td>
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<tr>
<td>54</td>
<td>Oostra, G. Wildervank, Groningen.</td>
<td>660 Liquor and elixir.</td>
</tr>
<tr>
<td>55</td>
<td>Hofman, A. J. T., Woerdem.</td>
<td>660 Liquors, bitters, extracts, and spirits.</td>
</tr>
<tr>
<td>56</td>
<td>Wynnand, Fockink, Amsterdam.</td>
<td>660 Fine liquors.</td>
</tr>
<tr>
<td>57</td>
<td>Houtman, A., &amp; Co., Schiedam.</td>
<td>660 Gin</td>
</tr>
<tr>
<td>58</td>
<td>Valk, J. van der, &amp; Co., Delfshaven.</td>
<td>660 Gin made of grain double distilled.</td>
</tr>
<tr>
<td>59</td>
<td>Zuijkom, van Levert, &amp; Co., Am-</td>
<td>660 Amsterdam-Fine liquors, bitters, gin, brandy, etc.</td>
</tr>
<tr>
<td>60</td>
<td>Meder, J. J., Schiedam.</td>
<td>660 Swan gin</td>
</tr>
<tr>
<td>61</td>
<td>Levert &amp; Co., Amsterdam.</td>
<td>660 Liquors</td>
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<tr>
<td>62</td>
<td>Rademakers, A. C., Delfshaven.</td>
<td>660 Liquors.</td>
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<tr>
<td>63</td>
<td>Smits, F. H. M., Breda.</td>
<td>660 Strong beer</td>
</tr>
<tr>
<td>64</td>
<td>Van Dulken, Weiland, &amp; Co.,</td>
<td>660 Gin, brandy, and alcohol.</td>
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<td></td>
<td>Rotterdam.</td>
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<tr>
<td>65</td>
<td>Lensvelt, G., Gravenhage.</td>
<td>660 Table-biscuit, cake, ship-bread.</td>
</tr>
<tr>
<td>66</td>
<td>Ulrich, W. D., Rotterdam.</td>
<td>660 Ship-biscuit</td>
</tr>
<tr>
<td>68</td>
<td>Kruisvalsmulder, Cz. D., Amster-</td>
<td>660 Vegetable oils.</td>
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<td>dam.</td>
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<tr>
<td>69</td>
<td>Dutch Association for Encoura-</td>
<td>660 Flax and linseed.</td>
</tr>
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<td>gement of Flax Industry, Rottemam.</td>
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<tr>
<td>70</td>
<td>Gorter Brothers, Dokkum.</td>
<td>660 Flax</td>
</tr>
<tr>
<td>71</td>
<td>Van Casteel, A. F., Rotterdam.</td>
<td>660 Holland, Freeland, and Iceland flax.</td>
</tr>
<tr>
<td>72</td>
<td>Mulder, L., Arnhem.</td>
<td>660 Agricultural newspaper.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.

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**DENMARK.**

*(NOTE.—The Agricultural Exhibit of Denmark is installed in the Main Building, and catalogued in that volume.)*
Agriculture, Arboriculture, and Forest Products.

1 New Gellivara Co. (limited), Lulea.
   —Timber grown at the latitude of 67°
   N.; specimens of lumber. 660

Agricultural Products.

3 Fogelmark, Sixten, Ava, Lulea.—
   Cereals. 620
4 Hagendahl, C. A., Orebro.
   a Cereals. 620
   b Seeds. 624
5 Hofmeister, Ch., Ingelstad, Kristianstad.—
   Cereals. 620
6 Hultenberg, C. A., Borgholm.—Barley. 620
6a New Gellivara Co. (limited), Lulea.—
   Agricultural products. 620
7 Kalmar Agricultural Society, Westerkil.—
   Cereals. 620
8 Norbotten Agricultural Society, Lulea.—
   Agricultural products. 620
10 Platen, Count Carl von, Örbyhus.—
   a Cereals. 624
   b Seeds of forage plants. 624
12 Scheele, G. von, Kilanda, Göteborg.
   a Cereals. 620
   b Grass seeds. 624
14 Stenström, O. E., Gardsjö, Karlstad.—
   Cereals. 620
15 Upsala Agricultural Society, Upsala.
   a Cereals. 620
   b Seeds. 624
16 Westerbottens Agricultural Society, Umea.—
   Cereals. 620
17 Westmanlands Agricultural Society,
   Stenby, Strömsholm.
   a Cereals. 620
   b Seeds. 624
19 Orebro Agricultural Society, Orebro,
   Nora.—Cereals. 620
21 Berggren, D. & J., Stockholm.—
   Tobacco. 623
22 Dahl, P., Carlshamn.—Snuff. 623
23 Hennig & Papenhagen, Kalmar.—
   Chicory. 623

Water Animals, Fish Culture, and
   Apparatus.

27 Amundson, Mrs. C. M., Uddevalla.—
   Oyster anchovy. 642
28 Andersson, Gustaf, Fjellbacka.—
   Anchovy and sardines. 642
29 Bergström, H. C., Lysekil.—
   Anchovy and herrings. 642

30 Ericsson, N. O., Tangen, Lysekil.—
   Anchovies and herrings. 642
31 Hallgren, J. J., Gullholmen, Oroust.
   —Anchovies and herrings. 642
32 Royal Swedish Commission, Stockholm.
   a Pickled fish. 642
   b Instruments and apparatus for fishing. 647
33 Lundgren, P. W., Stockholm.—Preserved fish. 642
34 Lyselı, Aug., Lysekil.—Anchovies. 642
35 Nilsson, Edv., Grebbestad.—Preserved mackerel. 642

Animal and Vegetable Products.

38 Wästfelt, Carl C., Kölingsholm
   Mullsjö.—Rennet. 651
40 Ericsson, Anders, Stockholm.—
   Calfskins. 652
41 Johannesson, C. S., Stockholm.—
   Leather. 652
44 Frommel, C. J., Göteborg.
   a Preserved fruits. 656
   b Confections. 661
45 Wikström, Zacharias, Stockholm.—
   Preserved vegetables. 656
46 French Steam Flour Mills, Landskrona.—
   Flour and grit. 657
47 Scheele, G. von, Kilanda, Göteborg.
   —Flour and other products of grinding. 657
48 French Steam Flour-Mills, Ystad.
   —Flour and other products of grinding. 657
52 Berg, C. G., Karlshamn.—Punch and
   whisky. 660
53 Bergen, J. N. von, & Son, Karlshamn.—
   Punch. 660
54 Broddelius & Akerman, Göteborg.—
   Punch. 660
55 Cederlund's, J., Sons, Stockholm.—
   Punch. 660
56 Creutz, A., Mariefred.—Punch. 660
57 Dahlheim & Engström, Stockholm.
   —Punch. 660
59 Högstedt & Co., Stockholm.—Punch. 660
60 Moboda Manufacturing Co., Moboda.
   —Spirits made from lichens. 660
61 Tulldahl, A. H., Landskrona.—Pale
   ale. 660
62 Pettersson, Otto, Stockholm.—Punch. 660
63 Platin, C. G., & Co., Göteborg.—
   Punch. 660
64 Thalin, Waldemar, Nyköping.—
   Punch. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Machines, Implements, Engineering, and Administration.

65 Wallis, A. B., Dybeck, Ystad.—Ale. 661
65r Ulander, A., Upsala.—Punch. 660
66 Feith, H. J., & Son, Upsala.—Biscuits. 661
67 Royal Swedish Commission, Stockholm.—Dried bread. 661

Machines, Implements, and Processes of Manufacture.

69 Eklundh, L. P., Ulricehamn.—Plows. 670
70 Göteborg Machine Co. (limited), Göteborg.—Plows. 670
72 Petterson, C. E., Elfdalen.—Scythes. 672
73 Andersson, J., Orebro.—Cow and sheep bells. 675

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
### Arboriculture and Forest Products.

1. Holst, Chr., Ladegaardsdøen, Christiansia.—Samples of Norwegian wood. 620

2. Holmen's Sawing & Planing Mills, Drammen.—Grooved and tongued flooring boards and moldings. 620

3. Koldfossen's Bobbin Works, near Bergen.—Hubbs and bobbins of birch and alder, condenser props, etc. 630

4. Thams & Co., M., Orkedal.—Trunks of trees, planks, battens, staves, cornices, cases, etc. 630

### Agricultural Products.

7. Schiødt, Chr., Aker.—Wheat, rye, corn, and barley. 620

8. Holst, Chr., Ladegaardsdøen, Christiansia.—Cereals in ear and seeds. 620

9. Agricultural School, Aas near Christiansia. 620

10. Rosenkron, Baron, Rosendal.—Potatoes. 620

11. Stend Agricultural School. 620

12. Holst, Chr., Ladegaardsdøen, Christiansia.—Photographs of Telmark cows and description of the race. 631

### Land Animals.


14. Bergens Rögeri, Bergen.—Red herrings. 642

15. Board of Commerce, Bergen. 642

16. Board of Commerce, Alesund. 642

17. Board of Commerce, Alesund. 642

18. Hitl & Platou, Christiansia.—Ancho-"..." 642

19. Johnsen, Chr., Christiansund.—Salted and dried cod. 642

20. Mohn, Peter, Bergen.—White herrings. 642

21. Nordrock, Wm., Christiansia.—Ancho-"..." 642

22. Tellefsen, Mrs. Rina, Christiansia.—Ancho-"..." 642

23. Smith, Mrs. Gina, Christiansia.—Ancho-"..." 642

24. Søiland, L. B., Flekkefjord.—Preserved fish. 642

25. Dons, Henrik, Christiansia.—Fish and anchovies. 642

26. Helgesen, H. A., Aalesund.—Preserved salmon, lobsters, etc. 642

27. Ronneberg, Carl A., Aalesund.—Salt fish. 642

28. Hjortk., Fr., Fredrikstad.—Ancho-"..." 642

29. Lund, Georg, Christiansia.—Ancho-"..." 642

30. Thorne, Chr. Aug., Moss.—Ancho-"..." 642

31. Egidius, Peter, Bergen.—Herring and anchovies. 642

32. Bordewich & Co., Lyngør.—Fishmeal, fish-glue, caviar, fish-oil. 642

33. Dahl, Jens. O., Havøen.—Cod and herring nets, cod-lines. 642

34. Erichsen, Thomas, Bergen.—Fishhooks. 642

35. Fagerheim Net Company, Bergen.—Salmon and herring seines, cod, mackerel, and herring nets. 642

36. Kraasby Brothers, Aalesund.—Bait for cod-lines. 642

37. Falck, Ytter, Christiansia.—Norwegian fishing sled with implements. 642

38. Bergen Glass Works, Bergen.—Buoys and floats for fishing nets and lines. 642

### Animal and Vegetable Products.

39. Rosing's, A., widow, Christiansia. 651

40. Klem, Hansen, & Co., Trondhjem.—Leather and belting. 652

41. Meyer, Samuel B., Bergen.—Leather. 652

42. Hallen, J. P., Christiansia.—Leather. 652

43. Fossen's Tannery, Flekkefjord.—Leather. 652

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products, Implements, Engineering.

46 Dalen's Tannery, Flekkefjord.—Leather. 652
48 Haar & Wesnaes, Stavanger.—Preserved meats, etc. 656
49 Helgesen, H. A., Aalesund.—Preserved meats, etc. 656
50 Stavanger Preserving Company, Stavanger.—Preserved meats, beef, fowls, fish, milk, cream, etc. 656
51 Dons, Henrik, Christiania.—Preserved meats, game, poultry, soups. 656
52 Tellefsen, Mrs. Rina, Christiania.—Preserved game. 656
53 Norwegian Condensed Milk Company, Christiania.—Condensed milk. 656
54 Thorne, Chr. Aug., Moss.—Preserved meat and vegetables. 656
55 Norwegian Preserving Co., Mandal.—Preserved meats and vegetables. 656
56 Christiania Brewery, Christiania.—Pale ale. 656
57 Dahl, E. C., Trondhjem.—Pale ale. 660
58 Forseth, O. N., & Co., Christiania.—Pale ale. 660
59 Frydenlund Brewery, Christiania.—Pale ale. 660
60 Hamar Brewery, Hamar.—Pale ale. 660
61 Kongsberg Brewery, Kongsberg.—Pale ale. 660
63 Lysholm, Jorgen B., Trondhjem.—Norwegian brandy and punch. 660
64 Poulsen, H., & Co., Christiania.—Arrack punch. 660
65 Ruud, J. A., Christiania.—Pale ale from Moss brewery, Norwegian corn brandy. 660
66 Aass, P. L., Drammen.—Beer. 660
68 Wriedt, Chr., Drammen.—Beer. 660
69 Tandberg, Frants, Drammen.—Norwegian cordials. 660
70 Salicath, Oscar, Christiania.—Sugar-drops and punch. 660
71 Anisdahl, R. O., Skien.—Drops and peppermint. 662

Machines, Implements, and Processes of Manufacture.

72 Cathrineholm's Foundry, Fredriksdal.—Agricultural implements. 670
72a Stend Agricultural School.—Plows. 670
73 Rosing, Ulrik, Christiania.—Mask for killing cattle. 674

Agricultural Engineering and Administration.

74 Norwegian Fish Guano Company, Christiania.—Fish guano. 681
75 Bordewich & Co., Lyngvæer.—Fish guano. 681
76 Foyen, Sven, Tonsberg.—Fish guano. 681
77 Holst, Chr., Ladegaardsdøen, Christiania.—Norwegian artificial manure. 681
77a Foyen, Sven, Tonsberg.—Whale oil, stearine. (See Department II., Main Building.) 201
77b Board of Commerce, Aalesund.—Models of fishing boats. 594
77c Museum of Bergen, Bergen.—Models of fishing boats; fisherman's hut and ice store. 594

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
## Fruits, Agricultural, Animal, Vegetable Products.

### Arboriculture and Forest Products.
1. Favare, Marquis Delle, Palermo.—Sumac leaves. 602
2. Ronzano, Gaetano, Palermo.—Sumac. 602
3. Cernigliano, Vizzi Carmelo, Trapani.—Sumac leaves. 602
4. Castorina & Parlato, Catania.—Sumac. 602
5. Scala, Baron Sciacca della, Palermo.—Sumac. 602
6. Aula, Domenico, & Co., Trapani.—Sumac. 602
7. Special Committee of Salerno, Salerno.—Mimosa. 603
8. Chamber of Commerce and Arts, of Bari.—Sweet almonds, mustard seed. 605
9. Parlato, Luigi, Syracuse, Sicily.—Almonds. 605
10. Niceforo, Nicola, Catania.—Hazel nuts. 605
11. Elia, Antonino, & Sons, Catania.—Pistachio almonds, flax seed, hazel nuts, mustard seed. 605
12. Agricultural Committee of Palermo.—Collection of seeds. 605
13. Mazzullo, Cav. Luigi, Messina.—Dried nuts. 605
14. Council of Polizzi, Generosa, Palermo.—Avedane nuts. 605

### Pomology
15. Rossi, Cav. Cesard Leopardi, Comiso, Syracuse.—Olives. 611
16. Crispo, Monte Carlo, Catania.—Lemons, oranges. 611
17. Chamber of Commerce and Arts, of Bar.—Olives. 611
18. Lanzara, Raffaele, Salerno.—Lemons, oranges. 611

### Agricultural Products.
19. Ciaccio, F. Paul, Palermo.—Various grains. 620
20. Agrarian Colony of S. Martino, Palermo.—Grains. 620
21. Grande Latino, Baron Corrado, & Bros., Avola, Palermo.—Grain products. 620
22. Porcari, Baron Angiolo, Palermo.—Grain products. 620
23. Fornasa, Vincenzo, Cologna Veneta, Verona.—Various cereals. 620
24. Ferrarini Bros. & Co., Formigine, Modena.—Rice. 620

### Water Animals, Fish Culture and Apparatus.
25. Malinverni, Secondo, Vercelli, Novara.—Rice. 620
26. Socchiolini, Adone, Rome.—Mustard. 623

### Animal and Vegetable Products.
27. Avellino, Antonio, Leghorn.—Sardines in oil. 642
28. Stiaasi, Filippo, Bologna.—Eels. 642

### 29 Agrarian Committee of Chiavari
- a Cheese. 651
- b Fruits. 651
- c Wine and vinegar. 660

### 30 Guscetti, E., Milan.
- a Parmesan and Gorgonzola cheese. 651
- b Sausages. 656

### 31 Baldini, Agostino, & Co., Pavia, Lucca.—Sole leather. 652

### 32 Aste, D. Stefano, Public Slaughter House, Florence.—Albumen. 652

### 33 Casarino, Mariellus, St. Gottard, Genoa.—Leather. 652

### 34 Forlani, Antonio J. Batta, Fabriano, Ancona.—Leather. 652

### 35 Mercurelli, Pietro, Fabriano, Ancona.—Sole and colored leather. 652

### 36 Baluffi, Nicola, & Co., Ancona.—Dressed hides, leather for saddlery. 652

### 37 Varale, Antonio, Biella, Turin.—Dressed hides. 652

### 38 Banfi, Giuseppe Flavio, Milan.—Glue. 652

### 39 Filippi, Raffaele, Fabriano, Ancona.—Glycerine and size. 652

### 40 Fino, Luigi, & Co., Turin.—Albumen. 653

### 41 Tramontani, D., Bologna.—Honey. 654

### 42 Brolo, Duke Federigo Lancia di, Palermo.—Honey of orange flower. 654

### 43 Scala, Baron Sciacca della, Palermo.—Honey and wax. 654

### 44 Morandi, Pietro, Milan.
- a Wax. 654
- b Liquors. 660

### 45 Reali, Giuseppe & Gavazzi, Ercole, Venice.—Wax. 654

### 46 Bartolucci-Godolini Brothers, Rome.—Honey. 654

### 47 Acclimatization and Agricultural Society of Palermo.
- a Honey. 654
- b Fruits in alcohol. 654

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products, Wines.

48 Giannelli, Raffaello, Sienna.
  a Honey.  634
  b Juniper berries.  636

49 Massardo, Nicola, Sampierdarena, Genoa.—Preserves.  636

50 F. i g a t n e r, Enrico, Milan.—Dried meat.  636

51 Troia, Alfri, Syracuse.—Paste for soup.  636

52 Contessini, Gerini & Co., Leghorn.—Candied fruits.  636

53 Curry, Giacomo, Leghorn.—Preserves.  636

54 Bougleuse Bros. & Co., Leghorn.—Paste for soup.  636

55 Klein, Enrico, Leghorn.—Candied fruits.  636

56 Samoggia, Gaet. & Brothers, Bologna.—Bolognese sausages and salted meats.  636

57 Suzzarini Brothers, Bologna.—Sausages and salted meats.  636

58 Colombini, Ulisse, Bologna.—Sausages and salted meats.  636

59 Serrazanetti, Giovanni Anzola, Bologna.—Tomato sauce and preserved tomatoes.  636

60 Zennioni Brothers, Bologna.—Preserved tomatoes.  636

61 Zappoli Brothers, Bologna.—Bolognese sausages and salted meats.  636

62 Grillini, Nanni & Co., Bologna.—Sausages and salted meats.  636

63 Zanetti, Guido, Bologna.—Sausages and salted meats.  636

64 Bordoni, Natale & Co., Bologna.—Sausages and salted meats.  636

65 Bassi, Medando & Ugo Brothers, Bologna.—Sausages and salted meats.  636

66 Tacconi, Paolo, Bologna.—Sausages and salted meats.  636

67 Orsi, Raphael, Bologna.—Sausages and salted meats.  636

68 Frigeri, Giuseppe, Modena.—Hams, bologna sausages, etc.  636

69 Bellantani, Giuseppe, Modena.—Bologna sausages and salted meats.  636

70 Zironi, Giovanni, Fiorano, Modena.—Salted meats.  636

71 Forni, Alessandro, Bologna.—Sausages and salted meats.  636

72 Molinari Brothers, Modena.—Bologna sausages.  636

73 Special Committee of Salerno.—Paste for soup.  636

74 Napoli, Francesco, Salerno.—Preserved tomatoes.  636

75 Peracchi, Enrico, Parma.—Tomato sauce.  636

76 Domenici, Annibale, Pontasserein, Pisa.—Pork, meat, and bologna.  636

77 Frosini, Edoardo, & Brother, Ponsana, Pisa.—Paste for soup.  636

78 Gentili, Ferdinando, Pontasserein, Pisa.—Paste for soup.  636

79 Carulli, David, Cremona.—Bologna and salted meats.  636

80 Castino, G. B., & E. Scotto, Turin.—Paste for soup.  636

81 Stiassi, Filippo, Bologna.—Mortadella and other bologna sausages, eels.  636

82 Pinardi, Pietro, Gottolengo, Brescia.—Mustard and preserves.  636

83 Gardenghi, Enrico, Modena.—Sausages, meats, zamponi.  636

84 Greco, Marco, Bologna.—Liquors.  636

85 Tosi, Bellucci, Giacomo, Modena.—Preserves.  636

86 Luca, De Francesco, Termini, Falerii.—Paste for soup.  636

87 Russo, Biagio, Termini, Palermo.—Paste for soup.  636

88 Cammarato, Carmelo, Palermo.—Paste for soup.  636

89 Bruno, Giuseppe, Palermo.—Preserves.  636

90 Verdone & Patera, Palermo.—Sauces and conserves.  636

91 Merlo, Vincenzo, Baron, Palermo.—Dried figs.  636

92 Scardella, della Scala, Baron, Palermo.—Dried figs.  636

93 Guli, Salvatore, Cav., Palermo.—Candied fruits.  636

94 Ferrari, Sebastiano, Rome.—Paste for soup.  636

95 Palazzo, Duke del, Catania.—Paste for soup.  636

96 Amato Brothers, Catania.—Candied fruits.  636

97 Caliri, Salvatore, Messina.  636
  a Candied fruits.  636
  b Liquors.  636

98 Botti, Alessandro, Chiavari, Genoa.  636
  a Dried fruits.  636
  b Wine.  660

99 Bornia Brothers, Treviso.  636
  a Pickles.  636
  b Vinegar.  660

100 C. Helmini, Andrea, Salerno.  636
  a Dried fruits.  636
  b Wine.  660

101 Rinaldo, Raffaele, Salerno.  636
  a Dried fruit.  636
  b Wine.  660

102 Agosti Brothers, Bagnoria, Rome.  636
  a Dried prunes.  636
  b Vermouth, wines, liquors.  636

103 Viscardi, Geremia, Bologna.  636
  a Preserved fruits.  636
  b Small biscuits.  661

104 Chamber of Commerce & Arts, Bari.  636
  a Dried figs.  636
  b Wine.  660
  c Chocolate.  661

105 Simone, Raffaele, de Torre Annunziata, Naples.—Best flour paste.  637

106 Lazzaro, Salvatore, Messina.—Liquors.  660

107 Marzi Brothers, Poggibonsi, Siena.—Wines.  660

108 Castiglioni, Domenico, Parma.—Wines.  660

109 Calegari, Giuseppe, Piacenza.—Wines and liquors.  660

110 Ghizzoni, Luigi, Piacenza.—Liquors.  660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 12-14.
<table>
<thead>
<tr>
<th>Wine and Liquors.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>111 Cierici, Costantino, Milan.—Vermouth.</strong></td>
</tr>
<tr>
<td><strong>112 Torelli, Lena Luigi, Count, Milan.—Wines.</strong></td>
</tr>
<tr>
<td><strong>113 Italian Enological Committee, Turin.—Wines and vermouth.</strong></td>
</tr>
<tr>
<td><strong>114 Ricci, Emiliano, Sienna.—Liquors.</strong></td>
</tr>
<tr>
<td><strong>115 Torricelli, Andrea, Florence.—Various liquors.</strong></td>
</tr>
<tr>
<td><strong>116 Minutillo, Giovanni, Palermo.—Liquors.</strong></td>
</tr>
<tr>
<td><strong>117 Guli, Salvatore Luigi di, Palermo.—Wines.</strong></td>
</tr>
<tr>
<td><strong>118 Giacone, Pietro, Palermo.—Marasala wines.</strong></td>
</tr>
<tr>
<td><strong>119 Martillaro, Mar. Carlo, Palermo.—Wines.</strong></td>
</tr>
<tr>
<td><strong>120 Witham, Giuseppe, Termimi, Palermo.—Wines.</strong></td>
</tr>
<tr>
<td><strong>121 Florio, Ignazio, &amp; Vincenzo, Palermo.—Marasala wines.</strong></td>
</tr>
<tr>
<td><strong>122 De Nava, Giuseppe di P., Reggio Calabria.—Wines.</strong></td>
</tr>
<tr>
<td><strong>123 Gabaldoni, Andrea Carlo, Varese Lagiure, Sestri Levante.—Wines.</strong></td>
</tr>
<tr>
<td><strong>124 Enological Society of Scandiano.—Wine.</strong></td>
</tr>
<tr>
<td><strong>125 Malatesti, Augusto, Modena.—Wine.</strong></td>
</tr>
<tr>
<td><strong>126 Enological Society of Savigliano.—Wine.</strong></td>
</tr>
<tr>
<td><strong>127 Buton, G., &amp; Co., Bologna.—Liquors.</strong></td>
</tr>
<tr>
<td><strong>128 Rossi, Leopardo Cav. Cesare, Comiso, Syracuse.—Wine.</strong></td>
</tr>
<tr>
<td><strong>129 Maltese, Felice, Mayor of Vittorino Scogniti, Italy.—Wines.</strong></td>
</tr>
<tr>
<td><strong>130 Greco-Cassia, Cav. Luigi, Syracuse.—Wine.</strong></td>
</tr>
<tr>
<td><strong>131 Vitale, Tommaso, Palermo.—Napoleonic liquor.</strong></td>
</tr>
<tr>
<td><strong>132 Albiate, Edward, Duke, Palermo.—Casks of duca.</strong></td>
</tr>
<tr>
<td><strong>133 Zeni, Niccolo, Ferrara, Rosolino.—Oriental's made from cocoa.</strong></td>
</tr>
<tr>
<td><strong>134 Caretti Brothers, Rome.—Vermouth and liquors.</strong></td>
</tr>
<tr>
<td><strong>135 Strutt, Arthur I., Rome.—Wine.</strong></td>
</tr>
<tr>
<td><strong>136 Bisco, Luigi, &amp; Co., Brescia.—Liquors.</strong></td>
</tr>
<tr>
<td><strong>137 Tarussi, Luigi, &amp; Brothers, Leghorn.—Vermouth, wine.</strong></td>
</tr>
<tr>
<td><strong>138 Vitiello &amp; Torresse, Torre del Greco, Naples.—Wines.</strong></td>
</tr>
<tr>
<td><strong>139 Areghelini &amp; Marassi, Naples.—Alcohol.</strong></td>
</tr>
<tr>
<td><strong>140 Del Bono, Enrico, Syracuse.—Wine.</strong></td>
</tr>
<tr>
<td><strong>141 Giordano, Gio. Batta, Vittorio, Sicily.—Wine.</strong></td>
</tr>
<tr>
<td><strong>142 Terranova Commillesi, G. B., Vittorio, Sicily.—Wine.</strong></td>
</tr>
<tr>
<td><strong>143 Maltese, Alessandrello, Vittorio, Sicily.—Wine.</strong></td>
</tr>
<tr>
<td><strong>144 Targia, Arezzo della, Syracuse.—Liquors, curacao.</strong></td>
</tr>
<tr>
<td><strong>145 Mezio, Calcedonio, Syracuse.—Wine.</strong></td>
</tr>
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<tr>
<td></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-11.
Wines, Vegetable Products, Agricultural Implements.

181 Cavallone, Giovanni. Crescentino, Novara.— Vermouth 660
182 Bellardi, Dom., & Co., Turin.—Vermouth and liquors 660
183 Cinzano, Franco., & Co., Turin.— Vermouth 660
184 Casoni, Giuseppe, Finale, Emilia. — Liquors. 660
185 Napoli, Giuseppe, Baronissi, Salerno.— Wine. 660
186 Palmieri, Benedetto ot Gius., Salerno.— Wine. 660
187 Lanza, Raffaele, Salerno.— Wine. 660
188 Murine, Nicola, Salerno.— Wine. 660
189 Agnini, Tommaso, Finale, Emilia. — Liquors. 660
190 Belloli, Gio. Batto, Scandiano, Emilia.— Liquor 660
191 Musi, Luigi, Botona.— Liquors. 660
192 Savorini, Francesco, d. Ionn Pasinato, Bologna.— Liquors. 660
193 Ronzani, Camillo, Bologna.— Beer. 660
194 Tucci, Savo Benedetto, Rome.— Wine. 660
195 Jacobini Brothers Rome.— Wine. 660
196 Rospigliosi Clemente, Prince, Rome.— Wine. 660
197 Stella, Cav. Musio, Syracuse.— Wine. 660
198 Reggio, Aranvio Francesco, Augusta, Sicily.— Liquors. 660
199 Salibra, Antonino, Syracuse.— Wine and liquors 660
200 Bonanno, Michele, Baron, Syracuse.— Wine. 660
201 Maltese, Felice Vittorio, Sicily.— Wine. 660
202 Cassale Brothers, Syracuse.— Wine and liquors 660
203 Meli, G. B., S. Antonio, Baron Chiaramonte, Syracuse.— Wine. 660
204 Lanza, Cav. Salvatore, Syracuse.— Wine. 660
205 Adorno Puma, Cav. Gaet., Syracuse.— Wine. 660
206 Bruschetti, C. Vincenzo, Camerino, Maurita.— Wine. 660
207 Piombino, Prince of, Foligno, Umbria.— Wine. 660
208 Farinoia, M. Paolo, Florence.— Wine. 660
209 Albanetti, Geo., & Agostino Bros., Arevzo.— Wine. 660
210 Uffredugi, Giacomo, Perugia, Umbria.— Wine. 660
211 Rospigliosi, Clemente, Prince, Lampovecchio, Florence.— Wine. 660
212 Galimberti, Giuseppe, Milan.— Liquors and vermout 660
213 Marini & Poggi, Milan.— Liquors, stomachic and febrifuge elixirs. 660
214 Zannini, Ant., & Galliani, Milan.— Liquors and extract of tamarind. 660
215 Isolatelli & Co., Milan.— Vermouth and liquors. 660
216 Cordini, Gaetano, & Brivio, Busto Arsizio, Milan.— Vermouth and liquors. 660
217 Branca Brothers & Co., Milan.— Vermouth, liquors, alcohol. 660
218 Facheria, Enrico, Lodg, Milan.— Wines and vinegar. 660
219 Vittone, Domenico, Milan.— Vermouth and liquors. 660
220 Ricasoli, Bettino, Baron, Florence. — Wines. 660
221 Montini, Pasquale, Fabriano, Ancona.— Vermouth and liquors. 660
222 Brenna, Santo, Como.— Liquors. 660
223 Nisti, Ferdinando, Florence.— Liquors. 660
224 Mostardini, Adolfo, Florence.— Liquors. 660
225 Cita, Francesco, & Co., Naples.— Liquors. 660
226 Marini, Ambrogio, Milan.— Liquors. 660
227 Scala, Giuseppe, Naples.— Wines. 660
228 Galloni, Luigi, Rome.— Wines. 660
229 Evoli, Ma. Giovanni, Rome,— Liquor. 660
230 Scala Pasquale, Naples.— Wine. 660
231 Francica Brothers, Naples.— Wine. 660
232 Barra, Luigi, Naples.— Wine. 660
233 Patalan, Orazio, Ischia Island, Naples.— Wine. 660
234 Masetti, Piero Pompeo, Count, Florence.— Wine. 660
235 Siccoi, Guido, Florence.— Wine. 660
236 Fantozzi, Cesare, Foligno, Umbria.— Liquors. 660
237 Burchi, Serafino, Pisa.— a Liquors. 660
238 Viliani, Dante, Pistoga.— a Liquors. 660
239 Tamburini, Gaetano, Bologna.— Torrone and candies. 661
240 Cantelli, Giuseppe, Casapulla, Catanzara.— Torrone. 661
241 Cerri, Luigi, Cremona.— Torrone with almonds. 661
242 Pirron, Antonino, Messina.— Sea biscuits. 661
243 Andronico, Giuseppe, Nice, Messina.— Biscuits and paste for sea. 661
244 Loreti, Gioacchino, Rome.— Candy, cakes, and chocolate. 661
245 Moriondo & Garigli, Turin.— Chocolate and confectionery. 661
246 Pagni, Faustino, & Co., Pontedera, Pisa.— Biscuits, English style. 661

Textile Substances of Vegetable or Animal Origin.

247a Kluftinger, L., Bologna.— Raw and combed hemp. 666

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 1214.
### ITALY.

#### Agricultural Implements and Engineering.

<table>
<thead>
<tr>
<th>Machines, Implements, and Processes of Manufacture.</th>
<th>255 Biggi, Giovanni, &amp; Co., Piacenza.—Hand reaping machine. 672</th>
</tr>
</thead>
<tbody>
<tr>
<td>248 Cagliesi, Raffaele, Ancona.—Plow. 607</td>
<td>256 Uliengo, Giovanni, Biella, Novara.—Butter machine. 675</td>
</tr>
<tr>
<td>249 Tomaselli, Giacomo, Cremona.—Plows. 672</td>
<td><strong>Agricultural Engineering and Administration.</strong></td>
</tr>
<tr>
<td>250 Torriatti, Luigi di Gio., Venice.—Harrow. 670</td>
<td>257 Filopanti, Quirico, Bologna.—Plan of General Garibaldi’s system of irrigation relating to the River Tiber. 680</td>
</tr>
<tr>
<td>251 Porri, Luigi, Pisa.—Plow-share. 670</td>
<td>258 Tramontani, D., Bologna.—Beehive. 683</td>
</tr>
<tr>
<td>252 Rossi, Ercole, Parma.—Plow. 670</td>
<td><strong>Collective Exhibit.</strong></td>
</tr>
<tr>
<td>253 Calzoni, Alessandro, Bologna.—Agricultural machine. 670</td>
<td>259 Special Committee of Messina.—Samples of Sicilian products for exportation. 683</td>
</tr>
<tr>
<td>254 Gattola, Nicola, Bari.—Plow. 670</td>
<td>683</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
### BRAZIL.

**West of Amazon, Columns 6 to 10.**

**Forest and Agricultural Products.**

<table>
<thead>
<tr>
<th>Province or Location</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leao, Herméfino de</td>
<td>Coal obtained from pine heart.</td>
</tr>
<tr>
<td>Muricy, Dr.</td>
<td>Pine heart.</td>
</tr>
<tr>
<td>Araujo &amp; Silva</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Juparaná, Baron of</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Faria, Souza</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Villa-Francia, Baron of</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Provinicial Commission of S. Paulo</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Cavalcanti</td>
<td>Samples of woods from Alagoas.</td>
</tr>
<tr>
<td>Province of Rio de Janeiro</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Castro, Borja</td>
<td>Samples of woods used at the custom-house dock works, Rio de Janeiro.</td>
</tr>
<tr>
<td>Penitentiary, Rio de Janeiro</td>
<td>Show-cases made of Brazilian woods.</td>
</tr>
<tr>
<td>Coceiro</td>
<td>Samples of woods in mosaic.</td>
</tr>
<tr>
<td>Barbósa, F</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Muricy &amp; Leao, Drs.</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Province of Bahia</td>
<td>Samples of woods and medicinal leaves.</td>
</tr>
<tr>
<td>Leite, Severino</td>
<td>Ticas leaves.</td>
</tr>
<tr>
<td>Silva, Domingos</td>
<td>Samples of woods from Macaúba.</td>
</tr>
<tr>
<td>Province of Paraná</td>
<td>Lumber and timber.</td>
</tr>
<tr>
<td>Bueno, Pimenta</td>
<td>Samples of woods from Pará.</td>
</tr>
<tr>
<td>Rocha, Ignacio da</td>
<td>Pine lumber from Pará.</td>
</tr>
<tr>
<td>Province of Goyaz</td>
<td>Paparo or paper tree and samples of wood.</td>
</tr>
<tr>
<td>Colony Itajahy</td>
<td>Samples of woods for construction and furniture.</td>
</tr>
<tr>
<td>Barbósa, J. F.</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Gama, Azarias</td>
<td>Cipó-pão (wood).</td>
</tr>
<tr>
<td>Municipality of S. Francisco</td>
<td>Ornamental woods.</td>
</tr>
<tr>
<td>Municipality of S. José</td>
<td>Ornamental woods.</td>
</tr>
<tr>
<td>Oliveira P. M. de</td>
<td>Cumaté (dyeing wood).</td>
</tr>
<tr>
<td>Province of Ceará</td>
<td>Dyeing wood.</td>
</tr>
<tr>
<td>Province of Para</td>
<td>Resins and caoutchouc.</td>
</tr>
<tr>
<td>Province of St. Catharina</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Province of Amazonas</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Province of Alagoas</td>
<td>Samples of woods.</td>
</tr>
<tr>
<td>Province of Ceará</td>
<td>Resins and caoutchouc.</td>
</tr>
<tr>
<td>Province of Ceará</td>
<td>Caoutchouc from Para.</td>
</tr>
<tr>
<td>Province of Pernambuco</td>
<td>Woods.</td>
</tr>
<tr>
<td>Province of Minas-Geraes</td>
<td>Resins.</td>
</tr>
<tr>
<td>Araujo, Castro</td>
<td>Wax on the branch.</td>
</tr>
<tr>
<td>Sarafana, Felix</td>
<td>Wax on the branch.</td>
</tr>
<tr>
<td>Rebello, Dr.</td>
<td>Dyeing barks.</td>
</tr>
<tr>
<td>Andrade, Ildefonso de</td>
<td>Dyeing barks.</td>
</tr>
<tr>
<td>Martins, J. A.</td>
<td>Barks and leaves of the Eucalyptus giganteus.</td>
</tr>
<tr>
<td>Sardinha</td>
<td>Resins.</td>
</tr>
<tr>
<td>District of Principe</td>
<td>Resins.</td>
</tr>
<tr>
<td>Portugal, F. P. d'Azevedo</td>
<td>Balsams.</td>
</tr>
<tr>
<td>District of Queirozelo</td>
<td>Resins.</td>
</tr>
<tr>
<td>Commission for Acai</td>
<td>Resins.</td>
</tr>
<tr>
<td>Paes-Leme, Rosalina</td>
<td>Linseed.</td>
</tr>
</tbody>
</table>

**Agricultural Products.**

<table>
<thead>
<tr>
<th>Product</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>52 Scheffer, Melchior</td>
<td>Barley in ear and threshed.</td>
</tr>
<tr>
<td>53 Martins, Ant</td>
<td>Barley.</td>
</tr>
<tr>
<td>54 Schamalake</td>
<td>Barley.</td>
</tr>
<tr>
<td>55 Richter, Frederico</td>
<td>Cereals.</td>
</tr>
<tr>
<td>56 &amp; Mustards and tobacco.</td>
<td></td>
</tr>
</tbody>
</table>

*For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 12-14.*
Agricultural Products.

56 Leao, Hermelindo de.
  a Rye, wheat, oats, linseed, and maize. 629
  b Beans. 621
  c Seeds. 624

57 N——. N——.
  a Maize on the cob; cornstalk straw. 629
  b Tea from S. Paulo; coffee from Bahia. 629

58 Province of Parana.
  a Wheat and rye. 629
  b Medicinal plants. 631
  c Manioc tubers. 629
  d Matte, a substitute for tea; coffee, tobacco, cacao, cigarettes. 623

59 District of Lages.—Cereals. 620

60 Colony Santa-Maria da Soledade.
  a Rye, oats, and barley. 629
  b Seeds and linseed. 624

61 Commission General for the National Exhibitions.
  a Rice, corn, and barley. 620
  b Medicinal plants. 621
  c Yams, coffee, matted. 623
  d Seeds. 624

62 Sampaio, J. M. Leite.—Unhulled rice. 620

63 Gomes, Cordeiro.—Unhulled rice. 620

64 Mello, J. C. de.—Rice. 620

65 Mendes, Olinte.—Corn. 620

66 Carvalho, B. Rocha.—Rice. 620

67 Sousa, Bento de.—Wheat. 620

68 Valle, R. J. Ferreira.—Unhulled rice. 620

69 Municipality of Lage.—Wheat. 629

70 District of Quebranguelo.—Beans and guanda. 621

71 District of Votouvera.—Medicinal plants. 621

72 Correia, Laurenço.—Medicinal plants. 621

73 Freitas, G. de Sz.—Medicinal plants. 621

74 Araujo, A. J. Roiz d'.—Medicinal plants. 621

75 Araujo, J. P. de Sousa.—Medicinal plants. 621

76 Piratininga, L. Tebiiriçă.—Medicinal plants. 621

77 Foggia, Z. M.—Medicinal plants. 621

78 Barbosa, Norberto.—Medicinal plants. 621

79 Guimarães, J. F.—Medicinal plants. 621

80 Dias, C. Falcao.—Medicinal plants. 621

81 Barros, Dr. J. J. d'Albuquerque.—Medicinal plants. 621

82 Athayde, M. E. de Sz.—Almacega (Eugenia-letacariba). 621

83 Philippe, A.—Tears of the Virgin (medicinal plant). 621

84 Perdigao.
  a Medicinal plants. 621
  b Buckeye seeds. 624

85 Province of Ceara.
  a Medicinal plants and beans. 621
  b Coffee. 623

86 Province of Goyaz.
  a Medicinal plants. 621
  b Tobacco. 623

87 Muricy & Leao.
  a Beans. 621
  b Seeds. 624

88 Leao, Ermelindo de.
  a Beans. 621
  b Ginger and snuff. 624

89 Province of Para.
  a Barley, cocoa, ginger, and tobacco. 625

90 Province of Alagoas.
  a Medicinal plants. 621
  b Vanilla and other seeds. 624

91 Province of S. Paulo.
  a Medicinal roots. 621
  b Chocolate. 623

92 Araujo, Rodrigues de.—Medicinal plants. 625

93 Moura, Ferreira de.—Potatoes. 622

94 Dr. Muricy.
  a Sweet flag. 622
  b Sugars and tobacco. 624
  c Seeds. 625

95 Brant, J. F. d'Andrade.—Manioc roots. 624

96 Heredia, Sa, Dr.—Heredia root. 622

97 Municipality of Cametá.—Cocoa. 623

98 Triste, J. M. d'Araujo.—Cloves of India. 623

99 Portella, F. Fernandes.—Vanilla. 623

100 Guimarães, M. A., & Pedrozo, H.—Vanilla aromatica. 623

101 Padua, A. de.—Vanilla. 623

102 Silva & Sons.—Cocoa. 623

103 Pinho, L. F. do.—Chocolate. 623

104 Lima, Dias.—Chocolate. 623

105 Ribeiro, J. A. F.—Chocolate. 623

106 Liborio & Ferreira.—Chocolate. 623

107 Province of Sergipe.—Coffee. 623

108 Province of Paraíba do Norte.—Coffee. 623

109 Presidency of Sancta Catharina.—Coffee. 623

110 Falcão, J. J. Franco.—Coffee. 623

111 Albuquerque, A. de Sa.—Coffee. 623

112 Lacerda, A. F. de.—Coffee. 623

113 Breves, J. J. de Sz.—Coffee. 623

114 Costa, P. M.—Coffee. 623

115 Silva, C. J., & Sons.—Coffee. 623

116 Carraro, Councilor.—Coffee and tea. 623

117 Montenegro, Commander.—Coffee from Nova-Luzian. 623

118 Atibaia, Baron of.—Coffee. 623

119 Tavares, J. Pinto.—Coffee from Pará-de-Sul. 623

120 Monteiro, P. J.—Coffee from Rio de Janeiro. 623

121 Portella, J. T. M.—Coffee from Muribeca. 623

122 Bornau, L.—Coffee from Caravelas. 623

123 Magalhaes, F. L. d'Almeida.—Coffee from Trombudo. 623

124 Fernandez, C. J.—Coffee from Massaranduba. 623

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
DEPT. VI.—AGRICULTURE.

Agricultural Products.

126 Belens, J. L.—Cigars. 623
127 Reines, N. A. Claudio.—Coffee from Monte Vermen 623
128 Cunha, J. J. Alves da.—Coffee from Rio de Janeiro 623
129 Valeim, M. d'Azviiar.—Coffee from Bananal. 623
130 Vergueiro, L.—Coffee from Jucaba. 623
131 Siqueira, M. B. de.—Coffee and tobacco from Goyaz 623
132 Nogueira, Dr. P. R.—Coffee from S. Paulo. 623
133 Barros, L. A. de Sz.—Coffee from S. Paulo. 623
134 Krull, Frederika.—Coffee from S. Paulo. 623
135 Province of Goyaz.—Tobacco and cigarettes. 623
136 Colony of Assunção.—Tobacco leaves. 623
137 Presidency of the Province of Bahia.—Cigars. 623
138 Pereira & Braga, Cigar Manufactory.—Cigars. 623
139 Paes-Leme, Rosalina v. a. cigarette and tobacco from the Colony Blumenau. 623
6 Matte from S. Catharina. 623
140 S. Joao de Nieherov, Manufactory of.—Cigars and cigarettes. 623
141 Moreira, Dr. d'Assis C.—Tobacco from Coldão. 623
142 Queiroz & Sons.—Tobacco from S. Paulo. 623
143 Levy, Salamon.—Snuff from Tette. 623
144 Schild, Joao.—Cigars from the Colony Santa-Cruz. 623
145 Herbst, Augusto.—Twist tobacco from the Colony Blumenau. 623
146 Rosenstock, G.—Tobacco from the Colony Joinville. 623
147 Kopsch, Ch.—Tobacco from the Colony Blumenau. 623
148 Merck, Maxim.—Tobacco from the Colony Blumenau. 623
149 Vander-Berg.—Tobacco leaves from the ex-Colony Santa-Cruz. 623
150 Seidler, C.—Leat tobacco. 623
151 Kalden, Baron of.—Leat tobacco from the Colony Santco-Anselmo. 623
152 Ketterman, V.—Leaf tobacco from the Colony Santco-Anselmo. 623
153 Dietrich, A.—Leaf tobacco from the Colony Joinville. 623
154 Faria, B. de.—Tobacco from Bahia. 623
155 Grava, Fr. L. Sa.—Tobacco from Cochecira. 628
156 Aranha, J. D.—Tobacco and cigarettes. 623
157 Ferreira, E. A.—Cigarettes. 623
158 Ferreira, Candido I.—Cigars from Cochecira. 623
159 Paraiso, D. V.—Carolina tobacco. 623
160 Cerqueira & Co.—Snuf, cigars, and cigarettes. 623

161 Mendouca, M. J.—Tobacco from Goyaz. 623
162 Pinheiro, J. E.—Tobacco from Para. 623
163 Jardim, J. R. de Moraes.—Tobacco from Goyaz. 623
164 Menezes, Rev. M. de.—Tobacco. 623
165 Nascimento, Rev. A. F.—Tobacco. 623
166 Panitz, J. C.—Tobacco from S. Leopoldo. 623
167 Senna, N. B. de.—Tobacco from Minas. 623
168 Santos, M. A. dos.—Tobacco. 623
169 Silva, A. Ignacio da.—Rolled tobacco. 623
170 Constantino, J.—Tobacco from Bahia. 623
171 Souza, M. L. de.—Cigarettes from Para. 623
172 Ribas, J. L. Sá.—Twist tobacco. 623
173 Cokin, E.—Twist tobacco. 623
174 Gonsalves, J. P.—Cigars. 623
175 Gama, T. J. de Sz.—Cigars. 623
176 Abreu, J. Monteiro d'.—Cigars. 623
177 Borba, N. M.—Cigarettes. 623
178 Miranda, J. B. de.—Cigarettes. 623
179 Perneta, F. D.—Cigarettes. 623
180 Ribas, A. L. d'Andrade.—Cigarettes and matte. 623
181 Ramos, L. F.—Cigarettes. 623
182 Lepage, J. a.—Cigarettes. 623
183 Miranda-Ruixo, F. A.—Tea from S. Paulo. 623
184 Rego-Freitas, A. P. de.—Tea from S. Paulo. 623
185 Neves, J. Ribeiro.—Tea from S. Paulo. 623
186 França, F. A. Galvao da.—Tea from S. Paulo. 623
187 Xavier, J. Ribeiro.—Tea from S. Paulo. 623
188 Mosqueira, A. L. M.—Tea from Minas-Geraes. 623
189 Correa, Idelfonso.—Matte. 623
190 Province of Minas-Geraes.—Matte. 623
191 Leao, Major V. F. de.—Matte in leaves, dried, and powdered. 623
192 Pacifico, D. dos Santos.—Matte leaves. 623
193 Braga, J. M. da Silva.—Matte leaves. 623
194 Torres, G. d'A.—Matte. 623
195 Bley, J.—Matte. 623
196 Xavier, A. de Paula.—Matte. 623
197 Torres, M. d'A.—Matte. 623
198 Cercal, M. d'Oliveira.—Matte in leaves. 623
199 Portugal, P. P. d'Azevedo.—Matte. 623
200 Sepper, H.—Matte. 623
201 Cortez, P. de Siqueira.—Matte. 623

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 18-19.
Agricultural Products, Land Animals.

202 Macedo, Tiburcio de.—Matte. 623
203 Diarson, J.—Matte. 623
204 Souza, Bento de.—Matte. 623
205 Constanca, Maria, & Sons.—Coffee and cocoa. 623
206 Correa, Pereira.—Matte. 623
207 Luz, Ferreira de.—Matte. 623
208 Camargos, Baron de.—Tea and coffee. 623
209 Province of Santa Catharina.—Coffee. 623
210 Guimaraes, Ant.—Coffee from La Guayra. 623
211 Friburgo & Sons.—Coffee. 623
212 Nobrega, J.—Coffee from Boa Esperanca. 623
213 Munhoz, Caetano.—Matte. 623
214 Ayrosa, M. A.—Coffee. 623
215 Rocha-Leao, M. da.—Coffee. 623
216 Costa-Pereira, A. B. da.—Coffee from Pietade. 623
217 Gama, P. N. Nogueira da.—Coffee from Concórdia. 623
218 Juparana, Baron of.—Coffee from Sta. Monica. 623
219 Rio-Novo, Viscountess of.—Coffee from Uniao. 623
220 Pripodi, Silvino.—Coffee. 623
221 Jardien, Gomes de.—Coffee. 623
222 Bella-Vista, Baron of.—Coffee. 623
223 Machado, Marcondes.—Coffee. 623
224 Vieira, Ant.—Coffee. 623
225 Magalhaes, Almeida.—Coffee. 623
226 Barros, Teixeira da.—Coffee. 623
227 Lima, Freitas.—Coffee. 623
228 Jordao, Miranda.—Coffee. 623
229 Costa, Maria da.—Coffee. 623
230 Camargo, Pompen de.—Coffee from Campinas. 623
231 Nogueira, Almeida.—Coffee from Campinas. 623
232 Jordao, R.—Coffee. 623
233 Vergueiro & Co.—Coffee. 623
234 Barros, Souza.—Coffee from S. Paulo. 623
235 Camargo, Santos.—Coffee and tobacco. 623
236 Amaral, Therza do.—Coffee from Campinas. 623
237 Amaral, Francisco do.—Coffee from Campinas. 623
238 Nogueira, Ramos.—Coffee from S. Paulo. 623
239 Gaviao, Bernardo.—Coffee from S. Paulo. 623
240 Souza, Paula.—Coffee from S. Paulo. 623
241 Barros, Raphael de.—Coffee from S. Paulo. 623
242 C——, A. M.—Coffee from Iguape. 623
243 Jordan, Silverio.—Coffee. 623
244 Arraiguara, Baron de.—Coffee. 623
245 Tavares, Pinto.—Coffee. 623
246 Souza-Gueriz, Baron de.—Coffee from S. Paulo. 623
247 Commission tor the Province of St. Catharina.—Coffee. 623
248 Santos, Cornelio dos.—Coffees. 623
249 Prados, viscount of.—Coffee from Minas-Geraes. 623
250 Assiz, Ferreira de.—Coffee from Minas-Geraes. 623
251 Ribeiro, Silva.—Coffee from Minas-Geraes. 623
252 Alves, Assiz.—Coffee from Minas-Geraes. 623
253 Freire, Manuel.—Coffee from S. Paulo. 623
254 Carvalho, Zacharias de.—Coffee from Sergipe. 623
255 Freire & Bros.—Coffee. 623
256 Breve, Souza.—Coffee. 623
257 Jaquary, viscount of.—Coffee. 623
258 Rocha-Ferreira, D. da.—Tobacco. 623
259 Parana, D. V.—Tobacco. 623
260 Commission for the Province of Maranhao.—Coffee and tobacco. 623
261 Colony of Biumenau.—Tobacco and grass. 623
262 Colony of Itajahy.—Twisted tobacco and garlic. 623
263 Figueiredo, Pinto de.—Twisted tobacco. 623
264 Province of Amazonas, a municipa plan. 621
b Cloves and tobacco. 623
265 Vieira.—Tobacco from Rio de Janeiro. 623
266 Oliveira, Coelho d.'—Tobacco from Minas-Geraes. 623
267 Province of Matto Grosso.—Tobacco and cigars. 623
268 Province of Rio-Grande-do-Sul.—Tobacco in leaf and mate dust. 623
269 Pinto & Bro.—Leaf tobacco. 623
270 Testa, Umbelino.—Tobacco and confection from Ruhia. 623
271 Souza, Vasconcellos de.—Tobacco from Ruhia. 623
272 Viotti.—Cigarettes. 623
273 Paulo Correia, J.—Snuff. 623
274 Rocha, Correa da.—Snuff. 623
276 Novaes, Sonza.—Cigarettes. 623
277 Province of Bahia.—Cigars. 623
278 Aener, Luiz.—Matte. 623
279 Martins, Luiz.—Tea. 623
280 Redovalho, P.—Matte. 623
281 Fluminense Agriculture Institute.—Tea made from coffee-leaves. 623
282 Central Exportation Co.—Matte. 623

Land Animals.

283 Moreira, Dr. Nicolau J.—Butterfly.—Porcupine (Attacus aurata LEPEDOPTERA). 623
285 Rezende, Luiz de.—Silkworms and moths. 623
286 Wirmond, Ernesto E.—Collection of insects. 623

For classes of exhibits, indicated by numbers at end of entries. see Classification, pp. 19-24.
Water Animals, Fish Culture, and Apparatus.

287 Province of Parana.—Isinglass. 646

Animal and Vegetable Products.

288 Province of Matto-Grosso.
  a Quinine. 650
  b Hides and furs. 652

289 Agricultural Institute.
  a Sago. 650
  b Flour. 657
c Arrowroot. 658

290 Province of Allagoas.
  a Indigo-plant and vegetable dyes; caroba, quinine, etc. 650
  b Hides and furs. 652
c Vegetable milk. 656

291 Province of S. Paulo.
  a Camomile. 650
  b Hides and leather. 652
c Liquors, aguardente, etc. 660
d Chocolate. 661

  a Turtle butter and cheese. 651
  b Skins, hides, and leather. 652
c Wax. 654
  d Preserved beef and tongues. 666
e Sugar. 669
  f Wines and liquors. 666
g Vegetable oils. 662

293 Juliano, Fr.—Cheese. 651
294 Carneiro, B. Rodriguez.—Cheese. 651

295 Ubatuba, Dr.
  a Condensed milk. 651
  b Extract of mint. 651

296 Cabral, J. F. D.—Milk of Mangebeira. 651

297 Moraes Rozeira, M. G. de.—Cheese. 651

298 Leao, Dr. A. E.—Cheese. 651
299 Director of Paranhapanema.—Butter. 654
299a Oliveira, Ignacio de.—Glue. 652

300 District of Principe.
  a Skins and hides. 652
  b Wax. 654

301 Andrade, J. C. Paes de.—Glue. 652
302 Ubatuba, D. M. P. S.—Tallow, lard, and oil. 652
303 Maciel, D. F.—Steer skins. 652
304 Cortez, P.—Steer hide. 652
305 Botelho, A. C. A.—Skin of a Boa aquatica. 652

306 Athayde, M. E. S.—Skins. 652
307 Feydel Son, I.—Tanned and raw hides. 652
308 Andrade, I. J.—Hides and skins. 652
309 Costa Eymoel & Co.—Hides, leather, and soles. 652
310 Klippel & Brother.—Hides and soles. 652
311 Perneta.—Stag-horns. 652
312 Colony of Blumenau.—Various products. 652
313 Province of Amazonas.—Hides and leather. 654
314 Province of Goyaz.—Hides, furs, and leather. 652

315 Province of Ceara.
  a Hides and furs. 652
  b Dried beef. 656
c Confectionery. 661

316 Province of Rio Grande do Sul.
  a Leather. 652
  b Preserved tongue and beef. 656

317 Province of Rio Grande do Norte.
  a Oil and tallow. 652
  b Powdered honey-wax. 654

318 Province of Parana.
  a Hides, furs, and ox-horns. 652
  b Wax. 654
c Manioc flour and head. 657
d Aguardente from sugar-cane, and liquor from mate herb and quince. 660

319 Long & Co.—Wax. 654
320 Miro, D. Maria.—Wax. 654
321 Safarana, A. T.—Beeswax and wax candles. 654

322 Province of Goyaz.—Beeswax. 654
323 Araujo, J. Pereira de Sz.—Yellow wax. 654
324 Araujo, J. A. Vieira.—Honey. 654
325 Xavier, A. de Paula.—Honey. 654
326 Xavier, D. Leocadia de P.—Wax. 654

327 Mendes, J. Olinto.—Honey and wax. 654
328 Macedo & Azeredo.—Wax. 654
329 Province of Ceara.—Sun-dried beef and confectionery. 656
330 Canoza, Rosalina R. Botelha.—Preserved vegetables. 656
331 Vasconcellos, F. P. de.—Preserved vegetables. 656
332 Castro, M. José de.—Sweetmeats. 656
333 Silva, Leal, & Santos.—Preserves. 656
334 Guttier & Wagner.—Preserved fruits. 656
335 Province of Para.—Preserved meats. 656
336 Santos & Ferreira.—Preserved vegetables, marmalade, and fruit-butter. 656
337 Province of Maranhao.
  a Rice. 656
  b Vegetable oils. 662

338 Province of Pernambuco.
  a Dried fruits. 656
  b Manioc and arrow-root flour. 657
c Sugar. 659
d Aguardente from sugar-cane. 660
e Cocoa oil. 662

339 Tamancao Factory.—Crushed rice. 657
340 Schimmelzupf, A.—Rye flour. 657
341 Dezincourt.—Arrowroot flour. 657
342 Alvarenga, Dr.
  a Flour. 657
c Tapioca. 658
343 Leao, Hermelindo de.—Rice. 657
344 Murucy, Dr.—Maize and rye-flour. 657
345 Directory Board of the Colony of Angelina.—Corn-flour from the colony. 657
346 Silva, Carneiro da.—Manioc-flour. 657
347 Tripodi, Silvino.—Rice. 657

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

348 Cordeiro, jr.—Rice on the branch. 657
349 Tarrañae, J.—Arrowroot flour. 657
350 Carvalhio, Lima.—Manioc and orris-root flour. 657
351 Province of Santa Catharina.—Flour, rice, and arrowroot flour. 657
352 Guimarães, Antonio. a Rice. 657
b Aguardente from sugar-cane, orange, etc. 660
353 N.—N—.
a Rice. 657
b Farinas. 658
c Vinegar. 660
354 Silva, M. C., & Sons.—Tapioca. 657
355 Pereira, J. J.—Farina of manioc. 657
356 Colony of Angelina.—Wheat flour. 657
357 Silva, J. J. Correa da.—Farina of manioc and tapioca. 657
358 Province of Parana. a Feculas. 657
b Matté liquor. 660
359 Province of Pernambuco.—Manioc and arrowroot flour. 657
360 Leão & Alves Grist Mill.—Wheat flour. 657
361 Pirapitinga, Baron of.—Polvilho (a starch). 658
362 Province of Santa Catharina.—Polvilho (a starch). 658
363 Fleminense Agricultural Institute.—Polvilho (a starch). 658
364 Pirapitinga, Baron of.—Tapioca and orris-root. 658
365 Constanca, Maria, & Sons.—Tapioca and orris-root. 658
366 Pinheiro, Thomas.—Sugar. 659
367 Carvalho & Oliveira.—Syrup (a specie). 659
368 Diaz, Isidoro.—Sugar and syrup. 659
369 Maua, Viscount of.—Refined sugar. 659
370 Dezincourt.—Crystallized sugar. 659
371 Barros, Bernardino de.—Brown and white sugar. 659
372 Barros, Fernandes de.—Sugar. 659
373 Costa & Co.—Refined sugar. 659
374 Costa, Ribeiro de.—Sugar. 659
375 Souza, Alves de.—Sugar. 659
376 Vianna, Paula.—Sugar. 659
377 Boa-Viagem, Baron of.—Sugar. 659
378 Wanderley, Barros.—Sugar. 659
379 Villa-Franca, Baron de.—Sugar. 659
380 Leão, Souza.—Sugar. 659
381 Virgens, Bernardo da.—Sugar. 659
382 Bastos, Rodrigues.—Sugar. 659
383 Braga & Co. a Syrups. 660
b Liquers; aguardente, cognac, etc. 660
384 Province of Bahia. a Refined sugar. 659
b Chocolate & murga. 661
385 Barroso, Paula. a Sugar. 659
b Aguardente from sugar-cane. 660
386 Castro, Ribeiro de. a Sugar. 659
b Brandy from sugar-cane. 660
387 Virgema, M. B. das.—Sugar. 659
388 Mansell, Carré, & Co.—Sugar. 659
389 Braga & Co.—Syrups. 659
390 Colony of Itahan.—Sugar-cane brandy. 660
391 Braga & Brother.—Brandy, liquors, and alcohol. 660
392 Vellez Perdigao, D.—Alcoholic drinks and pineapple vinegar. 660
393 Freyung, Otto.—Liquors. 660
394 Belaiche.—Liquors. 660
395 Bella Vista, Baron of.—Sugar-cane brandy and orange liquor. 660
396 Amaral Raçosó, J. do.—Liquors. 660
397 Carreira, F. L.—Wines and brandies. 660
398 Carneiro, F. Lucas.—Pao wine. 660
399 Bastos & Camacho.—Liquors and cordials. 660
400 Teixeira, A. de A.—Tonic liquors. 660
401 Bouly, José.—Pao wine. 660
402 Votuvera Commission.—Pao wine. 660
403 Silva, J. H. da.—Brandy and wine. 660
404 Falcao, Paulino P.—Sugar-cane brandy. 660
405 Souza, M. I. M. de.—Brandy and Laranginha. 660
406 Mendes, J. Olinto.—Liquor. 660
407 Menezes, B. A. de.—Quince liquor. 660
408 Xavier, A. P.—Honey wine, alcoholic, and brandy. 660
409 Castelnuova, T.—Absinthe. 660
410 Moraes Rozeira, M. G. de.—Wines. 660
411 Vasconcellos, Francisco P. de.—Orange wine and alcoholic drinks. 660
412 Marizon, F. M. Celli de.—Laranginha. 660
413 Araujo, Ignacio de.—Liquors. 660
414 Oliveira, Roiz de.—Liquors. 660
415 Carvalho, Leitao de.—Laranginha and gin. 660
416 Falcao, Piris.—Aguardente. 660
417 Raposo, Pereira de.—Aguardente. 660
418 Pinto, Oliveira.—Aguardente from sugar-cane and caju wine. 660
419 Azevedo, Pereira de.—Aguardente. 660
420 Carvalho, M. de.—Gin. 660
421 Jeremabo, T.—Aguardente from honey. 660
422 Schulmann & Co.—Wine and vinegar from sugar-cane. 660
423 Pimenta, Mattos.—Hesperidina-Yaguarembo. 660
424 Oliveira, C., & Sons.—Wine and aguardente from sugar-cane; vinegar from pineapple. 660
425 Frey, Otto.—Liquors. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products, Textile Substances.

426 Vasconcellos, P. de.—Orange wine. 660
427 Cattermole, Erdman.—Wines and liquors. 660
428 Alves & Co.—Liquors. 660
429 Barroso, Carvalho.—Alcohol. 660
430 Silveira, N.—Aguardente. 660
431 Pinheiro, Thomaz.—Laranjinha. 660
432 Caipora, Guimarães.—Laranjinha. 660
433 Bella-Vista, Baron of.—Aguardente. 660
434 Province of Para.—Guarana. 660
435 Pereira, Estevão.—Laranjinha, aguardiente from sugar-cane. 660
436 Itabaiana, Baron de.—Laranjinha. 660
437 Silva, Carneiro da.—Laranjinha. 660
438 Rebello, Silva.—Liquor from coffee and other plants. 660
439 Mamede.—Caju wine for medicinal purposes. 660
440 Macedo, J. de.—Liquors. 660
441 Le Page.—Wines and Vinegar. 660
442 Viotti.—Peach liquor. 660
443 Vianna, Oliveira.—Aguardente. 660
444 Biagem, Boa, Baron da.—Aguardente. 660
445 Sardinha.—Wine. 660
446 Pinho, Francisco do.—Chocolate. 661
447 Leao, Hermelino de.—Farina biscuit. 661
448 Murici, Dr. Leao, Ermelindo de.—Liquor biscuit. 661
449 Silva, Leal, & Santos.—Vermicelli. 661
450 Province of Bahia.—Musgo chocolate. 656
451 Pinho, Francisco do.—Chocolate. 656
452 Dias, J. D.—Vegetable oils. 656
453 Cohin, Eliezer.—Oil of copahiba. 656
454 Cavalcante, J. B.—Oil of andiroba. 656
455 Barbosa, J. E. C.—Oil of batiputa. 656
456 Braga, J. F. C.—Oil of copahiba. 656
457 Veiga, J. A. da.—Oil of togo. 656
458 Silva, T. R. da.—Cocoanut oil. 656
459 Jorge, M. F. A.—Cocoanut oil. 656
460 Stechel, Frederico.—Oils. 656
461 Barreto, Jr.—Oils of copahiba, andiroba, etc. 656
462 Falcao, Dias C.—Oils. 656
463 Ferreira Valle, R. J.—Cocoanut oil. 656
464 Veyra, M. L.—Cocoanut oil. 656
465 Veyra, S. A.—Andiroba oil. 656
466 Province of Maranhão.—Oil of amã. 656
467 District of Paulo Afonso.—Caju-nut oil. 656

468 Province of Ceará.—Oils. 662
469 Presidency of the Province of Bahia.—Ricinus and cocoanut oil. 662
470 Perdigão.—Vegetable oils. 662

Textile Substances of Vegetable or Animal Origin.

471 Mello, Correio de.—Brown cotton. 665
472 Haver, Martin.—Cotton. 665
473 Moreira, Collares.—Cotton from Maranhão. 665
474 Province of Ceará.—Cotton. 665
475 Province of Matto Grosso.—Guinea cotton. 665
476 Province of Pará.—Cotton. 665
477 Province of Rio Grande do Norte.—Cotton. 665
478 C—, J. T. A.—Cotton from S. Paulo. 665
479 Barros, Souza.—Cotton from S. Paulo. 665
480 Maylasky.—Cotton from Sorocaba. 665
481 B—, A. A.—Cotton from S. Paulo. 665
482 A—, J. C.—Cotton from S. Paulo. 665
483 Province of Alagoas.—Vegetable wool. 665
484 Province of Pernambuco. 665
 a Russian cotton. 665
 b Tow. 666
 c Bristles. 669
485 Province of Parana. 665
 a Cotton. 665
 b Flax. 667
 c Wool. 667
 d Animal hair. 669
486 Province of Maranhão.—Ginned cotton. 665
487 Municipality of Quebranguelo.—Cotton in the boll and twisted. 665
488 Province of San Paulo.—Cotton. 665
489 Miranda, M. M. de.—Ginned cotton. 665
490 Athayde, M. E. Souza.—Cotton on the stem. 665
491 G. B. T., Rio de Janeiro.—Cotton on the stem. 665
492 Soares, O. J.—Cotton. 665
493 Merch, Maximiliano.—Cotton. 665
494 Paes Leme, Rosalina.—Cotton. 665
495 Silva, F. J. Xavier da.—Cotton. 665
496 Colony Itajahy.—Cotton. 665
497 Melo, J. Correira de.—Cotton called cereule. 665
498 Brava, Fray Luiz da.—Cotton. 665
499 Colony of Santa Maria de Solonópolis.—Cotton. 665
500 Colony Blumenau.—Cotton. 665
501 Decker, Isaac.—Cotton. 665
502 Valle, Raymundo J. F.—Cotton on the stem. 665
503 Commission for Carnarve.—Grey cotton. 665

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Textile Substances, Machinery, Engineering, Administration.

504 Barros, Diogo A. de.—Cotton in skeins. 665
505 J. C. A., Limeira.—Cotton. 665
506 Commission General for the National Exhibitions, Rio de Janeiro, a Hemp and other vegetable fibres. 666
507 Province of Pernambuco. a Vegetable fibres. 666
508 Province of Santa Catharina.— Tucum thread and paina. 666
509 Commission for Voutreava.—Iseca de Rocosera. 666
510 Province of Amazonas.—Plissaba fibres. 666
511 Barros, L. Gomez de.—Cipo mata genome for withes. 666
512 Muricy, Dr.—Cipo floraoo. 666
513 Leao, Rego Barros S.—White embira. 666
514 Palma, Ant. J. da.—Red embira. 666
515 Lacerda, A. F. de.—Piattaba fibres. 666
516 Bley, J.—Fibres of the Urtica speciosa. 666
517 Barros, A. Aguiar de.—Vegetable fibres. 666
518 Guimaraes, M. A.—Betas and fibres of tucum. 666
519 Oliveira, P. M. de.—Tapuru. 666
520 Taborda Ribas, M.—Iseca of Urupe. 666
521 Bofim, F. Theodoro do.—Fibres of the Anona silvacita. 666
522 Killian, J. E.—Vegetable fibres. 666
523 Ferreira, S. P., & Negrao, J. de S.—Fibres of the Cecropia pellata. 666
524 Leao, Agostinho de.—Paina. 666
525 Cruz, B. A. da, & Bomfun, Florindo T.—Fibres of bombax and of the Copaifera officinalis. 666
526 Portella, Felix F.—Vegetable hair. 666
527 Ferreira & Co., Gasper P.—Fibres of the umbanha tree. 666
528 Bomfin, F. Theodoro do, and others.—Vegetable fibres. 666
529 Paes Leme, Rosalina.—Flax. 666
530 Keller, Philippe.—Flax. 666
531 Kalden, Baron of.—Prepared flax. 666
532 Ackermann, Carlos, & Blader C.—Prepared flax. 666
533 Barros, F. Fernandes de.—Fibres of tucum. 666
534 Leao, E. de.—Flax. 666
535 Almeida, A. Rufino de.—Vegetable fibres. 666
536 Province of Ceará.—Fibres of tucum and paina. 666
537 Steele, J.—Jute. 666
538 Leite, Severino.—Vegetable hair and wool. 666
539 Lang & Co.—Hemp and flax. 666
540 Province of Pará.—Jute. 666
541 Province of Bahia.—Vegetable hair. 666
542 Province of S. Paulo.—Paina. 666
543 Villa-Franca, Baron of.—Paina. 666
544 Agricultural Institute.—Wool. 667
545 Schimmelpfeng, A.—Wool. 667
546 Wirmond, Ernesto.—Wool. 667
547 Province of Paraná. a Wool. 667
548 Province of Alagoas.—Vegetable wool. 667
549 Santos Reis & Co., Pedro A. dos.—Reeled silk. 668
550 Mello Netto, Franc de Paula.—Cocoons. 668
551 Schrazer, Paulo.—Cocoonos. 668
552 Eugonia & T.—White silk. 668
553 Morvira, Nicolau J.—Cocoonos. 668
554 Moreira, Nicolau.—Silk-worms. 668
555 Reis, Luciano.—Silk in the cocoan and reeled. 668
556 Resende, Luiz de.—Silk-worms, cocoons, reeled silk, and apparatus for reeling silk. 668

Machines, Implements, and Processes of Manufacture.
557 Bierremback & Brother.—Plows. 670
558 Antunes, J. A.—Machine for preparing coffee. 674
559 Blanchet, J.—Small plows. 670
560 Province of S. Paulo.—Plows. 670
561 Province of Parana.—Plows. 670

Agricultural Engineering and Administration.
562 Province of Amazonas.—Guano. 681
563 Muricy & Leao.—Guano. 681

Chemicals.
564 Yeiga, F. Aprigio da.—Pharmaceutical products. 200
565 Lepage, P. J.—Pharmaceutical products. 200
566 Dias, Duarte.—Drugs. 200
567 Province of Ceará.—Medicinal oils. 200
568 Alves, Leao.—Pharmaceutical preparations. 200
569 Dias, C. Falcon.—Pharmaceutical preparations. 200
570 Braga, jr.—Pharmaceutical preparations. 200
571 Military Hospital of Rio de Janeiro.—Pharmaceutical preparations. 200

Fabrics of Vegetable, Animal, or Mineral Materials.
572 Province of Amazonas. a Brooms. 286
573 Province of Amazonas. b Cordage of rattan. 287

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
ARGENTINE REPUBLIC.

(West of West Aisle, Columns 9 to 13.)

Arboriculture and Forest Products.

17 Provincial Commission, Province of Tucuman.
   a Samples of wood in logs, partly polished. 600
   b Cebil bark for tanning, Socondo. 602

18 Provincial Commission, Province of Mendoza.
   a Samples of wood in logs. 600
   b Chanar bark for cleaning cloth and Retortuno for tanning. 602
c Gums and resins. 603

19 Videla, Victor, Province of San Luis.
   a Collection of woods; polished samples. 600
   b Barks for tanning. 602

20 Provincial Commission, Province of Corrientes.
   a Collection of polished and unpolished woods. 600
   b Bark of black laurel and curupay tree, used for tanning, etc. 602
c Peanuts, and creeping plant called curuhay guaza. 605

21 Roibon, Enrique, Province of Corrientes. — Caroba wood. 600

22 Ressoagli, Luis, Province of Corrientes. — Collection of woods; boxes. 600

22a River Bermejo Navigation Co., Chaco, Argentine Territory. — Palo santo wood. 600

23 Bella Vista Sub-Commission, Province of Corrientes.
   a Collection of woods. 600
   b Orange seed, chichita, suspiros, peanuts. 605

24 Ferrer, Vicente, Province of Corrientes. — Sticks of different woods. 600

25 National Department of Agriculture, Province of Corrientes. — Samples of Urunday wood. 600

26 Justice of the Peace of Ensenada, Province of Buenos Ayres. — Collection of woods. 600

27 Valdes, Emiliano, & Cipriano, Province of Buenos Ayres.
   a Collection of curromamuel and other woods. 600
   b Mushrooms grown on willow bark. 604

28 Agricultural School of Santa Catalina, Province of Buenos Ayres. — Beehives made of black acacia. 600

29 Roibon, Federico, Province of Corrientes. — Pictures of trees in watercolors. 600

30 Boero, Jose, & Poletti, Antonio, Province of Buenos Ayres. — A rack made of twenty-five kinds of wood. 600

31 Iniguez, Manuel, Province of Buenos Ayres. — Specimens of woods. 600

Arboriculture and Forest Products.

1 Commission of the Chaco Argentine Territory.
   a Collection of natural and polished woods. 600
   b Indigo plant and curupai bark. 602

2 Gallegos, Miguel, Chaco Argentine Territory. — A cane; samples of wood. 600

3 Aguilar, Francisco D., Province of San Juan. — Flowers made from carob tree wood; chicha wood; collection of woods to be presented to the National Department of Agriculture. 600

4 Laugan, Juan, Province of San Juan. — Collection of woods. 600

5 Provincial Commission, Province of Santa Fé.
   a Collection of woods, polished lignum-vitae. 600
   b Laurel bark and tanning materials. 602

6 Eschevarria, Cecilio, Province of Santa Fé.
   a Collection of woods; polished samples. 600
   b Dyes. 602

7 Provincial Commission, Province of Cordoba.
   a Collection of woods; polished samples. 600
   b White carob tree and melle seed. 605

8 Cornejo, John, Province of Salta.
   a Cherimoya seed. 600
   b Palo Santo resin. 603

10 Provincial Commission, Province of Salta.
   a Collection of seeds and woods. 600
   b Dying and tanning materials. 602

11 Villar, Salvador, Province of Jujui.
   a Collection of woods. 600
   b Socondo and pastilla bark. 602
c Palm, lignum-vitae, quina-quina and pacara seeds, etc. 605

12 Provincial Commission, Province of Catamarca.
   a Collection of woods. 600
   b Dying and tanning materials. 602
c Visco and lignum-vitae seeds, etc. 605

13 Provincial Commission, Province of La Rioja.
   a Collection of woods. 600
   b Tar, carob resin, and Lata incense. 603
c Yareta plant, containing much resin. 604
d Collection of seeds. 605

14 Cecenarro, Vicente, Province of Catamarca. — Visco wood. 600

15 Lafone, Quevedo, Samuel Province of Catamarca. — Black carob wood. 600

16 Andalgaia Commission, Province of Catamarca.
   a Cactus. 600
   b Dying and tanning products. 602

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12–14.
32 Provincial Commission, Province of Santiago del Estero.
   a Collection of woods in legs. 600
   b Collection of dyeing woods, etc. 602
33 Provincial Commission, Province of Entre-Rios.—Samples of polished woods. 600
34 Elola, P., Province of Entre-Rios.—Collection of woods. 600
35 Berdue, Martin, Province of Entre-Rios.—Box made of different woods. 600
36 Parana Commission, Province of Entre-Rios.
   a Collection of woods. 600
   b Roots and barks; cochineal and dyeing materials. 602
c Turpentine. 603
37 Roman, Jose, Province of Buenos Ayres.—Carob and mandabuy wood. 600
38 Garrigos, J. M., Province of Buenos Ayres.—Collection of woods. 600
39 Gallino, J. A., Province of Entre-Rios.—Collection of woods. 600
40 Echebehere, Pedro, Province of Buenos Ayres.—Collection of woods. 600
41 Fontes, Vicente, & Neyra, Sisto, Province of Buenos Ayres.—Collection of woods. 600
42 Calderon, Pedro, Province of Buenos Ayres.—Collection of woods. 600
43 Gonzalez, Meliton, Province of Buenos Ayres.—Collection of woods. 600
45 Provincial Commission, Province of San Luis.
   a Dyeing and tanning products. 602
   b Gum and resin. 603
46 Medina, Luis R., Province of Catamarca.
   a Visco and coco woods. 600
   b Cocoanut bark. 602
47 Hurley, Tomas, Province of Catamarca.—Dyeing products. 602
47a Vidal, M. A., Province of San Juan.
   —Quillo and retortuno for dyeing. 602
47c Cacedo, A., Province of San Juan.
   —Retortuno for dyeing. 602
47d Correa, B., Province of San Juan.
   —Retortuno root for dyeing. 602
47e Rodriguez, V., Province of San Juan.
   —Retortuno root for dyeing. 602
47f Poblete, F., Province of San Juan.
   —Romerrillo. 602
48 Sievert, Max, Province of Salta.
   a Silk and wood dyed with the product of the lapacho tree; other dyeing products. 602
   b Peat. 604
49 Gonzales, Joaquin, Province of La Rioja.
   a Sacanza and roots for dyeing. 602
   b Guano, etc. 603
50 Wurffbain, Gustavo, Province of La Rioja.
   a Roots for tanning and dyeing, cleansing substances replacing soap, gum for making soap. 602
   b Cotton-seed. 603
51 Geos, Martin, Province of La Rioja.—Dyeing and tanning products. 602
52 Fava, Carlos, Province of Corrientes.
   —Cochineal and indigo-plant. 602
53 Lopez, Feliciano, Province of Corrientes.—Miri plant, for dyeing silk and wool. 602
54 Pujol, Eliza, Province of Corrientes.
   —Root of isypoyu, for dyeing; coloring roots. 602
55 Poisson, J. T., Province of Corrientes.
   —Unico-seed, for dyeing. 602
56 Ritsch, Felipe, Province of Mendoza.
   —Roots for tanning. 602
57 Ocampo & Acosta, Province of Cordoba.—Bark, seed, and other products for tanning. 602
59 Ubach de Colon, Jose, Province of Entre-Rios.—Sarsaparilla, carob-bark, and other tanning and dyeing products. 602
60 Sub-commission of the Department of Diamante, Province of Entre-Rios.—Cochineal, carob-bark, and other dyeing and tanning materials. 602
61 Soler, Ventura, Province of Entre-Rios.—Laurel and carob-bark and other dyeing and tanning materials. 602
62 Rodriguez, Severo, Province of San Juan.
   a Resins of chile, etc. 603
   b Carob and myrth seed. 603
63 Balban, Nonasca, Province of Catamarca.—Carob-resin and black resin. 603
64 Flores, Nicanor, Province of Salta.—Tar. 603
65 Solis, Juan, Province of Salta.
   —Yareta, a resinous plant. 603
66 Riso, Petrona, Province of Catamarca.—Cherimolla seed. 605
66a Flemming, Miguel, Province of Salta.—Tapa and tarco seed. 605
67 Machado, Ruben, Province of Catamarca.—Mistol and carob tree seed. 605
67a Goyri, Bernardo, Province of Entre-Rios.—Samples of seeds. 605
68 Ponce, Isidora, Province of Catamarca.—Melle seed. 605
69 Esparsa, Jose, Province of Catamarca.—Seed of acacia aroma, for dyeing and medicinal purposes. 605
70 Miranda, Jose, Province of Catamarca.—Acacia for feed, and for hedges. 605
71 Alavez, Francisco, Province of La Rioja.—Wahs. 605
72 Larraoneda, Pedro, Province of La Rioja.—Malingasta nuts. 605
73 Chaves, Cristologo, Province of La Rioja.—Tusca seeds. 605
74 Peluffo, Vicente, & Co., Province of Buenos Ayres.—Collection of seeds. 605

Agricultural Products.

75 Imaz Bros., Province of Buenos Ayres.—Wheat. 620
76 Unzu, Saturnino, Province of Buenos Ayres.—Wheat and corn. 620
77 Grego, A., Province of Buenos Ayres.—Wheat. 605
78 Diaz, Eugenio, Province of Buenos Ayres.—Wheat. 605
79 Traverso, Juan, Province of Buenos Ayres.—Wheat. 605

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 12-14.
### Agricultural Products.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Variety</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Bruno, Domingo, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
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<tr>
<td>80a</td>
<td>Vidal, Augustin, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>81</td>
<td>Alonso, Manuel, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>82</td>
<td>Ibarra, Venero, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>83</td>
<td>Provincial Commission, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>83a</td>
<td>Cornejo, John, Province of Salta</td>
<td>Sugar cane</td>
<td>620</td>
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<tr>
<td>84</td>
<td>Bertolate, G., Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>85</td>
<td>Buffa, Agustín, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>86</td>
<td>Lanzon, N., Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
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<tr>
<td>87</td>
<td>Malvichini, N., Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
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<tr>
<td>88</td>
<td>Costa, Bartolo, Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>89</td>
<td>Justiça do Povo de Jaurez, Prov. of B. Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>90</td>
<td>Justiça do Povo de Patagones, Prov. of B. Ayres</td>
<td>Wheat, barley, and corn</td>
<td>620</td>
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<tr>
<td>91</td>
<td>Guerin, N., Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td>92</td>
<td>Mildred, Juan, Province of Buenos Ayres</td>
<td>Wheat and barley</td>
<td>620</td>
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<td></td>
<td></td>
<td>Lucern seed</td>
<td>624</td>
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<tr>
<td>93</td>
<td>Justiça do Povo de Bahia Blanca, Prov. of B. Ayres</td>
<td>Wheat, barley, and corn</td>
<td>620</td>
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<tr>
<td>94</td>
<td>Burgos, R., Province of Buenos Ayres</td>
<td>Wheat</td>
<td>620</td>
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<td>95</td>
<td>Acuña, Francisco, Province of Buenos Ayres</td>
<td>Barley and corn</td>
<td>620</td>
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<td>96</td>
<td>Pelleo, Angel, Province of Buenos Ayres</td>
<td>Barley</td>
<td>620</td>
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<td></td>
<td></td>
<td>Lima beans</td>
<td>621</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Seeds; hemp and flax, lucern, lentils, palmarist, etc.</td>
<td>624</td>
</tr>
<tr>
<td>97</td>
<td>Agricultural School of Santa Catalina, Prov. of Buenos Ayres</td>
<td>Corn and grasses</td>
<td>620</td>
</tr>
<tr>
<td>98</td>
<td>Arce, Invencio, Province of Buenos Ayres</td>
<td>Corn</td>
<td>620</td>
</tr>
<tr>
<td>99</td>
<td>Justice of the Povo de Zarate, Prov. of B. Ayres</td>
<td>Corn</td>
<td>620</td>
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<tr>
<td>100</td>
<td>Martinez, Hercules, Province of Buenos Ayres</td>
<td>Corn</td>
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<td>101</td>
<td>Valdez, Emiliano, Province of Buenos Ayres</td>
<td>Corn</td>
<td>620</td>
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<td>102</td>
<td>Agricultural School of Santa Catalina, Prov. of Buenos Ayres</td>
<td>Corn and grasses</td>
<td>620</td>
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<tr>
<td>103</td>
<td>Valdes, Emiliano &amp; Cipriano, Prov. of Buenos Ayres</td>
<td>Corn</td>
<td>620</td>
</tr>
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<td>104</td>
<td>Galanenri, Carlos, Province of Buenos Ayres</td>
<td>Corn</td>
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<td>105</td>
<td>Galanenri, Carlos, Province of Buenos Ayres</td>
<td>Corn</td>
<td>620</td>
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<tr>
<td>106</td>
<td>Galarani, Carlos, Province of Buenos Ayres</td>
<td>Corn</td>
<td>620</td>
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<tr>
<td>107</td>
<td>Government of the Povo of San Juan</td>
<td>Grasses, straw, maté herb, etc.</td>
<td>620</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
140 Provincial Commission, Province of Salta.  
a Corn, peanuts, barley, wheat, melons, sugar-cane, etc. 620  
b Potatoes. 623  
c Onion and lucern seed. 624

141 Flemming, Miguel, Province of Salta.  
a Wheat and corn. 620  
b Potatoes. 622

142 Toro Igancio, Province of Salta.  
a Wheat, barley, corn, and lucern seed. 620

143 Gonzalez, Joaquin, Province of La Rioja. —Corn for flowers, and also for flour, wheat, lucern seed. 620

144 Davila, Guillermo, Province of La Rioja.  
a White corn, sugar corn, wheat. 620  
b Lima beans. 621

145 Larrohona, Pedro, Province of La Rioja.  
a Corn, wheat, and barley. 620  
b Lima beans. 621

146 Villafane, Nicolasa, Province of La Rioja.  
a Corn. 620  
b Lima beans. 621

147 Illanes, Jose Manuel, Province of La Rioja. —Wheat, barley, wheat. 620

148 Provincial Commission, Province of La Rioja.  
a Corn, wheat, barley. 620  
b Lima beans. 621  
c Onion seed. 624

149 Gonzalez, Ventura, Province of La Rioja. —Wheat. 590

150 Alvarez, Francisco, Province of La Rioja.  
a Wheat in stalks. 620  
b Lima beans. 621

151 Muro, Froilan, Province of Catamarca.  
a Corn. 620  
b Beans and peas. 621

152 Diaz, Ramon, Province of Catamarca.  
a Wheat. 620

153 Artaza, Santiago, Province of Catamarca.  
a Wheat. 620  
b Beans and peas. 621

154 Provincial Commission, Province of Catamarca.  
a Corn, wheat, barley, and grasses. 620  
b Lima beans. 621  
c Indian pepper, tobacco, cigars, etc. 623

155 Molina, Jose, Province of Catamarca.  
a Corn, wheat. 620  
b Beans. 621

156 Vega, G., Province of Catamarca. —White corn. 620

157 Artasa, Manuel, Province of Catamarca. —Corn, etc. 620

158 Miranda, Jose A., Province of Catamarca. —White corn. 620

160 Sub-commission of the Department of Catamarca, Province of Catamarca.  
a Corn. 620  
b Lima beans, etc. 621

161 Sub-commission of the Department of Catamarca, Province of Catamarca. —White corn. 620

162 Sub-commission of the Department of Alto, Province of Catamarca. —White corn. 620

163 Alvarez, S., Province of Catamarca. —Wheat. 620

164 Ahamada, B., Province of Catamarca. —Wheat. 620

165 Riso, Ventura, Province of Catamarca. —Geneva wheat. 620

166 Herrera, Miguel, Province of Catamarca. —Wheat. 620

167 Aguilar, Olegaria, Province of Catamarca. —Wheat. 620

168 Tula, Nabor, Province of Catamarca. —Wheat, lucern seed. 620

169 Sub-commission of Belen, Province of Catamarca.  
a Corn, wheat. 620  
b Beans. 621

170 Sub-commission of the Department of Pachin, Province of Catamarca.  
a Small corn, wheat, Geneva seed, white and yellow corn. 620  
b Lima beans. 621

171 Sub-commission of the Department of Santa Maria, Province of Catamarca. —Corn and wheat. 620

172 Alric, Antonio, Province of San Luis. —Corn, wheat, and barley. 620

173 Provincial Commission, Province of San Luis.  
a Corn, wheat, barley, and cattle feed. 620  
b Beans. 621

174 Arrondo, Agustin, Province of Entre-Rios —Wheat. 620

175 Paraña Commission, Province of Entre-Rios.  
a Corn, etc. 620  
b Beans and peas. 621  
c Potatoes. 622  
d Tobacco. 623

176 Qualeguaychu Sub-commission, Province of Entre-Rios. —Wheat, corn, etc. 620

177 Goyri, B., Province of Entre-Rios. —Corn. 620

178 Balugera, Domingo, Province of Entre-Rios. —Rice and corn. 620

179 Crespo, Manuel, Province of Entre-Rios. —Paraña wheat. 620

180 Uruguay and Paraña Commission, Province of Entre-Rios.  
a Collection of seeds and cereals. 620  
b Collection of seeds. 624

181 Meyer, Edmund, Province of Santa Fé. —Wheat and barley. 620

182 Ceretti, L., Province of Santa Fé. —Wheat. 620

183 Lubary, T., Province of Santa Fé. —Wheat. 620

184 Colonla San Carlos Sub-commission, Province of Santa Fé. —Barley. 620

185 Nickisch, Manuel, Province of Santa Fé.  
a Corn. 620  
b Lima beans, etc. 621

186 Iturrapse Co., Province of Santa Fé. —Wheat. 620

187 Bergeré, Dr., Province of Santa Fé. —Peanuts. 620

188 Blanchaud, Miguel, Province of Santa Fé.  
a Peanuts, corn, and wheat. 620  
b Chick-peas. 621  
c Leaf tobacco. 623

189 Beken, Federico, Province of Santa Fé. —Wheat. 620

190 Schuling, German, Province of Santa Fé. —Corn. 620

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
**Agricultural Products.**

<table>
<thead>
<tr>
<th>Page</th>
<th>Last Name</th>
<th>Province</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>191</td>
<td>Pillier, N.</td>
<td>Province of Santa Fé</td>
<td>Wheat</td>
</tr>
<tr>
<td>192</td>
<td>Carignano Bros.</td>
<td>Province of Santa Fé</td>
<td>Wheat</td>
</tr>
<tr>
<td>193</td>
<td>Vaivas, Carlos</td>
<td>Province of Santa Fé</td>
<td>Wheat</td>
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<tr>
<td>194</td>
<td>Provincial Commission, Province of Santa Fé</td>
<td>Dry lucern, corn</td>
<td>620</td>
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<tr>
<td>195</td>
<td>Frisch, Cristino</td>
<td>Province of Santa Fé</td>
<td>Wheat</td>
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<tr>
<td>196</td>
<td>Arminchiardi, Juan</td>
<td>Province of Mendoza</td>
<td>Wheat</td>
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<tr>
<td>197</td>
<td>Pourcade, Pedro</td>
<td>Province of Mendoza</td>
<td>Wheat</td>
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<tr>
<td>198</td>
<td>De la Cruz Videla, Juan</td>
<td>Province of Mendoza</td>
<td>Wheat</td>
</tr>
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<td>199</td>
<td>Roman, Medardo</td>
<td>Province of Mendoza</td>
<td>Wheat</td>
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<tr>
<td></td>
<td></td>
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<td>Lima beans</td>
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<tr>
<td>200</td>
<td>Sanchez, Modesto</td>
<td>Province of Mendoza</td>
<td>White Lima beans</td>
</tr>
<tr>
<td>201</td>
<td>Provincial Commission, Province of Mendoza</td>
<td>Corn</td>
<td>620</td>
</tr>
<tr>
<td>202</td>
<td>Agricultural Villa of Mendoza</td>
<td>Province of Mendoza</td>
<td>Corn and wheat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lima beans and peas</td>
</tr>
<tr>
<td>203</td>
<td>Provincial Commission, Province of Jujuy</td>
<td>Rice, corn, and wheat</td>
<td>620</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Indian pepper, tobacco</td>
</tr>
<tr>
<td>204</td>
<td>Provincial Commission, Province of Tucuman</td>
<td>Corn, rice, wheat</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sweet potatoes, etc</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tobacco, cigars, etc</td>
</tr>
<tr>
<td>205</td>
<td>Commission of the Chaco Argentine Territory</td>
<td>Corn, sugar-cane, esparillo grass</td>
<td>620</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Tapuyua, used as a fuel; mandiola, for making starch and chipa bread, etc</td>
</tr>
<tr>
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<td></td>
<td>Flowers made of saffron; tobacco</td>
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<tr>
<td>206</td>
<td>Harbor-master, Chaco Argentine Territory</td>
<td>Sugar-cane plant, esparillo grass</td>
<td>620</td>
</tr>
<tr>
<td>207</td>
<td>Ferré, Vicente</td>
<td>Province of Corrientes</td>
<td>Sugar-canes</td>
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<tr>
<td>208</td>
<td>Commission of the Province of Corrientes</td>
<td>Sugar-cane</td>
<td>620</td>
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<td></td>
<td></td>
<td></td>
<td>Mandiola</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tobacco, maté herbs, etc</td>
</tr>
<tr>
<td>209</td>
<td>Bella Vista Sub-commission, Province of Corrientes</td>
<td>Corn</td>
<td>620</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Popí from mandiola</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tobacco</td>
</tr>
<tr>
<td>210</td>
<td>Appleyard, Juan B.</td>
<td>Province of Corrientes</td>
<td>Rice</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Maté herbs</td>
</tr>
<tr>
<td>211</td>
<td>Provincial Commission, Province of Santiago del Estero</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sweet potatoes</td>
</tr>
<tr>
<td>212</td>
<td>Michelond, Miguel</td>
<td>Province of Santa Fé</td>
<td>Peach sugar-cane</td>
</tr>
<tr>
<td>213</td>
<td>Provincial Commission, Province of Cordoba</td>
<td>Wheat</td>
<td>620</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Peas and beans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sweet potatoes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cigars, pepper, tobacco, mustard, etc</td>
</tr>
<tr>
<td>214</td>
<td>Ferrando, Juan</td>
<td>Province of Entre Ríos</td>
<td>Lima beans and peas</td>
</tr>
<tr>
<td>214</td>
<td>Aubone, Daniel</td>
<td>Province of San Juan</td>
<td>Beans</td>
</tr>
<tr>
<td>215</td>
<td>Escobar, Juan de Dios</td>
<td>Province of San Luis</td>
<td>Lima beans</td>
</tr>
<tr>
<td>216</td>
<td>Farias, José A.</td>
<td>Province of San Juan</td>
<td>Beans, peas, etc</td>
</tr>
<tr>
<td>216</td>
<td>Pouyet, Miguel</td>
<td>Province of Mendoza</td>
<td>Collection of garden-seeds, beans, peas, etc</td>
</tr>
<tr>
<td>216</td>
<td>Davila, Bonifacio</td>
<td>Province of La Rioja</td>
<td>Beans</td>
</tr>
<tr>
<td>217</td>
<td>Denner, Santiago</td>
<td>Province of Santa Fé</td>
<td>Lima beans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tobacco seed</td>
</tr>
<tr>
<td>217</td>
<td>Basquin, Francisco</td>
<td>Province of La Rioja</td>
<td>Beans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lucern seed</td>
</tr>
<tr>
<td>218</td>
<td>Cordoba, Demetrio</td>
<td>Province of Catamarca</td>
<td>Lima beans</td>
</tr>
<tr>
<td>219</td>
<td>Sans, N.</td>
<td>Roca, Province of Mendoza</td>
<td>Potatoes</td>
</tr>
<tr>
<td>220</td>
<td>Audieo, M.</td>
<td>Province of Buenos Ayres</td>
<td>Potatoes</td>
</tr>
<tr>
<td>221</td>
<td>Pola, Juan</td>
<td>Province of Salta</td>
<td>Potatoes, red and sweet oca oxalis</td>
</tr>
<tr>
<td>222</td>
<td>Delgado, Daniel</td>
<td>Lamíncha, Province of Catamarca</td>
<td>Potatoes</td>
</tr>
<tr>
<td>223</td>
<td>Maxit, José</td>
<td>Province of Entre Ríos</td>
<td>Potatoes</td>
</tr>
<tr>
<td>224</td>
<td>Pfeiffer, Pedro</td>
<td>Province of Santa Fé</td>
<td>Potatoes</td>
</tr>
<tr>
<td>225</td>
<td>Rizo, Isidoro</td>
<td>Province of Catamarca</td>
<td>Coffee</td>
</tr>
<tr>
<td>226</td>
<td>Bustamante, O.</td>
<td>Province of Catamarca</td>
<td>Tobacco and cut maize leaves for cigarettes</td>
</tr>
<tr>
<td>226</td>
<td>Appleyard, T. B.</td>
<td>Province of Corrientes</td>
<td>Tobacco</td>
</tr>
<tr>
<td>227</td>
<td>Barros, Sebastian</td>
<td>Province of Catamarca</td>
<td>Cumin and anise</td>
</tr>
<tr>
<td>227</td>
<td>Coudert, A.</td>
<td>Province of Buenos Ayres</td>
<td>Cigarettes</td>
</tr>
<tr>
<td>228</td>
<td>Augier, Uladislao</td>
<td>Province of Catamarca</td>
<td>Cumin seed</td>
</tr>
<tr>
<td>229</td>
<td>Alvarez, Cruz</td>
<td>Province of Catamarca</td>
<td>Cumin seed</td>
</tr>
<tr>
<td>230</td>
<td>Arrillaga, Javier</td>
<td>Province of Corrientes</td>
<td>Mate herb packed in tapi skin</td>
</tr>
<tr>
<td>230</td>
<td>Esquivel, Peter A.</td>
<td>Province of Corrientes</td>
<td>Cigars</td>
</tr>
<tr>
<td>231</td>
<td>Vera, Matilde</td>
<td>Province of Corrientes</td>
<td>Pigeons stuffed with maté; herbs packed in wolf skins</td>
</tr>
<tr>
<td>232</td>
<td>Alegre, John</td>
<td>Province of Corrientes</td>
<td>Mate</td>
</tr>
<tr>
<td>233</td>
<td>Beita, Valentín, &amp; Co.</td>
<td>Province of Santa Fé</td>
<td>Tobacco, coffee, pepper, cumin, cloves, chocolate</td>
</tr>
<tr>
<td>234</td>
<td>Silva, F.</td>
<td>Province of Santa Fé</td>
<td>Arazá (a spice)</td>
</tr>
<tr>
<td>234</td>
<td>Cobo, L.</td>
<td>Province of Tucuman</td>
<td>Tobacco</td>
</tr>
<tr>
<td>235</td>
<td>Aragon, S.</td>
<td>Province of Santa Fé</td>
<td>Tobacco</td>
</tr>
<tr>
<td>237</td>
<td>Invernice, Pedro</td>
<td>Province of Santa Fé</td>
<td>Spurge</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animals, Animal and Vegetable Products.

238 Granada, Salvador, Province of Cordoba.—Chocolate. 623
239 Villar, Salvador, Province of Jujuy.
  a Coffee. 623
  b Castor beans, etc. 624
240 Carillos, Pablo, Province of Jujuy.
  —Tobacco. 623
241 Baiagora, Jose, Province of Jujuy.
  —Wild cocoa, etc. 623
242 Burela, Serapio, Province of Salta.
  —Tobacco. 623
243 Davalos, Benjamin, Province of Salta—Tobacco leaves. 623
244 Waile, S., Province of Salta.—Cigarettes. 623
245 Zolei, Nicolas, Province of Buenos Ayres.—Snuff and cigars. 623
246 Lago & Son, Antonio, Province of Buenos Ayres.—Cigarettes. 623
247 Andes, Mendez M. de, Province of Buenos Ayres.—Cigarettes. 623
248 Daumas, J., & Co., Province of Buenos Ayres.—Cigarettes and tobacco.
249 Coll, Vitoria, & Co., Province of Buenos Ayres.—Cigarettes. 623
250 Schroeder, Nicolas, Province of Buenos Ayres.—Leaves tobacco and cigars. 623
251 Lista, Manuel, & Schroder, T., Province of Buenos Ayres.—Leaf tobacco. 623
252 Casanco, Juan, Province of Santa Fe.—Flax and spurge seed. 624
253 Peluffo, Vicente, & Co., Province of Buenos Ayres.—Seeds. 624
255 Arenales, A. M. Alvarez de, Province of Buenos Ayres.—Jerusalem artichoke seed. 624

Land Animals.

258 Provincial Commission, Province of Mendoza.—Collection of birds. 635
259 Lemos, Abraham, Province of Mendoza.
  a Hawk, woodpecker, wild sandpiper. 635
  b Lynx, stuffed macto, etc. 637
  c Lizard, scorpions, insects, etc. 638
260 Nuñez, Santos, Province of Catamarca.—Humming-bird. 635
261 Franco, Luis A., Province of Catamarca.—Humming-bird. 635
262 Poblete, Tiburcio, Province of San Juan.—Ostrich skin. 635
263 Provincial Commission, Province of San Juan.—Prepared skins of terenora,
  partridge, chimango, crag birds, etc. 635
264 Dominguez, Jose, Province of San Juan.—Prepared skins of hamatra. 635
265 Rosario Tala, Sub-commission, Province of Entre-Rios.—Stuffed guil and quail. 635
267 Provincial Commission, Province of San Luis.
  a Nest of hornero. 635
  b Lizard skin. 638
268 Provincial Commission, Province de Catamarco.
  a Mataco and quirquincho shells. 635
269 Echevets, Gabriel, Province of Buenos Ayres.—A stuffed wildcat of Balcarce. 637

269 a Gayena, John, Province of Buenos Ayres.—Stuffed toad and rabbit. 637
269 b Rio, T. R. del, Province of Buenos Ayres.—Toads. 637
269 c Fuentes, D. G. de la, Province of Buenos Ayres.—Toads. 637
270 Gonzalez, Juan, Province of Buenos Ayres.—Polecat and small fox, stuffed. 637
271 Valdes, Emiliano & Cipriano, Province of Buenos Ayres.—Stuffed polecat. 637
272 Rosario Tala, Sub-commission, Province of Entre-Rios.—Stuffed polecat.
274 Escobar, Juan de D., Province of San Luis.—Snake skin. 638
276 Laborda, Franklin, Province of San Luis.—Insects, snake, and lizard. 638
277 Day, Edmund, Province of Mendoza.—Viper. 638
278 S. Sanchez, Modesta, Province of Mendoza.—Viper. 638
279 Iñiguez, M. A., Province of Buenos Ayres.—Vipers in alcohol. 638

Water Animals, Fish Culture and Apparatus.

290 Provincial Commission, Province of Corrientes.—Shells. 645
291 Arteaga, Amancio, Province of Santa Fe.—Shells. 645
292 Provincial Commission, Province of San Juan.—Baskets. 647
293 Machado, Ruben, Province of Catamarca.—Basket of abe straw. 647
294 Provincial Commission, Province of Salta.—Fishing-lines, etc. 647

Animal and Vegetable Products.

295 Panara Commission, Province of Entre-Rios.
  a Sponges. 650
  b Cole-grease, shad-oil, leather, skins, etc. 652
  c Ostrich feathers. 652
  d Sausage, jelly. 656
  e Domestic beer, lemonade, and wine. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
DEPT. VI.—Agriculture.

Animal and Vegetable Products.

296 Provincial Commission, Province of Salta.
- Cheese. 651
- Viper, vicugna, lion, chinchilla, and other skins; soles. 652
- Honey and wax. 654
- Dried peaches and nuts. 656
- Sheepskin. 657
- Mandiocca and wheat starch. 658
- Querosilla and sugar-cane syrups and sugar. 659
- Aguardente brandy. 660

297 Dubois, B. B., Province of Entre Rios.—Cheese. 651

298 Vasquez, Lucrecio, Province of Cordoba.—Achala cheese. 651

299 Vailllard, Hipolito, Province of Santa Fé.—Cheese. 651

299 a Elia, Eveguiel, Province of Buenos Ayres.—Cheese. 651

300 Provincial Commission, Province of San Luis.
- Butter. 651
- Lion, hare, fox, buck, otter, and hen skins. 652
- Eggs, condor and ostrich feathers. 653
- Palpa and honey syrups. 659

301 Sola, Juan, Province of Salta. — Cheese. 651
- Paisarana, fruit of the Indian fig. 656

302 Linares, Calisto, Province of Salta.—Cheese. 651

303 Arias, Francisco, Province of Buenos Ayres.—Sheepskin. 652

303 a Oliden, T., Province of Buenos Ayres.—Marrow oil. 652

304 Justice of the Peace of Patagones, Province of Buenos Ayres.
- Sheepskins. 652
- Ostrich feathers. 653
- Cherry liquor and Chacoli wine. 660

305 Balcarce, German, Province of Buenos Ayres.—Sheep, goat, wild boar, otter, deer, weasel, wolf, and wild cat skins, etc. 652

305 a Silges & Ferrando, Province of Buenos Ayres.—Hides and tallow. 652

306 Martinez, Luiz, Province of Buenos Ayres.—Hides. 652

306 a Costa, Angel, Province of Buenos Ayres.—Charcoal. 652

307 Fragueiro, G., Province of Buenos Ayres.—Otter and sheepskins. 652

307 a Ergueta, Manuel, Province of San Luis.—Guaaro’s skin. 652

307 b Ledesma Bros., Province of Cordoba.
- Goat skins. 652
- Wheat flour. 657

308 Provincial Commission, Province of Buenos Ayres.—Sea-lion skin, ox and cotl hide. 652

309 Valdez, Emiliano, Province of Buenos Ayres.—Lion-skin, cot, and ox-hides. 652

310 Fuente, Diego G. de la, Province of Buenos Ayres.—Aguaura skin. 652

311 Barrotan, Juan, Province of Buenos Ayres.—Lamb skins. 652

312 Dugan, Tomas, Province of Buenos Ayres.—Sheepskins. 652

313 Gomez, Lorenzo, Province of Buenos Ayres.—Flamingo skin from La Laguna de los Padres (Balcarce). 652

314 Mora, J., Province of Buenos Ayres.—Sheepskin. 652

315 Bucuña, F. García, Province of Buenos Ayres.—Cow tripe prepared for export. 652

316 Battini, Angel Petro, Province of Buenos Ayres.—Leather. 652

317 Duportal, Emilio, Province of Buenos Ayres.—Skins. 652

318 Arnault, Augusto, Province of Buenos Ayres.—Domestic cat-skins for the cure of rheumatism. 652

319 Escalada & Co., Buenos Ayres.— Tanned and colored kid skins for gloves. 652

320 Bernard, Joaquin, Province of Buenos Ayres.—Sheep and lamb skins. 652

321 Bellocq Bros., Province of Buenos Ayres.—Calf skins. 652

322 Iniguez, A. Manuel, Province of Buenos Ayres.—Charcoal of curumanal wood. 652

323 Jacquet, Victor, Province of Buenos Ayres.—Animal charcoal. 652

324 Majica, E. S., Province of Buenos Ayres.—Prepared blood for refining sugar and clarifying syrups. 652

325 Gauthier, Adolfo, Province of Buenos Ayres.—Tallow. 652

326 Santillan Bros. & Co., Province of Santiago del Estero.—Leather for boots and lizard leather for gaiters; skins, etc. 652

327 Gelos, Martin, Province of La Rioja.—Wild-boar skins. 652

328 Gonzalez, Joaquin, Province of La Rioja.—Lion, vicugna, and alai skins. 652

329 Provincial Commission, Province of La Rioja.
- Leather, lion, goat, vicugna, and other skins, etc. 652
- Dried peaches, raisins, and pressed olives. 656
- Sugar. 656
- Nonogasta syrup. 659
- Wine and brandy. 660

330 Commission of the Chaco Argentino Territory.
- Tiger, wolf, deer, cat, and lion skins, etc. 652
- Mandiocca starch for making chapia bread. 653
- Guanarani liquors, sugar cane and orange juices. 660

331 Provincial Commission, Province of Catamarca.
- Skins, leather, etc. 652
- Lime and orange sweetmeats. 656
- Flour. 657

332 Andalgala Sub-commission, Province of Catamarca.—Vicugna, alpaca, gray fox, lamb skins, leather, etc. 652

333 Vergara, Atilio, Province of Catamarca.—Skinner of Swann’s skin. 652

334 Tinogasta Sub-commission, Province of Catamarca.—Lion, chinchilla, fox, wild-cat, ferret, and wild-boar skins. 652

335 Medina, J., Province of Catamarca.—Ampalagua and otter skins. 652

336 Santa Maria Sub-commission, Province of Catamarca.—Vicugna, chinchilla, and fox skins. 652

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
### Animal and Vegetable Products

**337 Pachin Sub-commission, Province of Catamarca.**—Wildcat, ferret, guanaco skins, etc.

**338 Belen Sub-commission, Province of Catamarca.**
- Alpaca and vicuña skins.
- White wine.

**339 Provincial Commission, Province of Tucumán.**
- Skins and leather.
- Wheat starch.
- Sugar.
- Biscuits.

**340 Provincial Commission, Province of Entre-Ríos.**—Swan and deer skins.

**341 Victoria Sub-commission, Province of Entre-Ríos.—Chajá skin.**

**342 Benites, A., & Co., Province of Entre-Ríos.**
- Tallow.
- Wax and honey.
- Preserved meats, beef extracts, etc.

**343 Allurralde, Pante y Carril, Province of Entre-Ríos.—Horse hide.**

**344 Darcher, Amadeo, Province of Entre-Ríos.—Sea-wolf, fox, wildcat, and otter skins, etc.**

**345 Barcos, Pedro B., Province of Entre-Ríos.—Skins.**

**346 Rosario Sub-commission, Province of Entre-Ríos.—Buck, otter, ferret, coati, lion, fox, weasel, wildcat skins, etc.**

**347 Victoria Sub-commission, Province of Entre-Ríos.—Skins.**

**348 Aturralde, Rodolfo, Province of Entre-Ríos.—Wildcat skin.**

**349 Puerto, Gregorio T. de la, & Del Carril, Pedro A., Province of Entre-Ríos.—Sea-wolf, horse, deer skins, etc.**

**350 Provincial Commission, Province of Entre-Ríos.—Wildcat, fox, otter skins, etc.**

**351 Fontes, Vicente M., & Neygra, Sixto, Province of Entre-Ríos.—Tiger, lion, wolf, fox, ferret, otter, rabbit, wildcat, and weasel skins.**

**352 Goyri, Bernardo, Province of Entre-Ríos.—Fox and weasel skins.**

**353 Maglioni, Francisco, Province of Entre-Ríos.—Carpincho and deer skins.**

**354 Ceballos, Desiderio, Province of Salta.**—Soles, black and morocco leather.

**355 García, Domingo, Province of Rioja.**
- Guine.
- Grape syrup.

**356 Saenz, Victoriano, Province of Salta.—Tiger skin.**

**357 Zorilla, Benjamin, Province of Salta.—Llama skin.**

**358 Correrás, Segundo, Province of Mendoza.—Lion skin.**

**359 Gomez, Cecilio, Province of Mendosa.—Chancho wild-boar skin.**

**360 Ribero, Jacinto, Province of San Luis.**—Wildcat skins.

**361 Sierra, Ramon de la, Province of San Luis.—Aguará purée and occiput of an ostrich.**

**362 Lahiton, Pedro, Province of San Luis.—Tanned hides, morocco, etc.**

**363 Ladies' Commission, Province of San Luis.**
- Peach preserve, plum, melon, peach, lemon, water-melon, and quince sweetmeats, etc.
- Lemon and orange liquors.

**364 Rodriguez, Severo, Province of San Juan.**
- Tanned hide.
- Musk and peeled raisins.
- Wines.

**365 Vidart, Juan A., Province of San Juan.—Llama hides.**

**366 Ruiz, Clemente, Province of San Juan.—Merino metis skin.**

**367 Moreno, Federico, Province of San Juan.—Ox hide.**

**368 Provincial Commission, Province of San Juan.**
- Horns and fox skins.
- Raisins, preserved fruits.

**369 Rodriguez, Victor, Province of San Juan**
- Horn combs.
- Raisins, etc.
- Wheat starch.
- Wines.

**370 Provincial Commission, Province of Cordoba.**
- Horn flanks and combs; lion, wild cat, and goat skins.
- Flava wax and honey.
- Sweetmeats.
- Flour, bran, etc.
- Indian fig-syrup.

**371 Iriarte, Carlos, Province of Cordoba.—Tanned goat skins.**

**372 Ocampo & Acosta, Province of Cordoba.—Tanned hides.**

**373 Provincial Commission, Province of Jujuy.**
- Vicuña, llama, tiger, and other skins.
- Wax and wild honey.
- Dried peaches.
- Corn and wheat flour.
- Sugar.
- Querquilta mead.

**374 Dagorret, Modesta, Province of Corrientes.—Tanned viper skin, sole leather, hides, etc.**

**375 Provincial Commission, Province of Corrientes.**
- Otter skins.
- Ostrich feathers.
- Wax.
- Citron, peanut, lime, and other sweetmeats; cocoaanuts.

**376 Bella Vista Sub-commission, Province of Corrientes.—Otter skins.**

**377 Echevarria, Cecilio, Province of Santa Fé.**
- Wolf, lion, tiger, fox, ostrich, and other skins.
- Wax.
- Wild fruit, preserved.
- Sugar-cane brandy.

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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
DEPT. VI.—AGRICULTURE.

Animal and Vegetable Products.

378 Provincial Commission, Province of Santa Fé.
   a Wolf, lion, goat, otter, hare, fox, deer, skins, etc. 652
   b Sweetmeats. 664

379 Martínez, Jonas, Province of Catamarca.—Ostrich feathers. 653

380 Suárez, R., Province of Santa Fé.—Ostrich feathers. 653

381 Soler, Ventura, Province of Entre-Ríos.—Ostrich feathers. 653

382 Maví, José, Province of Entre-Ríos.—Honey. 654

383 Invernizzi, J., & Toschini, J., Province of Entre-Ríos.—Wax and honey. 654

384 Otero, José, Province of Buenos Ayres.—Honey and wax. 654

385 Barraquer, Carmen, Province of Mendoza.
   a Wax and honey. 654
   b Preserves. 656
   c Grape, quince, and cherry syrups. 659
   d White wine. 660

386 Pouyet, Miguel, Province of Mendoza.
   a Honey. 654
   b Nuts, almonds, and fruits. 656
   c Cognac and wines. 659

387 Aragon, J. M., Province of Santa Fé.—Honey. 654

388 Iramon, Juan, Province of Santa Fé.—Honey and wax. 654

389 Jurado, Doraliza, G. de, Province of San Luis.—Honey. 654

390 Albarracín, Saturnino, Province of San Juan.—Wax. 654

391 Cortines, Domitilio, Province of San Juan.—Honey. 654

392 Piñero, Aurelio, Province of Córdoba.—Wax. 654

393 Passel, Teodoro, Province of Córdoba.—Wax. 654

394 Cespedes, José, Province of Mendoza.—Dried apples and figs. 656

394a Biraben, A., Province of Entre-Ríos.—Preserved meats. 656

395 Godoy, Nicolas, Province of Mendoza.—Preserved citrons. 656

395a Vignoles, Henry, Province of Santa Fé.—Preserved meats and pâtés, 656

396 Sánchez, Modesto, Province of Mendoza.—Preserved grapes. 656

397 Chaves, Rosaura, Province of Mendoza.—Olives. 656

398 Campos, Enrique, Province of Mendoza.
   a Milk-extract. 656
   b Orange-wine, anisette. 659

399 Ruñún, Gerónimo C., Province of San Juan.—Musgrape raisins. 656

400 Ramírez & Co., Province of San Juan.—Raisins. 656

401 Sarmiento, J. L., Province of San Juan.
   a Raisins. 656
   b Brandy. 659

402 Bates, Benjamin, Province of San Juan.
   a Almonds and raisins. 656
   b Flour and bran. 657

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.

403 Herrera, P. J., Province of San Juan.—Nuts. 656

404 Mazo, Julian, Province of San Juan.—Raisins and figs. 656

405 Herrera, José, Province of San Juan.—Almonds. 656

406 Tacheret, Carlos, Province of San Juan.—Figs. 656

407 Tacheret, Emilio, Province of San Juan.—Figs. 656

408 Jones, Fabian, Province of San Juan.—Figs. 656

409 Jofré, Ramon, Province of San Juan.
   a Figs. 656
   b Wines and vinegar. 660

410 Frias, Salvador, Province of San Juan.—Musgrape raisins. 656

411 Ruiz, Clemente S., Province of San Juan.—Nuts. 656

412 Aguilar, J. M., Province of San Juan.—Candied figs. 656

413 Governor of the Province, Province of Jujuy.—Nuts. 656

414 Bascuñán, Francisco, Province of La Rioja.—Dried figs. 656

415 Olivera, Bernardo, Province of La Rioja.—Dried figs. 656

416 Gonzales, Ventura, Province of La Rioja.
   a Raisins and dried figs. 656
   b Nogogasta syrup. 659
   c Wine. 660

417 Larrohona, Pedro, Province of La Rioja.—Raisins. 656

418 García, Domingo, Province of La Rioja.
   a Raisins. 656
   b Nogogasta syrup. 659
   c Wine, brandy, and anisette. 656

419 Dávala, Carmen T. de, Province of La Rioja.—Preserved olives, lime and peach preserves, and cayote sweetmeat. 656

420 Bustos, Sophía G., Province of La Rioja.—Quince preserve. 656

421 Trelor, Guillermo A., Province of La Rioja.
   a Carob paste. 656
   b Wines. 660

422 Moujon, Mercedes I., Province of Catamarca.—Raisins. 656

423 Santa Coloma, Isaac, Province of Catamarca.—Raisins, preserves, etc. 656

424 Herrera, Ramón, Province of Catamarca.—Musgrape-raisins. 656

425 Delgado, Manuel, Province of Catamarca.—Dried figs. 656

426 Medina, Luis R., Province of Catamarca.—Nuts. 656

427 Aguero, Patricia, Province of Catamarca.—Musgrape raisins. 656

428 Franco, Luis A., Province of Catamarca.—Candied quinces. 656

429 Acosta, María E. de, Province of Catamarca.—Candied quinces. 656

430 Colodero, A., Province of Corrientes.—Yatay palm coconuts. 656

431 Videla, Victor, Province of San Luis.
   a White carob and carob paste. 659
   b Syrup, etc. 657
Animal and Vegetable Products.

432 Escobar, Juan D., Province of San Luis.
  a Dried figs and peaches. 656
  b Wine and carob meal. 656

433 Ronchetti, Valentín, Province of Santa Fé.—Pickled partridges. 656

434 Nikisch, Manuel, Province of Santa Fé.—Pickled tongues. 656

435 Garvino, Signor, Province of Entre-Ríos.—Salt meat and tongues; gelatine. 656

436 Valdes, Emiliano and Cipriano, Province of Buenos Ayres.—Salt tongues and beef, etc. 656

437 Ortiz, Tomás, Province of Buenos Ayres.
  a Sheep tongue, dried mutton and beef. 656
  b Cognac bitters. 660

438 Beriso, Juan, & Co., Province of Buenos Ayres.—Dried tongues. 656

439 Cambaceres, Antonio, Province of Buenos Ayres.—Jerked beef and salt tongues. 656

440 Roverano Bros., Province of Buenos Ayres.—Sweetmeats in syrup. 656

442 Colla, Juan, Province of Entre-Ríos.—Flour. 657

443 Cabilla, A., Province of Entre-Ríos.—Grits. 657

444 Buada, F., Province of Entre-Ríos.—Flour. 657

445 Dubois, José B., Province of Entre-Ríos.—Flour. 657

446 Berizo, Domingo, Province of Entre-Ríos.—Flour. 657

448 Pillier, N., Province of Santa Fé.—Flour. 657

449 Iturraepa & Co., Province of Santa Fé.—Bran, flour. 657

450 Wart, Carlos de, Province of Santa Fé.—Flour. 657

451 Quelet, Enrique, Province of Santa Fé.—Wheat flour. 657

452 Bauer, G., Province of Santa Fé.—Flour. 657

453 Lubary, Tomás, Province of Santa Fé.—Flour. 657

454 Frank & Lami, Province of Santa Fé.—Flour. 657

455 Fristchi, Celestino, Province of Santa Fé.—Wheat flour. 657

456 Gallo, B., Province of San Juan.—Flour and bran. 657

457 Fria, Salvador, Province of San Juan.—Flour and Chingo flour. 657

458 Appleyard, T. B., Province of Corrientes.
  a Mandioca flour. 657
  b Mandioca starch. 658

459 Fourcade, Pedro, Province of Mendoza.—Flour and bran. 657

460 Casas, Molino de, Province of Mendoza.—Flour. 657

461 Armenciardi, Juan, Province of Mendoza.
  a Cora meal and flour. 657
  b Macaroni, vermicelli. 658

462 Tillar, Carlos, Province of Jujuy.—Flour. 657

463 Allric, Antonio, Province of San Luis.—Flour and bran. 657

464 Provincial Commission, Province of Santiago del Estero.—Flour. 657

466 Navarro, Cornelio, Province of Mendoza.—Wheat starch. 658

467 Gazzo, Luis, Province of Santa Fé.—Vermicelli. 658

468 Dávila, Nicolsa, Province of La Rioja.—Nonogasta syrup. 659

468 Mendivil, Fidel, Province of Tucuman.—Sugar. 659

469 Dávila, Guillermo, Province of La Rioja.—Nonogasta syrup. 659

470 Gordillo, Alcibiades, Province of La Rioja.—Nonogasta syrup. 659

471 Dominguez, José D., Province of San Juan.—Syrup. 659

472 Ovejero, Sisto, Province of Salta.
  a Sugar. 659
  b White wine. 660

473 Figueroa, José E., Province of Catamarca.—Syrup. 659

473 García, S., Province of Tucuman.—Sugar. 659

474 Biusuca, Primitivo, Province of Catamarca.—Grape syrup. 659

475 Arob, Adelaida, Province of Catamarca.—Grape syrup. 659

476 Castello, Guadalupe, Province of Catamarca.—Grape syrup. 659

477 Leci, Petrona de, Province of Catamarca.—Grape syrup. 659

478 Aguero, Patricia, Province of Catamarca.—Grape syrup. 659

478 Mendez & Keller, Province of Tucuman.
  a Sugar. 659
  b Wines. 660

479 Aybar, J. R., Province of Catamarca.—Grape syrup. 659

479 Arguellos & Oliver, Province of Tucuman.—Leaf sugar. 659

479 García, Fidel, Bros., Province of Tucuman.— Sugars. 659

480 Laborda, Franklin, Province of San Luis.—Orange, lemon, currant, banana, and peach syrup. 659

481 Bagley, M. S., Province of Buenos Ayres.—Bitters. 660

482 Pizzona, Miguel, Province of Buenos Ayres.—White and red wines. 660

483 Pla, José, & Co., Province of Buenos Ayres.—Anisette brandy. 660

484 Loy, José, Province of Buenos Ayres.—Hesperidina bitters. 660

485 Nutall, Enrique, Province of Buenos Ayres.—Hesperidina bitters. 660

486 Calatrani, Pedro, Province of Buenos Ayres.—Banana balm, bittersweet tonic, and liqueurs. 660

487 German Brewery, Province of Buenos Ayres.—Chivalley beer. 660

488 Hanot, Jorge, Province of Buenos Ayres.—Orange-flower water, Chartreuse and Kerman liquor. 660

489 Dominguez, José, Province of San Juan.—Vinegar. 660

490 Terramola, Delfín, Province of San Juan.—Wine and vinegar. 660

491 Zavalla, Pedro J., Province of San Juan.—Wine. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14
Animal and Vegetable Products, Textile Substances.

493 Quiroga, Isidro, Province of San Juan.—White wine. 660
493 Quiroga, Abraham, Province of San Juan.—Wine. 660
494 Balaguer, Juan E., Province of San Juan.—White and red wine. 660
495 Coll, Francisco M., Province of San Juan.—Bordeaux wine. 660
496 Doncel, Rosauro, Province of San Juan.—Wine. 660
497 Doncel, José E., Province of San Juan.—Trinidad wine. 660
498 Caraffa, Vicente, Province of San Juan.—Wines and brandy. 660
499 Herrera, Pedro, Province of San Juan.—Brandy. 660
500 Baca, Vicente, Province of San Juan.—Brandy. 660
501 Castro, Saturnino, Province of San Juan.—Wine. 660
502 Espada, Tadeo, Province of San Juan.—Wine. 660
503 Dejorti, Eusebio, Province of San Juan.—Wine. 660
504 Lemaistre, Hilario, Province of Mendoza.—Wines, quince, gin, ratafia, and cherry liquors. 660
505 Blanco, Eusebio, Province of Mendoza.—Wines. 660
506 Guerin, Eugenio, Province of Mendoza.—Wines. 660
507 Michel, Salvador, Province of Salta.—Wines. 660
508 Flemming, M., Province of Salta.—Wine. 660
509 Dávalos, Asuncion, Province of Salta.—Wine. 660
510 Morales, Emilio, Province of Salta.—Bitters; cumin, orange and vanilla liquors, cocoa extract, banana balm, cognac, etc. 660
511 Flores, Nicanor, Province of Salta.—Wines. 660
513 Lopez, Filipé, Province of Salta.—Wines. 660
514 Velez, Amadeo, Province of Salta.—Wine. 660
515 Alvarez, Francisco, Province of La Rioja.—White wines. 660
516 Dávila, Bonifacio, Province of La Rioja.—Wines and anise brandy. 660
517 Dávila, Domingo, Province of La Rioja.—Wines. 660
518 Gordillo, Alcibiades, Province of La Rioja.—Wines. 660
519 Dávila, Guillermo, Province of La Rioja.—Wines. 660
520 Chaves, Crisologo, Province of La Rioja.—Wines and anise brandy. 660
521 Dávila, Nicolasa V. de, Province of La Rioja.—Wines. 660
522 Gonzalez, Zoraida Dávila de, Province of La Rioja.—Mint, coffee, orange, cocoa, and Peruvian bark, liquors. 660
523 Muro, Froilan, Province of Catamarca.—Wine. 660
524 Augier, Uladiasao, Province of Catamarca.—Wine. 660
525 Lafane Queveda, Samuel A., Province of La Rioja.—Wines, cognac, and liquors. 660
526 Franco, Luis A., Province of Catamarca.—Wines. 660
527 Figueroa, Molas, & Co., Province of Catamarca.—Wine. 660
528 Narvaez, Dermidio, Province of Catamarca.—Wines and brandies. 660
529 Miranda, José A., Province of Catamarca.—Wine and brandy. 660
530 Figueroa, Manuel, Province of Catamarca.—Wine. 660
531 Cisnero, Juan B., Province of Catamarca.—Wine and brandy. 660
532 Teferina, Daniel, Province of Catamarca.—Wines. 660
533 Molina, Mardoqueo, Province of Catamarca.—Wine. 660
534 Ageret, H., Province of Corrientes.—Lime and orange liquors. 663
535 Villa, Luis, Province of Corrientes.—Sugar-cane juice. 660
536 Alzric, Antonio, Province of San Luis.—Soda water and lemonade. 660
537 Billar, Salvador, Province of Jujuy.—Sugar-cane brandy. 660
538 Gibson, S., Province of Entre-Rios.—Wine. 660
539 Clavaroni, S., Province of Entre-Rios.—Wine. 660
540 Campora, A., Province of Entre-Rios.—Wine. 660
541 Conte Gran, Anselmo, Province of Entre-Rios.—Vermouth wine and elixir. 660
542 Costa, Luis, Province of Santa Fé.—Cognac, vermouth wine, and liquors. 660
543 Defagot, Cipriano, Province of Entre-Rios.—Peach liquor. 660
544 Magdelin, Fernando, Province of Santa Fé.—Beer. 660
545 Fontam, Luis T., Province of Santa Fé.—Anise liquor. 660
546 Bagley, M. S., & Co., Province of Buenos Ayres.—Biscuits and crackers. 661
546b Konig, Richard, & Co., Province of Buenos Ayres.—Sweetmeats. 661
547 Bromvers, Enrique, Province of Buenos Ayres.— Crackers and biscuits. 661
548 Masset, Gustavo, Province of Buenos Ayres.—Crackers. 661

Textile Substances of Vegetable or Animal Origin.

550 Rizo, Isidoro, Province of Catamarca.—Paño borracho cotton. 665
551 Provincial Commission, Province of Catamarca.—Cotton and raw pale borracho cotton. 665
552 Silv&Florentius, Province of Santa Fé.—Cotton. 665
553 Colina, J. N., Province of Rioja.— Cotton grown in Vinchina. 665
553 Dávila, Guillermo, Province of La Rioja.—Cotton. 665

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
LIBERIA.

(East Avenue, Columns 4 to 7.)

COLLECTIVE EXHIBIT.

Minerals, Animal and Agricultural Products.


<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>609</td>
<td>Schweikart, André, Province of Buenos Ayres.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>610</td>
<td>McClymont, Guillermo, Province of Buenos Ayres.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>611</td>
<td>Hale, Samuel B., Province of Buenos Ayres.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>612</td>
<td>Galarran, Carlos, Province of Buenos Ayres.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>613</td>
<td>Vazquez, Lucrecio, Province of Cordoba.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>614</td>
<td>Gomez, Facundino, Province of Mendoza.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>615</td>
<td>Gonzalez, Daniel, Province of Mendoza.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>616</td>
<td>Davila, Bonifacio, Province of La Rioja.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>617</td>
<td>Gavino, Domingo, Province of Entre-Rios.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>618</td>
<td>Dennis, Francis Antonio, Province of Entre-Rios.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>619</td>
<td>Fuente, Gregorio F. de la, Province of Entre-Rios.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>620</td>
<td>Correa, Benito, Province of San Juan.—Wool.</td>
<td>667</td>
</tr>
<tr>
<td>621</td>
<td>Rodriguez, Estanislao, Province of San Juan.—Alpaca wool.</td>
<td>667</td>
</tr>
<tr>
<td>622</td>
<td>Zavalla, Lorenzo, Province of San Juan.—Angora wool.</td>
<td>667</td>
</tr>
<tr>
<td>624</td>
<td>Newton, Ricardo, Province of Buenos Ayres.—Silk, spun and in cocoons.</td>
<td>668</td>
</tr>
<tr>
<td>625</td>
<td>Puello, Angel, Province of Buenos Ayres.—Silk in cocoons.</td>
<td>668</td>
</tr>
<tr>
<td>625a</td>
<td>Victorica, Henry, Province of Buenos Ayres.—Cocoons.</td>
<td>668</td>
</tr>
<tr>
<td>625b</td>
<td>Massuchi, Martin, Province of Buenos Ayres.—Spun silk.</td>
<td>668</td>
</tr>
<tr>
<td>625c</td>
<td>Sub-commission of San Carlos, Province of Santa Fé.—Spun silk.</td>
<td>668</td>
</tr>
<tr>
<td>625d</td>
<td>Bequet, T., Province of Buenos Ayres.—Silk cocoons.</td>
<td>668</td>
</tr>
<tr>
<td>625f</td>
<td>Pouyet, Miguel, Province of Mendoza.—Silk cocoons.</td>
<td>668</td>
</tr>
<tr>
<td>626</td>
<td>Justice of the Peace of San Vicente, Province of Buenos Ayres.—Horse-hair.</td>
<td>669</td>
</tr>
<tr>
<td>627</td>
<td>Provincial Commission, Province of Buenos Ayres.—Cow-hair.</td>
<td>669</td>
</tr>
<tr>
<td>628</td>
<td>Lagrana, Cipriano, Province of Buenos Ayres.—Angora hair.</td>
<td>669</td>
</tr>
<tr>
<td>629</td>
<td>Carenon, E., &amp; J. Lacroze, Province of Buenos Ayres.—Model of a pump.</td>
<td>680</td>
</tr>
<tr>
<td>630</td>
<td>Silveyra, Agustin, Province of Buenos Ayres.—Artificial manure.</td>
<td>681</td>
</tr>
<tr>
<td>631</td>
<td>Jacquemard, Victor, Province of Buenos Ayres.—Artificial manure.</td>
<td>681</td>
</tr>
<tr>
<td>632</td>
<td>Mujica, E. S., Province of San Juan.—Artificial manure from boiled and dried blood.</td>
<td>681</td>
</tr>
</tbody>
</table>
| 632a  | Provincial Commission, Province of Salta.  

- Hair sieves. | 224 |
- Horse-hair rope. | 287 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Pomology.

1. Jover, Francisco, Alhama, Province of Almeria.—Grapes. 610
2. Daza y Ruiz, Francisco, Purchena, Province of Almeria.—Grapes. 610
3. Romero, Manuel Carbonero, Purchena, Province of Almeria.—Grapes. 610
4. Sanchez Bros. & Granados, Ochanes, Province of Almeria.—Grapes. 610
5. Ibanez, Luis Gallego, Cazorla, Province of Jaen.—Pears. 610
6. Economical Society of Friends of the Country, Valenca.—Paintings of grapes. 610
7. Bernabeu y Diego, Juan B., Jabea, Province of Alicante.—Almonds. 611
8. Scals, Josep, Jijona, Province of Alicante.—Almonds. 611
9. Piña, Juan Bautista, Monforte, Province of Alicante.—Almonds. 611
10. Soriano, Isidro Martinez, Monovar, Province of Alicante.—Almonds. 611
11. Verda y Perez, Joaquin, Monovar, Province of Alicante.—Almonds. 611
13. Feliu y Rodriguez, Jose, Benisa, Province of Alicante.—Almonds. 611
14. Linares, Jose Ramon, Albanez, Province of Almeria.—Almonds. 611
15. Trell y Chacon, Miguel del, Berja, Province of Almeria.—Almonds. 611
16. Martin, Francisco Regafa, Cabeza de Vaca, Province of Bajadex.—Walnuts. 611
17. Feliu, Juan, Palma, Balearic Islands.—Almonds. 611
18. Wallis, Edmund, Ibiza, Balearic Islands.—Almonds. 611
19. Fuster, Francisco, Palma, Balearic Islands.—Almonds. 611
20. Fuster, Miguel, Palma, Balearic Islands.—Almonds. 611
21. Mulet, Antonio, Palma, Balearic Islands.—Almonds. 611
22. Melian y Artiles, Matias, Las Palmas, Canary Islands.—Almonds. 611
23. Provincial Board of Agriculture, Castellon.—Walnuts and almonds. 611
24. Berrezue, Jose Antonio, Villarel, Province of Castellon.—Almonds. 611
25. Garces, Vicente, Castellon.—Almonds. 611
26. Soldevilla, Tomas Moragrega, Castellon.—Pomegranates. 611
27. Lara, Rafael J., de, Cordoba.—Oranges, lemons, and citrons. 611
28. Veja de Armijo, Marquis of, Cordoba.—Oranges and lemons. 611
29. Corporation of Palma del Rio, Province of Cordoba.—Walnuts. 611
30. Cabaza y Saravia, Jose, Cordoba.—Hazelnuts. 611
31. Cruz Duran, Juan de la, Aracena, Province of Huelva.—Walnuts and chestnuts. 611
32. Sala, Emilio de, Huelva.—Almonds. 611
33. Montemayor, Maria, Moguer, Province of Huelva.—Almonds. 611
34. Cueva, Fernando de la, Huelva.—Almonds. 611
35. Carnes, Eulogio Martin, Aracena, Province of Huelva.—Walnuts. 611
36. Caras, Serafin, Huesca.—Almonds. 611
37. Moreno, Rufino, Cazorla, Province of Jaen.—Walnuts. 611
38. Bulnes, Francisco de Paula, Cazorla, Province of Jaen.—Walnuts and chestnuts. 611
39. Corporation of Ponferrada, Province of Leon.—Walnuts and chestnuts. 611
40. Corporation of Congosto, Province of Leon.—Chestnuts. 611
41. Fernandez, Tomas, Armunia, Province of Leon.—Walnuts. 611
42. Prado, Maximo Alonso, Leon.—Walnuts, chestnuts, and hazelnuts. 611
43. Agellet, Ramon, Lleida.—Walnuts. 611
44. Jover, Luisa de, Province of Lleida.—Almonds. 611
45. Ignes, Pedro, Cervera, Province of Lleida.—Hazelnuts. 611
46. Corporation of Lorenzoano, Province of Lugo.—Walnuts. 611
47. Quiroga Vasquez, Quiroga, Province of Lugo.—Chestnuts. 611
48. Hueulin, Guillermo, & Son, Malaga.—Almonds. 611
49. Provincial Deputation, Murcia.—Almonds. 611
50. Roca Bros., Murcia.—Pomegranates. 611
51. Yanez, Francisco Vila, Viana, Province of Orense.—Chestnuts and walnuts. 611
52. Vamonde, Ramon Maria, Puigin, Province of Orense.—Chestnuts and walnuts. 611
53. Rey, Manuel Pereiro, Orense.—Hazelnuts. 611
54. Candelo, Manuel, Coles, Province of Orense.—Hazelnuts. 611
DEPT. VI.—AGRICULTURE.

Pomology.

55 Diaz, Francisco, Trandeiras, Province of Orense.—Walnuts. 61
56 Rodriguez, Manuel Iglesias, Celanova, Province of Orense.—Fruits. 61
57 Provincial Board of Agriculture, Industry and Commerce, Oviedo.—Chestnuts, walnuts, and hazelnuts. 61
58 Rios, Eugenio Montero, Pontevedra.—Oranges, lemons, and citrons. 61
59 Brabo, Bernardo, Fregeneda, Province of Salamanca.—Almonds. 61
60 Paulino, Felipe Perez, Fregeneda, Province of Salamanca.—Almonds. 61
61 Hortal, Ignacio, Fregeneda, Province of Salamanca.—Almonds. 61
62 Garcia, José Sanchez, Fregeneda, Province of Salamanca.—Almonds. 61
63 Corbalan, Juan, Sancelle, Province of Salamanca.—Almonds. 61
64 Viesca, Marquis of, Fregeneda, Province of Salamanca.—Almonds. 61
65 Miguel, Ramon, Hinojosoa, Province of Salamanca.—Almonds. 61
66 Rivero, Tomás, Hinojosoa, Province of Salamanca.—Almonds. 61
67 Garrido, Juan, Valero, Province of Salamanca.—Walnuts. 61
68 Martin, Lorenzo Calvo, Mogarraz, Province of Salamanca.—Walnuts. 61
69 Bellido, Narciso, Zorita, Province of Salamanca.—Walnuts. 61
70 Sanchez, Antonio Capita, Mairena, Province of Sevillia.—Oranges. 61
71 Viñas, Antonio, Reus, Province of Tarragona.—Almonds. 61
72 Magriña, Antonio, Gandesa, Province of Tarragona.—Almonds. 61
73 Peira y Mach, Agustin, Scala Dei, Province of Tarragona.—Almonds, walnuts, and hazelnuts. 61
74 Franch & Segriá, Uldemolins, Province of Tarragona.—Hazelnuts. 61
75 Escoda, Antonio, Vilaseca, Province of Tarragona.—Hazelnuts. 61
76 Bufil, B., Reus, Province of Tarragona.—Almonds. 61
77 Gasull, Bartolomé, Province of Tarragona.—Almonds and hazelnuts. 61
78 Consul & Virgili, Tarragona.—Hazelnuts. 61
79 Domingo, Dimas, Reus, Province of Tarragona.—Almonds and raisins. 61
80 Prieto, Eusebio, Reus, Province of Tarragona.—Walnuts. 61
81 Gil, Francisco, Reus, Province of Tarragona.—Almonds and hazelnuts. 61
82 Pellerier, Francisco, Porreira, Province of Tarragona.—Almonds and hazelnuts. 61
83 Sostres, Francisco Reus, Province of Tarragona.—Hazelnuts. 61
84 Vigueres y Monlió, Francisco, Ulde- molins, Province of Tarragona.—Almonds. 61
85 Montañà, Francisco Roca, Cambrils, Province of Tarragona.—Almonds. 61
86 Margales, Francisco Escoda, Vandellós, Province of Tarragona.—Almonds. 61
87 Puigcerdó y Anglés, Francisco, Ulde- molins, Province of Tarragona.—Almonds. 61
88 Llurba, Francisco, Ulde- molins, Province of Tarragona.—Almonds. 61
89 Fumaña Bros., Reus, Province of Tarragona.—Almonds and hazelnuts. 61
90 Prius, Francisco Reus, Province of Tarragona.—Hazelnuts. 61
91 Comas, Francisco, Reus, Province of Tarragona.—Hazelnuts. 61
92 Pfeiffer, Herman, Reus, Province of Tarragona.—Walnuts. 61
93 Coll, José, Valls, Province of Tarra- gona.—Walnuts. 61
94 Miret y Segriá, José, Ulde- molins, Province of Tarragona.—Walnuts. 61
95 Domenech y Monte, José, Vilaseca, Province of Tarragona.—Almonds. 61
96 Grau y Vilanova, José, Maria, Maspujols, Province of Tarragona.—Hazelnuts. 61
97 Anlestia, José, Ciurana, Dosaigués, Province of Tarragona.—Walnuts. 61
98 Illas, Jose Montagut, Reus, Province of Tarragona.—Hazelnuts. 61
99 Forasté y Ferré, Juan, Vilaseca, Province of Tarragona.—Almonds. 61
100 Magriña, Luis, Falset, Province of Tarragona.—Walnuts. 61
101 Magriña, Manuel Serrano, Tíbisa, Province of Tarragona.—Walnuts. 61
102 Artells, Miguel, Reus, Province of Tarragona.—Almonds and hazelnuts. 61
103 Bassèdas y Andreu, Miguel, Reus, Province of Tarragona.—Almonds and hazelnuts. 61
104 Magriña, Mariano, La Selva, Province of Tarragona.—Hazelnuts. 61
105 Salvador, Mateo, Tarragona.—Hazelnuts. 61
106 Abelló y Boada, Pablo, Barcelona, Province of Tarragona.—Almonds, hazelnuts, walnuts, and pine-nuts. 61
107 Fausá, Pablo, La Canonja, Province of Tarragona.—Almonds and hazelnuts. 61
108 Sirvent y Oliver, Pedro, Reus, Province of Tarragona.—Almonds and hazelnuts. 61
109 Montoliu, Plácid Maria de, Tarragona.—Hazelnuts. 61
110 Anguera y Anglés, Falset, Province of Tarragona.—Hazelnuts and almonds. 61
111 Escolá y Franch, Ramon, Reus, Province of Tarragona.—Hazelnuts and almonds. 61
112 Monléó, Ramon, Ulde- molins, Province of Tarragona.—Almonds. 61
113 Siscar, Ramon, La Canonja, Province of Tarragona.—Hazelnuts. 61
114 Roy, Ponseti & Co., Tarragona.—Hazelnuts and almonds. 61
115 Soberano & Co., Reus, Province of Tarragona.—Hazelnuts and almonds. 61
116 Salvadó, Salvador, Riudoms, Province of Tarragona.—Hazelnuts. 61
117 Freixà, Sebastian, Reus, Province of Tarragona.—Hazelnuts. 61
### Pomology, Agricultural Products.

| 118 | Robres, Sebastian Garcia de, Scala Deli, Province of Tarragona.—Almonds. | 69 |
| 119 | Barcuys, Tomás, Maspujols, Province of Tarragona.—Hazelnuts. | 69 |
| 120 | Esteve, A., Widow & Son of, Reus, Province of Tarragona.—Hazelnuts, almonds, and walnuts. | 69 |
| 121 | Society of Agriculture, Valencia.—Walnuts and acorns. | 69 |
| 122 | Lassa y Palomares, Vicente, Masa de la mar.—Province of Valencia.—Almonds. | 69 |
| 123 | Fernandez, Tomás Vicente, Fuente-sanco, Province of Zamora.—Walnuts. | 69 |
| 124 | Poey, Juan, Habana, Cuba.—Oranges. | 69 |

| 148 | Rodriguez, Bernardo Nava, Langa, Province of Avila.—Summer wheat. | 69 |
| 149 | Paradinas, Gregorio, Bernuy Zarpabel, Province of Avila.—Winter barley. | 69 |
| 150 | Astorga, Pedro Gonzalez, Gutierrez Munoz, Province of Avila.—Winter barley. | 69 |
| 151 | Astorga, Agapito Gonzalez, Gutierrez Munoz, Province of Avila.—Summer wheat. | 69 |
| 152 | Rodriguez, Roberto, Villamayor, Province of Avila.—Summer wheat. | 69 |
| 153 | Garcia, Isidro Sanchez, Horcado de las Torres, Province of Avila.—Summer wheat. | 69 |
| 154 | Calafate, Antolin Fernandez, Horcado de las Torres, Province of Avila.—Summer wheat. | 69 |
| 155 | Lambas, Manuel, Palacios de Goda, Province of Avila.—Summer wheat. | 69 |
| 156 | Saiz, Cleto Lopez, Palacios de Goda, Province of Avila.—Summer wheat. | 69 |
| 157 | Castro, Eusebio Ramiro, Arévalo, Province of Avila.—Summer wheat. | 69 |
| 158 | Navajas, Felipe Saenz, Arévalo, Province of Avila.—Summer wheat. | 69 |
| 159 | Moreno, Cayetano, Villalba de los Barros, Province of Badajoz.—Wheat and barley. | 69 |
| 160 | Rebollo, Demetrio, Cabeza de Vaca, Province of Badajoz.—White wheat. | 69 |
| 161 | Molano, Pedro, Badajoz.—Wheat and barley. | 69 |
| 162 | Gregori, Tomás, Badajoz.—Wheat and barley. | 69 |
| 163 | Venegas, Juan, Valle de Matamoras, Province of Badajoz.—Wheat. | 69 |
| 164 | Lopo, Casimiro, Badajoz.—Wheat and barley. | 69 |
| 165 | Lopo, Felix, Badajoz.—Wheat and barley. | 69 |
| 166 | Amador, Alfonse, Guareña, Province of Badajoz.—Red wheat. | 69 |
| 167 | Sanchez, Maria Romero, Cabeza de Vaca, Province of Badajoz.—Lammas wheat and barley. | 69 |
| 168 | Ortiz, Eugenio, Villagarcia, Province of Badajoz.—Wheat, barley, and oats. | 69 |
| 169 | Moreno, José Salvador, Cabeza de Vaca, Province of Badajoz.—Oats. | 69 |
| 170 | Borrallio, Maria, Cabeza de Vaca, Province of Badajoz.—Rye. | 69 |
| 171 | Soler y Siguier, Jose, Mahon, Balearic Islands.—Summer wheat. | 69 |
| 172 | Detlés, Gertrudis de, Ripoll, Province of Barcelona.—Maize. | 69 |
| 173 | Vila, Juan, Martorell, Province of Barcelona.—Wheat. | 69 |
| 174 | Bosh y Gausa, Luis, Barcelona.—Wheat. | 69 |
| 175 | Subirach, Mariano, Vich, Province of Barcelona.—Barley. | 69 |
| 176 | Gariga, Francisco Domingo, San Quirce de Bages, Province of Barcelona.—Cereals. | 69 |

### Agricultural Products.

| 125 | School of Agriculture, Vitoria, Province of Alava.—Cereals. | 69 |
| 126 | Maroni, José, Hellin, Province of Albacete.—Wheat. | 69 |
| 127 | Guerrero, José, Hellin, Province of Albacete.—Summer wheat. | 69 |
| 128 | Espinosa, Juan, Hellin, Province of Albacete.—Wheat. | 69 |
| 129 | Dios Agudo y Alarcon, Juan de, Corral Rubio, Province of Albacete.—Cereals. | 69 |
| 130 | Guevara, Vicente Ladron de Tabara, Province of Albacete.—Wheat. | 69 |
| 131 | Ramos, Juan Bautista, Alicante.—Summer wheat. | 69 |
| 132 | Sellés, Joaquín, Elche, Province of Alicante.—Maize. | 69 |
| 133 | Gimenez, Fco Sanchez, Alicante.—Wheat. | 69 |
| 134 | Perez, Joaquin Verdú, Monóvar, Province of Alicante.—Wheat, barley, and maize. | 69 |
| 135 | Sanchez, José, Alicante.—Barley. | 69 |
| 136 | Gil, Joaquin, Alicante.—Wheat. | 69 |
| 137 | Seals, José, Gijona, Province of Alcaniz.—Wheat. | 69 |
| 138 | Linares, José Ramon, Albanchez, Province of Almeria.—Maize and wheat. | 69 |
| 139 | Daza, Francisco, Purchena, Province of Almeria.—Cereals. | 69 |
| 140 | Perez, Mariano Valverde, Fontiveros, Province of Avila.—Summer wheat. | 69 |
| 141 | Rodriguez, Francisco Mariano, Fontiveros, Province of Avila.—Barley. | 69 |
| 142 | Sainz, Matias, Donvidas, Province of Avila.—Summer wheat. | 69 |
| 143 | Coca, Juan de, Langa, Province of Avila.—Summer wheat and barley. | 69 |
| 144 | Sacristan, Tomas, Sinlabajos, Province of Avila.—Summer wheat. | 69 |
| 145 | Diaz, Gaspar, Cabezas del Pozo, Province of Avila.—Summer wheat. | 69 |
| 146 | Guerra, Blas, Cabezas del Pozo, Province of Avila.—Summer wheat. | 69 |
| 147 | Paradinas, José, Cabezas del Pozo, Province of Avila.—Summer wheat. | 69 |
### Agricultural Products.

<table>
<thead>
<tr>
<th>Province</th>
<th>Company/Individual</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Badalona, Province of Barcelona</td>
<td>Dodero y Ponte, Josef, Pomar de Carrobs</td>
<td>Red wheat</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Abad, Gregorio, Aranda de Duero</td>
<td>White wheat</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Villamaneva, Felipe de Carcedo de Burgos</td>
<td>White wheat</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Moral, Santiago &amp; Bros., Burgos</td>
<td>Wheat</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Mate, Antonio, Burgos</td>
<td>Wheat</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Gonzalez, Dionisio, La Molina</td>
<td>Wheat</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Horcajo, Marcos, Lerma</td>
<td>Wheat and rye</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Quintana y Ruiz, Fidel, Burgos</td>
<td>Cereals</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Fernandez, Primitivo, Burgos</td>
<td>White barley</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Alonso, Julian, Lerma, Province of Burgos</td>
<td>Common barley</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Provinicial Deputation, Burgos</td>
<td>Oats</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Corporation of Miranda de Ebro</td>
<td>Maize</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Beson, Eduardo A. de, Burgos</td>
<td>White maize</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Provincial Commission of Miranda de Ebro</td>
<td>Red and summer maize</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Roman, Siman, Caceres</td>
<td>Cereals</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Lubian, Saturnino, Plasencia, Province of Cáceres</td>
<td>Wheat and barley</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Perez y Romero, Francisco Garcia, Jerez de la Frontera, Province of Cadiz</td>
<td>Canary seed, St. Peter’s corn, and maize</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Pley y Bondigue, Francisco, Puerto-Real, Province of Cadiz</td>
<td>Wheat and barley</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Corporation of Chicana, Province of Cadiz</td>
<td>Wheat, barley, and maize</td>
</tr>
<tr>
<td>Burgos, Province of Castile</td>
<td>Corporation of Tarifa, Province of Cadiz</td>
<td>Wheat, barley, and canary seed</td>
</tr>
<tr>
<td>Las Palmas, Canary Islands</td>
<td>Vega Grande, Count of, Las Palmas</td>
<td>Maize</td>
</tr>
<tr>
<td>Las Palmas, Canary Islands</td>
<td>Society of Friends of the Country, Las Palmas</td>
<td>Maize</td>
</tr>
<tr>
<td>Las Palmas, Canary Islands</td>
<td>Ponce de Leon, Juan, Las Palmas</td>
<td>Canary Islands</td>
</tr>
<tr>
<td>Cadiz, Province of Andalusia</td>
<td>Provincial Commission of Tenerife, Canary Islands</td>
<td>Cereals</td>
</tr>
<tr>
<td>Cadiz, Province of Andalusia</td>
<td>Escribano, Jose, Vinaroz, Province of Castellon</td>
<td>Carrobs</td>
</tr>
<tr>
<td>Castellon, Province of Valencia</td>
<td>Provincial Board of Agriculture, Castellon</td>
<td>Cereals</td>
</tr>
<tr>
<td>Ciudad-Real, Province of Castile</td>
<td>Rubisco, Cayetano Clemente, Ciudad-Real</td>
<td>Wheat and barley</td>
</tr>
<tr>
<td>Ciudad-Real, Province of Castile</td>
<td>Cabezuelas, Count of, Campo de Criptana, Province of Ciudad-Real</td>
<td>Wheat and barley</td>
</tr>
<tr>
<td>Ciudad-Real, Province of Castile</td>
<td>Loro, Francisco, Daimiel, Province of Ciudad-Real</td>
<td>Maize</td>
</tr>
<tr>
<td>Ciudad-Real, Province of Castile</td>
<td>Sanchez, Sotero, Daimiel, Province of Ciudad-Real</td>
<td>Panic-grass</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Province</th>
<th>Company/Individual</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Caido, Jose Gomez, Villa del Rio</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Corporation of Cabra, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Valverde, Francisco, Agullera, Priego, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Priego, Rafael Molina, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Sarmiento, Antonio Alba, Priego, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Priego, Tomas, Priego, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Vallejo, Rafael, Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Corominas, Luis, Pozoblanco, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Prieto, Sebastian, Encinas-Reales, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Ariza y Ariza, Jose, Baena, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Gimenez, Jose Maria, Baena, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Navarro, Rafael, Cadaqués</td>
<td>Barley and wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Hoces, Ana de, Cadaqués</td>
<td>Black wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Galan, Alfonso Blanco, Dos Torres, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Matilla, Carlos, Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Conde, Juan, Cadaqués</td>
<td>Canary seed, wheat, and barley</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Corporation of Lucena, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Cabany Blanco, Rafael, Cadaqués</td>
<td>Barley</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Estrada, Ramon, Cadaqués</td>
<td>Wheat and barley</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Puentes y Roldan, Felipe, Cadaqués</td>
<td>Barley</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Santalab, Esteban, Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Fernandez, Antonio, Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Barbudo, Francisco de P., Cadaqués</td>
<td>Barley and wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Barrionuevo, Fernando, Cadaqués</td>
<td>Black wheat and barley</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Sisternes, Manuel, Cadaqués</td>
<td>Black wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Carmona, Salvador, Montemayor, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Fernandez, Gumersindo, Hinojosa, Province of Cadaqués</td>
<td>Red wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Sanchez, Manuel, Belmez, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Aurrea y Rivera, Antonio, Belmez, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Pacheco, Rafael Granados, Benalmaja, Province of Cadaqués</td>
<td>Barley</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Velasco, Bernardo Dominguez, Benalmaja, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Corporation of Hornachuelos, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Cadaqués, Province of Girona</td>
<td>Malgarrejo, Maria Josefa, San Clemente, Province of Cadaqués</td>
<td>Wheat</td>
</tr>
<tr>
<td>Agricultural Products.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>242 Plaza y Garrejo, Felipe, Villarejo de Fuentes, Province of Cuenca.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>243 Redondo, Peregrín, Valverde de Jucar, Province of Cuenca.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>244 Bautista, Mariano, Olmedilla de Alarcón, Province of Cuenca.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>245 Torre, Pablo de la, Tarancón, Province of Cuenca.—Summer wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>246 Salazar y Cuebas, Pio, Santa María de los Llanos, Province of Cuenca.—Summer wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>247 Melgarro, Manuel, San Clemente, Province of Cuenca.—Summer wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>248 Hellín, Desiderio, San Clemente, Province of Cuenca.—Summer wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>249 Bruse, José María, Cuenca.—Common barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250 Massó y Soler, Félix, Blanes, Province of Gerona.—Wheat and maize. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>251 Martí, Diego García, Guadalajara.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>252 Muñoz, Marcelino, Sigüenza, Province of Guadalajara.—Wheat and barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>253 Medrano, Félix, Guadalajara.—Barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>254 Reyes y Rich, Juan A., Guadalajara.—Barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>255 Lopez, José María,Huelva.—Wheat and white maize. 620</td>
<td></td>
<td></td>
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<tr>
<td>256 Riera y Fernandez, José, Huelva.—Wheat. 620</td>
<td></td>
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<tr>
<td>257 Soldán, Antonio, La Palma, Province of Huelva.—Wheat and barley. 620</td>
<td></td>
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<tr>
<td>258 Carrasco, José Maria, Bonares, Province of Huelva.—Wheat. 620</td>
<td></td>
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<tr>
<td>259 Cerero y Barreda, Emilio, Trigueros, Province of Huelva.—Wheat. 620</td>
<td></td>
<td></td>
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<tr>
<td>260 Orta, Pedro de, Cartaya, Province of Huelva.—White maize. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>261 Vargas, José Rafael, Encarna del Campoo, Province of Huelva.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>262 Lanzas, Juan Antonio, Alcubierre, Province of Huesca.—Red wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>263 Gabarres, Mariano, Alcubierre, Province of Huesca.—Red wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>264 Gabarres, José, Alcubierre, Province of Huesca.—Red wheat. 620</td>
<td></td>
<td></td>
</tr>
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<td>265 Lapedra, Joaquín, Sariñena, Province of Huesca.—Red wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>266 Laserra, Francisco, Pallazuela, Province of Huesca.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>267 Laserra, Joaquín, Pallazuela, Province of Huesca.—Winter wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>268 Otal, José María, Castillo de Carbano, Province of Huesca.—Wheat, maize, and barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>269 Nusarre, Voto, Lupiñén, Province of Huesca.—Red wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>270 Altemir, José, Sarriena, Province of Huesca.—Red wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>271 Oliver, D. L., Huesca.—Hard wheat, black oats, and barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>272 Villalta y Uribe, Antonio Fernandez, Torre, Don Gimeno, Province of Jaén.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>273 Herreros, Juan Ignacio, Iznatoraf, Province of Jaén.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>274 Abolafia, Antonio Díaz, Jaen.—Yellow maize. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>275 Aniveas, Justo Maria, Jaen.—White maize. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>276 Jontoa, Manuel, Jaen.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>277 Prado, Maximo Alonso, Leon.—Cereals. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>278 Nuñez, Lino, Sahagun, Province of Leon.—Lammas wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>279 Santos, Pablo, Fuentes de los Oteros, Province of Leon.—Summer and lammas wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>280 Corporation of Pajares de Oteros, Province of Leon.—Barley and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>281 Corporation of Valdefresno, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>282 Corporation of Valverde del Camino, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>283 Corporation of Vega de Infanzones, Province of Leon.—Barley and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>284 Corporation of Arganza, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>285 Corporation of Mansilla Mayor, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>286 Corporation of Mansilla de las Melas, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
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<tr>
<td>287 Corporation of Congoosto, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
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<tr>
<td>288 Corporation of Ponferrada, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
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<td>289 Fernandez, Tomás, Armunia, Province of Leon.—Wheat, barley, and rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>290 Corporation of Páramo del Sil, Province of Leon.—Maize. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>291 Corporation of Encincedo, Province of Leon.—Rye. 620</td>
<td></td>
<td></td>
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<tr>
<td>292 Corporation of Magaz, Province of Leon.—Rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>293 Corporation of Omaña, Province of Leon.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>294 Alós, Francisco, Balaguer, Province of Lérida.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>295 Oliveres, Mauricio, Torreseron, Province of Lérida.—Wheat. 620</td>
<td></td>
<td></td>
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<tr>
<td>296 Lafont, Andrés, Bortjar, Province of Lérida.—Wheat. 620</td>
<td></td>
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</tr>
<tr>
<td>297 Lopez, Manuel, Puigvert, Province of Lérida.—Barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>298 Ball, José, Agramunt, Province of Lérida.—Barley and wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>299 Ron, Ramon, Vinaixa, Province of Lérida.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>300 Viela, Ramon Terez de, Tórrega, Province of Lérida.—Barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>301 Andreu, Roque, Tórrega, Province of Lérida.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>302 Jover, Luisa de, Tórrega, Province of Lérida.—Rye. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>303 Corporation of Agramunt, Province of Lérida.—Wheat and barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>304 Corporation of Puigvert, Province of Lérida.—Barley. 620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>305 Corporation of Vinaixa, Province of Lérida.—Wheat. 620</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Agricultural Products.

306 Corporation of Las Borjas, Province of Lérida.—Wheat.  620
307 Pinós, José María, Malpartida, Province of Lérida.—Common wheat.  620
308 Parada, Domingo, Castroverde, Province of Lugo.—Barley and rye.  620
309 Laje, Domingo Antonio, Corbo, Province of Lugo.—Rye.  620
310 Vasquez, José Leoncio, Mondoñedo, Province of Lugo.—Husked maize.  620
311 Freire, Manuel Soto, Panton, Province of Lugo.—Maize.  620
312 Ferreiro y Hermida, Antonio, Alfox, Province of Lugo.—Yellow maize.  620
313 Armas, Ramon, Puebla del Brol- lon, Province of Lugo.—Wheat.  620
314 Corporation of Lorenzana, Province of Lugo.—Yellow maize.  620
315 Legaspi, Juan, Villalba, Province of Lugo.—Rye.  620
316 Palares, Count of, Villalba, Province of Lugo.—Wheat.  620
317 Montenegro, Manuel Pardo, Fox, Province of Lugo.—Yellow maize.  620
318 Piliado, Eliseo Martinez, Fox, Province of Lugo.—Wheat and early maize.  620
319 Martinez, Ramon Antonio, Sarria, Province of Lugo.—Yellow maize, wheat, and barley.  620
320 Mendez, José Perez, Sober, Province of Lugo.—Barley and wheat.  620
321 Calatrava, Francisco Garcia, Alcobendas, Province of Madrid.—Wheat, barley, and oats.  620
322 Gago, Juan Borrego, Ronda, Province of Malaga.—Wheat.  620
323 Romero, Joaquin Perez, Santa Maria de la Ribera, Province of Orense.—Cereals.  620
324 Rodriguez, Manuel Iglesias, Celanova, Province of Orense.—Cereals.  620
325 Rey, Manuel Pereiro, Province of Orense.—Cereals.  620
326 Diaz, Francisco, Trandeiras, Province of Orense.—Rye.  620
327 Vila, Francisco, Viana del Bolo, Province of Orense.—Rye.  620
328 Vaamonde, Ramon Maria, Pungin, Province of Orense.—Maize.  620
329 Romero y Romero, José, Ginez, de Limia, Province of Orense.—Rye.  620
330 Anta, Ignacio, Orense.—Rye and maize.  620
331 Iglesias, Ramon, Beiro, Province of Orense.—Rye and maize.  620
332 Board of Agriculture, Industry, and Commerce, Oviedo.—Wheat and maize.  620
333 Durango, Manuel Martinez, Palencia.—Barley.  620
334 Gregorio, Sotero, Palencia.—Wheat and barley.  620
335 Gutierrez, Juan Francisco, Palencia,—Wheat and barley.  620
336 Dominguez, Miguel, Palencia,—Barley.  620
337 Sevilla, José, Fuentes de Nava, Province of Palencia.—Wheat.  620
338 Rodriguez, Tomás, Fuentes de Nava, Province of Palencia.—Wheat.  620
339 Pombo, Pedro, Fuentes de Nava, Province of Palencia.—Wheat.  620
340 Solozano, Juan, Baltanases, Province of Palencia.—Oats.  620
341 Gutierrez, Simon, Monzon, Province of Palencia.—Rye.  620
342 Tabares, Federico Rodriguez, Torremormojon, Province of Palencia.—Wheat.  620
343 Escudero, Felipe, Cisneros, Province of Palencia.—Wheat.  620
344 Herrero, Agustin, Marzaliegos, Province of Palencia.—Wheat.  620
345 Herrero, Pedro Romero, Amuscul, Province of Palencia.—Wheat.  620
346 Prieto, Basilio, Herrero, Herrera de Valdecañas, Province of Palencia.—Wheat.  620
347 Monedero, Joaquin, Cevico de la Torre, Province of Palencia.—Wheat.  620
348 Palacin, Deogracias, Palenzuela, Province of Palencia.—Wheat.  620
349 Piñeiro, Ramon Somoza, Merza, Province of Pontevedra.—Cereals.  620
350 Onis, Federico, Cantalapiedra, Province of Salamanca.—Cereals.  620
351 Peña, Josefa Gonzalez de la, Man- cera de Abajo, Province of Salamanca.—Wheat.  620
352 Cabrera, Victoriano, Cantalapiedra, Province of Salamanca.—Wheat.  620
353 Bellido, Narciso, Zorita de la Pro- ntera, Province of Salamanca.—Wheat.  620
354 Blazquez, Agustin, Tordillos, Province of Salamanca.—Wheat.  620
355 Rodriguez, Zacarias, Cantala- piedra, Province of Salamanca.—Wheat, barley, and rye.  620
356 Merino, Miguel, Cordobilla, Province of Salamanca.—Wheat.  620
357 Pineda, Eduardo de, Los Huelmos, Province of Salamanca.—Wheat and barley.  620
358 Fuentes, José, La Pinilla, Province of Salamanca.—Wheat and rye.  620
359 Rodriguez, Julian, Doñinos, Province of Salamanca.—Wheat and barley.  620
360 Sanchez, Francisco, Las Torres, Province of Salamanca.—Wheat.  620
361 Martin, Saturnino, Cilleros el Hondo, Province of Salamanca.—Wheat.  620
362 Hernando y Nieto, Francisco, Bó- veda del Rio al Mar, Province of Salamanca.—Wheat.  620
363 Paradinas, Acacio, Cantalapiedra, Province of Salamanca.—Wheat and barley.  620
364 Mulas, Sinforiano, Villar de Gallimazo, Province of Salamanca.—Wheat.  620
365 Martin, Santiago, Tarazona, Province of Salamanca.—Wheat.  620
366 Perez, Domingo, Aldeatejada, Province of Salamanca.—Wheat.  620
367 Andrés, Leon, Tarazona, Province of Salamanca.—Wheat.  620
Agricultural Products.

368 Mayoral, Andrés, Los Huelmos, Province of Salamanca.—Wheat. 620
369 García, Rafael, Cantalapiedra, Province of Salamanca.—Summer wheat and barley. 620
370 Toribio, Antonio Martín, Villares de la Reina, Province of Salamanca.—Summer wheat and barley. 620
371 Corporation of Vetygudino, Province of Salamanca.—Wheat. 620
372 Mozas, Antonio Alfonso de las, Province of Salamanca.—Summer wheat. 620
373 Poveda, Paulino, Pedroso, Province of Salamanca.—Lamas wheat, barley, and rye. 620
374 Delgado, Miguel González, Ragama, Province of Salamanca.—Summer wheat. 620
375 Terreros, Santiago Juanes, Villares de la Reina, Province of Salamanca.—Summer wheat. 620
376 Díaz, Gaspar, Villalafres, Province of Salamanca.—Summer wheat. 620
377 Liñán, Martín González de Peñaranda de Bracamonte, Province of Salamanca.—Summer wheat. 620
378 Hernández, Antonio, Malpartida, Province of Salamanca.—Summer wheat. 620
379 Escribano, Francisco, Dehesa de Terrados, Province of Salamanca.—Summer wheat. 620
380 Marcos, Esteban, Parada de Rubiales, Province of Salamanca.—Summer wheat. 620
381 Carbayo, Luis, San Cristobal de la Cuesta, Province of Salamanca.—Summer wheat. 620
382 Samaniego, Manuel García, Salamanca.—Summer wheat. 620
383 Sanchez, Felipe Perez, Fregenada, Province of Salamanca.—Summer wheat. 620
384 Paulino, Diego Perez, Fregenada, Province of Salamanca.—Wheat. 620
385 García, Angel, Cantalapiedra, Province of Salamanca.—Barley. 620
386 Torre Ajerro, Mariano & Cipriano de Is, Arollo de Cucler, Province of Segovia.—Wheat, rye, and barley. 620
387 González, Ezequiel, Segovia.—White wheat. 620
388 Lopez, Mariano, Balisa, Province of Segovia.—Wheat and barley. 620
389 Satnyen, Pedro, Riaza, Province of Segovia.—Cereals. 620
390 Hernández, Juan, Villacastín, Province of Segovia.—Lamas wheat. 620
391 Gordo, Feliciano, Villacastín, Province of Segovia.—Summer wheat. 620
392 Palatin y Moreno, Fernando, Sevilla.—Maize. 620
393 Andrade, Manuel Zayas, Arahal, Province of Sevilla.—Wheat. 620
394 González, Rafael, Sevilla.—Maize. 620
395 Miura y Fernandez, Bentento, Sevilla.—Seed wheat. 620
396 Pantoja, Manuel Fernandez, Sevilla.—Maize. 620
397 Ojeda y Gomez, Juan, Sevilla.—Maize. 620
398 Maza, Juan Gomez de la, Olivares, Province of Sevilla.—Barley. 620
399 Silva y Perez, José, Olivares, Province of Sevilla.—Maize. 620
400 Perez, José, Olivares, Province of Sevilla.—Barley. 620
401 Ojeda, Juan Maria Rodriguez, Olivares, Province of Sevilla.—Wheat. 620
402 Cotan y Munoz, Manuel, Olivares, Province of Sevilla.—Wheat. 620
403 Cotan, Antonio Garcia, Olivares, Province of Sevilla.—Wheat. 620
404 Estrada y Lasarte, Manuel, Osuna, Province of Sevilla.—Barley. 620
405 Ramirez, Manuel Tamayo, Osuna, Province of Sevilla.—Barley. 620
406 Castro y Torres, Francisco, Osuna, Province of Sevilla.—Wheat. 620
407 Morillas, Ramon Farfan, Cantillana, Province of Sevilla.—Wheat. 620
408 Rivas y Morillas, Antonio, Cantillana, Province of Sevilla.—Barley. 620
409 Teruel, Pedro, & Bro., Cantillana, Province of Sevilla.—Wheat. 620
410 Sanchez, Benito Navarro, Mairena del Alcor, Province of Sevilla.—Wheat. 620
411 Lozano, Manuel Seda, Mairena del Alcor, Province of Sevilla.—Barley. 620
412 Mendez, Antonio, Mairena del Alcor, Province of Sevilla.—Seed wheat. 620
413 Puente, Salvador & Alejandro Linares, Burguillos, Province of Sevilla.—Wheat. 620
414 Martinez Sainz Bros., Sevilla.—Wheat. 620
415 Caso-Galindo, Count of, Carmona, Province of Sevilla.—Wheat. 620
416 Dos Fuentes, Viscount of, Carmona, Province of Sevilla.—Wheat. 620
417 Vallejo, José, Mairena del Alcor, Province of Sevilla.—Canary seed. 620
418 Rosa y Silva, José de la, Villamanrique, Province of Sevilla.—Maize. 620
419 Puig, Juan, La Rinconada, Province of Sevilla.—Seed wheat. 620
420 Alba, Diego Sanchez, Lebria, Province of Sevilla.—Summer wheat. 620
421 Vasquez y Rodriguez, Ignacio, Azmancar, Province of Sevilla.—Barley and wheat. 620
422 Mendez, Felipe, Mairena del Alcor, Province of Sevilla.—Wheat and barley. 620
423 Aunon y Leon, Antonio, Moron, Province of Sevilla.—Wheat and barley. 620
424 Villalón y Torres, Andrés, Moron, Province of Sevilla.—Barley and canary seed. 620
425 Amores, Manuel, Salteras y Olivares, Province of Sevilla.—Barley and St. Peter’s cor. 620
426 Serrano, Miguel Perez, Olivares, Province of Sevilla.—Wheat. 620
427 Leon, Manuel Gimenez, Carmona, Province of Sevilla.—Wheat. 620
428 Orejuela, Joaquín de, Utrera, Province of Sevilla.—Wheat, barley, and maize. 620

SPAIN.
<table>
<thead>
<tr>
<th>DEPT. VI.—AGRICULTURE.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agricultural Products.</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Product</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>429</td>
<td>Burgos, Felipe de, Utrera, Province of Sevilla.</td>
<td>Wheats, barley, and maize.</td>
</tr>
<tr>
<td>430</td>
<td>Rivas, Pedro, Utrera, Province of Sevilla.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>431</td>
<td>Cuadrada, Enrique de la Utrera, Province of Sevilla.</td>
<td>Cereals.</td>
</tr>
<tr>
<td>432</td>
<td>Cuellar, José Antonio, Utrera, Province of Sevilla.</td>
<td>Wheats, barley, and maize.</td>
</tr>
<tr>
<td>433</td>
<td>Riarola, Rafael, Utrera, Province of Sevilla.</td>
<td>Wheats and barley.</td>
</tr>
<tr>
<td>434</td>
<td>Crespo, Rafael, Utrera, Province of Sevilla.</td>
<td>Wheats and barley.</td>
</tr>
<tr>
<td>435</td>
<td>Saavedra, Francisco, Utrera, Province of Sevilla.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>436</td>
<td>Dominguez, Pedro, Utrera, Province of Sevilla.</td>
<td>Maize.</td>
</tr>
<tr>
<td>437</td>
<td>Royo, Damian, Soria.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>438</td>
<td>Corporation of Villar de Maya, Province of Soria.</td>
<td>Wheats, barley, and oats.</td>
</tr>
<tr>
<td>439</td>
<td>Corporation of Almanzan, Province of Soria.</td>
<td>Wheats, rye, and barley.</td>
</tr>
<tr>
<td>440</td>
<td>Gimenez, Justo, Valderrodilla, Province of Soria.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>441</td>
<td>Corporation of Rioseco, Province of Soria.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>442</td>
<td>Corporation of Baraona, Province of Soria.</td>
<td>Wheats and barley.</td>
</tr>
<tr>
<td>443</td>
<td>Carretero, Pedro, Utrilla, Province of Soria.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>444</td>
<td>Baillano, Faustino, Agua Viva, Province of Soria.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>446</td>
<td>Flour Association of Reus, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>447</td>
<td>Virgili, Pablo, Tarragona.</td>
<td>Urgel wheat, maize, barley, oats, and millet.</td>
</tr>
<tr>
<td>448</td>
<td>Plana, Antonio, &amp; Bro., Reus, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>449</td>
<td>Sedo, Juan Villanueva, Reus, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>450</td>
<td>Avila &amp; Marti, Reus, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>451</td>
<td>Saperas, Francisco, Reus, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>452</td>
<td>Marti, Bornas &amp; Co., Reus, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>453</td>
<td>Forasté y Perre, Juan, Villaseca, Province of Tarragona.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>454</td>
<td>Jausa, Pablo, La Canonja, Province of Tarragona.</td>
<td>Maize.</td>
</tr>
<tr>
<td>455</td>
<td>Domingo, Dimas, Reus, Province of Tarragona.</td>
<td>Maize and barley.</td>
</tr>
<tr>
<td>456</td>
<td>Gatell y Folch, Juan, Altafulla, Province of Tarragona.</td>
<td>Maize.</td>
</tr>
<tr>
<td>457</td>
<td>Mas Blanch, Julio C. de Esteve de, Amposta, Province of Tarragona.</td>
<td>Rice.</td>
</tr>
<tr>
<td>458</td>
<td>Corporation of Amposta, Province of Tarragona.</td>
<td>Rice.</td>
</tr>
<tr>
<td>459</td>
<td>Bignell, Jaime, San Carlos de la Rapita, Province of Tarragona.</td>
<td>Rice.</td>
</tr>
<tr>
<td>460</td>
<td>Soxis y Domenech, Juan, Villaseca, Province of Tarragona.</td>
<td>Maize.</td>
</tr>
<tr>
<td>461</td>
<td>Oller, Pedro, Reus, Province of Tarragona.</td>
<td>Maize.</td>
</tr>
<tr>
<td>462</td>
<td>Monaster, Amalio, Reus, Province of Tarragona.</td>
<td>Panic grass.</td>
</tr>
<tr>
<td>463</td>
<td>Margenat, Antonio Bages, Reus, Province of Tarragona.</td>
<td>Millet.</td>
</tr>
<tr>
<td>464</td>
<td>Barenya y Magriñá, Juan Bautista, Villaseca, Province of Tarragona.</td>
<td>Barley.</td>
</tr>
<tr>
<td>465</td>
<td>Fonts, Mariano, Reus, Province of Tarragona.</td>
<td>Barley.</td>
</tr>
<tr>
<td>466</td>
<td>Moreno, Manuel Ortiz, Ocaña, Province of Toledo.</td>
<td>Wheats, barley, and oats.</td>
</tr>
<tr>
<td>467</td>
<td>Fernandez, Manuel, Tembleque, Province of Toledo.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>468</td>
<td>Pasaran, Isidoro, Olias del Rey, Province of Toledo.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>469</td>
<td>Esteban, Francisco, Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>470</td>
<td>Negrete, Acisclo Fernandez, Villabos, Province of Toledo.</td>
<td>Wheat and barley.</td>
</tr>
<tr>
<td>471</td>
<td>Serrano y Fernandez, Federico, Madrid, Province of Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>472</td>
<td>Mejia, Isaac, Ocaña, Province of Toledo.</td>
<td>Summer wheat and barley.</td>
</tr>
<tr>
<td>473</td>
<td>Redondo, Juan Bautista, Carmen, Province of Toledo.</td>
<td>Wheats and barley.</td>
</tr>
<tr>
<td>474</td>
<td>Indo, Valentin Martinez, Argés, Province of Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>475</td>
<td>Campo, Victoriano Martin del, Madrid, Province of Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>476</td>
<td>Diego, Fabian de, Guadamur, Province of Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>477</td>
<td>Ortiz, Rufo Moreno, Escalonilla, Province of Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>478</td>
<td>Perez, Luis, Toledo.</td>
<td>Summer wheat.</td>
</tr>
<tr>
<td>479</td>
<td>Huelbes y Ortiz, Emilio de, Ocaña, Province of Toledo.</td>
<td>Summer wheat and oats.</td>
</tr>
<tr>
<td>480</td>
<td>Arrue, Miguel, Benaguacil, Province of Valencia.</td>
<td>Wheats.</td>
</tr>
<tr>
<td>481</td>
<td>Reig y Garcia, Fernando, Puebla de Vallbona, Province of Valencia.</td>
<td>Wheats and maize.</td>
</tr>
<tr>
<td>482</td>
<td>Lasala y Palomares, Vicente, Masía de la Mar, Province of Valencia.</td>
<td>Wheat and yellow maize.</td>
</tr>
<tr>
<td>483</td>
<td>Agricultural Society of Valencia, Valencia.</td>
<td>Rice, maize, barley, and oats.</td>
</tr>
<tr>
<td>484</td>
<td>Valdivi, Rafael Gonzalez, Torrente, Province of Valencia.</td>
<td>Maize.</td>
</tr>
<tr>
<td>485</td>
<td>Ferrandis y Soler, José, Onteniente, Province of Valencia.</td>
<td>Maize.</td>
</tr>
<tr>
<td>487</td>
<td>Corporation of Medina del Campo, Province of Valladolid.</td>
<td>Common red wheat.</td>
</tr>
<tr>
<td>489</td>
<td>Monedero, Eusebio, Valoria la Buena, Province of Valladolid.</td>
<td>Wheat.</td>
</tr>
</tbody>
</table>
Agricultural Products.

490 Monedero, Ventura, Valoria la Buena, Province of Valladolid.—Summer wheat. 620
491 Lozano, Juan, Molacillo, Province of Zamora.—Summer wheat. 620
492 Silva, Genaro, Montamarta, Province of Zamora.—Wheat. 620
493 Falcon, Felipe, Benavente, Province of Zamora.—Wheat. 620
494 Alejano, Salvador Fernandez, Fuente-entuaco, Province of Zamora.—Summer wheat. 620
495 Temprano, Jose, Vare de marban, Province of Zamora.—Summer wheat. 620
496 Marron, Jose, Victor, Alcañices, Province of Zamora.—Wheat. 620
497 Rodriguez y Rodriguez, Fernando, Villamayor, Province of Zamora.—Wheat. 620
498 Vecinos, Isidoro, Molacillos, Province of Zamora.—Wheat and barley. 620
499 Garcia, Miguel, Fuentes Pradas, Province of Zamora.—Summer wheat and common barley. 620
500 Angas, Francisco, Candasnos, Province of Zaragoza.—Wheat. 620
501 Sasot, Joaquin, Candasnos, Province of Zaragoza.—Wheat. 620
502 Gris, Jose Avio, Candasnos, Province of Zaragoza.—Wheat. 620
503 Claver, Mariano, Peñalba, Province of Zaragoza.—Wheat. 620
504 Rosas, Manuel, Bujaraloz, Province of Zaragoza.—Summer and admated wheat and rye. 620
505 Rozas, Eusebio, La Almolda, Province of Zaragoza.—Wheat. 620
506 Sampér, Joaquin, Bujaraloz, Province of Zaragoza.—Wheat. 620
507 Gris, Mariano, Bujaraloz, Province of Zaragoza.—Wheat. 620
508 Peisen, Jose J., Balfarta, Province of Zaragoza.—Wheat. 620
509 Pallás, Jose, Bujaraloz, Province of Zaragoza.—Wheat. 620
510 Escamilla, Segundo, Bujaraloz, Province of Zaragoza.—Wheat. 620
511 Buil, Jose, Castejon de Monegros, Province of Zaragoza.—Wheat. 620
512 La Viñaza, Count of, Epila, Province of Zaragoza.—Wheat. 620
513 Loring Bros., Malaga.—Wheat. 620
514 School of Agriculture, Vitoria, Province of Alava.—Leguminous plants and esculent vegetables. 621
515 Aguado, Juan de Dios, Corral Rubio, Province of Albacete.—Lentils and blue vetch. 621
516 Ruiz, Santiago, Hellin, Province of Albacete.—Rice. 621
517 Verdu y Perez, Joaquin, Monóvar, Province of Alicante.—Esculent vegetables. 621
518 Daza y Ruiz, Francisco, Puchena, Province of Almeria.—Kidney beans. 621
519 Linares, Jose Ramon, Albanches, Province of Almeria.—Chick-peas. 621
520 Perez, Mariano Valverde, Fontiveros, Province of Avila.—Chick-peas. 621
521 Rodriguez Francisco Mariano, Fontiveros, Province of Avila.—Chick-peas. 621
522 Sainz, Matias, Donvidas, Province of Avila.—Chick-peas. 621
523 Lambas y Gutierrez, Gregorio, Palañes de Gdla, Province of Avila.—Chick-peas. 621
524 Gonzalez, Manuel, Barco de Avila, Province of Avila.—French peas. 621
525 Soto, Jose Diaz, Cabeza de Vaca, Province of Badajoz.—Chick-peas. 621
526 Moreno, Cayetano, Villalba de los Barros, Province of Badajoz.—Chick-peas. 621
527 Paredes, Carlos, Guareña, Province of Badajoz.—Beans. 621
528 Venegas, Juan, Valle de Matamoros, Province of Badajoz.—Kidney beans. 621
529 Tortades, Jose de, Vich, Province of Barcelona.—Kidney beans. 621
530 Fontordera, Juan de, Vich, Province of Barcelona.—Kidney beans. 621
531 Mascaro, Jose, Vich, Province of Barcelona.—Spanish peas. 621
532 Picó, Mariano de, Vich, Province of Barcelona.—Leguminous plants and esculent vegetables. 621
533 Pratt, Jose, Vich, Province of Barcelona.—Lupine. 621
534 Lerda y Daniel, Jose, Vich, Province of Barcelona.—Spanish peas. 621
535 Soler y Stussa, Valentin, Barcelona.—Esculent vegetables. 621
536 Garriga, Francisco Domingo, San Quirce de Besora, Province of Barcelona.—Esculent vegetables. 621
537 Provincial Deputation of Burgos.—Pipirigallo (Hydysarium onobrychis) and galinga (lathyrus cicera). 621
538 Commission of the Province of Burgos.—Esculent vegetables. 621
539 Arribas, Indalecio Anton, Lerma, Province of Burgos.—True bitter vetch. 621
540 Garcia y Garcia, Francisco, Miranda de Ebro, Province of Burgos.—Kidney beans. 621
541 Morales, Luis, Miranda de Ebro, Province of Burgos.—Lentils. 621
542 Garcia, Antonio Gimenez, Guio de Santa Barbara, Province of Cáceres.—Chick-peas and kidney beans. 621
543 Sande Olivares, Jeronimo de, Gavarrillas de Alconetar, Province of Cáceres.—Chick-peas. 621
544 Martin, Ramon, Olvera, Province of Cádiz.—Chick-peas. 621
545 Perez, Francisco Garcia, Jerez de la Frontera, Province of Cádiz.—Chick-peas, beans and Spanish peas. 621
546 Corporation of Tarifa, Province of Cadiz.—Beans. 621
547 Provincial Commission, Isle of Tenerife, Canary Islands.—Chick-peas. 621
548 Leon, Juan Ponce de, Isle of Gran Canaria, Canary Islands.—Kidney beans and chick-peas. 621
549 Quevedo, Jose C., Isle of Gran Canaria, Canary Islands.—Kidney beans and chick-peas. 621
### Agricultural Products.

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Province mentioned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial Board of Agriculture, Castellon.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Las Cabezuelas, Count of, Campo de Criptana, Province of Ciudad-Real.</td>
<td>Beans.</td>
</tr>
<tr>
<td>Cabanas y Blanco, Rafael, Cordoba.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Matilla, Carlos, Cordoba.</td>
<td>Lupine and Spanish peas.</td>
</tr>
<tr>
<td>Corporation of Cabra, Province of Cordoba.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Gimenez, Jose Maria, Baena, Province of Cordoba.</td>
<td>Beans and chick-peas.</td>
</tr>
<tr>
<td>Barrionuevo, Fernando, Cordoba.</td>
<td>Moorish beans.</td>
</tr>
<tr>
<td>San Bernardo, Count of, Cordoba.</td>
<td>Moorish beans.</td>
</tr>
<tr>
<td>Vallejo, Rafael, Cordoba.</td>
<td>Moorish beans.</td>
</tr>
<tr>
<td>Pacheco, Rafael Granados, Benamjio, Province of Cordoba.</td>
<td>Beans.</td>
</tr>
<tr>
<td>Poyato, Manuel, Zuheros, Province of Cordoba.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Escribano, Luis, Pozoblanco, Province of Cordoba.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Blanco, Alfonso, Dos-Torres, Province of Cordoba.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Torrico, Manuel, Hinojosa, Province of Cordoba.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Sanz y Calatanazor, Jeronimo Cordoba.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Conde, Juan, Cordoba.</td>
<td>True bitter vetch.</td>
</tr>
<tr>
<td>Carrillo, Librado, Priego, Province of Cordoba.</td>
<td>White kidney beans.</td>
</tr>
<tr>
<td>Massó y Soler, Felix, Blanes, Province of Gerona.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Sanchez, Juan Francisco, Siguenza, Province of Guadalajara.</td>
<td>Flesh-colored kidney beans.</td>
</tr>
<tr>
<td>Gil, Santiago, Siguenza, Province of Guadalajara.</td>
<td>White kidney beans.</td>
</tr>
<tr>
<td>Heras, Angel Ayuso de las, Valdearenas, Province of Guadalajara.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Reyes y Rich, Juan, Guadalajara.</td>
<td>Beans.</td>
</tr>
<tr>
<td>Soldan, Antonio, La Palma, Province of Huelva.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Riera y Fernandez, Jose, Huelva.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Carrasco, Jose Maria, Bonares, Province of Huelva.</td>
<td>Beans.</td>
</tr>
<tr>
<td>Otal, Jose Maria, Castillo de Carabineros, Province of Huesca.</td>
<td>Chick-peas and beans.</td>
</tr>
<tr>
<td>Paula Bulnes, Francisco de, Cazorla, Province of Jaen.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Vasquez, Francisco, Cazorla, Province of Jaen.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Quesada y Salazar, Pedro de, Valdepeñas, Province of Jaen.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Esteban y Balen, Andres, Navas de San Juan, Province of Jaen.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Herrera, Juan Ignacio, Izناtorof, Province of Jaen.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Higueras, Jose, Los Villares, Province of Jaen.</td>
<td>Lentils.</td>
</tr>
<tr>
<td>Prado, Maximo Alonso de, Leon.</td>
<td>Esculent vegetables.</td>
</tr>
<tr>
<td>Corporation of Vega de Infanzones, Leon.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Corporation of Valdefresno, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Arganza, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Congosto, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Mansilla Mayor, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Villarrutiel, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Valverde del Camino, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Mansilla de las Midlands, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Ponferrada, Province of Leon.</td>
<td>Chick-peas and kidney beans.</td>
</tr>
<tr>
<td>Corporation of Encinado, Province of Leon.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Corporation of Pajares de los Oteros, Province of Leon.</td>
<td>Chick-peas.</td>
</tr>
<tr>
<td>Corporation of Magaz, Province of Leon.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Nuñez, Lino, Sahagun, Province of Leon.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Santos, Pablo, Fuentes de los Oteros, Province of Leon.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Oliveres, Mauricio, Torreserona, Province of Lerida.</td>
<td>Kidney beans on the vine.</td>
</tr>
<tr>
<td>Jover, Luisa de, Tarrega, Province of Lerida.</td>
<td>Kidney beans.</td>
</tr>
<tr>
<td>Igñés, Pedro, Cervera, Province of Lerida.</td>
<td>Blue vetch.</td>
</tr>
<tr>
<td>Freire, Manuel Soto, Fanton, Province of Lugo.</td>
<td>Chick-peas and beans.</td>
</tr>
<tr>
<td>Pillado, Eliseo Martinez, Foz, Province of Lugo.</td>
<td>Chick-peas and beans.</td>
</tr>
<tr>
<td>Martinez, Ramon Antonio, Sarria, Province of Lugo.</td>
<td>Kidney beans.</td>
</tr>
</tbody>
</table>
Agricultural Products.

610 Moreno, Ramon Armento, Puebla del Brollon, Province of Lugo.—Colored kidney beans. 621
611 Valcarcel, Teresa Pardo, Sarriena, Province of Lugo.—Chick-peas. 621
612 Corporation of Puebla del Brollon, Province of Lugo.—Beans. 621
613 Mendez, Alfreo Perez, Monforte, Province of Lugo.—Chick-peas. 621
614 Calatrava, Francisco Garcia, Alcobendas, Province of Madrid.—Chick-peas. 621
615 Pascual, Elias, Alfarnate, Province of Malaga.—Chick-peas. 621
616 Marin, Juan F. Garcia, Caravaca, Province of Murcia.—Kidney beans. 621
617 Anta, Ignacio, Orense.—Beans. 621
618 Rodriguez, Manuel Iglesias, Calanova, Province of Orense.—Esculent vegetables. 621
619 Rodriguez ya Gomez, Camilo, Gingo de Vilar, Province of Ourense.—Chick-peas. 621
620 Rey, Manuel Perea, Rivela, Province of Orense.—Kidney beans. 621
621 Iglesias, Ramon, Canedo y Veiro, Province of Orense.—Kidney beans. 621
622 Provincial Board of Agriculture, Oviedo.—Kidney beans and peas. 621
623 Llanos, Andres, Saladafia, Province of Palencia.—Chick-peas and French peas. 621
624 Carrasco, Antolin Galan, Carrion, Province of Palencia.—Chick-peas. 621
625 Carande, Isidoro, Nogal de las Huertas, Province of Palencia.—Chick-peas. 621
626 Garcia, Ignacio, Herrera del Rio Plaerga, Province of Palencia.—White French peas. 621
627 Gallego, Felix, Cevico de la Torre, Province of Palencia.—White French peas. 621
628 Gutierrez, Juan Francisco, Palencia.—White French peas. 621
629 Monereo, Juan, Quintana del Puente, Province of Palencia.—Carrobs. 621
630 Ortega, Demetrio, Palencia.—Beans. 621
631 Gutierrez, Calisto, Palencia.—Beans. 621
632 Rivas, Galo Ruiz, Province of Palencia.—Peas. 621
633 Colombres, Genaro, Perales, Province of Palencia.—True bitter vetch. 621
634 Onis, Federico, Cantalapiedra, Province of Salamanca.—Esculent vegetables. 621
635 Toribio, Antonio Martin, Villares de la Reina.—Chick peas, lentils, and beans. 621
636 Carbaya, Luis, San Cristobal de la Currida, Province of Salamanca.—Lentils and chick-peas. 621
637 Nieto, Francisco Hernandez, Boveda del Rio Almar, Province of Salamanca.—Chick-peas. 621
638 Garcia, Rafael, Cantalapiedra, Province of Salamanca.—Chick-peas. 621
639 Ronco, Gregorio, Ragaama, Province of Salamanca.—Chick-peas. 621
640 Terrero, Santiago Juanes, Villares, Province of Salamanca.—Chick-peas. 621
641 Salvadlos, Gaspar Diaz, Villalcofas, Province of Salamanca.—Chick-peas. 621
642 Mayoral, Andres, Los Huelmos, Province of Salamanca.—Chick-peas. 621
643 Poveda, Paulino, Pedrosa, Province of Salamanca.—Chick-peas. 621
644 Garcia, Angel, Cantalapiedra, Province of Salamanca.—Peas. 621
645 Rodriguez, Zacarias, Cantalapiedra, Province of Salamanca.—Carrobs. 621
646 Fuentes, Jose, La Pinilla, Province of Salamanca.—Black peas. 621
647 Hernandez, Vicente, Cantalapiedra, Province of Salamanca.—Peas. 621
648 Iglesias, Angel, Monterrubio de Aruinha, Province of Salamanca.—Lentils. 621
649 Hernandez, Baldomero, Parada de Rubides, Province of Salamanca.—Beans. 621
650 Gomez, Miguel Martin, Baliso, Province of Segovia.—Chick-peas. 621
651 Gimenez Isidro, Villacasin, Province of Segovia.—Chick-peas. 621
652 Linares, Salvador & Alejandro, Burgillos & Alcal de Rio, Province of Sevilla.—Beans and Spanish peas. 621
653 Velasco, Ramon, Carmona, Province of Sevilla.—Chick-peas. 621
654 Olivares, Manuel Garcia, Olivares, Province of Sevilla.—Chick-peas. 621
655 Ojeda, Manuel, Sevilla.—Chick-peas. 621
656 Leon, Manuel Gimenez, Vises del Alcor, Province of Sevilla.—Chick-peas. 621
657 Teran, Francisco Collantes de Alcal de Guadaira, Province of Sevilla.—Chick-peas. 621
658 Puig, Juan, Sevilla.—Chick-peas. 621
659 Ojeda y Gomez, Juan, Sevilla.—Chick peas. 621
660 Orejuela, Joaquin de, Utrera, Province of Sevilla.—Chick-peas and Spanish peas. 621
661 Cuadra, Enrique de la, Utrera, Province of Sevilla.—Esculent vegetables. 621
662 Amores, Manuel, Salteres y Olivares, Province of Sevilla.—Esculent vegetables. 621
663 Perez y Serrano, Miguel, Olivares, Province of Sevilla.—Chick-peas and Spanish peas. 621
664 Muñoz y Leon, Antonio, Moran, Province of Sevilla.—Chick-peas. 621
665 Mendez, Felipe, Mairena del Alcor, Province of Sevilla.—Chick-peas. 621
666 Saaavedra, Francisco, Utrera, Province of Sevilla.—Chick-peas. 621
667 Lavado, Antonio, Fernandez, Aguadulce, Province of Sevilla.—Beans. 621
668 Alcaraz, Manuel de, Osuna, Province of Sevilla.—Beans. 621
669 Rivas, Pedro de, Utrera, Province of Sevilla.—Beans. 621
670 Gonzales, Rafael, Sevilla.—Beans. 621
Agricultural Products.
Agricultural Products.

730 Lara, Mateo Tuñon de, Andújar y Menjivar, Province of Jaén.—Licorice-root. 622
731 Asensio, Ramon, Caravaca, Province of Murcia.—Potatoes. 622
732 Vila, Francisco, Viana del Bolo, Province of Orense.—Potatoes. 622
733 Rodriguez, Manuel Iglesias, Calamena, Province of Orense.—Tubers. 622
734 Rey, Manuel Pereiro, Orense.—Onions. 622
735 Carraura, Ramon, Cantalapiedra, Province of Salamanca.—Beet-root. 622
736 Torre Ajero, Mariano & Cipriano de la, Arroyo de Cuelar, Province of Segovia.—Adder-root. 622
737 Moreno, Santiago Merino, Berlanga de Duero, Province of Soria.—Onions, garlic, and potatoes. 622
738 Fonts, Mariano, Reus, Province of Tarragona.—Garlic. 622
739 Redondo, Juan Bautista, Carmena, Province of Toledo.—Potatoes. 622
740 Society of Agriculture of Valencia. Licorice-root, peanut, edible cyperus, Spanish garlic. 622
741 Lassala y Camps, Vicente, Alboraya, Province of Valencia.—Edible cyperus. 622
742 Dios Quemada, Juan de, & Sons, Vilova, Province of Valladolid.—Madder-root. 622
743 National Manufactory of Tobacco, Alicante.—Tobacco. 623
744 Corral, Luis Marrin del, La Laguna, Canary Islands.—Tobacco. 623
745 Mendez, Benigno Dominguez, Valverde, Canary Islands.—Tobacco. 623
746 Garcia, Domingo, Orotava, Canary Islands.—Tobacco. 623
747 Lugo, Luis Benitez de, Orotava, Canary Islands.—Tobacco. 623
748 Society “El Porvenir Agricola,” Isle of Gran Canaria, Canary Islands.—Leaf-tobacco and cigars. 623
749 Olivares, Jose del Castillo, Teide, Canary Islands.—Coffee. 623
750 Armas, Antonio, Valle de Agaete, Canary Islands.—Coffee. 623
751 Barrenengo, Damoso, Ciudad-Real.—Coffee. 623
752 Ortiz, Juan, Almodóvar del Pinar, Province of Cuenca.—Safron. 623
753 Chillaron, Silvestre, Villarejo de Fuente, Province of Cuenca.—Safron. 623
754 Redondo, Peregrin, Valverde de Fuen, Province of Cuenca.—Safron. 623
755 Corporation of Lfíola, Province of Lérida.—Chamomile flowers. 623
756 Liné y Canes, José, Lfíola, Province of Lérida.—Chamomile flowers. 623
757 Mar, Ramon, Lérida.—Chamomile flowers. 623
758 National Manufactory of Tobacco, Madrid.—Tobacco. 623
759 Meric & Co., Colonial Company, Madrid.—Ground coffee. 623
760 Menchero, Eduardo, Cartagena, Province of Múrcia.—Spanish opium. 623
761 National Manufactory of Tobacco, Sevilla.—Tobacco. 623
762 Corporation of La Puebla de Eca, Province of Soria.—Safron. 623
763 Corporation of Valtuñfa, Province of Soria.—Safron. 623
764 National Manufactory of Tobacco, Valencia.—Tobacco. 623
765 Leon, José, Rocafort, Province of Valencia.—Tobacco. 623
766 Masía, Francisco, Requena, Province of Valencia.—Safron. 623
767 Gomez, Bernardo, Requena, Province of Valencia.—Safron. 623
768 Piñango, Norberto, Requena, Province of Valencia.—Safron. 623
769 Central Commission of the Island of Cuba, Habana, Cuba.—Leaf-tobacco. 623
770 Bock & Co., Habana, Cuba.—Tobacco. 623
771 Alloones, Ramon, Habana, Cuba.—Tobacco. 623
772 Arrigunaga, Fernando, Habana, Cuba.—Tobacco. 623
773 Gené, José, Habana, Cuba.—Tobacco. 623
774 Ummann, H. & Co., Habana, Cuba.—Tobacco. 623
775 Romero, Juan, Bernabé, Habana Cuba.—Tobacco. 623
776 Morales, José, Habana, Cuba.—Tobacco. 623
777 Jané, Manuel, Habana, Cuba.—Tobacco. 623
778 Valle, Suarez & Co., Habana, Cuba.—Tobacco. 623
779 Tolosa, Enrique, & Bro., Habana, Cuba.—Tobacco. 623
780 Asay, Celestino, Habana, Cuba.—Tobacco. 623
781 Diaz, Bances & Co., Habana, Cuba.—Tobacco. 623
782 Alvarez, Julian, Habana, Cuba.—Tobacco. 623
783 Murius, Pedro, & Co., Habana, Cuba.—Tobacco. 623
784 Rio, J. P. del, & Co., Habana, Cuba.—Tobacco. 623
785 Caminos, Cuesta, & Co., Habana, Cuba.—Cigarettes. 623
786 Ortiz, Isidoro, Habana, Cuba.—Cigarettes. 623
787 Poy, Juan, Habana, Cuba.—Coffee. 623
788 Brotons, Bros., Orihuela, Province of Alicante.—Ground pepper. 623
789 Velasco, Cayetano Sabater, Murcia.—Ground pepper. 623
790 Laorden, Juan Bernabé, Múrcia.—Ground pepper. 623
791 Báguena, Joaquin, Múrcia.—Ground pepper. 623
792 Arjona y Gomez, Jesús, Jaraiz de la Vera, Province of Cáceres.—Ground pepper. 623
793 Parrales, Valentín, Jaraiz de la Vera, Province of Cáceres.—Ground pepper. 623
Agricultural Products, Animals, etc.

794 Guerra, Felipe Leon, Gata, Province of Cáceres.—Ground pepper. 623
795 Enciso, Angel Morales, Jaraíz de la Vera, Province of Cáceres.—Ground pepper. 623
796 Jabon, Blas, Jaraíz de la Vera, Province of Cáceres.—Ground pepper. 623
797 Brotons, Carlos, Alicante.—Flax seed. 624
798 Soria, Francisco Fuster, Monforte, Province of Alicante.—Carob seed. 624
799 Verdu, Joaquín, Monóvar, Province of Alicante.—Anise and Cumín seed. 624
800 Riscal, de Alègre, Marquis of, Alia, Province of Cáceres.—Seeds. 624
801 Provincial Board of Agriculture, Castellon.—Lucern seed, flax seed, and carob seed. 624
802 Sanchez, Sotero, Daimiel, Province of Ciudad-Real.—Anise seed. 624
803 Peñalver, José Díaz, Membrilla, Province of Ciudad-Real.—Anise seed. 624
804 Lara, Antonio Crespo, Benameji, Province of Córdoba.—Anise seed. 624
805 Prieto, Sebastian, Encinas Reales, Province of Córdoba.—Anise seed. 624
806 Conde, Juan, Córdoba.—Flax seed and benniseed. 624
807 Avilés y Merino, Francisco, Córdoba.—Flax seed and mustard seed. 624
808 Chillaron, Silvestre, Villarejo de Fuentes, Province of Cuenca.—Anise seed. 624
809 Hidalgo, Valeriano, Les Hinojosos, Province of Cuenca.—Anise seed. 624
810 Fernandez de Villalta, Antonio, Torre don Jimeno, Province of Jaén.—Anise and lavender seed. 624
811 Corporation of Pozo Alcon, Province of Jaén.—Cumin seed. 624
812 Ferreiro, Antonio, Mondónedo, Province of Lugo.—Furze seed. 624
813 Parada, Domingo, Castroverde, Province of Lugo.—Linseed. 624
814 Provincial Deputation, Múrcia.—Seeds. 624
815 Fuentes y Ponte, Javier, Múrcia.—White sorghum seed. 624
816 Onis, Federico de, Cantalapiedra, Province of Salamanca.—Carrhamas seed. 624
817 Virgili, Pablo, Tarragona.—Flax seed and linseed. 624
818 Grau, José, Reus, Province of Tarragona.—Linseed. 624
819 Gatell y Folch, Juan, Altafulla, Province of Tarragona.—Beans. 624
820 Margenat, Antoni0 Bagés, Reus, Province of Tarragona.—Flax seed. 624
821 Negrete, Acisclo Fernandez, Vilatxol, Province of Toledo.—Anise seed. 624
822 Huelbes y Ortiz, Emilio, Ocaña, Province of Toledo.—Anise and cumín seed. 624
823 Valencian Society of Agriculture, Valencia.—Seeds. 624
824 Llanes, Mariano Ontoneda, Manuel, Province of Valencia.—Peanut seed. 624
825 Aspíroz, Rafael Vives, Villa Oliva, Province of Valencia.—Peanut seed. 624
826 Ordun3a, Salvador Navarro, Villa Oliva, Province of Valencia.—Beans. 624
827 La Viñaza, Count of, Epila, Province of Zaragoza.—Linseed and flax seed. 624
828 Ramirez, Antonio, Alicante.—Linseed. 624
829 Sirvent, Antonio, San Vicente, Province of Alicante.—Canary seed. 624
830 Calabuig, Bartolomé, Bañeras, Province of Alicante.—Pine seed. 624
831 Molano, Manuel, Badajoz.—Acorns. 624
832 Carretero, Agustin, Salvalleón, Province of Badajoz.—Acorns. 624
833 Gomez, Antonio Enrique, Montero, Province of Córdoba.—Acorns. 624
834 Corporation of Afora, Province of Córdoba.—Acorns. 624
835 Escribano, Luis, Pozoblanco, Province of Córdoba.—Acorns. 624
836 Galan, Alfonso Blanco, Dos-Torres, Province of Córdoba.—Acorns. 620
837 Destitos, Gertrudis de, San Pelílu de Codina, Province of Barcelona.—Pine cone seed. 624
838 Corporation of Cartaya, Province of Huelva.—Pine cone seed. 624
839 Serrano, José Lorenzo, Zalamea, Province of Huelva.—Acorns. 624

Land Animals.

840 Baylal, Juan de la, Santander.
  a) Rabbit and birds. 635
  b) Domestic and Angora cats. 636
  c) Boar. 637

841 Riscal de Alegre, Marquis of, Alia, Province of Cáceres.—Eggs, chrysalis and butterfly of the silk worm. 638
842 Argona, Jesus, Jaraíz, Province of Cáceres.—Coccoons. 638
843 Quevedo, José C., Isle of Gran Canaria, Canary Islands.—Cochineal. 638
844 Davidson, Guillerme, & Co., Villa de la Orotova, Canary Islands.—Cochineal. 638
845 Torre, Rafael de la, Las Palmas, Canary Islands.—Cochineal. 638
846 Corps of Engineers of Woods & Forests, Madrid.—Anatomical pictures of various insects. 638
847 Vidaur, Aurelio Lopez, Santander.—Collection of beetles. 638

Marine Animals, Fish Culture, and Apparatus.

848 Roca, Bartolomé, Palma de Mallorca, Balearian Islands.—Anchovies in oil. 641
849 Garcia & Pifon, Coruña.—Preserved Fish. 641
850 Cotrofe, Miguel, Coruña, Preserved fish. 641
851 Codes, Tomás Lopez de, Isla Cristina, Province of Huelva.—Salt and pressed sardines. 641
852 Provincial Commission, Lugo.—Cured eels. 641
Marine Animals, etc., Animal and Vegetable Products.

853 Riego, Vicente, Vivero, Province of Lugo.—Pressed and preserved sardines. 641
854 Vicente, Pascual, & Co., Vivero, Province of Lugo.—Pressed and preserved sardines. 641
855 Arzadum & Co., Villagarcia, Province of Pontevedra.—Preserved fish. 641
856 Martinez, Joaquin, Pontevedra.—Preserved fish. 641
857 Otero, Francisco, Grove, Province of Pontevedra.—Pressed sardines. 641
858 Mandado, Nicolas, & Sons, Aldan, Province of Pontevedra.—Pressed sardines. 641
859 Larravide, Braulio de, Laredo, Province of Santander.—Preserved fish. 641
860 Codes, Tomás Lopez de, Isla Cristina, Province of Huelva.—Salt tunny-fish. 642
861 Arzadum & Co., Villagarcia, Province of Pontevedra.—Shell-fish, cockles, and sea-sleeves. 641
862 Martinez, Joaquin, Pontevedra.—Cockles, mediterranean scallop, and other shell-fish. 643
863 Codes, Tomás Lopez de, Isla Cristina, Province of Huelva.—Sardine oil. 646
864 Vicente, Pascual, & Co., Vivero, Province of Lugo.—Sardine oil. 646
865 Riego, Vicente, Vivero, Province of Lugo.—Sardine oil. 646
866 Lopez, Francisco Ramon, Vivero, Province of Lugo.—Sardine oil. 646

Animal and Vegetable Products.

867 Provincial Deputation, Murcia.—Spunk. 650
868 Riuadavets y Femenias, Francisco, Mahon, Balearic Islands.—Condensed milk, and coffee and milk. 651
869 Fabreques, Guillermo, Mahon, Balearic Islands.—Condensed milk, and coffee and milk. 651
870 Visa, Agustin B., Mahon, Balearic Islands.—Coffee and condensed milk. 651
871 Clemente, Manuel Martin, Torrejoncillo, Province of Cáceres.—Cheese from sheep's milk. 651
872 Provincial Board of Agriculture, Morella, Province of Castellon.—Cheese from sheep's milk. 651
873 Coca, José, Maria, Daimiel, Province of Ciudad-Real.—Cheese from sheep's milk. 651
874 Villahermosa, Manuel, Manzanares, Province of Ciudad-Real.—Cheese from sheep's milk. 651
875 Camacho, Miguel Gonzalez, Manzanares, Province of Ciudad-Real.—Cheese from sheep's milk. 651
876 Pozoblanco, Luis Escribano, Province of Córdoba.—Cheese. 651
877 Falero y Fajardo, Plácido, Fuente de Pedro Naharro, Province of Cuenca.—Cheese. 651
878 Melgarro, Maria Josefa, San Clemente, Province of Cuenca.—Cheese. 651
879 Moron, José Garcia, Cabezas Rubias, Province of Huelva.—Cheese. 651

880 Callejon, Francisco Gimenez, Jaen.—Cheese. 651
881 Rodriguez, Vicente, Becerréa, Province of Lugo.—Butter. 651
882 Vega, Manuel Pardo de la, Rabado, Province of Lugo.—Salt butter. 651
883 Novoa, Juan Caraballo & Son, Lobos, Province of Orense.—Imitation butter. 651
884 Board of Agriculture, Industry and Commerce, Oviedo.—Cheese. 651
885 Peña, Justo Estévez, Hinojosa del Duero, Province of Salamanca.—Cheese. 651
886 Basarán, Isidoro, Olias del Rey, Province of Toledo.—Cheese. 651
887 Quiros' Widow & Sons, San Bartolomé de Pinares, Province of Avila.—Hides. 652
888 Provincial Commission, Burgos.—Hides. 652
889 Martin, Francisco Cazador, Castellon.—Hides. 652
890 Barrera, Angel, Lugo.—Hides. 652
891 Provincial Deputation, Múrcia.—Hides. 652
892 Conde, Juan Manuel, Valverde, Province of Orense.—Hides. 652
893 Antonio, Manuel de, Salamanca.—Common glue. 652
894 Medrano, Segundo Bartolomé, Valdecavellano, Province of Soria.—Sheep skins. 652
895 Sotorra, Antonio Cort, Reus, Province of Tarragona.—Hides. 652
896 Sans, Jaime, Widow of, Reus, Province of Tarragona.—Catalanian sole-leather. 652
897 Rocamera, Jerónimo, Reus, Province of Tarragona.—Catalanian sole-leather. 652
898 Allustante, Manuel, Zaragoza.—Call-skins and dressed skins. 652
899 Molano, Pedro, Badajoz.—Honey. 654
900 Fabreques, Guillermo, Mahon, Balearic Islands.—Nougat of honey and almonds. 654
901 Olivés, Bernardo José de, Ciudadela, Balearic Islands.—Honey. 654
902 Salvador, José, Barcelona.—Objects of wax. 654
903 Domingo, Gregorio de, Santibáñez del Val, Province of Burgos.—Honey. 654
904 Cepeda, Julian, Yeste, Province of Cáceres.—Honey. 654
905 Dominguez, Benigno, Pinar, Canary Islands.—Honey. 654
906 Provincial Board of Agriculture, Morella, Province of Castellon.—Honey. 654
907 Llaua ola, Vicente, Castellon.—Wax. 654
908 Rubisco, Cayetano, Clemente, Moral de Calatrava, Province of Ciudad-Real.—Wax and honey. 654
909 Corporation of Palm del Rio, Province of Córdoba.—Honey. 654
910 Mayor domo, Manuel, Fresnedas de la Sierra, Province of Cuenca.—Honey.
Animal and Vegetable Products.

911 Herraz, Eustasio, Cardenete, Province of Cuenca.—Honey. 654
912 Torralba, José, Cardenete, Province of Cuenca.—Honey. 654
913 Corporation of Berniches, Province of Guadalajara.—Honey. 654
914 Cepeda, Ignacio, Almonte, Province of Huelva.—Honey. 654
915 Hinojosa, Juan, Herrera, Cartaya, Province of Huelva.—Honey. 654
916 Alvarez, José Maria, Cartaya, Province of Huelva.—Honey. 654
917 Fernandez, Francisco, Cartaya, Province of Huelva.—Honey. 654
918 Vazquez, Bartolome, Villanueva de los Castilejos, Province of Huelva.—Honey. 654
919 Serrano, José Lorenzo, Zalamea la Real, Province of Huelva.—Wax. 654
920 Aionto, Pedro Alonso, Leon.—Honey. 654
921 Martinez, Juan Panero, Astorga, Province of Leon.—Wax. 654
922 Monforte, Andrés Andrade, Province of Lugo.—Honey. 654
923 Lopez, Manuel Gonzalez, Incio, Province of Lugo.—Honey. 654
924 Corporation of Valle de Oro, Province of Lugo.—Wax. 654
925 Tato, Manuel, Lugo.—Wax. 654
926 Portillo, Serafin Rodriguez, Madrid.—Ornamental wax candles. 654
927 Provincial Deputation, Murcia.—Honey. 654
928 Velasco, Manuel, Verin, Province of Orense.—Honey. 654
929 Robo, Modesto Perez, Verin, Province of Orense.—Wax. 654
930 Carmona, José García, Forcarey, Province of Pontevedra.—Wax. 654
931 Corbalán, Juan, Saucelle, Province of Salamanca.—Honey. 654
932 Sanchez, Rosa Hernandez, La Hinojosa, Province of Salamanca.—Honey. 654
933 Garcia, José Sanchez, Fregeneda, Province of Salamanca.—Honey. 654
934 Gascon, Andrés Sanchez, Cepeda, Province of Salamanca.—Wax. 654
935 Roman, José Palacios, Corniñon, Province of Sevilla.—Honey. 654
936 Ramos, Eustaquio, Soria.—Honey and wax. 654
937 Aguirre, Simon, Soria.—Honey. 654
938 Perez, Vicente Antonio, Talavera de la Reina, Province of Toledo.—Wax candles and wax. 654
939 Lecanda, Eloy, Valbuena de Duero, Province of Valladolid.—Honey. 654
940 Domen, Gregorio, Zueria, Province of Zaragoza.—Honey. 654
941 Izquierdo, Nicolas, Zueria, Province of Zaragoza.—Honey. 654
942 Poey, Juan, Habana, Cuba.—Honey. 654
943 Veglier y Naguer, Juan, Habana, Cuba.—Honey. 654
944 Central Commission, Habana, Cuba.—Honey. 654
945 Carratala, Francisco, San Juan, Province of Alicante.—Olives. 654

946 Girones, Manuela, Agost, Province of Alicante.—Olives. 656
947 Samper, Ramon, Muchamiel, Province of Alicante.—Olives. 656
948 Espinós, Joaquin, & Co., Ondara y Beniarbeig, Province of Alicante.—Muscatel raisins. 656
949 Almodóvar, Antonio Sanchez, Alicante.—Preserves. 656
950 Bernabeu y Diego, Juan B., Jabea, Province of Alicante.—Kaisers. 656
951 Verdu y Perez, Joaquin, Monóvar, Province of Alicante.—Dried figs. 656
952 Lérid, Eduardo Campos, Alicante, Dried figs. 656
953 Miralles, Clemente, Alicante.—Vegetable preserves. 656
954 Garcia, Manuel, Elche, Province of Alicante.—Fig bread and dates. 656
955 Benito, Juan Bautista Pina, Monóvar, Province of Alicante.—Figs. 656
956 Meson, José, Arenas de San Pedro, Province of Avila.—Olives. 656
957 Vaca, José, Badajoz.—Ham. 656
958 Terron, Jacinto, Badajoz.—Pork sausages and black pudding. 656
959 Maria, Juan Martinez Santa, Burguillés, Province of Badajoz.—Dried beef and sausages. 656
960 Sanabria, José, Badajoz.—Sausages. 656
961 Visa, Agustín, Mahon, Balearic Islands.—Sausages. 656
962 Roca, Bartolomé, Palma, Balearic Islands.—Vegetable preserves. 656
963 Arron, Lorenzo, Llubi, Balearic Islands.—Vegetable preserves. 656
964 Puig & Llagostera, Barcelona.—Preserved olives. 656
965 Trias y Travesa, José, Masnou, Barcelona.—Dessicated vegetables. 656
966 Vernis, Jaime, Vich, Province of Barcelona.—Preserved meats. 656
967 Luna, José, La Rambla, Province of Barcelona.—Preserved fruits, vegetables, etc. 656
968 Parent Bros., Barcelona.—Fruits in liquors and sweetmeats. 656
969 Castell, Joaquin Pedrosa de, Esparraguera, Province of Barcelona.—Olives. 656
970 Provincial Commission, Miranda de Ebro, Province of Burgos.—Preserved meats. 656
971 Oliva, Jeronimo de San, Garrovillas de Alconetar, Province of Cáceres.—Pork sausages. 656
972 Garcia, Antonio Gimenez, Guio de Santa Barbara, Province of Cáceres.—Preserved fruits. 656
973 Cuevas, Joaquin de las, Putxuel, Province of Cadiz.—Sausages. 656
974 Provincial Board of Agriculture, Castellon.—Dried figs. 656
975 Aguila y Aguil, Santiago, Villarrobleda de los Osos, Province of Ciudad Real.—Olives. 656
976 Puzini Bros., Córdoba.—Fruits in syrup. 656
977 Lara, Rafael J. de, Córdoba.—Olives. 656
### Animal and Vegetable Products

<table>
<thead>
<tr>
<th>Product</th>
<th>Province</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>978 San Bernardo, Count of Córdoba.</td>
<td>Olives.</td>
<td>656</td>
</tr>
<tr>
<td>979 Cabezás y Sarabia, José, Córdoba.</td>
<td>Olives.</td>
<td>656</td>
</tr>
<tr>
<td>980 Albera y Ward, Francisco, Montilla.</td>
<td>Province of Córdoba.—Prunes.</td>
<td>656</td>
</tr>
<tr>
<td>981 Plaza, Juan Antonio, Montoro.</td>
<td>Province of Córdoba.—Olives.</td>
<td>656</td>
</tr>
<tr>
<td>982 Alvarez, Rafael Ceballos, Adamuz.</td>
<td>Province of Córdoba.—Olives.</td>
<td>656</td>
</tr>
<tr>
<td>983 Blanco, José María, Santiago, Province of La Coruña.</td>
<td>Quince marmelade.</td>
<td>656</td>
</tr>
<tr>
<td>984 Cotrocé, Miguel, Coruña.</td>
<td>Preserved meats and birds.</td>
<td>656</td>
</tr>
<tr>
<td>985 Garcia &amp; Piñon, Coruña.</td>
<td>Preserved meats and birds.</td>
<td>656</td>
</tr>
<tr>
<td>986 Romero &amp; Ferrin, Coruña.</td>
<td>Alimentary preserves.</td>
<td>656</td>
</tr>
<tr>
<td>987 Gomez y Gomez, Enrique, Lepe.</td>
<td>Province of Huelva.—Figs.</td>
<td>656</td>
</tr>
<tr>
<td>988 Cruz, Rafael Trianes de la Huelva.</td>
<td>Figs.</td>
<td>656</td>
</tr>
<tr>
<td>989 Corporation of Cartaya, Province of Huelva.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>990 Vasquez, Bartolomé, Villanueva, de los Castillos, Province of Huelva.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>991 Mesa, Francisco Carrion, Huelva.</td>
<td>Fruits in brandy.</td>
<td>656</td>
</tr>
<tr>
<td>992 Cavies, Eulogio Martín, Arcena, Province of Huelva.—Hans.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>993 Moreno, María, Cazorla, Province of Jaén.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>994 Barritua, Elías, Cazorla, Province of Jaén.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>995 Romerotoro, Marquís de Alcaudete, Province of Jaén.—Dried apples and prunes.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>996 Elvira, José, Logroño.—Peach jam.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>997 Moreno, Juan Miguel, Calahorra, Province of Logroño.—Vegetable preserves.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>998 Ocen, Miguel, Calahorra, Province of Logroño.—Vegetable preserves.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>999 Muro, Paulino, Calahorra, Province of Logroño.—Vegetable preserves.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1000 Provincial Commission, Jover, Province of Lugo.—Ham.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1001 Gimenez, Lucio Chapresto, Barbella, Province of Málaga.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1002 Gomez, Antonio J., Málaga.</td>
<td>Muscatel raisins.</td>
<td>656</td>
</tr>
<tr>
<td>1003 Kreisler, Juan, Málaga.—Raisins.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1004 Gros, Federico, &amp; Co., Málaga.—Raisins.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1005 Huelin, Guillermo, &amp; Son, Málaga.—Muscatel raisins.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1006 Provincial Deputation, Murcia.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1007 Fuentes y Ponte, Javier, Murcia.</td>
<td>Olives.</td>
<td>656</td>
</tr>
<tr>
<td>1008 Abarca, Gerónimo Vidal, Alhama, Province of Múrcia.—Fig bread</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1009 Escudero, Tomás, Corella, Province of Navarra.—Preserved capicum and tomatoes.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1010 Gayoso, Tomás Ramon, Rante, Province of Orense.—Peeled and dried chestnuts.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1011 Rey, Manuel Pereiro, Orense.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1012 Santamarina, José, Verín, Province of Orense.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1013 Anta, Ignacio, Orense.—Pealed and dried chestnuts.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1014 Romero, Joaquín Perez, Santa Cruz de la Rábida, Province of Orense.—Pealed and dried chestnuts.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1015 Provincial Board of Agriculture, Industry, and Commerce, Cangas de Tineo, Province of Oviedo.—Ham.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1016 Díaz, Juan, Oviedo.—Sweetmeats.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1017 Aracdon &amp; Co., Villagarcia, Province of Pontevedra.—Preserved partidge and teal.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1018 Martinez, Joaquín, Pontevedra.—Vegetable preserves.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1019 Onis, Federico de, Cantalapiedra, Province of Salamanca.—Fruit syrup.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1020 Martin, Lorenzo Calvo, Mogarraz, Province of Salamanca.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1021 Paulino, Cipriano Perez, Frengeneda, Province of Salamanca.—Prunes.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1022 Molina’s Widow &amp; Son, Sevilla.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1023 Carmona, Manuel, Sevilla.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1024 Orihuela, Pedro, Sevilla.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1025 Fernandez, Joaquín, Sevilla.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1026 Garcia, Sebastian, Scala Dei, Province of Tarragona.—Dried fruits.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1027 Gatell y Polch, Juan, Altafulla, Province of Tarragona.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1028 Fonts, Mariano, Reus, Province of Tarragona.—Olives and pinenut (ground fruit of the pepper plant).</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1029 Serra, Olegario, Reus, Province of Tarragona.—Fruits in syrup.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1030 Esteve, D. A., Widow &amp; Son of Reus, Province of Tarragona.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1031 Montaner, Amalio, Reus, Province of Tarragona.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1032 Grau y Fló, José, Reus, Province of Tarragona.—Olives.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1033 Rocas, Vinardell, Tortosa, Province of Tarragona.—Preserved fruits.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1034 Pellicer, Francisco, Porrrera, Province of Tarragona.—Figs.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1035 Coll, José, Valls, Province of Tarragona.—Muscatel raisins.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1036 Basarán, Isidoro, Olias del Rey, Province of Toledo.—Prunes.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1037 Capsir, José Damian, Puebla de Rugarat, Province of Valencia.—Preserved fruits.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1038 Estelidiés, Gerardo, Játiva, Province of Valencia.—Muscatel raisins.</td>
<td>656</td>
<td></td>
</tr>
<tr>
<td>1039 Stárico y Ruiz, Ricardo, Ribarroida, Province of Valencia.—Fig bread.</td>
<td>656</td>
<td></td>
</tr>
</tbody>
</table>
Animal and Vegetable Products.

1040 Lassala y Palomares, Vicente, Masía de la Mar, Province of Valencia.—\(1036.\)  
1041 Cañamás, Blas Antonio, Province of Valencia.—Muscateal raisins.  
1042 Artigues, Serapio, Jativa, Province of Valencia.—Muscateal raisins.  
1043 Fabiá, Manuel Andrés, Torrente, Province of Valencia.—Grape syrup.  
1044 Martí, Enrique, Alicja, Province of Valencia.—Vegetable preserves.  
1045 Espiños, Joaquin, & Co., Godella, Province of Valencia.—Muscateal raisins.  
1046 Vives y Aspiroz, Rafael, Villa de Oliva, Province of Valencia.—Muscateal raisins.  
1047 Calabuig, Bartolomé, Bocairente, Province of Valencia.—Muscateal raisins.  
1048 Valencian Society of Agriculture, Valencia.—Dried fruits.  
1049 Garcia, Miguel, Zamora.—Fruits in syrup.  
1050 Perez, Bárbara, Zamora.—Hams and pork sausages.  
1051 Gasca y Beltran, Joaquin, Zaragoza.—Preserved fruits.  
1052 Royo, Mariano, Zaragoza.—Preserved strawberries.  
1053 Costa & Co., Habana, Cuba.—Preserved fruits.  
1054 Bosehi, Juan, & Co., Habana, Cuba.—Preserved fruits.  
1055 Casado, F. N., Malaga.—Raisins.  
1056 Mark, Joan A., Malaga.—Raisins.  
1057 Catala, Antonio, Jabea, Province of Alicante.—Muscateal raisins.  
1058 Bolufer, Cristobal, Jabea, Province of Alicante.—Muscateal raisins.  
1059 Girones y Domenech, Manuel, Alicante.—Sugared almonds.  
1060 Rodiveys y Femenias, Francisca, Baleric Islands.—Nougat.  
1061 Visa, Agustín B., Mahon, Baleric Islands.—Nougat.  
1062 Fábrregues, Guillermo, Mahon, Baleric Islands.—Nougat.  
1063 Estépà y Cardona, José, Habana, Cuba.—Guava paste.  
1064 Echarrieta, Santiago, San José de las Lajas, Cuba.—Guava paste.  
1065 Gomez, J., & Co., Habana, Cuba.—Confectionery.  
1066 Usano, Martin, Toledo.—Marchpane.  
1067 Martin y Valverde, Laureano, Toledo.—Marchpane.  
1068 Labrador, Cipriano, Toledo.—Marchpane.  
1069 Perez, Abdon Atienza, Tarazona de la Mancha, Province of Albacete.—Wheat flour.  
1070 Sellés, José, Alicante.—Wheat flour.  
1071 Benito, Isidro, Avila.—Wheat flour.  
1072 Lagarza, Eduar da, Badajoz.—Flour.  
1073 Gil Bros. & Rico, Aranda de Duero, Province of Burgos.—Flour.  
1074 Conde & Bros., Cabia, Province of Burgos.—Flour.  
1075 Toval, Antonio, Burgos.—Grits.  
1076 Arqueaga, Rodrigo, Burgos.—Grits.  
1077 Vega Grande, Count of, Isle of Gran Canaria, Canary Islands.—Maize flour and bran.  
1078 Gordo, Julian, Luzaga, Province of Guadalajara.—Flour and bran.  
1079 Fontoya, Manuel, Jaen.—Flour and bran.  
1080 Martos, Juan Francisco, Jaen.—Flour and bran.  
1081 Prado, Maximo Alonso de, Leon.—Flour.  
1082 Provincial Deputation, Murcia.—Maize flour and rice.  
1083 Pompo, Pedro, Abarca, Province of Palencia.—Wheat flour.  
1084 Mora, Celestino Merino de, Grijota, Province of Palencia.—Flour.  
1085 Vega, Lucas Ortiz, Grijota, Province of Palencia.—Flour.  
1086 Barrios, Marcelo, Grijota, Province et Palencia.—Flour.  
1087 Ascoitia, Higinio de, Grijota, Province of Palencia.—Flour.  
1088 Barrios, Rios & Co., Palencia.—Flour.  
1089 Durango, Manuel Martinez, Huellos, Province of Palencia.—Flour.  
1090 Dulce y Alvarez, Blas, Hercul de Valcedoñas, Province of Palencia.—Flour.  
1091 Sanchez, Basilio Igea, Peñaranda de Bracamonte, Province of Salamanca.—Flour.  
1092 Villa Alcazar, Marquis de, Tejares, Province of Salamanca.—Flour.  
1093 Carretero, E., Widow of, Segovia.—Flour.  
1094 Carretero, Martin, Segovia.—Flour.  
1095 Riber, Villa & Puerta, Segovia.—Flour.  
1096 Saperas, Francisco, Reus, Province of Tarragona.—Flour and bran.  
1097 Industrial Flour Mill of Reus, Province of Tarragona.—Flour and bran.  
1098 Gatell y Foch, Juan, Altafulla.—Province of Tarragona.—Maize flour.  
1099 Esteban, Francisco, Toledo.—Wheat flour.  
1100 Huelbes y Ortis, Emilio, Ocaña, Province of Toledo.—Vetch flour.  
1101 Martinez, Gomez & Co., Sueca, Province of Valencia.—Decorticato rice.  
1103 Quemad, Juan de Dios, & Sons, Viloria, Province of Valladolid.—Wheat flour.  
1104 Hornedo y Velasco, Pedro, Valladolid.—Wheat flour.
Animal and Vegetable Products.

1105 Pardo, R. & P., Corcos, Province of Valladolid.—Wheat flour. 657
1106 La Patilla, Count of, Benavente, Province of Zamora.—Wheat flour. 657
1107 Palomar, Nasciso, Zaragoza.—Flour. 657
1108 Higuera, Tomás, Zaragoza.—Flour. 657
1109 Segura, José, Sevilla.—Grits. 657
1110 Ribera, Guarnier & Bros., Alicante.—Vermicelli and fine pastes. 658
1111 Esteve, Juan M., Alicante.—Starch. 658
1112 Ponseti y Gomila, José, Mahon, Balearic Islands.—Soup paste. 658
1113 Batlló Bros., Barcelona.—Starch. 658
1114 Draper y Frecios, Salvador, San Martín de Provenzals, Province of Barcelona.—Starch. 658
1115 Provincial Board of Agriculture, Castellón.—Starch. 658
1116 Provincial Deputation, Múrcia.—Soup pastes. 658
1117 Rey, Manuel Pereiro, Orense.—Pastes of potatoes. 658
1118 Barrera, Pedro García, Ciudad-Rodrigo, Province de Salamanca.—Starch. 658
1119 Carnero & Colsa, Salamanca.—Starch. 658
1120 Moro, José, Salamanca.—Starch. 658
1121 Mirat & Son, Salamanca.—Starch. 658
1122 Jarrín, Bernardo, Salamanca.—Soup pastes. 658
1123 Martinez Sainz Bros., Sevilla.—Soup pastes and starch. 658
1124 Gil, Gregorio, Valladolid.—Starch. 658
1125 Cuevas & García, Valladolid.—Vermicelli. 658
1126 Castañeda, Romualdo Ruiz, Torreblanca de Calatrava, Province de Ciudad Real.—Arrope (a kind of syrup). 659
1127 Rey, Luis Jouva, Granada.—Sugar and molasses. 659
1128 Torrent, Francisco, Almuñecar, Province of Granada.—Sugar. 659
1129 Huelin, Guillermo & Son, Málaga.—Unrefined sugar. 659
1130 Provincial Deputation, Múrcia.—Jelly and syrup. 659
1131 Roca Bros., Múrcia.—Pomegranate syrup. 659
1132 Mallet, Ildefonso, Zaragoza.—Oriental nectar. 659
1133 Central Commission of the Island of Cuba, Habana.—Sugar. 659
1134 Iznaga, Natividad, Habana, Cuba.—Sugar. 659
1135 Véguer y Nagüer, Juan, Habana, Cuba.—Sugar. 659
1136 Pouey, Juan, Habana, Cuba.—Sugar and Guarapo; fermented sugar cane liquor. 659
1137 Giralt, Nicolas, Regla, Cuba.—Sap of the sugar-cane. 659
1138 Capsir, José Damian, Puebla de Ruigat, Province of Valencia.—Grape syrup. 659
1139 Gasco y Beltran, Joaquin, Zaragoza.—Raspberry syrup. 659
1140 García Muñoz, Emilia Samá de, Habana, Cuba.—Sugar. 659
1141 Skirit Bros., San Juan de Puerto Rico.—Sugar. 659
1142 Balanzategui, Canuto, El Ciego, Province of Alava.—Red wine. 660
1143 Riscal de Alegre, Marquis of, El Ciego, Province of Alava.—Red wine. 660
1144 Tortosa, Joaquin, Hellin, Province of Albacete.—Brandy. 660
1145 Gil, Eloy, Hellin, Province of Albacete.—Wine. 660
1146 Lopez, Celestino, Tarazona de la Mancha, Province of Albacete.—Brandy. 660
1147 Aroca, José, Tarazona de la Mancha, Province of Albacete.—White wine. 660
1148 Lopez, Alonso, Tarazona de la Mancha, Province of Albacete.—Brandy. 660
1149 Sanchez, José Acacio, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1150 Pedraja, Bernardo Gomez, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1151 Fernandez, Antonio, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1152 Simarro, Miguel, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1153 Lara, Celestino Picazo, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1154 Tendoro, Gerónimo, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1155 Picazo, Pedro Bautista, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1156 Serrano, Maria Roza, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1157 Dénia, Rafael, Tarazona de la Mancha, Province of Albacete.—Red wine. 660
1158 Albí y Ginér, Antonio, Jabea, Province of Alicante.—Muscatel vinegar. 660
1159 Ferriz y Martínez, Cristóbal, Campo de Mirra, Province of Alicante.—Wine. 660
1160 Rojas Aguado, José, Agres, Province of Alicante.—Wine. 660
1161 Gumilew Garcia, Luis, Aspe, Province of Alicante.—Anise-seed cordial. 660
1162 Romany, Vicente, & Sons, Dénia, Province of Alicante.—White wine. 660
1163 Albert, Antoliano Perez, Monóvar, Province of Alicante.—Wines and brandies. 660
1164 Campos, Eduardo, Alicante.—Wine. 660
1165 Alsina, José, Partido de Campello, Province of Alicante.—White and red wine. 660
Animal and Vegetable Products.

1156 Alenda, Antonio, & Son, Novelda, Province of Alicante.—Brandy. 660
1157 Almodóvar, Antonio Sanchez, Alicante.—Wines. 660
1158 Prast, Queremon Alfonso, Monóvar, Province of Alicante.—Brandy. 660
1159 Vidai, Joaquin Calpena, Monóvar, Province of Alicante.—Red wine. 660
1160 Muñoz, Lorenzo Fernandez, San Juan, Province of Alicante.—Wine. 660
1161 Ortuño y Maestre, Juan Francisco, Salinas, Province of Alicante.—Wine. 660
1162 Verdu y Perez, Joaquin, Monóvar, Province of Alicante.—Wines. 660
1163 Leach, Giró & Co., Alicante.—White wines. 660
1164 Novelda, Tomás Escolano, Province of Alicante.—Brandy. 660
1165 Berenguer, Raimundo, Monóvar, Province of Alicante.—Sweet brandy. 660
1166 Cerdá, Enrique, Monóvar, Province of Alicante.—Vinegar. 660
1167 Verdu y Rico, Monóvar, Province of Alicante.—Vinegar. 660
1168 Perez Verdu Brothers, Monóvar, Province of Alicante.—Vinegar and wines. 660
1169 Paya, Ciro Perez, Monóvar, Province of Alicante.—Wines. 660
1170 Verdu, Marcial, Monóvar, Province of Alicante.—Red wine. 660
1171 Verdu y Cortés, Vedaño, Monóvar, Province of Alicante.—Vinegar. 660
1172 Verdu y Perez, Luis, Monóvar, Province of Alicante.—Wines. 660
1173 Rico, Antonio Perez, Monóvar, Province of Alicante.—Wines. 660
1174 Rico y Albert, Alejandro, Monóvar, Province of Alicante.—Wines. 660
1175 Verdu, Remedios Perez, Monóvar, Province of Alicante.—Vinegar and wines. 660
1176 Albert, Perez & Co., Province of Alicante.—Vinegar and wines. 660
1177 Gisbert y Marco, Francisco, Ibi, Province of Alicante.—Red wine. 660
1178 Bocullini, Juan Baeza, Alicante.—Red wine. 660
1179 Ferrer, Jaime, Alicante.—Vinegar. 660
1180 Fages Bros. & Co., Sax, Province of Alicante.—Anise-seed cordial and spirits of wine. 660
1181 Coquillat y Sempere, José, Elche, Province of Alicante.—Muscate wine. 660
1182 Amorós, Juan Esteve, Monforte, Province of Alicante.—Wine. 660
1183 Garcia, Luis Gumiel, Aspe, Province of Alicante.—Brandy. 660
1184 Aguilo, Francisco, Fuente, & Bros., Elche, Province of Alicante.—Wines, vinegar, alcohol, and pomegranate wine. 660
1185 Pina, Juan Bautista, Monforte, Province of Alicante.—Mistela (national drink). 660
1186 Benito, Juan Pina, Monforte, Province of Alicante.—Wine. 660
1187 Scala, José, Jijona, Province of Alicante.—Wine. 660
1188 Somoza, Ramon Maria Nava, Moraleja Matucabras, Province of Avila.—White wine. 660
1189 Soria, Mariano, Nava del Rey, Province of Avila.—Vinegar. 660
1190 Davernat & Co., Velez-Rubio, Province of Almeria.—Fig-brandy. 660
1191 Abadia, Nicolas, Bros., Velez-Habia, Province of Almeria.—Wines. 660
1192 Vilches & Jover, Ahama, Province of Almeria.—Wines and brandies. 660
1193 Trell y Chacon, Miguel del, Berja, Province of Almeria.—Wines. 660
1194 Daza y Ruiz, Francisco, Purchena, Province of Almeria.—Wines. 660
1195 Romero, Manuel Carbonero, Purchena.—Province of Almeria.—Wine. 660
1196 Roca, Bartolome, Palma, Balearic Islands.—Brandy and wines. 660
1197 Viza, Agustín, Mahon, Balearic Islands.—Refined vinegar. 660
1198 Prohens, Damian, Felanitx, Balearic Islands.—Anise-seed cordial. 660
1199 Jaime, Miguel, Santa Maria, Balearic Islands.—Anise-seed cordial. 660
1180 Bisellach, Guillermo, Benisales, Balearic Islands.—Wines. 660
1181 Munoz, Gabriel, Benisales, Balearic Islands.—Wines. 660
1182 Mulet, Antonio, Beñalbufar, Balearic Islands.—Malmsy wine. 660
1183 La Cenia, Marquis of, Beñalbufar, Balearic Islands.—Muscate wine. 660
1184 Humbert, Nicasio, Llummayor, Balearic Islands.—Wines. 660
1185 Ferrant, Manuel, Barcelona.—Vinegar. 660
1186 Soler y Stussa, Valentín, Barcelona.—Wines and vinegars. 660
1187 Society Burchers, Pedro Miret, San Juan de Vilasar, Province of Barcelona.—Liquors. 660
1188 Ballester y de Torres, Laureano, Mediona, Province of Barcelona.—Wines. 660
1189 Castells de Mas, Joaquin Pedroso de, Esparraguera, Province of Barcelona.—Wines. 660
1190 Valls, Pedro, & Viñas, Gospar, Esparraguera, Province of Barcelona.—Wines and liquors. 660
1191 Liampallais, Antonio, Masnou, Province of Barcelona.—Wines. 660
1192 Ventura y Sampere, Amado, Masnou, Province of Barcelona.—Liquors and anise-seed cordial. 660
1193 Pascual, Miguel, Masnou, Province of Barcelona.—Wines. 660
1194 Golar y Sirasol, José, Villanueva y Geltrú, Province of Barcelona.—Red wine. 660
1195 Cusi y Ferret, Federico, Villanueva y Geltrú, Province of Barcelona.—Hygienic wine. 660
1196 Juanó y Rafecas, Juan, Villanueva y Geltrú, Province of Barcelona.—Wines. 660
1197 Marqués, Jerónimo, Villanueva y Geltrú, Province of Barcelona.—Wines. 660
Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Address</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>1298</td>
<td>Alegret, Francisco, Villanueva</td>
<td>Barcelona, Province of Barcelona.</td>
<td>Muscatel (national drink).</td>
</tr>
<tr>
<td>1299</td>
<td>Solà, Félix, Villanueva y</td>
<td>Gertrú, Province of Barcelona.</td>
<td>Red wine.</td>
</tr>
<tr>
<td>1300</td>
<td>Baró y Gibert, José, Villanueva</td>
<td>Gertrú, Province of Barcelona.</td>
<td>Virgin wine.</td>
</tr>
<tr>
<td>1301</td>
<td>Roig y Serra, Juan, Villanueva</td>
<td>Gertrú, Province of Barcelona.</td>
<td>Wines.</td>
</tr>
<tr>
<td>1302</td>
<td>Creux, Teodoro, Villanueva y</td>
<td>Gertrú, Province of Barcelona.</td>
<td>Wines.</td>
</tr>
<tr>
<td>1303</td>
<td>Dodero y Ponte, José Oriol, Pomar de Badalona, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1304</td>
<td>Valenti, Joaquín, Cabrera de Mataró, Province of Barcelona.</td>
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<td>Wines.</td>
</tr>
<tr>
<td>1305</td>
<td>Sivilla y Martorell, Narciso, Villafranca de Panadés, Province of Barcelona.</td>
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<td>Anise-seed wine.</td>
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<td>1306</td>
<td>Girona, Silvestre, Villafranca de Panadés, Province of Barcelona.</td>
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<td>Anise-seed cordial.</td>
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<td>1307</td>
<td>Olivella, Cristóbal, Villafranca de Panadés, Province of Barcelona.</td>
<td></td>
<td>Imitation wines.</td>
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<tr>
<td>1308</td>
<td>Mollo, Buenaventura Rius, Villafranca de Panadés, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1309</td>
<td>Escofet Nello, Margarita, Widow of, Province of Barcelona.</td>
<td></td>
<td>Macon wine and imitations.</td>
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<tr>
<td>1310</td>
<td>Font, Salvador, Mataró, Province of Barcelona.</td>
<td></td>
<td>Liquors.</td>
</tr>
<tr>
<td>1311</td>
<td>Palau, Joaquín de, Mataró, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1312</td>
<td>Monte, Pedro Prat del, Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1313</td>
<td>Fontanals, José Teresa, Barcelona.</td>
<td></td>
<td>Beer.</td>
</tr>
<tr>
<td>1314</td>
<td>Sallés, Salvador, Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1315</td>
<td>Pià y Vila, Pedro, Barcelona.</td>
<td></td>
<td>Brandy.</td>
</tr>
<tr>
<td>1316</td>
<td>Oliver Bros., Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1317</td>
<td>Fontana y Riu, Ramon, San Boye de Llobregat, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1318</td>
<td>Durán, Eduardo, San Vicente, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
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<td>1319</td>
<td>Gerona, Manuel, Villa de Cabals, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1320</td>
<td>Santacana, José, La Granada, Province of Barcelona.</td>
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<td>Mistela wine.</td>
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<td>1321</td>
<td>Deu, José, &amp; Co., Masqueja y Martorell, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1322</td>
<td>Forrell y Batllaura, Juan, Abella, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1323</td>
<td>Oliver y Coll, Francisco, Papiol, Province of Barcelona.</td>
<td></td>
<td>Wine, liquors, and vinegar.</td>
</tr>
<tr>
<td>1324</td>
<td>Beltran y Rosell, Manuel, Igualada, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1325</td>
<td>Robira y Grau, Jose, San Martin de Sarroca, Province of Barcelona.</td>
<td></td>
<td>Wines and imitations.</td>
</tr>
<tr>
<td>1326</td>
<td>Barrera, Gabriel, Tayá, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1327</td>
<td>Bosch y Grau, José, Badalona, Province of Barcelona.</td>
<td></td>
<td>Brandy.</td>
</tr>
<tr>
<td>1328</td>
<td>Ameli y Carbonell, José, Sitges, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1329</td>
<td>Puig, José Buenaventura, Sitges, Province of Barcelona.</td>
<td></td>
<td>Muscatel and Malmsy wine.</td>
</tr>
<tr>
<td>1330</td>
<td>Ventalló y Llobateras, Domingo Tarrasa, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1331</td>
<td>Castellet, Buenaventura, Tarrasa, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1332</td>
<td>Gali, Antonio, Tarrasa, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1333</td>
<td>Pons, Antonio Castells de, Esparraguera, Province of Barcelona.</td>
<td></td>
<td>Wines.</td>
</tr>
<tr>
<td>1334</td>
<td>Castell de Mas, Joaquín Pedroso de, Esparraguera, Province of Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1335</td>
<td>Camprubi, Juan, Barcelona.</td>
<td></td>
<td>Liquor and anise-seed cordial.</td>
</tr>
<tr>
<td>1336</td>
<td>Puig &amp; Llagosteras Bros., Barcelona.</td>
<td></td>
<td>Vinegar.</td>
</tr>
<tr>
<td>1337</td>
<td>Llibet, Antonio Maria, Barcelona.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1338</td>
<td>Patiño, José María, Cabeza de Vacas, Province of Badajoz.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1339</td>
<td>Carrasco, Alfonso, Guareña, Province of Badajoz.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1340</td>
<td>Sisfredi, Juan Bautista, Almendralejo, Province of Badajoz.</td>
<td></td>
<td>Brandy and wine.</td>
</tr>
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<td>1341</td>
<td>Parcudes, Carlos, Guareña, Province of Badajoz.</td>
<td></td>
<td>Muscatel wine.</td>
</tr>
<tr>
<td>1342</td>
<td>Cortés, José Inocente, Guareña, Province of Badajoz.</td>
<td></td>
<td>Pedro Jimenez wine.</td>
</tr>
<tr>
<td>1345</td>
<td>Regules, Dionisio, Miranda de Ebro, Province of Burgos.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1346</td>
<td>San Roman, Agustín Lopez de, Valladolid, Province of Burgos.</td>
<td></td>
<td>Red and white wine.</td>
</tr>
<tr>
<td>1347</td>
<td>Goya y Lopez, Marcelino, Burgos.</td>
<td></td>
<td>Vinegar.</td>
</tr>
<tr>
<td>1348</td>
<td>Franco, Ramon Santiváñez, Casar de Palomero, Province of Cáceres.</td>
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<td>Wine.</td>
</tr>
<tr>
<td>1349</td>
<td>Olivares, Jeronimo Sande, Garrovillas, Province of Cáceres.</td>
<td></td>
<td>Wine.</td>
</tr>
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<td>1350</td>
<td>Bustamante, Bernardino, Villamiel, Province of Cáceres.</td>
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<td>Wine.</td>
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<tr>
<td>1351</td>
<td>Bacas y Estévez, Ignacio, Cilleros, Province of Cáceres.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1352</td>
<td>Herrán &amp; Co., Jerez de la Frontera, Province of Cadiz.</td>
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<td>Wine.</td>
</tr>
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<td>1353</td>
<td>Troya, Idefonso, Prado del Rey, Province of Cadiz.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1354</td>
<td>Hontoria y Tezanos, Joaquín, Sanlúcar, Province of Cadiz.</td>
<td></td>
<td>Wine.</td>
</tr>
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<td>1355</td>
<td>Hidalgo y Verjano, Eduardo, Sanlúcar, Province of Cadiz.</td>
<td></td>
<td>Wines and vinegar.</td>
</tr>
<tr>
<td>1356</td>
<td>Blanco, Antonio, Prado del Rey, Province of Cadiz.</td>
<td></td>
<td>Wine.</td>
</tr>
<tr>
<td>1357</td>
<td>Árgüeso y Árgüeso, Leon de, Sanlúcar, Province of Cadiz.</td>
<td></td>
<td>Wine.</td>
</tr>
</tbody>
</table>
Animal and Vegetable Products.

1288 Martínez, Antonio, Sanlúcar, Province of Cádiz.—Wine. 660
1289 Linares y Obeso, Diego, Sanlúcar, Province of Cádiz.—Wine. 660
1290 Urmeneta, Fermín de, Chiclana, Province of Cádiz.—Brandy. 660
1291 Sánchez, Antonio, Chiclana, Province of Cádiz.—Wine. 660
1292 Rivas, Francisco Martín de, Chiclana, Province of Cádiz.—Wine. 660
1293 Hugues, Guillermo H., Puerto de Santa María, Province of Cádiz.—Wine. 660
1294 Alavrez, Serafin, Puerto de Santa María, Province of Cádiz.—Wine. 660
1295 Segundo, Federico, Puerto de Santa María, Province of Cádiz.—Wine. 660
1296 Rudolph, Federico, Puerto de Santa María, Province of Cádiz.—Wine. 660
1297 Carli, Ramon, Puerto de Santa María, Province of Cádiz.—Wine. 660
1298 Pico, José María, Puerto de Santa María, Province of Cádiz.—Wine. 660
1299 Pró, José María, Puerto de Santa María, Province of Cádiz.—Wine. 660
1300 Parilla, José de Fuentes, Jerez de la Frontera, Province of Cádiz.—Wine. 660
1301 González, Biass & Co., Jerez de la Frontera, Province of Cádiz.—Wines. 660
1302 Santarelli Bros., Jerez de la Frontera, Province of Cádiz.—Wines. 660
1303 Lopez, Juan Antonio, Widow of Jerez de la Frontera, Province of Cádiz.—Wines. 660
1304 Lebrun & Co., La Orotava, Canary Islands.—Wines. 660
1305 Davisson, Guillermo, & Co., La Orotava, Canary Islands.—Wines. 660
1306 Carpenter & Co., La Orotava, Canary Islands.—Wines. 660
1307 Bruce, Hamilton, & Co., La Orotava, Canary Islands.—Wines. 660
1308 Monteverde, Antonio, La Orotava, Canary Islands.—Wines. 660
1309 Toloza, Fernando, La Orotava, Canary Islands.—Wine. 660
1310 Lopez, Juan José Barriuso, La Victoria, Canary Islands.—Wines and brandies. 660
1311 Diego, Wood & Co., Las Palmas, Canary Islands.—Wines. 660
1312 Castello y Olivares, José del, Las Palmas, Canary Islands.—Wines. 660
1313 Vega Grande, Count of Las Palmas, Canary Islands.—Wine. 660
1314 Avilés, Nicolás, Las Palmas, Canary Islands.—Wine. 660
1315 Quevedo y Pérez, José C., Isle of Gran Canaria, Canary Islands.—Wines. 660
1316 Gourié, Alfonso, Las Palmas, Canary Islands.—Wines. 660
1317 Quintana, Juan de, Las Palmas, Canary Islands.—Wine. 660
1318 Massieu, Domingo, Balsequeillo, Canary Islands.—Wine. 660
1319 Peraza, Alejandro, Granadilla, Canary Islands.—Wine. 660
1320 Llovera y Llovet, Vicente, Maria de Cuelan, Province of Castellón.—Wine. 660
1321 Villares, Marqués of, Torreblanco, Province of Castellón.—Wines. 660
1322 Vilanova y Piera, Pascual, Alca- lía de Chisvert, Province of Castellón.—Wines. 660
1323 Provincial Board of Agriculture, Borriol, Province of Castellón.—Vinegar and wines. 660
1324 Ripollés y Perez, Manuel, Castellung.—Brandies. 660
1325 Gasco, F. B., Castelling.—Brandies. 660
1326 Climent, Vicente, Castellung.—Wines. 660
1327 Cloramunt, Hilarion, Vinaroz, Province of Castellón.—Wines. 660
1328 Mazorra, Mateo, & Son, Valdepeñas, Province of Ciudad-Real.—Wine. 660
1329 Mazarrón, Miguel, Valdepeñas, Province of Ciudad-Real.—Wines. 660
1330 Medel, Marquis of, Valdepeñas, Province of Ciudad-Real.—Wines. 660
1331 Fraile, María de la Asunción Valdepeñas, Province of Ciudad-Real.—Wines. 660
1332 Peinado y Lasa, Tiburcio, Tomesillo, Province of Ciudad-Real.—Brandies. 660
1333 Villena y Parra, Sinfoniano, Tomesillo, Province of Ciudad-Real.—Brandy and spirits of wine. 660
1334 Ramírez, Primo, Tomesillo, Province of Ciudad-Real.—Brandy and spirits of wine. 660
1335 Dijon, Trinidad, Torralba, Province of Ciudad-Real.—Wine. 660
1336 Delgado y Palacios, Juan, Ciudad-Real.—Alcohol and anise-seed cordial. 660
1337 Ruiz, Romualdo, Torralba, Province of Ciudad-Real.—Wines. 660
1338 Medrano, José, Ciudad-Real.—Wine. 660
1339 Soria, Marciano de, Valdepeñas, Province of Ciudad-Real.—Wines. 660
1340 Avansay, Hipolito, & Son, Valdepeñas, Province of Ciudad-Real.—Wine. 660
1341 Blanco y Alcalde, Rafael, Cabrera, Province of Córdoba.—Wine. 660
1342 Carretero, Pedro, Córdoba.—Wine. 660
1343 Molina, Isidro, Rute, Province of Córdoba.—Wine. 660
1344 Perez, Diego Eceja, Rute, Province of Córdoba.—Brandy. 660
1345 Ruiz, Francisco Moreno, Doña Mencia, Province of Córdoba.—Brandy. 660
1346 Calvo, José María, Cabrera, Province of Córdoba.—Brandies. 660
1347 Rubio, José Calvo, Aguilar, Province of Córdoba.—Monilla wine. 660
1348 Vargas, Sebastián, Villaviciosa, Province of Córdoba.—Wines. 660
1349 Infante, José Escober, Villaviciosa, Province of Córdoba.—Wine. 660
1350 Arribas, Antonio Escobar, Villaviciosa, Province of Córdoba.—Wine. 660
<table>
<thead>
<tr>
<th>Animal and Vegetable Products.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1351 Módenes, Juan R., Baena, Province of Córdoba.—Wines.</td>
</tr>
<tr>
<td>1352 Neges, Francisco de Paula, Baena, Province of Córdoba.—Wine.</td>
</tr>
<tr>
<td>1353 Fernandez, Francisco, Baena, Province of Córdoba.—Wine.</td>
</tr>
<tr>
<td>1354 Salas, Francisco Solano, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1355 Jurado, José, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1356 Raigon, Antonio, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1357 Navarro, Antonio José, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1358 Alvear, Carlos, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1359 Alvear y Ward, Francisco, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1360 Polo, Bartolomé, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1361 Canela, José, Lucena, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1361a Canela, Antonio, Lucena, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1362 Somayor, Eduardo Alvarez, Lucena, Province of Córdoba.—Wine.</td>
</tr>
<tr>
<td>1363 Valle, José Muñoz, Lucena, Province of Córdoba.—Wine.</td>
</tr>
<tr>
<td>1364 Valenzuela, José Valle, Lucena, Province of Córdoba.—Wine.</td>
</tr>
<tr>
<td>1365 Algar, José Ruiz de, Lucena, Province of Córdoba.—Wine.</td>
</tr>
<tr>
<td>1366 Gallardo, José, Montilla, Province of Córdoba.—Wines.</td>
</tr>
<tr>
<td>1367 Villalia y Somayor, Manuel, Montilla, Province of Córdoba.—Montilla wine.</td>
</tr>
<tr>
<td>1368 La Corte, Marquis of, Cabra, Province of Córdoba.—Wines.</td>
</tr>
<tr>
<td>1369 López, Pedro, Córdoba.—Wine.</td>
</tr>
<tr>
<td>1370 Neyralores, Gerardo, Faq, Province of La Coruña.—White wine.</td>
</tr>
<tr>
<td>1371 Bustindui, José Antonio, San Clemente, Province of Cuenca.—Wines.</td>
</tr>
<tr>
<td>1372 Moreno, Domingo, Tarancón, Province of Cuenca.—Wine.</td>
</tr>
<tr>
<td>1373 Retamoso, Count of, Tarancón, Province of Cuenca.—Wine and brandy.</td>
</tr>
<tr>
<td>1374 Torre y Salto, Antonio de la, Tarancón, Province of Cuenca.—Red wine.</td>
</tr>
<tr>
<td>1375 Valera, Julian Martínez, Chilaron, Province of Cuenca.—Red wine.</td>
</tr>
<tr>
<td>1376 Carné, José, Tarancón, Province of Cuenca.—Red wine.</td>
</tr>
<tr>
<td>1377 Escobal y del Campo, Francisco, Rubiales Bajos, Province of Cuenca.—Wine.</td>
</tr>
<tr>
<td>1378 Vilarat, Agustín, Blancas, Province of Gerona.—Malmsay wine.</td>
</tr>
<tr>
<td>1379 Descals, Francisco Puig, Rozar, Province of Gerona.—Wine.</td>
</tr>
<tr>
<td>1380 Vega y Tejada, EZquel de la, Gua—lara.—Wines.</td>
</tr>
<tr>
<td>1381 Martínez, Gregorio Garcia, Guadalara.—Wine.</td>
</tr>
<tr>
<td>1382 Reyes, Juan A., Guadalajara.—Wine.</td>
</tr>
<tr>
<td>1383 Muñoz y Menéndez, Eugenio, Huelva, Province of Guadalajara.—Wine.</td>
</tr>
<tr>
<td>1384 Martí, Diego García, Guadalajara.—Wines.</td>
</tr>
<tr>
<td>1385 Iglesias, José, Gibraleon, Province of Huelva.—Wine and brandy.</td>
</tr>
<tr>
<td>1386 Cepeda, Ignacio de, Almonte, Province of Huelva.—Wine and vinegar.</td>
</tr>
<tr>
<td>1387 Roldan, Manuel Moreno, Almonte, Province of Huelva.—Wine.</td>
</tr>
<tr>
<td>1388 Acebedo, Francisco, Almonte, Province of Huelva.—Manzanilla wine.</td>
</tr>
<tr>
<td>1389 Lagar, Francisco, Almonte, Province of Huelva.—White wine.</td>
</tr>
<tr>
<td>1390 González, Nicolás Gomez, Huelva.—Wines and brandy.</td>
</tr>
<tr>
<td>1391 Cueva, Fernando de la, Huelva.—Wines and brandy.</td>
</tr>
<tr>
<td>1392 Díaz y Gomez, Eduardo, Huelva.—Wines.</td>
</tr>
<tr>
<td>1393 Mesa, Francisco Carrion, Huelva.—Brandy and anise-seed cordial.</td>
</tr>
<tr>
<td>1394 Martín &amp; Colombo, Huelva.—Alcohol and brandy.</td>
</tr>
<tr>
<td>1395 Lopez, Luis Maria, Huelva.—White wine.</td>
</tr>
<tr>
<td>1396 Quintero, Juan Garcia, Huelva.—Vinegar.</td>
</tr>
<tr>
<td>1397 Torre y Figueroa, Antonio de la, Huelva.—Red wine.</td>
</tr>
<tr>
<td>1398 Penillos, Garcia &amp; Co., Bollullos, Province of Huelva.—Wines.</td>
</tr>
<tr>
<td>1399 Society “Palmia y Quesada,” Aguilar, Province of Córdoba.—Wines.</td>
</tr>
<tr>
<td>1400 García y Ruiz, Pedro, Bollullos, Province of Huelva.—Wines.</td>
</tr>
<tr>
<td>1401 Noble, José María, Bollullos, Province of Huelva.—Wines.</td>
</tr>
<tr>
<td>1402 García, Pedro, Bollullos, Province of Huelva.—Wines.</td>
</tr>
<tr>
<td>1403 Domínguez, Francisco Bollullos, Province of Huelva.—Brandies.</td>
</tr>
<tr>
<td>1404 Molina, Federico Rociana, Province of Huelva.—Wine, vinegar, arrope (national drink).</td>
</tr>
<tr>
<td>1405 Carrasco, José Maria, Donares, Province of Huelva.—Wine and vinegar.</td>
</tr>
<tr>
<td>1406 Pinzon, Luis H., Moguer, Province of Huelva.—Wine and brandy.</td>
</tr>
<tr>
<td>1407 Gimenez de Tejada Bros., Moguer, Province of Huelva.—Wines and vinegar.</td>
</tr>
<tr>
<td>1408 Gimenez de Tejada, Servando, Moguer, Province of Huelva.—Wines and vinegar.</td>
</tr>
<tr>
<td>1409 Flores, Antonio, Moguer, Province of Huelva.—Wines and brandy.</td>
</tr>
<tr>
<td>1410 Ramirez, Francisco Perez, Moguer, Province of Huelva.—Wines.</td>
</tr>
<tr>
<td>1411 Carmona, José Gomez, Moguer, Province of Huelva.—Wines and alcohol.</td>
</tr>
<tr>
<td>1412 Iglesias, Rafael, Moguer, Province of Huelva.—Wines</td>
</tr>
</tbody>
</table>
Animal and Vegetable Products.

1413 Thorices, Basilio, Moguer, Province of Huelva.—Wines and vinegar 660
1414 Thorices, Francisco R., Moguer, Province of Huelva.—Wines and vinegar. 660
1415 Gonzalez, Manuel, Moguer, Province of Huelva.—Wine and vinegar. 660
1416 Soldan, Antonio, La Palma, Province of Huelva.—Wines and brandy. 660
1417 Martinez, Eduardo, La Palma, Province of Huelva.—Wines. 660
1418 Cepeda, Manuel, La Palma, Province of Huelva.—Wines. 660
1419 Cueva, Manuel de la, La Palma, Province of Huelva.—Anise-seed cordial and brandy. 660
1420 Pinzon, Rafael Igilgez, Manzanilla, Province of Huelva.—Wines. 660
1421 Marquez, Rufino Jose, Manzanilla, Province of Huelva.—Wines. 660
1422 Estrado, Diego P., Manzanilla, Province of Huelva.—Wine. 660
1423 Rivera, Antonio Marquez, Manzanilla, Province of Huelva.—Wines. 660
1424 Mercado, Manuel, Manzanilla, Province of Huelva.—Wines. 660
1425 Rodriguez, Jose Trigueros, Province of Huelva.—Wines. 660
1426 Cecero y Barreda, Emilio, Trigueros, Province of Huelva.—Wine. 660
1427 Montiel, Eliezer, Trigueros, Province of Huelva.—Wines. 660
1428 Zambrano, Jose Antonio, Villalba del Alcor, Province of Huelva.—Wines and vinegar. 660
1429 Espina, Jose Maria, Villalba del Alcor, Province of Huelva.—Vinegar. 660
1430 Oliver, D. L., Huesca.—Wines. 660
1431 Arnal, Dionisio, Castelloronte, Province of Huesca.—Claret. 660
1432 Beotegui, Fernandez, Sena, Province of Huesca.—Claret. 660
1433 Salinas, Francisco, Castelloronte, Province of Huesca.—Wine. 660
1434 Laguna, Alejandro, Grafen, Province of Huesca.—Wines and claret. 660
1435 Budios, Leon, Sarifiena, Province of Huesca.—Wine. 660
1436 Sampietra, Antonio, Sarifiena, Province of Huesca.—Wine. 660
1437 Bastaraz, Antonio, Lanaja, Province of Huesca.—Wine. 660
1438 Lasheras, Manuel, Alcubierre, Province of Huesca.—Claret. 660
1439 Lacruz, Francisco, Alcubierre, Province of Huesca.—Wine and claret. 660
1440 Adrid, Antonio, Alcubierre, Province of Huesca.—Claret. 660
1441 Calvo, Antonio, Polefino, Province of Huesca.—Claret. 660
1442 Lasierra, Joaquin, Pallazuela, Province of Huesca.—Claret. 660
1443 Lasierra, Francisco, Pallazuela, Province of Huesca.—Claret. 660
1444 Lacruz, Antonio, Alcubierre, Province of Huesca.—Red wine. 660
1445 Gunda, Juan, Alcubierre, Province of Huesca.—Claret. 660
1446 Casamayor, Manuel, Alcubierre, Province of Huesca.—Red wine. 660
1447 Vasquez, Francisco, Cazorla, Province of Jaen.—Red wine. 660
1448 Marin, Jose, Cazorla, Province of Jaen.—Red wine. 660
1449 Almagra, Sebastian Canada, Jaen.—San Vicente wine, brandy, and ratafia. 660
1450 Las Almenas, Count of, Espeluy, Province of Jaen.—White wine. 660
1451 Corporation of Arganza, Province of Leon.—Wines. 660
1452 Fernandez, Jose, Sahagan, Province of Leon.—Wines. 660
1453 Martinez, Lucas Prado, Galleguios, Province of Leon.—Wine. 660
1454 Ilsa, Pedro, Benazolbe, Province of Leon.—Wine. 660
1455 Corporation of Valdefresno, Province of Leon.—Red wine. 660
1456 Corporation of Armunia, Province of Leon.—Red wine. 660
1457 Corporation of Valverde del Camino, Province of Leon.—Red wine. 660
1458 Corporation of Villaturiel, Province of Leon.—Red wine. 660
1459 Corporation of Valdemimir, Province of Leon.—Red wine. 660
1460 Corporation of Pajares de los Oteros, Province of Leon.—Red wine. 660
1461 Corporation of Ponferrada, Province of Leon.—White wine. 660
1462 Corporation of Congosto, Province of Leon.—White wine. 660
1463 Bustamente, Angel Maria, Astorga, Province of Leon.—Anise-seed cordial. 660
1464 Bon, Ramon, Vinaixa, Province of Lerida.—Wine. 660
1465 Allos, Francisco, Balaguer, Province of Lerida.—Wine. 660
1466 Codina, Ramon, Belloch, Province of Lerida.—Wine. 660
1467 Reixados, Antonio, Lerida.—Wine. 660
1468 Corporation of Vinaixa, Lerida.—Wine. 660
1469 Rubea, Miguel, Barbens, Province of Lerida. 660
1470 Lamolla Bros., Lerida.—Anise-seed cordial. 660
1471 Ochoa & Bro., Cervera del Rio Alhama, Province of Logroño.—Claret. 660
1472 Poves y Quintano, Galo de, Allauri, Province of Logroño.—Red wine. 660
1473 Caballero, Andres, Cenicero, Province of Logroño.—Wine. 660
1474 Pascual y Caballero, Pedro, Cenicero, Province of Logroño.—Wine. 660
1475 Artacho, Juan Bautista, Cenicero, Province of Logroño.—Wine. 660
1476 Bobadilla, Natalio, Fernandez, Cenicero, Province of Logroño.—Wine. 660
1477 Bujanda, Pablo, Cenicero, Province of Logroño.—Wine. 660
1478 Sotes, Angel, Cenicero, Province of Logroño.—Wine. 660
1479 Nalda, Pedro Garcia, Cenicero, Province of Logroño.—Wine. 660
Animal and Vegetable Products.

1480 Olavarrieta, Manuel Sanchez, Cenicero, Province of Logroño.—Wine.
1481 Bazan, V. Celestino, Cenicero, Province of Logroño.—Wine.
1482 Mata, Trinidad de la, Alfaro, Province of Logroño.—Anise-seed liquors, and gin.
1483 Estéfani, Joaquin Gonzalez, Cuzcurrita, Province of Logroño.—Champagne.
1484 Cirat y Villafranquie, Count of, Haro, Province of Logroño.—Medoc.
1485 Ozalla, Tomás, & Barona, Félix, Treviana, Province of Logroño.—Claret.
1486 Zubia, Ildefonso, Logroño.—Sherry.
1487 Andrade, Andrés, Velacha, Province of Lugo.—Red wine.
1488 Varela, Manuel Diaz, Monforte, Province of Lugo.—Wine.
1489 Guittian, José, Amandi, Province of Lugo.—Wine.
1490 Pascual, widow & Sons, Madrid.—Champagne and liquors.
1491 Garcia y Garcia, Manuel, Arganda del Rey, Madrid.—Wine and brandy.
1492 Cortés, Balbino, Madrid.—Wines.
1493 San Roman, Agustin Lopez de, Navalcarnero, Province of Madrid.—Red wine and brandy.
1494 Calatrava, Francisco García, Alcobendas, Province of Madrid.—Muscatel wine and vinegar.
1495 Navas, Manuel García, Málaga.—Brandy.
1496 Pino y Gomez, Julio del, Málaga.—Brandy.
1498 Romero, Ramon García, Málaga.—Wine.
1499 Morales, Pedro, & Co., Ojen, Province of Málaga.—Brandy.
1500 Muñoz, Ateneo, Chapera, Province of Málaga.—Wines.
1501 Saen, I., Ronda, Province of Málaga.—Wines.
1502 Menchero, Eduardo, Cartagena, Province of Múrcia.—Orange wine.
1503 Ferro, Bartolomé, Cartagena, Province of Múrcia.—Wine.
1504 Gil, Antonio Marsilla, Bullas.—Province of Múrcia.—Anise-seed milk and brandy.
1505 Roca Bros., Murcia.—Wines.
1506 Spotorno, Bartolomé, Cartagena, Province of Múrcia.—Wine.
1507 Castilla, Camilo, Corella, Province of Navarra.—Wines.
1508 Gimenez, Babil, Tafalla, Province of Navarra.—Wine and brandy.
1509 Orduña, Calisto, Cascante, Province of Navarra.—Wines.
1510 Leizaur y Rodriguez, Gabino, Peralta, Province of Navarra.—Wine.
1511 Anta y Temes, Federico, Orense.—Wines.
1512 Bobo, Feliciano Perez, Orense.—Wines.
1513 Amor, Bernardo, Orense.—Wines.
1514 Romero, Javier, Orense.—Vinegar and brandy.
1515 Vasquez, José, Orense.—Wine, vinegar, and brandy.
1516 Leis, Widow of the Marquis of Orense.—Wines.
1517 Montenegro, Antonio, Orense.—Wine.
1518 Mayo, Ignacio Anta, Orense.—Wine and brandy.
1519 Diaz, Laureano Balbis, San Ciprian de Viñas, Province of Orense.—Wine.
1520 Muñoz, Federico Rodriguez, San Ciprian de Viñas, Province of Orense.—Wine.
1521 Rapela, Laureano Diaz, San Ciprian de Viñas, Province of Orense.—Wine.
1522 Gogueira y Diaz, Manuel, San Ciprian de Viñas, Province of Orense.—Wines.
1523 Diaz, Camila, San Ciprian de Viñas, Province of Orense.—Wine.
1524 Fernandez y Conde, Pedro, San Ciprian de Viñas, Province of Orense.—Wine.
1525 Novoa, Manual Ramiro, San Ciprian de Viñas, Province of Orense.—Wine.
1526 Rapela, Manuel, San Ciprian de Viñas, Province of Orense.—Wine.
1527 Mosquera, Antonio, Coles, Province of Orense.—Wine.
1528 Mendez, Urbano Moreno, Verin, Province of Orense.—Wine.
1529 Garcia, Jacobo André, Verin, Province of Orense.—Wine.
1530 Moreno, Ramon Sanchez, Verin, Province of Orense.—Wine.
1531 Velasco, Manuel de, Verin, Province of Orense.—Wine.
1532 Salgado, Pedro Antonio, Barco de Valdeorras, Province of Orense.—Wine.
1533 Salgado, Carlos, Barco de Valdeorras, Province of Orense.—Wine.
1534 Salgado, Joaquin Maria, Widow of Barco de Valdeorras, Province of Orense.—Wine.
1535 Alba, Telesforo, Barco de Valdeorras, Province of Orense.—Wine.
1536 Rivera, Ramon, Seijalbo, Province of Orense.—Wine.
1537 Gonzalez, Antonio, Seijalbo, Province of Orense.—Wine.
1538 Rioboo, José Fernandez, Seijalbo, Province of Orense.—Wine.
1539 Bastos, Manuel Fernandez, Riva
davia, Province of Orense.—Wine.
1540 Estévez, José Vila, Rua de Valdeorras, Province of Orense.—Wine.
1541 Moure, Manuel, Rua de Valdeorras, Province of Orense.—Wines.
1542 Losada, Maria Josefa, Rua de Valdeorras, Province of Orense.—Wine.
1543 Rey, Manuel Peryero, Canedo, Province of Orense.—Wine. 660
1544 Labarta, Miguel, Canedo, Province of Orense.—Wines and vinegar. 660
1545 Vila, Francisco, Viana del Bollo, Province of Orense.—Wine. 660
1546 Bahamonde, Antonio Varcla G., Castelo de Miño, Province of Orense. Wines. 660
1547 Gonzalez, Francisco, Petin, Province of Orense.—Wines. 660
1548 Diaz, Manuel Fernandez, San Cri-"tian de Villas, Province of Orense.—Wine. 660
1549 Board of Agriculture, Oviedo.—Cider. 660
1550 Zarracina, Tomás, Gijon, Province of Oviedo.—Cider. 660
1551 Dominguez, Miguel, Palencia.—Wine. 660
1552 Herrero, Pedro Romero, Palencia.—Wine. 660
1553 Cachorro, Modesto, & Bro., De-"nas, Province of Palencia.—Wines. 660
1554 Gutierrez, Juan Francisco, Palen-"ca.—Wine. 660
1555 Balbas, José, Torquemada, Province of Palencia.—Wine. 660
1556 Palomino, Toribio, Torquemada, Province of Palencia.—Wine. 660
1557 Mora, José Manuel, Melogar de Yuso, Province of Palencia.—Wines. 660
1558 Monedero, Joaquin, Cevico de la Torre, Province of Palencia.—Wine. 660
1559 Martin, Francisco Garcia, Du-"eñas, Province of Palencia.—Wines. 660
1560 Sutelo & Veiga, Redondela, Pro-"vince of Pontevedra.—Wines. 660
1561 Almansa, Eulogio Troncoso de, Puenteareas, Province of Pontevedra.—Wines. 660
1562 Bianco, Joaquin A. Piñeiro, Ma-"durete, Province of Pontevedra.—Wines and vinegar. 660
1563 Onis, Federico, Cantalapiedra, Province of Salamanca.—Wines. 660
1564 Sierra, Viesca de la, Marquis of Fregeneda, Province of Salamanca.—Port wine. 660
1565 Hortal, Ignacio, Fregeneda, Pro-"vince of Salamanca.—Sweet wines. 660
1566 Corbalan, Juan, Saucelle, Province of Salamanca.—Wine. 660
1567 Martin, Lorenzo Calvo, Mogarraz, Province of Salamanca.—Wine. 660
1568 Hernandez, Ramon, Salamanca. —Rum and liquors. 660
1569 Gutierrez, Vicente, Reina, Pro-"vince of Santander.—Gin. 660
1570 Cortines, Celis, Santander.— Liquors. 660
1571 Rasilla, José, Los Corrales, Pro-"vince of Santander.—Liquors and wines. 660
1572 Ibarra, J. M., & Sons, Sevilla.—Wines. 660
1573 Penillos, Garcia & Co., Sevilla. — Wines. 660
1574 Valencia, José, Sevilla.—Wines. 660
1575 Olmedo, Juan, Sevilla.—Wine, liquor, and vinegar. 660
1576 Bordallo, Rodrigo, Sevilla.—Wine, liquors, and brandy. 660
1577 Huesca, Constantino dela, Sevilla.—Wine and vinegar. 660
1578 La Motilla, Marquis of, Sevilla.—White wine. 660
1579 Galindo, Widow of, Valencia, Province of Sevilla.—Wine and liquors. 660
1580 Silva & Arcos, Espartinas, Pro-"vince of Sevilla.—Wines. 660
1581 Murgia, Ramon Diaz, More-"se, Province of Sevilla.—White wine and vinegar. 660
1582 Alvarez, José, Constantina, Pro-"vince of Sevilla.—Wine and brandy. 660
1583 Rosa y Silva, José de la, Villama-"nrique, Province of Sevilla.—Wine and brandy. 660
1584 Romero, Enrique, Constantina, Province of Sevilla.—Brandy. 660
1585 Olmo, Sebastian del, Constantina, Province of Sevilla.—Brandy. 660
1586 Salcedo, José J. Gonzalez de, Con-"stantina, Province of Sevilla.—Wine. 660
1587 Torres, Juan Lainez, Arahal, Pro-"vince of Sevilla.—Wine. 660
1588 Capdevila, José Diaz, Arahal, Pro-"vince of Sevilla.—Wine. 660
1589 Reina, Manuel Arias, Arahal, Pro-"vince of Sevilla.—Wine. 660
1590 Zerpa, José, Villanueva del Aris-"cal, Province of Sevilla.—Wine. 660
1591 Amores, Manuel, Villanueva del Aris-"cal, Province of Sevilla.—Wine and vine-"gar. 660
1592 Lucena, Niculas, Ousna, Province of Sevilla.—Wine. 660
1593 Celis, José G. de, Salteras, Pro-"vince of Sevilla.—Wine. 660
1594 Arenas, Antonio Rivas, Cantil-"la, Province of Sevilla.—Brandy. 660
1595 Valle y Villar, Luis del, Lebrija, Province of Sevilla.—Wine. 660
1596 Rabio, Juan Miguel, Dos-Her-"manos, Province of Sevilla.—Wine. 660
1597 Olivencia Bros., Olivares, Pro-"vince of Sevilla.—Wine. 660
1598 Liendo, Manuel, Gines, Province of Sevilla.—Wine. 660
1599 Cotan, Antonio Garcia, Olivares, Province of Sevilla.—Vinegar. 660
1600 Siscar, Ramon, La Canjonja, Pro-"vince of Tarragona.—Wine. 660
1601 Robers, Sebastian Garcia de, Scal-"a Dei, Province of Tarragona.—Wine. 660
1602 Peira y Mach, Agustin, Scal-"a Dei, Province of Tarragona.—Wine. 660
1603 Goteil y Folch, Juan, Altafulla, Province of Tarragona.—Wine and vine-"gar. 660
1604 Gras, Pedro, Reus, Province of Tar-"ragona.—Wine. 660
1605 Bojé, José, Reus, Province of Tar-"ragona.—Wine and garrcha (national drink). 660
1606 Soberano & Co., Reus, Province of Tarragona.—Wine. 660
Animal and Vegetable Products.

1607 Fumaña Bros., Reus, Province of Tarragona.—Wine. 660
1608 Abelló & Son, Reus, Province of Tarragona.—Wine. 660
1609 Gil, Francisco, Reus, Province of Tarragona.—Wine. 660
1610 Martí y Badia, Ramon, Reus, Province of Tarragona.—Wine. 660
1611 Plá, Francisco, Reus, Province of Tarragona.—Wine and anise-seed cordial. 660
1612 Puig y Salvat, Francisco, Reus, Province of Tarragona.—Garnacha (national drink) and muscatel wine. 660
1613 Esteve, A., Widow & Son of, Reus, Province of Tarragona.—Vinegar and alcohol. 660
1614 Sirvent y Oliver, Pedro, Reus, Province of Tarragona.—Wine and spirits of wine. 660
1615 Clariano, Rafael, Reus, Province of Tarragona.—Wine. 660
1616 Montagut, José, Reus, Province of Tarragona.—Wine and vinegar. 660
1617 Fonts, Mariano, Reus, Province of Tarragona.—Wine. 660
1618 Avelló y Boada, Pablo, Reus, Province of Tarragona.—Wine. 660
1619 Puig, José Odena, Reus, Province of Tarragona.—Muscatel wine. 660
1620 Valero, Francisco, Reus, Province of Tarragona.—Port wine. 660
1621 Rocamora, Pablo, Reus, Province of Tarragona.—Anise-seed brandy. 660
1622 Domingo, Tomás, Reus, Province of Tarragona.—Brandy and wine. 660
1623 Potan y Mico, Antonio, Vimbodi, Province of Tarragona.—Wine. 660
1624 Estradé y Alsamora, José, Vimbodi, Province of Tarragona.—Wine. 660
1625 Plassa y Alfonso, José, Vimbodi, Province of Tarragona.—Mistela (national drink). 660
1626 Roig y Sancho, Isidro, Vimbodi, Province of Tarragona.—Mistela (national drink). 660
1627 Aragonés, Ramon Zamora, Poboleda, Province of Tarragona.—Garnacha (national drink) and wine. 660
1628 Figuerol, Juan, Tarragona.—Wine. 660
1629 Morera Pulles, A., & Son, Tarragona.—Wine and imitations, anise-seed cordial, and garnacha (national drink). 660
1630 Carey Bros. & Co., Tarragona.—Wine and imitations. 660
1631 Montoliu, Placido Maria de, Morell, Province of Tarragona.—Wine. 660
1632 Sardá, Pablo, Tarragona.—Wine. 660
1633 Consul & Virgili, Tarragona.—Wine. 660
1634 Nogues, Romeu & Co., Tarragona.—Wine and brandy. 660
1635 Oliva, Gregorio, Tarragona.—Wine and brandy. 660
1636 Roig, Ponseti & Co., Tarragona.—Wine. 660
1637 Compte, Jaime, Torraja, Province of Tarragona.—Wines. 660
1638 Bells, Juan, Valls, Province of Tarragona.—Garnacha wine. 660
1639 Coll, José, Valls, Province of Tarragona.—Muscatel wine. 660
1640 Roca y Murtra, Ramon, Valls, Province of Tarragona.—Wines and spirits of wine and anise-seed cordial. 660
1641 Argèl y Font, José, Ulidemolins, Province of Tarragona.—Red wine. 660
1642 Montlleo y Mor, José, Ulidemolins, Province of Tarragona.—Mistela (national drink). 660
1643 Figuerola, Antonio, Porrera, Province of Tarragona.—Wine. 660
1644 Compte, Jose Amorós, Porrera, Province of Tarragona.—Wine. 660
1645 Amorós, Vicente, Porrera, Province of Tarragona.—Wine. 660
1646 Montlleo, Jaime, Porrera, Province of Tarragona.—Garnacha wine. 660
1647 Pellicer, Francisco, Porrera, Province of Tarragona.—Garnacha wine. 660
1648 Simó, Pio, Porrera, Province of Tarragona.—Wines. 660
1649 Simó, José Maria, Porrera, Province of Tarragona.—Garnacha wine. 660
1650 Llaberia, Joaquín Sabaté, Porrera, Province of Tarragona.—Wine. 660
1651 Capdevila è Ibern, José, Torredembarra, Province of Tarragona.—Wine. 660
1652 Sanroma y Boada, Domingo, Torredembarra, Province of Tarragona.—Mistela (national drink). 660
1653 Llorat y Fontanillas, José, Torredembarra, Province of Tarragona.—Wine. 660
1654 Castellarnau, Joaquín de, Poblet, Province of Tarragona.—Wine. 660
1655 Miré, Juan, Vilaseca, Province of Tarragona.—Mistela (national drink). 660
1656 March, Juan de, Vilaseca, Province of Tarragona.—Mistela (national drink) and wine. 660
1657 Daimau y Amat, Domingo de, Montbrió de Tarragona, Province of Tarragona.—Wine and mistela (national drink). 660
1658 Porqueras, Juan, Vilella Alta, Province of Tarragona.—Malmsey wine. 660
1659 Boulé, José, Reus, Province of Tarragona.—Wines. 660
1660 Viñas y Pamiés, José, Poboleda, Province of Tarragona.—Wine. 660
1661 Montaner y Rincon, José, Reus, Province of Tarragona.—Wine. 660
1662 Caselles, Pedro, Co., Reus, Province of Tarragona.—Wine. 660
1663 Borras, S. S., & Lassalle, Reus, Province of Tarragona.—Wines and imitations. 660
1664 Ferratges, José Vidiella, Reus, Province of Tarragona.—Wine. 660
1665 Salvador, Mateo, Riudoms, Province of Tarragona.—Wine. 660
1666 Sarro y Salat, Antonio, Bárbara, Province of Tarragona.—Brandy. 660
1667 Aragonés, Tomás, Cornudella, Province of Tarragona.—Wines. 660
Animal and Vegetable Products.

1668 Folch, Joaquin Brú, Cambrils, Province of Tarragona.—Wine. 660
1669 Gallisa Juan Aragonés, Dosaiguas, Province of Tarragona.—Wine. 660
1670 Crusat, Bartolomé Llebaria, Dosaiguas, Province of Tarragona.—Wine. 660
1 Cabré, José Nolla, Dosaiguas, Province of Tarragona.—Wine. 660
1672 Anestia, José Ciurana, Dosaiguas, Province of Tarragona.—Wine. 660
1673 Aragonés, Juan Sanenis, Dosaiguas, Province of Tarragona.—Wine. 660
1674 Magriña, Luis de, Falset, Province of Tarragona.—Wines. 660
1675 Anguera y Angles, Ramon, Falset, Province of Tarragona.—Mistela (national drink) and wine. 660
1676 Ortiz, Emilio, Huelbes, Ocaña, Province of Toledo.—Wine. 660
1677 Gurrido, Valentín, Ocaña, Province of Toledo.—Wine and brandy. 660
1678 Caballero y Cabello, Martin, Ocaña, Province of Toledo.—Wine. 660
1679 Basarán, Isidoro, Olias del Rey, Province of Toledo.—Wine. 660
1680 Lázaro, Ollalo, Talavera de la Reina, Province of Toledo.—Anise-seed cordial. 660
1681 Perera & Sons, Sagunto, Province of Valencia.—Wine. 660
1682 Requena, Manuel, & Sons, Jativa, Province of Valencia.—Wine. 660
1683 Suñer, Enrique, Masanasa, Province of Valencia.—Dr. Suñer’s liquor. 660
1684 Caruana Bros., Bétera, Province of Valencia.—Wine. 660
1685 Comas y Delgado, Rafael, Onteniente, Province of Valencia.—Wine. 660
1686 Villar, Manuel, Sagunto, Province of Valencia.—Wine. 660
1687 Lluch, Francisco, Sagunto, Province of Valencia.—Wine. 660
1688 Valero, Juan, Requena, Province of Valencia.—Wine. 660
1689 Pifanego, Norberto, Requena, Province of Valencia.—Wine. 660
1690 Omlín, Juan, Requena, Province of Valencia.—Wine. 660
1691 Moron, Francisco de P., & Co., Albaida, Province of Valencia.—Brandy. 660
1692 Pujol, José Maria, Valencia.—Wine. 660
1693 Gisbert, Mariano, Torrente, Province of Valencia.—Wine. 660
1694 Iranzo, Jaime, Turis, Province of Valencia.—Wine. 660
1695 Navarro, Eduardo, Turis, Province of Valencia.—Wine. 660
1696 Latorre, Federico, Turis, Province of Valencia.—Wine. 660
1697 Artigues, Serapio, Játiva, Province of Valencia.—Wine. 660
1698 Olias, Vicente, Chiva, Province of Valencia.—Wine. 660
1699 Torner, Juan, Carcagente, Province of Valencia.—Orange wine. 660
1700 Ferrandis y Soler, José, Onteniente, Province of Valencia.—Wine. 660
1701 Lorenzo Puig Bros., Monsenat, Province of Valencia.—Wine. 660
1702 Pieza, Honorato, Monsenat, Province of Valencia.—Wine. 660
1703 Pardo, Joaquin, Valencia.—Orange wine. 660
1704 Reig y García, Fernando, Puebla, de Vallbona, Province of Valencia.—Wine. 660
1705 Albers, Carlos, Picasent, Province of Valencia.—Wine. 660
1706 Bodi, Salvador, Carcagente, Province of Valencia.—Orange wine. 660
1707 Lassala, Vicente, Lloredo, Province of Valencia.—Wine. 660
1708 Ricart y Sanz, Salvador, Rafelbuñol, Province of Valencia.—Wine. 660
1709 Starico y Ruiz, Ricardo, Ribarroja, Province of Valencia.—Wine. 660
1710 Bosca y Pascual, Blas, Puebla de Rúgat, Province of Valencia.—Wine. 660
1711 Talabuyg, Bartolomé, Valencia.—Wine. 660
1712 Cañamás, José Damian Capsir, Puebla de Rúgat, Province of Valencia.—Wine. 660
1713 Domenech, Angel, Valencia.—Wine and orange wine. 660
1714 Lavarias, Antonio, Cheste, Province of Valencia.—Red wine. 660
1715 Guilen, Valero Navarro, Cheste, Province of Valencia.—Red wine. 660
1716 Campos, Vicente, Cheste, Province of Valencia.—Red wine. 660
1717 García, Francisco, Cheste, Province of Valencia.—Red wine. 660
1718 Tarin, German, Cheste, Province of Valencia.—Red wine. 660
1719 Luay, Leoncio, Cheste, Province of Valencia.—Red wine. 660
1720 Martí, Salvador, Cheste, Province of Valencia.—Red wine. 660
1721 Jordan, Vicente, Cheste, Province of Valencia.—Wine. 660
1722 Tamarit, Eulogio, Cheste, Province of Valencia.—Wine. 660
1723 García, Pascual, Cheste, Province of Valencia.—Wine. 660
1724 Jordan, Manuel, Cheste, Province of Valencia.—Wine. 660
1725 García, Luis Campos, Cheste, Province of Valencia.—Wine. 660
1726 Ortega, Vicente, Valencia.—Liquors. 660
1727 Costa, José Pla, Olleria, Province of Valencia.—Wine. 660
1728 Diego, Francisco Polop, Játiva, Province of Valencia.—Brandy, mistela, and wine. 660
1729 Nager y Juan, Pedro J., Olleria, Province of Valencia.—Wine. 660
1730 Calvo, Francisco, Valencia.—Orange wine. 660
1731 Herrera, José, Nau del Rey, Province of Valladolid.—Wine. 660
1732 Sañudo, Ramon Trueba, Nau del Rey, Province of Valladolid.—Wine. 660
1733 Pimentel, Pedro Antonio, Rueda, Province of Valladolid.—Vinegar. 660
Animal and Vegetable Products.

1754 Villalva, Benigno, Corrales de Duero, Province of Valladolid.—Wine.

1755 Alonso, Bernardo Real, Peñafiel, Province of Valladolid.—Wine.

1756 Prasencio, Mariano, Tudela de Duero, Province of Valladolid.—Wine.

1757 Zunzunequi, Angel, Cabezon, Province of Valladolid.—Wine.

1758 Malfaz, Agustin, Cabezon, Province of Valladolid.—Wine.

1759 Revilla, Antonio, Cabezon, Province of Valladolid.—Wine.

1760 Gonzalez, Benito, Cabezon, Province of Valladolid.—Wine.

1761 Villaverde, Rafael, Cabezon, Province of Valladolid.—Wine.

1762 Sotillo, Manuel, Valladolid.—Wine.

1763 Redondo Bros., Valladolid.—Wine.

1764 Zurbano, Jose, Cabezon, Province of Valladolid.—Wine.

1765 Red, Baltasar de la, Cabezon, Province of Valladolid.—Wine.

1766 Pimentel, Casilda Arévalo de, Rueda, Province of Valladolid.—Wine.

1767 Vaca, Francisco Cabeza de, Fuente Duero, Province of Valladolid.—Wine.

1768 Caballero, Marquis of, Nava del Rey, Province of Valladolid.—Wine.

1769 Eyries, Agustin, Valladolid.—Wine.

1770 Diaz, Juan, Valladolid.—Liquors.

1771 Mesianes, Mariano Bayon, Rueda, Province of Valladolid.—Wine.

1772 Corporation of Medina de Campo, Province of Valladolid.—Wine.

1773 Diez, Crispulo Paredes, Valladolid.—Liquors.

1774 Gimeno, Mariano, Rueda, Province of Valladolid.—Wine.

1775 Board of Agriculture, Valbuena de Duero, Province of Valladolid.—Wine and brandy.

1776 Cosio y Cuenca, Eloy, Valladolid.—Liquors.

1777 Diez y Diez, Luis, Valladolid.—Wine.

1778 Montero, Ramon Bayon, Rueda, Province of Valladolid.—Wine.

1779 Arias, Francisco Galan, Fuentesaule, Province of Zamora.—Wine.

1780 Serrano, Manuel, Formoselle, Province of Zamora.—Wine.

1781 Puga, Sons of, Zamora.—Liquors.

1782 Requejo, Miguel, Zamora.—Wine.

1783 Furturo, Leonardo, Toro, Province of Zamora.—Wine.

1784 Villalva, Victoriano, Zamora.—Wine.

1785 Weches, Santiago, Coreses, Province of Zamora.—Wine.

1786 Temprano, Jose, Verdemarban, Province of Zamora.—Wine.

1787 Pernia, Nicasio, Castro Verde, Province of Zamora.—Wine.

1788 Dieguez, Manuel, Zamora.—Anise-seed cordial.

1789 Royo, Mariano, Zamora.—Alcohol.

1790 Porta, Mariano, Zaragoza.—Anise-seed cordial and prepared anise-seed used for its manufacture.

1791 Pfortes, Miguel, Zaragoza.—Anise-seed cordial.

1792 Lichtenstein, Julio, Carriena, Province of Zaragoza.—Wine.

1793 Lahoz, Victorio, Escatron, Province of Zaragoza.—Anise-seed cordial.

1794 Aliño, Antonio, Escatron, Province of Zaragoza.—Anise-seed cordial.

1795 Lacaee, Juan Pablo, Zaragoza.—Wine.

1796 Figueras, Inigo, Zaragoza.—Wine.

1797 Perez, Mariano, Zaragoza.—Wine.

1798 Vallier, Jose, Zaragoza.—Wine.

1799 Ballo, Angel, Habana, Cuba.—Liquors.

1800 Zulueta, Julian, Habana, Cuba.—Brandies.

1801 Soler, L., & Co., Carreras, Cuba.—Brandies.

1802 Central Commission of the Island, Habana, Cuba.—Sherry.

1803 Domez, Pedro, Jerez.—Sherry.

1804 Duff, Gordon & Co., Jerez.—Sherry.

1805 Loring Bros., Malaga.—Malaga and Montilla wine.

1806 Schoki, Malaga.—Malaga.

1807 Vintroy y Villa, Agustin, Barcelona.—Preserved yeast.

1808 Cano, Antonio, Carrion de Calatrava, Province of Ciudad-Real.—Crackers.

1809 Rivera Guarner, Alicante.—Chocolate.

1810 Barrengoa, Dámaso de, Ciudad-Real.—Chocolate.

1811 Blanco, Jose Maria, Santiago, Province of La Coruña.—Chocolate.

1812 Leal, Francisco, Coruña.—Chocolate.

1813 Castro, Enrique Calvo de, Perrol, Province of La Coruña.—Chocolate.

1814 Palà, Juan, Huesca.—Chocolate.

1815 Prado, Maximo Alonzo de, León.—Chocolate.

1816 Alonso, Pedro Antonio, Mansilla de las Mulas, Province of Leon.—Chocolate.

1817 Fernandez, Jose, Sahagun, Province of Leon.—Chocolate.

1818 Alonso, Blas, Widow of, Leon.—Chocolate.

1819 Silva, Tomás Rubio, Astorga, Province of Leon.—Chocolate.
### Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Year</th>
<th>Author</th>
<th>Location</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800</td>
<td>Panero y Martinez</td>
<td>Juan, Astorga, Province of Leon</td>
<td>Chocolate</td>
</tr>
<tr>
<td>1801</td>
<td>Garcia, Manuel</td>
<td>Lérida</td>
<td>Chocolate</td>
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<td>1802</td>
<td>Reixades, Antonio</td>
<td>Lérida</td>
<td>Chocolate</td>
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<td>Ruiz, Francisco Enciso de Muñil</td>
<td>Province of Logroño</td>
<td>Chocolate</td>
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<td>1804</td>
<td>Fernandez, Francisco</td>
<td>&amp; Bro, Lugo</td>
<td>Chocolate</td>
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<tr>
<td>1805</td>
<td>Merc, &amp; Co.</td>
<td>Madrid</td>
<td>Chocolate</td>
</tr>
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<td>1806</td>
<td>Lopez, Matias</td>
<td>Madrid</td>
<td>Chocolate</td>
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<td>1807</td>
<td>Lopez &amp; Vaquez</td>
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<td>1808</td>
<td>Dubois, L.</td>
<td>Widow of Múrcia</td>
<td>Chocolate</td>
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<td>1809</td>
<td>Bobo, Francisco Perez</td>
<td>Orense</td>
<td>Chocolate</td>
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<td>1810</td>
<td>Anta y Temes</td>
<td>Federico, Orense</td>
<td>Chocolate</td>
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<td>1811</td>
<td>Fernandez, Antonio Maria</td>
<td>Oviedo</td>
<td>Chocolate</td>
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<td>1812</td>
<td>Acebal y Menendez</td>
<td>Benito, Oviedo</td>
<td>Chocolate</td>
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<td>1813</td>
<td>Ortiz, Tadeo &amp; Sons</td>
<td>Palencia</td>
<td>Chocolate</td>
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<td>1814</td>
<td>Garcia, Benito</td>
<td>Pontevedra</td>
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<td>1815</td>
<td>Crespo, José Sanchez</td>
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<td>1816</td>
<td>Pies, Federico Sanchez</td>
<td>Salamanca</td>
<td>Chocolate</td>
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<td>Nácar, Juan Prieto</td>
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<td>Chocolate</td>
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<td>1818</td>
<td>Ramos, Eustaquio</td>
<td>Soria</td>
<td>Chocolate</td>
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<td>1819</td>
<td>Macaya, Juan</td>
<td>Reus, Province of Tarragona</td>
<td>Chocolate</td>
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<td>Gonzalez, José Maria</td>
<td>Talavera, Province of Toledo</td>
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<td>Lazaro, Olallo</td>
<td>Talavera, Province of Toledo</td>
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<td>1822</td>
<td>Cuevas &amp; Garcia</td>
<td>Valladolid</td>
<td>Chocolate</td>
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<td>1823</td>
<td>Escarda, Salustiano Maríno</td>
<td>Benavente, Province of Zamora</td>
<td>Chocolate</td>
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<td>Escudero, Dionisio &amp; Son</td>
<td>Zaragoza, Province of Zaragoza</td>
<td>Chocolate</td>
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<td>1825</td>
<td>Ascaso, Domingo</td>
<td>Zaragoza</td>
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<td>Iriarte, José Maria</td>
<td>Habana, Cuba</td>
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<td>Fernandez, José</td>
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<td>1828</td>
<td>Plana &amp; Co.</td>
<td>Habana, Cuba</td>
<td>Chocolate</td>
</tr>
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<td>1829</td>
<td>Amores, Julian</td>
<td>Eliche de la Sierra, Province of Alcañiz</td>
<td>Olive oil</td>
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<tr>
<td>1830</td>
<td>Maroni, José</td>
<td>Hellin, Province of Albacete</td>
<td>Olive oil</td>
</tr>
<tr>
<td>1831</td>
<td>Sandoval, José Joaquin</td>
<td>Jacarilla, Province of Alicante</td>
<td>Olive oil</td>
</tr>
<tr>
<td>1832</td>
<td>Payas, Ciro Perez</td>
<td>Monóvar, Province of Alicante</td>
<td>Olive oil</td>
</tr>
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<td>1833</td>
<td>Rico, Antonio Perez</td>
<td>Monóvar, Province of Alicante</td>
<td>Oil</td>
</tr>
<tr>
<td>1834</td>
<td>Verdu, Remedios Perez</td>
<td>Monóvar, Province of Alicante</td>
<td>Olive oil</td>
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<tr>
<td>1835</td>
<td>Albert, L. Perez, &amp; Co.</td>
<td>Monóvar, Province of Alicante</td>
<td>Olive oil</td>
</tr>
<tr>
<td>1836</td>
<td>Reguart, Emilio Perez, ibi</td>
<td>Province of Alicante</td>
<td>Olive oil</td>
</tr>
<tr>
<td>1837</td>
<td>Pina, Juan Bautista</td>
<td>Monforte, Province of Alicante</td>
<td>Olive oil</td>
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<tr>
<td>1838</td>
<td>Verdu y Perez, Joaquin</td>
<td>Monóvar, Province of Alicante</td>
<td>Olive oil</td>
</tr>
<tr>
<td>1839</td>
<td>Moreno, Pedro Contreras</td>
<td>Velez-Rubio, Province of Almeria</td>
<td>Olive oil</td>
</tr>
<tr>
<td>1840</td>
<td>Treil, Miguel del</td>
<td>Berja, Province of Almeria</td>
<td>Natural olive oil</td>
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<td>1841</td>
<td>Meson, Jose</td>
<td>Arenas de San Pedro</td>
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<td>Patiño, José María</td>
<td>Cabeza de Vaca, Province of Badajoz</td>
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<td>1843</td>
<td>Cáceres, Damian</td>
<td>Guareña, Province of Badajoz</td>
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<td>1844</td>
<td>Fernandez, Secundino</td>
<td>Zafra, Province of Badajoz</td>
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<td>1845</td>
<td>Delgado, Francisco Gomez</td>
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<td>1846</td>
<td>Fluxa y Palct, Miguel</td>
<td>Selva, Baleár Islands</td>
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<td>1847</td>
<td>Zaforteza, Juan Burguez, Buñolas</td>
<td>Baleár Islands</td>
<td>Oils</td>
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<td>1848</td>
<td>Puig &amp; Llogostera Bros.</td>
<td>Barcelona</td>
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<td>1849</td>
<td>Porcar y Tió, Manuel</td>
<td>Barcelona</td>
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<td>1850</td>
<td>Fornell, Ramon, &amp; Co.</td>
<td>Barcelona</td>
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<td>1851</td>
<td>Oliver y Coll, Francisco, Ripoll</td>
<td>Province of Barcelona</td>
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<td>1852</td>
<td>Pons, Antonio Castell de</td>
<td>Esparraguera, Province of Barcelona</td>
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<td>1853</td>
<td>Ferran, Manuel</td>
<td>Barcelona</td>
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<td>1854</td>
<td>Soler y Stussa, Valentín</td>
<td>Barcelona</td>
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<td>1855</td>
<td>Castell de Mas, Joaquin Pedrera</td>
<td>Esparraguera, Province of Barcelona</td>
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<td>1856</td>
<td>Villegas, Vicente Villarroel</td>
<td>Alcántara, Province of Cáceres</td>
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<td>1857</td>
<td>Ayaz, José Diaz</td>
<td>Plasencia, Province of Cáceres</td>
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<td>1858</td>
<td>Santiváñez, Pedro José</td>
<td>Casar de Palomero, Province of Cáceres</td>
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<td>1859</td>
<td>Arjona, Manuel</td>
<td>Jaraíz, Province of Cáceres</td>
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<td>1860</td>
<td>Gomez, Juan Crióstomo Gomez</td>
<td>Villamiaíl, Province of Cáceres</td>
<td>Olive oil</td>
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<td>1861</td>
<td>Botejana, Juan Vicente</td>
<td>Villas Buenas, Province of Cáceres</td>
<td>Olive oil</td>
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<tr>
<td>1862</td>
<td>Fernandez, Juan, Gata</td>
<td>Province of Cáceres</td>
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<td>1863</td>
<td>Casillas, Ramon</td>
<td>Acebo, Province of Cáceres</td>
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<td>1864</td>
<td>Bacás y Estevez, Ignacio, Cilleros</td>
<td>Province of Cáceres</td>
<td>Olive oil</td>
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</table>
Animal and Vegetable Products.

1865 Guerra, Felipe Leon, Gata, Province of Cáceres.—Olive oil. 662
1866 Cepeda, Julian, Jerte, Province of Cáceres.—Oil. 662
1867 Valmorisco, Pedro Navas, Guadalupe, Province of Cáceres.—Olive oil. 662
1868 Valiente, Eusebio, Hoyos, Province of Cáceres.—Olive oil. 662
1869 Lugoiz y Lopez, Francisco, Puerto de Santa Maria, Province of Cadiz.—Olive oil. 662
1870 Artiles, Matias Helian, Las Palmas, Canary Islands.—Olive oil. 662
1871 Girona y Mato, Ramon, Alcora, Province of Castellon de la Plana.—Olive oil. 662
1872 Mascaro, Jose, Alcora, Province of Castellon de la Plana.—Olive oil. 662
1873 Grangell, Pascual, Alcora, Province of Castellon de la Plana.—Olive oil. 662
1874 Garcia y Moreno, Julian, Altura, Province of Castellon de la Plana.—Virgin olive oil.—Olive oil. 662
1875 Escribano, Jose, Vinaroz, Province of Castellon de la Plana.—Olive oil. 662
1876 Arnau & Tomás, Segorbe, Province of Castellon de la Plana.—Olive oil. 662
1877 Ricart, Juan Martinez, Segorbe, Province of Castellon de la Plana.—Oil. 662
1878 Aguil a y Aguila, Santiago del, Villarubia de los Ojos, Province of Ciudad Real.—Olive oil. 662
1879 M edrano, Jose, Ciudad Real.—Olive oil. 662
1880 Mills, Manuel, Montoro, Province of Cordoba.—Olive oil. 662
1881 Imbente, Juan de Dios, Villaviciosa, Province of Cordoba.—Olive oil. 662
1882 Cantual y Lopez, Jose, Cordoba.—Olive oil. 662
1883 Estrada, Eduardo, Aguilar, Province of Cordoba.—Olive oil. 662
1884 Santaló, Esteban, Cordoba.—Olive oil. 662
1885 San Bernardo, Count of, Cordoba.—Olive oil. 662
1886 Alvarez, Rafael Ceballos, Adamion, Province of Cordoba.—Olive oil. 662
1887 Alguacil, Miguel Pineda, Espejo, Province of Cordoba.—Olive oil. 662
1888 Lopez, Espejo, Province of Cordoba.—Olive oil. 662
1889 Casado, Francisco, Espejo, Province of Cordoba.—Olive oil. 662
1890 Vega y Lopez, Luis, Espejo, Province of Cordoba.—Olive oil. 662
1891 Pineda, Jose Ramirez, Espejo, Province of Cordoba.—Olive oil. 662
1892 Medinaceli, Duchess, Widow of, Espao, Province of Cordoba.—Olive oil. 662
1893 Fuente el Sacle, Count of, Montoro, Province of Cordoba.—Olive oil. 662
1894 Rodriguez, Jose, Montemayor, Province of Cordoba.—Olive oil. 662
1895 Moreno, Sebastian, Montemayor, Province of Cordoba.—Olive oil. 662
1896 Uruburu, Jose, Montemayor, Province of Cordoba.—Olive oil. 662
1897 Moreno, Jose Maria, Montemayor, Province of Cordoba.—Olive oil. 662
1898 Corporation of Bujalance, Province of Cordoba.—Olive oil. 662
1899 Prio to, Sebastian, Encinas Reales, Province of Cordoba.—Olive oil. 662
1900 Paoon, Pablo, Baena, Province of Cordoba.—Olive oil. 662
1901 Bastida, Martin, Montoro, Province of Cordoba.—Olive oil. 662
1902 Cabezas y Sarabia, Jose, Montoro, Province of Cordoba.—Olive oil. 662
1903 Piérola, Rafael, Montoro.—Province of Cordoba.—Olive oil. 662
1904 Lara y Pineda, Rafael J. de, Montoro, Province of Cordoba.—Olive oil. 662
1905 Saenz, Eusebio, Lucena, Province of Cordoba.—Olive oil. 662
1906 Carmona, Joaquina, Lucena, Province of Cordoba.—Olive oil. 662
1907 Algar, Francisco, Lucena, Province of Cordoba.—Olive oil. 662
1908 Valdecañas, Count of, Lucena, Province of Cordoba.—Olive oil. 662
1909 Medinaceli, Duke of, Lucena, Province of Cordoba.—Olive oil. 662
1910 Gomez, Antonio Enrique, Montoro, Province of Cordoba.—Olive oil. 662
1911 Escribano, Luis, Pozoblanco, Province of Cordoba.—Olive oil. 662
1912 Galan, Alfonso Blanco, Dos Torres, Province of Cordoba.—Olive oil. 662
1913 Castillejo, Pedro, Fuente-Ojunea, Province of Cordoba.—Olive oil. 662
1914 Isabelo, Jose Garcia, Santa-Ella, Province of Cordoba.—Olive oil. 662
1915 Criado, Dolores, Villa del Rio, Province of Cordoba.—Olive oil. 662
1916 Zamora, Pedro Alcalá, Priego, Province of Cordoba.—Olive oil. 662
1917 Valverde, Francisco Aguilera, Priego, Province of Cordoba.—Olive oil. 662
1918 Castilla, Jose Eugenio, Priego, Province of Cordoba.—Olive oil. 662
1919 Roldan, Manuel, Montoro, Province of Cordoba.—Olive oil. 662
1920 Cano, Raúl, Adamuz, Province of Cordoba.—Olive oil. 662
1921 Cano, Juan, Adamuz, Province of Cordoba.—Olive oil. 662
1922 Estrado y Perjano, Ramon, Adamuz, Province of Cordoba.—Olive oil. 662
1923 Lara, Antonio Crespo, Benamemy, Province of Cordoba.—Olive oil. 662
1924 Rio, Pedro del, Castro del Rio, Province of Cordoba.—Olive oil. 662
1925 Sepulveda, V. Muñoz de, Córdoba.—Olive oil. 662
1926 Campo, Francisco Escobar, Rubirosa Rejas, Province of Cuenca.—Olive oil. 662
1927 Cid, Julian, Tarancón, Province of Cuenca.—Olive oil. 662
Animal and Vegetable Products.

1928 Torres, Mariano L., Barchin del Hoyo, Province of Cuenca.—Olive oil. 662
1929 Baill, José Maria, Barchin del Hoyo, Province of Cuenca.—Olive oil. 662
1930 Reyes y Rich, Juan A., Guadalupe, Province of Huelva.—Olive oil. 662
1931 Molina, Federico, Rociana, Province of Huelva.—Olive oil. 662
1932 Soldán, Antonio, La Palma, Province of Huelva.—Olive oil. 662
1933 Carrasco, José Maria, Bonares, Province of Huelva.—Olive oil. 662
1934 Zambrano, José A., Villalba del Alcor, Province of Huelva.—Olive oil. 662
1935 Iníquez, José, Gibraleon, Province of Huelva.—Olive oil. 662
1936 Iníquez, Encarnación, Gibraleon, Province of Huelva.—Olive oil. 662
1937 Morales, Teresa, San Juan del Puerto, Province of Huelva.—Olive oil. 662
1938 Santa, Martin Maria, San Juan del Puerto, Province of Huelva.—Olive oil. 662
1939 Marquez, Rufino J., Manzanilla, Province of Huelva.—Olive oil. 662
1940 Velarde, José Eduardo, Manzanilla, Province of Huelva.—Olive oil. 662
1941 Cémero, Luis, Trigueros, Province of Huelva.—Olive oil. 662
1942 Montiel, Eliecer, Trigueros, Province of Huelva.—Virgin olive oil. 662
1943 Orta, Manuel de, Trigueros, Province of Huelva.—Olive oil. 662
1944 Rodriguez, José Rodriguez, Trigueros, Province of Huelva.—Olive oil. 662
1945 Escolar, Ángel, Almonte, Province of Huelva.—Olive oil. 662
1946 Cepeda, Ignacio de, Almonte, Province of Huelva.—Olive oil. 662
1947 Lagares, Francisco, Almonte, Province of Huelva.—Olive oil. 662
1948 Pineda, Nicano Infante, Aracena, Province of Huelva.—Olive oil. 662
1949 Oliva, Juan Martin de, Aracena, Province of Huelva.—Olive oil. 662
1950 Carnes, Eulogio Martin, Aracena, Province of Huelva.—Olive oil. 662
1951 Ramirez, Ignacio Nagailes, Aracena, Province of Huelva.—Olive oil. 662
1952 Barrera, Joaquin Moya, Aracena, Province of Huelva.—Olive oil. 662
1953 Cruz, Rivero, Rafael Triases de la, Huelva.—Olive oil. 662
1954 Las Cuebas, Fernando de, Huelva.—Olive oil. 662
1955 Mora, Antonio de, Huelva.—Olive oil. 662
1956 Figueroa, Eduardo, Huelva.—Olive oil. 662
1957 Arnal, Dionisio, Castelflorite, Province of Huesca.—Olive oil. 662
1958 Nasarre, Voto, Alballe de Cinca, Province de Huesca.—Olive oil. 662
1959 Laguna, Celeste, Sarifen, Province of Huesca.—Olive oil. 662
1960 Lapiérdia, Joaquín, Sarifen, Province of Huesca.—Olive oil. 662
1961 Las Almenas, Count of, Espeley, Province of Jaén.—Olive oil. 662

1962 Campos, Antonio Lopez, Ubeda, Province of Jaén.—Olive oil. 662
1963 Llabañez, Luis Gallego, Cazorla, Province of Jaén.—Olive oil. 662
1964 Acapulco, Marquis of, Torrejon Jimeno, Province of Jaén.—Olive oil. 662
1965 Villalva, Antonio Fernandez, Torrejon Jimeno, Province of Jaén.—Olive oil. 662
1966 Manjon, Juan A., Iznatoraf, Province of Jaén.—Olive oil. 662
1967 Salcedo y Gamez, Miguel, Jimena, Province of Jaén.—Olive oil. 662
1968 Torres, Manuel Alfonso, Jimena, Province of Jaén.—Olive oil. 662
1969 Oliveres, Mauricio, Torreserona, Province of Lérida.—Olive oil. 662
1970 Terez, Ignacio, Tarrega, Province of Lérida.—Olive oil. 662
1971 Corporation of Agramunt, Province of Lérida.—Olive oil. 662
1972 Corporation of Puigvert, Province of Lérida.—Olive oil. 662
1973 Corporation of Las Borjas, Province of Lérida.—Olive oil. 662
1974 Corporation of Vinaixa, Province of Lérida.—Olive oil. 662
1975 Alos, Francisco, Balaguer, Province of Lérida.—Olive oil. 662
1976 Pinós, José Maria, Lérida.—Olive oil. 662
1977 Lafont, Andrés, Borjas, Province of Lérida.—Olive oil. 662
1978 Lopez, Manuel, Puigvert, Province of Lérida.—Olive oil. 662
1979 Ball, José, Agramunt, Province of Lérida.—Olive oil. 662
1980 Ron, Ramon, Vinaixa, Province of Lérida.—Olive oil. 662
1981 Zubia, Idefonso, Logrono.—Olive oil. 662
1982 Lasán, Marquis of, Cuzcurrita de Rio Tiron, Province of Logroño.—Olive oil. 662
1983 Aicalde, Javier, Logroño.—Olive oil. 662
1984 Pascual, Elias, Alfarnate, Province of Malaga.—Olive oil. 662
1985 Corporation of Teba, Province of Malaga.—Olive oil. 662
1986 Garcia, Dolores, Widow of Estor, Mushica.—Olive oil. 662
1987 Lopez, José Maria, Caravaca, Province of Murcia.—Olive oil. 662
1988 Coracér Agustín Mascareñas, Yerin, Province of Orense.—Olive oil. 662
1989 Velasco, Manuel, Verin, Province of Orense.—Olive oil. 662
1990 Ullan, Romualdo, Masueco, Province of Salamanca.—Olive oil. 662
1991 Martin, Lorenzo Calvo, Mogarraz, Province of Salamanca.—Olive oil. 662
1992 Garcia, José Sanchez, Fregeneda, Province of Salamanca.—Olive oil. 662
1993 La Viesca, Marquis of, Fregeneda, Province of Salamanca.—Olive oil. 662
1994 Bullon, Agustín, Miranda del Castañar, Province of Salamanca.—Olive oil. 662
1995 Corbalan, Juan, Sancelle, Province of Salamanca.—Olive oil. 662
Animal and Vegetable Products.

1996 Villaranea, Ramon Miguel, Hinojosa de Duero, Province of Salamanca.—Olive oil.
1997 Ortál, Ignacio, Fregeneda,Province of Salamanca.—Olive oil.
1998 Villaranda, Joaquin,Romo, Hinojosa de Duero, Province of Salamanca.—Olive oil.
1999 Gascon, Andrés Sanchez, Cepea, Province of Salamanca.—Olive oil.
2000 Paulino, Diego Perez, Fregeneda, Province of Salamanca.—Olive oil.
2001 Herrero, Julian, Lumbrales, Province of Salamanca.—Olive oil.
2002 Paulino, Cipriano Perez, Fregeneda, Province of Salamanca.—Olive oil.
2003 Mendoza, Ignacio Halcon, Lebrija, Province of Sevilla.—Olive oil.
2004 Cisneros, Honorio de, Constantina, Province of Sevilla.—Olive oil.
2005 Morejon, Manuel Solis, Cantillana, Province of Sevilla.—Olive oil.
2006 Arenas, Antonio Rivas, Cab. Province of Sevilla.—Olive oil.
2007 Teruel, Pedro, & Bros., Cantillana, Province of Sevilla.—Olive oil.
2008 Reina, Claudio Gimenez de, Arahal, Province of Sevilla.—Olive oil.
2009 Quintanilla, Antonio Torres, Arahal, Province of Sevilla.—Olive oil.
2010 Zailas y Trigueros, Miguel, Seville.—Olive oil.
2011 Piñar, Enrique, & Bros., Arahal, Province of Sevilla.—Olive oil.
2012 Benjumea y Jiló, Eduardo, Arahal, Province of Sevilla.—Olive oil.
2013 Andrade, Manuel Zayas, Arahal, Province of Sevilla.—Olive oil.
2014 Puig, Juan, Sevilla.—Olive oil.
2015 Garcia, Pedro Leanim, Sevilla.—Olive oil.
2016 Leygonier, Cayetano, Sevilla.—Olive oil.
2017 Puerta Zayas, Aniceto de la, Seville.—Olive oil.
2018 Serrano, Miguel Perez, Olivares, Province of Sevilla.—Olive oil.
2019 Masa, Juan Gomez de la, Olivares, Province of Sevilla.—Olive oil.
2020 Daoiz, Count of, Moron, Province of Sevilla.—Olive oil.
2021 Daoiz, José, Moron, Province of Sevilla.—Olive oil.
2022 Angulo, José, Moron, Province of Sevilla.—Olive oil.
2023 Mendez, Felipe, Mairena del Alcor, Province of Sevilla.—Olive oil.
2024 La Hasta, Lorenzo Dominguez de, Carmona, Province of Sevilla.—Olive oil.
2025 Valasco, Ramon, Carmona, Province of Sevilla.—Olive oil.
2026 Reina, José Martinez de, Dos Hermanas, Province of Sevilla.—Olive oil.
2027 Ibarra, J. M., & Sons, Dos Hermanas, Province of Sevilla.—Olive oil.
2028 Sanchez, José Arcos, Coronil, Province of Sevilla.—Olive oil.
2029 Rosa y Silva, José de la, Villa manrique, Province of Sevilla.—Olive oil.
2030 La Motilla, Marquis of, Pilas, Province of Sevilla.—Olive oil.
2031 Martinez, Joaquin, Bros., Utrera, Province of Sevilla.—Olive oil and pressed olives.
2032 Martinez, Casimiro Carro, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2033 Orejuela, Francisco de, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2034 Dominguez, Pedro, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2035 Bascon, Antonio, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2036 Peña, José Gonzalez de la, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2037 Cuadrada, Enrique de la, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2038 Calero, Juan, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2039 Giraldez, Vicente, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2040 Riarola, Rafael, Utrera, Province of Sevilla.—Olive oil and pressed olives.
2041 Franquet y Dara, José, Gandesa, Province of Tarragona.—Olive oil.
2042 Grau, José Maria de, Mas-Pujols, Province of Tarragona.—Olive oil.
2043 Sanz y Salva, Francisco, Mas-Pujols, Province of Tarragona.—Olive oil.
2044 Llausado y Pamies, José, Mas- Pujols, Province of Tarragona.—Olive oil.
2045 Pamies y Ortoneda, Juan, Mas- Pujols, Province of Tarragona.—Olive oil.
2046 Orovio, Manuel de, Riudoms, Province of Tarragona.—Olive oil.
2047 Salvadó, Salvador, Riudoms, Province of Tarragona.—Olive oil.
2048 Salvadó, Mateo, Riudoms, Province of Tarragona.—Olive oil.
2049 Miret, Juan, Constanti, Province of Tarragona.—Olive oil.
2050 Domingo, Tomàs, Constanti, Province of Tarragona.—Olive oil.
2051 Montoliu, Plàcido Maria de, Morell, Province of Tarragona.—Olive oil.
2052 Consul & Virgili, Tarragona.—Olive oil.
2053 Magriña y Suñer, Antonio, Gandesa, Province of Tarragona.—Olive oil.
2054 March, Juan de, Vilaseca, Province of Tarragona.—Olive oil.
2055 Corporation of Amposta, Province of Tarragona.—Olive oil.
2056 Bufill, B., Reus, Province of Tarragona.—Olive oil.
Animal and Vegetable Products, Textile Substances.

2057 Montagut, José, Illa, Province of Tarragona.—Olive oil. 662
2058 Pelliger, José, Reus, Province of Tarragona.—Olive oil. 662
2059 Fumafia Bros., Reus, Province of Tarragona.—Olive oil. 662
2060 Odena y Fujol, José, Reus, Province of Tarragona.—Olive oil. 662
2061 Avella, A., & Son, Reus, Province of Tarragona.—Olive oil. 662
2062 Gasull, Bartolomé, Reus, Province of Tarragona.—Olive oil. 662
2063 Gil, Francisco, Reus, Province of Tarragona.—Olive oil. 662
2064 Morlais, José Maria, Reus, Province of Tarragona.—Olive oil. 662
2065 Rincon, José Montaner, Reus, Province of Tarragona.—Olive oil. 662
2066 Sivrent y Oliver, Pedro, Reus, Province of Tarragona.—Olive oil. 662
2067 Carol, Antonio, & Co., Reus, Province of Tarragona.—Olive oil. 662
2068 Esteve, D. A., Widow & Son of Reus, Province of Tarragona.—Olive oil. 662
2069 Basseda y Andreu, Miguel, Reus, Province of Tarragona.—Olive oil. 662
2070 Zamora, Francisco, Reus, Province of Tarragona.—Olive oil. 662
2071 Peña y Mach, Agustín, Scaladei, Province of Tarragona.—Olive oil. 662
2072 García, Sebastián, Scaladei, Province of Tarragona.—Olive oil. 662
2073 Robles, Sebastián García de Scaladei, Province of Tarragona.—Olive oil. 662
2074 Gatell y Fochs, Juan, Altafulla, Province of Tarragona.—Olive oil. 662
2075 Siscar, Ramon, La Canonja, Province of Tarragona.—Olive oil. 662
2076 Indo, Valentín Martínez, Argis, Province of Toledo.—Olive oil. 662
2077 Redondo, Juan Bautista, Carmena, Province of Toledo.—Oils. 662
2078 Basaran, Isidoro, Olías del Rey, Province of Toledo.—Olive oil. 662
2079 Moreno, Manuel, Ortiz, Ocaña, Province of Toledo.—Olive oil. 662
2080 Diego, Francisco Polop, Játiva, Province of Valencia.—Olive oil. 662
2081 Diego y Carsi, Ignacio & José, Játiva, Province of Valencia.—Oil. 662
2082 Calabuy, Bartolomé, Bocayrante, Province of Valencia.—Olive oil. 662
2083 Lasalla y Palomares, Vicente, Mistia de la Mar, Province of Valencia.—Olive oil. 662
2084 Cañamas, Blas Antonio, Olisa, Province of Valencia.—Olive oil. 662
2085 Albors y Albors, Carlos, Picasent, Province of Valencia.—Olive oil. 662
2086 Vaidobi, Rafael Gonzalez, Torrente, Province of Valencia.—Olive oil. 662
2087 Reig y Garcia, Fernando, Puebla de Vallbona, Province of Valencia.—Olive oil. 662
2088 Olias, Vicente, Chiva, Province of Valencia.—Olive oil. 662

2089 Bremont, Manuel Sanz, Bemfayo de Espioca, Province of Valencia.—Olive oil. 662
2090 Latorre, Federico, Turis, Province of Valencia.—Olive oil. 662
2091 Carceller, Saturnino, Valencia.—Peanut oil. 662
2092 Caruana & Bros., Betera, Province of Valencia.—Olive oil. 662
2093 Flores, P. Manuel Serrano, Femoselle, Province of Zamora.—Olive oil. 662
2094 Val, Miguel Hipólito del Gallur, Province of Zaragoza.—Olive oil. 662
2095 La Linde, Baron of, Zaragoza.—Olive oil. 662
2096 Bureta, Countess of, Alagon, Province of Zaragoza.—Olive oil. 662
2097 Valler, José, Zaragoza.—Olive oil. 662
2098 Baera, Mariano Perez, Zaragoza.—Olive oil. 662
2099 Lopez y Pastor, Luis, Velilla de Ebro.—Olive oil. 662
2100 Mendoza, Francisco Esteban, Zaragoza.—Olive oil. 662
2101 Arpai, Manuel Vicente, Caspe, Province of Zaragoza.—Olive oil. 662

Textile Substances of Vegetable or Animal Origin.

2102 Morand, Pedro, Hellin, Province of Albacete.—Esparto grass. 662
2103 Bañon, Francisco Prast, Hellin, Province of Albacete.—Esparto grass. 662
2104 Lopez, Benito, Hellin, Province of Albacete.—Esparto grass. 662
2105 Guevara, Vicente Ladrón de Tobeira, Province of Albacete.—Hemp. 662
2106 Alared, Francisco Rodriguez, Province of Albacete.—Esparto grass. 662
2107 Leon, Romualdo, Albacete.—Esparto grass. 662
2108 Amores, Julian, Elche de la Sierra, Province of Albacete.—Hemp. 666
2109 Parras, Enrique, Lietor, Province of Albacete.—Esparto grass. 666
2110 Bushnell, Enrique, Hellin, Province of Albacete.—Esparto grass. 666
2111 Lopez, José Beltran, Elche, Province of Albacete.—Hemp ropes. 666
2112 Campoamor, Ramon de, Alicante.—Esparto grass. 666
2113 Brotons Bros., Orihuela, Province of Alicante.—Hemp. 666
2114 Lledo y Gomis, Vicente, Campelló, Province of Alicante.—Twisted Esparto grass. 666
2115 Sandoval, José Joaquin, Jacarilla, Province of Alicante.—Hemp. 666
2116 Alhorque & Barkes, Alicante.—Esparto grass. 666
2117 Beltran y Lopez, José, Elche, Province of Alicante.—Hemp. 666
2118 Spencer & Roda, Enis, Province of Almeria.—Esparto grass. 666
2119 Linares, Clemente, Albanchel, Province of Almeria.—Hemp. 666
<table>
<thead>
<tr>
<th>Title</th>
<th>Province</th>
<th>Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>2120 Daza y Ruiz, Francisco, Pulchera, Province of Almeria.</td>
<td></td>
<td>Flax and hemp</td>
</tr>
<tr>
<td>2121 Trell, Miguel del, Berja, Province of Almeria.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2122 Calvache, Diego, Carboneras, Province of Almeria.</td>
<td></td>
<td>Palmetto leaves</td>
</tr>
<tr>
<td>2123 Forestal District, Enis, Province of Almeria.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2124 Molina, Manuel Martinez, Oria, Province of Almeria.</td>
<td></td>
<td>Tow</td>
</tr>
<tr>
<td>2125 Gonzalez, Manuel, Barco de Avila, Province of Almeria.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2126 Garriga, Luis, Barcelona.</td>
<td></td>
<td>Ropillage</td>
</tr>
<tr>
<td>2127 Marquez, Cavall &amp; Co., Hospitale, Province of Barcelona.</td>
<td></td>
<td>Hemp thread</td>
</tr>
<tr>
<td>2128 Provincial Commission, Province of Burgos.</td>
<td></td>
<td>Hemp and flax</td>
</tr>
<tr>
<td>2129 Corporation of Briviesca, Province of Burgos.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2130 La Cruz, Valentín de, Carrascalejo, Province of Càceres.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2131 Muñoz, José Díaz, Puerto de Santa Cruz, Province of Càceres.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2132 Sande, Olivares, Jerónimo de, Arrovilas de Alconete.</td>
<td></td>
<td>Cyperus</td>
</tr>
<tr>
<td>2133 Riscal de Alegre, Marquis of, Alia, Province of Càceres.</td>
<td></td>
<td>Nettle</td>
</tr>
<tr>
<td>2134 Dabner, Guillermo H., La Laguna, Canary Islands.</td>
<td></td>
<td>Agave</td>
</tr>
<tr>
<td>2135 Society of Friends of the Country, Las Palmas, Canary Islands.</td>
<td></td>
<td>Agave and ropes of agave</td>
</tr>
<tr>
<td>2136 Provincial Board of Agriculture, Castellon.</td>
<td></td>
<td>Cordage of hemp, flax and esparto grass</td>
</tr>
<tr>
<td>2137 Safon, Antonio, Castellon.</td>
<td></td>
<td>Vegetible hair</td>
</tr>
<tr>
<td>2138 Armengod, Joaquín, Castellon.</td>
<td></td>
<td>Hempen ropes</td>
</tr>
<tr>
<td>2139 Aguila y Aguila, Santiago del, Villahug, Province of Ciudad-Real</td>
<td></td>
<td>Hemp</td>
</tr>
<tr>
<td>2140 Melgarejo, Maria Josefa, San Clemente, Province of Cuenca.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2141 Ribot, Esteban, &amp; Bros., Granada.</td>
<td></td>
<td>Hemp, tow, and ropes</td>
</tr>
<tr>
<td>2142 Salcedo, Antonio Puche, Guadix, Province of Granada.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2143 Corporation of Almonacid de Zorita, Province of Guadalajara.</td>
<td></td>
<td>Hemp</td>
</tr>
<tr>
<td>2144 Castillo y Mesquita, Francisco de, Huelva.</td>
<td></td>
<td>Palmetto leaves, rush mats, ropes, and vegetable hair</td>
</tr>
<tr>
<td>2145 Oliver, D., Huesca.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2146 Otal, José Maria, Huesca.</td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>2147 Arna, Dionisio, Castielflorite, Province of Huesca.</td>
<td></td>
<td>White esparto grass</td>
</tr>
<tr>
<td>2148 Berrio y Torreiro, Vicente, Beas de Segura, Province of Jaen.</td>
<td></td>
<td>Hemp and flax</td>
</tr>
<tr>
<td>2149 Corporation of Huesco, Province of Jaen.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2150 Corporation of Cabra del Santo Cristo, Province of Jaen.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2151 Corporation of Congosto, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2152 Corporation of Vega de Infanzón, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2153 Corporation of Omaña, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2154 Corporation of Armunia, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2155 Corporation of Villaturlie, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2156 Corporation of Páramo del Sil, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2157 Corporation of Encineado, Province of Leon.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2158 Dorado, Manuel, Láncara, Province of Lugo.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2159 Paseiro, Bonifacia, Castroverde, Province of Lugo.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2160 Corps of Engineers of Woods and Forests, Madrid.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2161 Díaz, Antonio, Málaga.</td>
<td></td>
<td>Objects made of hemp</td>
</tr>
<tr>
<td>2162 Romero, Rafael Escalante, Teba, Province of Málaga.</td>
<td></td>
<td>Esparto ropes</td>
</tr>
<tr>
<td>2163 Economical Society of Murcia.</td>
<td></td>
<td>Agave</td>
</tr>
<tr>
<td>2164 Pulgar, Joaquín Pérez del, Caravaca, Province of Múrcia.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2165 Gonzalez, Tomás Dacal, Fries, Province of Orense.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2166 Rodríguez, Manuel Iglesias, Cela, Province of Orense.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2167 Romero y Romero, José, Guinzo de Línea, Province of Orense.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2168 Calvo, Lorenzo, Salamanca.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2169 Casado y Febrero, Francisco, Sevilla.</td>
<td></td>
<td>Hempen ropes</td>
</tr>
<tr>
<td>2170 Igualada, Francisco, Sevilla.</td>
<td></td>
<td>Cordage and sandals of hemp</td>
</tr>
<tr>
<td>2171 Monner, Juan, La Riera, Province of Tarragona.</td>
<td></td>
<td>Hemp</td>
</tr>
<tr>
<td>2172 Battlié y Marca, Pedro, Province of Tarragona.</td>
<td></td>
<td>Ropes</td>
</tr>
<tr>
<td>2173 Valencian Society of Agriculture, Valencia.</td>
<td></td>
<td>Esparto grass, hemp, nettle, and agave</td>
</tr>
<tr>
<td>2174 Philadelphia Commission of Valencia.</td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>2175 Villalva, Benigno, Corrales de Ducto, Province of Valladolid.</td>
<td></td>
<td>Hemp</td>
</tr>
<tr>
<td>2176 Borbujo, Juan, Benavente, Province of Zamora.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2177 Marrón, José Victor, Alcaines, Province of Zamora.</td>
<td></td>
<td>Flax</td>
</tr>
<tr>
<td>2178 La Viñana, Count of, Epila, Province of Zaragoza.</td>
<td></td>
<td>Flax and hemp</td>
</tr>
<tr>
<td>2179 Loring Bros., Málaga.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2179a Corps of Engineers of Woods and Forests, Madrid.</td>
<td></td>
<td>Esparto grass</td>
</tr>
<tr>
<td>2180 Robles, Vicente, Badajoz.</td>
<td></td>
<td>Pelt</td>
</tr>
<tr>
<td>2181 Moreno, Cayetano, Villalba de los Barros, Province of Badajoz.</td>
<td></td>
<td>Merino wool</td>
</tr>
</tbody>
</table>
Textile Substances, Machines, Engineering, etc.

2182 Arenzana, Son of, & Co., Badajoz.—Merino wool. 667
2183 Carrasco, Alfonso, Guareña, Province of Badajoz.—Merino wool. 667
2184 Espinosa, Fernando Montero de, Badajoz.—Merino wool. 667
2185 Patiño, José María, Cabeza de Vaca, Province of Badajoz.—Merino wool. 667
2186 Provincial Commission, Burjassós.—Coarse and fine wool. 667
2187 Hernaiz, Francisco, Huerta de Abajo, Province of Burgess.—Merino wool. 667
2188 Agero, José Díaz, Moraleja, Province of Cáceres.—Wool. 667
2189 Santa Marta, Marquis of, Cáceres.—Wool. 667
2190 Montoya, Vicente Llopis, Bojas, Province of Castellón.—Wool. 667
2191 Gómez, Giner, Morella, Province of Castellón.—Wool. 667
2192 Provincial Board of Agriculture, Morella, Province of Castellón.—Wool. 667
2193 Valdeavellano, J. García, Espiel, Province of Córdoba.—Wool. 667
2194 Conde, Juan M., Córdoba.—Wool. 667
2195 Lozano, Juan Antonio, Belmez, Province of Córdoba.—Wool. 667
2196 Cortés y Velarde, Enrique, Fuente Ovejuna, Province of Córdoba.—Wool. 667
2197 Torrico, Manuel, Hinojosa, Province of Córdoba.—Wool. 667
2198 Yaniz, Ambrosio, Cuenca.—Wool. 667
2199 Hernández, Pedro, Moguer, Province of Huelva.—Wool. 667
2200 Soldan, Antonio, La Palma, Province of Huelva.—Wool. 667
2201 Otal, José Maria, Almudevar, Province of Huelva.—Wool. 667
2202 Gimenez, Francisco, Jaén.—Wool. 667
2203 Freires, Manuel Soto, Panton, Province of Lugo.—Wool. 667
2204 Cruz Gomez, Juan de la, Caravaca, Province of Murcia.—Shoddy. 667
2205 García y García, Manuel, Salamanca.—Wool. 667
2206 García, Mariano, Salvatierra de Tormes, Province of Salamanca.—Wool. 667
2207 Díaz, Cándido, Villafranca, Province of Salamanca.—Wool. 667
2208 Cartes, Ricardo, Zaratan, Province of Salamanca.—Wool. 667
2209 Cabrera, Victoriano, Cantalapiedra, Province of Salamanca.—Wool. 667
2210 Onís, Federico de, Cantalapiedra, Province of Salamanca.—Wool. 667
2211 Lozoya, Marquis of, Segovia.—Wool. 667
2212 Tomé, Gabino, Segovia.—Wool. 667
2213 Quintanilla, Antonio, Carmona, Province of Sevilla.—Wool. 667
2214 Rosa, José de la, Villamanrique, Province of Sevilla.—Wool. 667
2215 Zayas y Trigueros, Miguel, Aral, Province of Sevilla.—Wool. 667
2216 Vasquez, Juan, Sevilla.—Wool. 667
2217 Cuadra, Enrique de la, Utrera, Province of Sevilla.—Wool. 667
2218 Gonzalez, Ramon, Quintana Redonda, Province of Soria.—Wool. 667
2219 Delgado, Manuel, Tejarejo, Province of Soria.—Wool. 667
2220 Romero, Angel, Soria.—Wool. 667
2221 Perez, Lino, Toledo.—Wool. 667
2222 Corporation of Medina del Campo, Taladolid.—Wool. 667
2223 Salarich, Joaquín, Vic, Province of Barcelona.—Silk in the cocoon and reeled. 668
2224 Rical de Alegre, Marquis of, Alia, Province of Cáceres.—Cocoons. 668
2225 La Vieja, Marquis of, Fregeneda, Province of Salamanca.—Spun silk. 668
2226 Paulino, Cipriano Perez, Fregeneda, Province of Salamanca.—Spun silk. 668
2227 Villalta y Uribe, Antonio, Jaén.—Cocoons. 668
2228 Gonzalez, Pedro, Eutaimo, Province of Orense.—Cocoons. 668
Machines, Implements, and Processes of Manufacture.
2229 Albornoz, Juan Gil, Avila.—Plows. 670
2230 Cruz, Rafael Trianes de la, Huelva.—Models of harrows. 670
2231 Corps of Engineers of Woods and Forests, Madrid.—Manual implements. 670
2232 Philadelphia Commission of Valencia.—Agricultural instruments. 670
2233 Perez, Felipe, Habaña, Cuba.—Cultivator. 670
2234 Serrano, Juan, Castellon.— Implements for tillage. 670
Agricultural Engineering and Administration.
2235 Barnosell, Pedro, Vallecac, Province of Madrid.—Guano. 681
2236 Provincial Deputation, Murcia.—Barrilla for fertilizing. 681
2237 Muñoz, Bruno, Peñaranda, Province of Salamanca.—Girth. 682
2238 Provincial Commission of Valencia.—Harness appendages. 683
2239 Villar, Francisco Maria del Barcelona.—Projects of rural constructions. 683
2240 Garriga, Francisco Domingo, Sa quilise de Besora, Province of Barcelona.—Model of feeding-trough. 683
2241 Cruz, Rivero, Rafael Trianes de la, Huelva.—Plan of country house. 683
Tillage and General Management.
2242 Garriga, Francisco Domingo, San Quirce de Besora, Province of Barcelona.—Systems of rotation and calculations for agricultural products. 690
2243 Corps of Engineers of Woods and Forests, Madrid.—Plan of the special school, and technical designs made by the pupils; books on forestry, and models of implements used for the proper cultivation of forests. 690
Arboriculture and Forest Products.

1 Menezes, Jose de Vasconcellos Carneiro, Marco de Canaveses, Oporto.—Woods, corkwood. 600
2 Archer, Jacintho F., Setubal, Lisbon.—Corks and corkwood. 600
2a Almeida, Jacintho Pacheco, Ponta Delgada.—Samples of wood. 600
3 Almeida, Antonio Joaquim de, Villa Nova de Ourem, Santarem.—Timber. 600
3a Bettencourt, Francisco, Ponta Delgada.—Samples of wood. 600
4 Administrative Council of Castro Daire, Castro Daire, Viseu.—Timber. 600
5 Administrative Council of Penacova, Penacova, Coimbra.—Corkwood. 600
6 Administrative Council of Penalva, Penalva, Viseu.—Timber. 600
6a Salles, Jose Joaquim Pereira, Miranda de Agra, Braganca.—Corkwood. 600
7 Albergaria, Thomas Antonio Pinto Soares, Villa Cha Averi.—Corkwood and oak bark. 600
8 Administrative Council of Vourela, Vourela, Viseu.—Timber. 600
9 Gage, Joao Henrique Nunez, Galveas, Portalegre.—Corkwood. 600
10 Goulao, Joao Pereira Pestana Pina, Niza, Portalegre.—Corkwood. 600
11 Vaz Preto, Geraldes, Manuel Louza, Castello Branco.—Corkwood. 600
12 Joaquim Guilherme de Vasconcellos & Sons, Elvas, Portalegre.—Corkwood. 600
13 Herdeiros de Roberto & Hunter Reynolds, Estremoz, Evora.—Corks. 600
14 Almeida, Francisco Ales, Miranda do Douro, Braganca.—Corkwood. 600
15 Rebocha, Francisco Freire, Consanca, Santarem.—Timber. 600
16 Ventura, Jose Goncalves da Costa, Quinta do Mosteiro, Oporto.—Corkwood. 600
17 Agricultural Society of Oporto, Oporto.—Woods. 600
19 Fernandes, Joaquim, Mogao, Santarem.—Cork. 600
19a Castro, Joao Vaz, Pacheco, Ponta Delgada.—Samples of wood. 600
20 Queiroz, Jose de Sequeira Pinto, S. Sebastiao do Duque, Viana do Castello. —Corkwood and barks. 600
20a Walnuts and chestnuts. 600
21 Ramalho, Jose Maria, Evora.—Corkwood and corks. 600
22 Frausto, Antonio Joaquim, Montalvao, Portalegre.—Corkwood. 600
22a Rocha, Francisco Coelho, Feira.—Corks. 600
23 Faria, Manuel Simplicio, Niza, Port Legre.—Corkwood. 600
24 Falcon, Joao Carlos da Costa, Fundao.—Chestnut staves, and rods for making hoops. 600
26 Guerra, Jose Manuel, Miranda do Douro, Braganca.—Corkwood. 600
27 Murta, Ramiro Cesar, Castello de Vide.—Corkwood. 600
28 Mesquita, Jose de, Sinde, Coimbra.—Corkwood. 600
29 Oroio, Manuel de Arevedo Ferraz, Montforte, Castello Branco.—Corkwood. 600
30 Murteira, Joaquim Antonio, Campo Maior, Portalegre.—Timber. 600
31 Maria, Angelica, Montargil, Portalegre.—Corkwood. 600
32 Netto, Joao Mascarenhas, Silves, Faro.—Corks and corkwood. 600
33 Nunes & Co., Grandola, Lisbon.—Corks and corkwood. 600
34 Ratto, Antonio Gonsalves, Barquinha, Santarem.—Corkwood. 600
35 Souza, Joze Saldanha Oliveira e, Lisbon.—Corkwood. 600
36 Salgado, Julio Bivar d’Azevedo, Sarah, Santarem.—Corkwood. 600
37 Souza, Pedro Augusto Pereira Abreu e, Santa Marinha, Villa Real.—Corkwood. 600
38 Lagrifa, Juan, Grandola, Lisbon.—Corks. 600
39 Lacerda, Jose de Araigao Costa, Aldeia Nova do Cabo, Castello Branco.—Chestnut rods, staves. 600
40 Orb, J. Augusto de, Portalegre.—Corkwood. 600
41 Marcal, Joao Lopes, Evora.—Corkwood. 600
42 Peres, Roure, & Co., S. Thrago de Cacem, Lisbon.—Corkwood. 600
43 Margiochi, jr., Francisco Simoes, Lisbon.—Corkwood. 600
44 Ribeiro, J. Lopes, Anciases, Braganca.—Corkwood. 600
45 Ribeiro, Serafirm Garcia, Oliveira do Hospital.—Corkwood. 600
46 Rodrigues, Manuel Antonio, Ferrandesa, Braganca.—Corkwood. 600
47 Moraes, Antonio, S. Thiago, Lisbon.—Corks and corkwood. 600
48 Modesto, Manuel F. de, Lisbon.—Corkwood. 600
49 Rankin, William, & Sons, Almada, Lisbon.—Corkwood. 600
50 Ventura, Jose Goncalves da Costa, Quinta do Mosteiro, Oporto.—Corkwood. 600

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Arboriculture and Forest Products, Pomology.

51 Valente, Jose Justiniano d'Oliveira, Aveiro.—Fine kernels. 600
52 Vilariño & Nephew, Silves, Faro.—Corks and corkwood. 600
53 Proença, Francisco Tavares d'Almeida, Castello Branco.—Corkwood. 600
54 Silva, Antonio Jose de Sousa e Valongo, Oporto.—Cherry tree. 600
55 Peres, Joaquim Manuel de Mattos, Evora.—Corkwood. 600
56 Moreno, P., & Sons, Portalegre.—Corks and corkwood. 600
57 Cordeiro, Caetano Manuel, Evora.—Cork. 600
58 Menezes, C., & Co., Oporto.—Cork and manufactures. 600
59 Direction of the Works of the River Mondego and Figueira bar, Coimbra.—Timber woods and barks. 600
60 Ferreira, Manuel Felix, Villa Cha, Braganca.—Corkwood. 600
61 Vasoncellos, Catharina Mousinho Almadim, Nisa, Portalegre.—Cork. 600
62 Vaz, Eduardo Augusto da Cruz, Castello Branco.—Corkwood. 600
63 Vargas, Antonio Alexandre, Alcacer do Sal, Lisbon.—Corkwood. 600
64 Outeiro Fundao, Viscount of, Castello Branco.—Corkwood. 600
65 Vasoncellos, Joaquim Guilherme de, Elvas, Portalegre.—Woods. 600
66 Saramago, Francisco Ferreira, Reguengu, Evora.—Corkwood. 600
67 Silva, Manuel Joaquim da, Redondo, Evora.—Oak-galls. 600
68 Andrade, Antonio Garcia de, Elvas, Portalegre.—Scarlet oak-bark and corkwood. 600
69 Almeida, Augusto de Asevedo Pinto de, Feira, Aveiro.—Corks. 600
70 Beca, Agostinho da Rocha, Penafiel, Porto.—Corkwood, pine tree, and oak-bark. 600
71 Coelho, Manuel Diogo, Castello de Vide, Portalegre.—Timber. 600
72 Carreira, Jose Ivo, Peniche, Leiria.—Juniper-wood. 600
73 Calca e Pina, Antonio, Souzel, Portalegre.—Corkwood. 600
74 Robinson, George, Portalegre.—Corkwood. 600
75 Ramalho, Jose Maria, Evora.—Corkwood. 600
76 Salema Mattos, & Co., S. Thiaigo do Cacem.—Corks. 600
77 Pinheiro, Francisco Rodrigues, Marvao, Portalegre.—Corkwood. 600
78 Pereira, Francisco Jose.—Cork and corkwood. 600
79 Souza, Antonio Joaquim, Lanudos, Oporto.—Corkwood. 600
80 Administrator of the Conselho de Manguadel, Manguadel, Visen,—Timber. 600
81 Almeida, Joaquim Ribeiro, Campanha, Oporto.—Corkwood. 600
82 Camello, Joaquim Augusto da Silveira, Penafiel, Oporto.—Corks. 600
83 Board of Public Forests, Lisbon.—Shiplboarding timber and construction, Corks and corkwood. 600
85 Carlos Brandao & Son, Oporto.—Corkwood and cork. 600
86 Casa Nova, Manuel Gonsalves, Beires, Oporto.—Corkwood. 600
87 Biester Campos, & Co., Lisbon.—Corkwood, prepared. 600
88 Zagallo, Antonio Carlos, Elvas, Portalegre.—Corkwood. 600
89 Machado, Joao Jose de Souza, Paredes, Oporto.—Timber. 600
90 Costa Basto & Co., Oporto.—Mahogany woods. 603
91 Corte Real, Antonio Ffreire, Valle de Prareres, Castello Branco.—Dyewood. 602
92 Cassola, Antonio Joaquim, Portalegre.—Oak tree and cork tree barks. 602
93 Veiga, Jose Mendes, Covilha, Castello Branco.—Wood dyes. 602
94 Nogueira, Henrique de Sa, Portalegre.—Cork tree bark, oak tree bark, middle cork. 602
95 Cardoso, Francisco de Paula, Alpendrinha, Castello Branco.—Sumac. 602
96 Chaves & Brother, Lisbon.—Saffron flower. 602
97 Poiares, Antonio Jose da Silva, Cantanhede, Coimbra.—Pitch. 603
98 Gago, Joao Henriquez Nunes, Valves, Portalegre.—Acorns. 603
99 Saraiva, Francisco Martins, Belmonte, Castello Branco.—Dried chestnuts. 603
99 Souza, Manuel Lopes de, Guarda.—Walnuts and chestnuts. 603
100 Silva, Joaquim Nunes da, Elvas, Portalegre.—Acorns. 603
101 Rego, Antonio Profio Gomes do, Covilha, Castello Branco.—Chesnuts. 605
102 Souto, Antonio Duarte da Cunha, Freixinho, Viseu.—Dried chestnuts. 605
103 Oliveira Soares, M. E. de, Evora.—Acorns. 605
104 Company of Lezirias do Tagus & Sado, Lisbon.—Corkwood. 606

Pomology.

105 Martins, Jeronymo, & Son, Lisbon.—Nuts. 611
106 Margalhaes, Luis Antonio, Aldeia Nova do Cabo, Castello Branco.—Chesnuts. 611
107 Morao, Maria Emilia d'Almeida, Penamacor, Castello Branco.—Olives. 611
108 Mesquita, Pedro Jose de, Sinde, Coimbra.—Dried chestnuts. 611
109 Pereira, Pedro Maria Dantas, Torres Vedras, Santarem.—Almonds. 611
110 Pinto, Clemencia, Villa Boim, Portalegre.—Acorns. 611
111 Oliveira, Verissimo Ferreira A. de, Montalegre, Santarem.—Olives. 611
112 Pessoa, Luis Manuel da Costa, Alfandega da Fe, Braganca.—Olives. 611
113 Ornellas & Lister, Lisbon.—Olives. 611

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Products.

235 Lobo, Jose Maria, Guarda.—Trefoil, ray-grass.
236 Lemos, Francisco Antonio Pereira, Villarelos, Bragança.—Wheat.
237 Neves, Francisco Xavier, Azi- nhoeza, Bragança.—Wheat.
238 Nogueira, Manuel Martins, Goes, Coimbra.—Indian corn.
239 Nunes, Guilherme Francisco Pe- reira, Oliveira do Hospital, Coimbra.—Wheat.
240 Pera, Francisco Marcos, Miranda do Douro, Bragança.—Wheat.
241 Lopes, Jacinthe, Elvas, Portalegre.—Wheat.
243 Lemos, Joao Gonsalves de, Louza, Coimbra.—Indian corn.
244 Mechanical Bakery of the Poor- house, Lisbon.—Wheat.
245 Pessoa, Antonio Jose dos Reis, Bartolomeo, Coimbra.—Indian corn and wheat.
246 Pinheiro, Jose Henrique, Sta. Maria, Bragança.—Wheat.
247 Pinto, Jose, Penude, Viseu.—Indian corn.
248 Pinto, Joao de Azevedo, Campello, Oporto.—Indian corn.
249 Pampero, Ricardo de Souza, Val- longo, Oporto.—Cereals.
250 Margalhaes, Francisco T., Sinde, Coimbra.—Indian corn.
251 Leite, Antonio Bernardo d' Oliveira, Cabecereiras de Basto, Braga.—Indian corn and wheat.
252 Lobo, Bartholomeo Jose, Oliveira do Hospital, Coimbra.—Indian corn.
253 Madeira, Joaquim Anastasio, Mon- forte, Portalegre.—Wheat.
254 Mendes, Bernardo, Portalegre.—Indian corn.
255 Marmello, Jose, Portalegre.—Indian corn.
256 Nunes, Antonio, Elvas, Portalegre.—Wheat.
257 Ortega, Maria Luisa, Miranda do Douro, Bragança.—Wheat.
258 Oliveira, Claudino Augusto Mo- corro, Bragança.—Indian corn.
259 Valente, Antonio Joaquim, Torre do Cabedal, Portalegre.—Wheat.
260 Vargas, Antonio Alexandre, Alcacer do Sal, Lisbon.—Wheat.
261 Viscount of Alcacer do Sal, Alcace- dero, Lisbon.—Wheat.
262 Valdez, Antonio de Campos, Al- cacer do Sal, Lisbon.—Wheat and rice.
263 Vasconcellos, Ezequiel Augusto de, Elvas, Portalegre.—Wheat.
264 Silva Carvalho, Jose Leonardo da, Viseu, Evora.—Wheat and barley.
265 Silva, Manuel Joaquim da, Redon- do, Evora.—Wheat.
266 Sardinha, Joao Maria da Silva, Monforte, Portalegre.—Wheat, rye, barley, and oats.
267 Lacerda, Jose de Aragao Costa, Alde Nova do Cabo, Castello Branco.—Trefoil.
268 Andrade, Adriano Pequito Seixas de, Gaviao, Portalegre.—Rice.
269 Acciole, Joao da Fonseca, Portale- gre.—Oats.
271 Bastos, Manuel Jose Teixeira, S. Miguel de Fefoyos, Braga.—Indian corn.
272 Brandao, Francisco Antonio, Re- borda, Vianna.—Indian corn.
273 Perea, Joaquim Manuel de Mattos, Evora.—Wheat.
274 Pimentel, Antonio Augusto de Moraes, Castello Branco, Braganca.—Rye and wheat.
275 Pinto, Antonio Rodrigues, Coim- bra.—Cereals.
276 Silveira, Manuel Jose da, Arganil, Coimbra.—Indian corn.
277 Poiares, Antonio Jose Silva, Can- tazarde, Coimbra.—Indian corn, wheat, rice.
278 Silva, Antonio Lopes da, Balazar, Oporto.—Indian corn.
279 Penedo, Francisco Antonio, Beja.—Wheat.
280 Picao, Amaro Jose de Bastos, Aventosa, Portalegre.—Wheat.
281 Peireira, Henrique Augusto, Setu- bal, Lisbon.—Rice.
282 Pinto, Luis Marques, Elvas, Portalegre.—Wheat.
283 Souza, Augusto Pereira d'Abreu, Sta. Marinha, Villa Real.—Indian corn.
284 Souza, Victorino Alves, Oporto.—Wheat.
285 Silva, Joaquim Medas da, Ribeiro das Assessas, Porto.—Indian corn.
286 Louza, Jose Luis Rodrigues, Ver- donejo, Vianna do Castello.—Indian corn and rye.
287 Salguiero, Jose Avelino Affonso, Segundias, Vianna do Castello.—Indian corn.
288 Salguiero, Jose Avelino Affonso, Segundias, Vianna Castello.—Indian corn and rye.
289 Santos, Antonio Ferreiros dos, Rio Tinto, Oporto.—Wheat and barley.
290 Carneiro, Jose Antonio, Sta. Eu- laia, Portalegre.—Wheat and rye.
291 Coelho, Jose Fialho, Moura, Beja.—Wheat and barley.
292 Campanhia das Lezirias do, Tejo e Sado, Lisbon.—Wheat and barley.
293 Pinheiro, Jose de Moura, Idanha a Nova, Castello Branco.—Wheat.
294 Queiroz, Sebastiao Machado Botel- ho, S. Pedro, Villa Real.—Indian corn.
295 Ruivo, Joao Lopes, Vianna do Alem- tejo.—Wheat, rye, and barley.
296 Carvalho, Joao Antonio de, Porto de Moz, Leiria.—Wheat.
297 Chaves & Brother, Lisbon.—Wheat.
298 Dornas, Luis Cazemiro Pinto dos, Bigorne, Viseu.—Rye.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Products.

299 Diogo, Paulo Joao, Miranda do Douro, Bragança.—Rye. 620
300 Durol, Francisco dos Santos, Vianna do Almeiteco.—Wheat, barley, and maize. 620
301 Figueiredo, Augusto de Sa, Marques e, Barcelas, Viseu.—Wheat. 620
302 Freitas, Joao Alves Pinto de, S. Joao d’Ovil, Oporto.—Indian corn and wheat. 620
303 Ferreira, Joao Dias, Vallongo, Oporto.—Wheat and Indian corn. 620
304 Filipe, Jose Antonio, Cepoes, Viseu.—Indian corn. 620
305 Franco, Jose da Costa, Beja.—Wheat. 620
306 Franco, Eduardo, Fronteira, Portalegre.—Wheat. 620
307 Ferreira, Jose, Montargil, Portalegre.—Wheat. 620
308 Fonseca Santos, Antonio Germano da, Redondo, Evora.—Wheat. 620
309 Ferro, Martinho Luiz, Beringel, Beja.—Wheat. 620
310 Fonseca, Francisco da Costa Ramos Pinto da, Fronteira.—Wheat. 620
311 Gomes, Jose da Costa, Balazar, Oporto.—Wheat. 620
312 Guimaraes, Jose Fernandes, Serpa, Beja.—Wheat. 620
313 Lapa, Joaquim Pereira, Sernachelo, Viseu.—Wheat and rye. 620
314 Lima, Lino, Anciagas, Braganca.—Rye and wheat. 620
315 Caetano, Joaquim Antonio, Montargil, Portalegre.—Indian corn. 620
316 Leao, Antonio Moreira, Guilhufe, Oporto.—Wheat and rye. 620
321 Moreira, Joao Baptista, Rates, Oporto.—Wheat. 620
322 Valente, Jose Justiniano d’Oliveira, Estarreja, Aveiro.—Barley and oats. 620
323 Trigo, Jose Antonio Horta da Vilancica, Braganca.—Wheat. 620
324 Tavares, Jose da Costa Andrade, Alpedrinha, Castelo Branco.—Wheat. 620
325 Vieira, Manuel Pinto da Silva, S. Thigo de Custoias, Oporto.—Wheat and barley. 620
326 Teixeira, Manuel Joaquim Xavier, Ciro, Villa Real.—Barley. 620
327 Teixeira, Francisco Loureiro, Campello, Oporto.—Wheat. 620
328 Xavier, Francisco de Paulo, Benavente, Santarem.—Wheat. 620
329 Monteiro, Jose de Sousa, Viseu.—Rye and Indian corn. 620
330 Manuel Luis, Gondivae, Oporto.—Indian corn. 623
331 Moutinho, Joaquim Thome, Rio Tinto, Oporto.—Indian corn and rye. 620
332 Mousa, Joao Carlos, Marques de, & Gomes, Francisco, S. Salvador, Aveiro.—Indian corn, wheat, rye, barley, and rice. 620
333 Martins, Apelmo Jose, Eiro, Villa Real.—Rye. 620
334 Mourao, Victorino Teixeira Correia, Lordello, Viseu.—Indian corn. 620
335 Macias, Francisco de Pera, Miranda do Douro, Braganca.—Wheat. 620
336 Mostardinha, Jose Marques, Oliveira, Aveiro.—Wheat. 620
337 Malta, Affonso Bernardino Ochoa, Braganca.—Wheat. 620
338 Miraandella, Pedro Aleixo de, Mirandaella, Braganca.—Wheat. 620
339 Malheiro, Manuel Joao Barreto, Viseu.—Indian corn. 620
340 Menezes, Jose de Vasconcellos Carneiro, Soalhaes, Mario de Canaveres.—Indian corn, wheat, barley, rye. 620
341 Magalihaes, Antonio de Barros, Sattam, Viseu.—Wheat. 620
342 Carvalho, Luis Candido, Valle do Passos, Villa Real.—Indian corn and rye. 620
343 Coelho, Luis Pires Sardoal, Santarem.—Cereals. 621
344 Correa, Joaquim, Penacova, Coimbra.—Wheat, rye, and barley. 620
345 Carvalho, Joaquim Augusto da Silveira, Penanfel, Oporto.—Indian corn, wheat, barley, rye. 620
346 Costa, Manuel Jorge da, Valongo, Oporto.—Beans. 621
347 Barbosa, Manuel Carneiro, Valongo, Oporto.—Beans. 621
348 Bastos, Pedro Jose da Silva, Miranda do Corvo, Coimbra.—Indian corn. 620
349 Alvarrao, Joao do Boms sucesso, Elvas, Portalegre.—Wheat. 620
350 Alvim, Joao Cordoso de Souza, Alter do Chao, Portalegre.—Canary-seed. 620
351 Beca, Agostinho da Rocha, Penafiel, Oporto.—Wheat. 620
352 Callado Senior, Joao da Costa, Alter do Chao, Portalegre.—Indian corn. 620
353 Chichorro, Andre Guilherme, Monsanto, Portalegre.—Wheat. 620
354 Almeida, Joaquim Ribeiro, Campanha, Oporto.—Beans. 621
355 Administrative Council of Montemor o Velho, Coimbra.—Indian corn, wheat, and rye. 620
356 Barreto, Manuel, Oporto.—Beans and peas. 621

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
356 Administrative Council of Guimarães, Braga.—Wheat, rye, Indian corn,
pannicks.

357 Annes, Antonio Joaquim, Eiro, Villa Real.

a Indian corn.

b Beans.

358 Administrative Council of Póvoa de Varzim, Póvoa de Varzim, Coimbra.

a Lupines.

b Beans.

359 Araujo & Brother, Lisbon.

a Rice flour.

b Leguminous flour.

360 Azevedo, Jose Rodrigues de, Benavente, Santarem.

a Indian corn.

b Kidney beans and lentiles.

361 Pereira, Jose Agostinho Mancio, S. Thiago, Lisbon.

a Rice.

b Kidney beans.

362 Silva, Antonio Jose de Sousa e, Valongo, Oporto.

a Wheat.

b Linseed.

363 Palmeiro, Xavier Rosado, Alter do Chao, Portalegre.

a Barley, wheat, oats, rye, Indian corn.

b Beans.

364 Pinto da Fonseca, Francisco Ramos, Fronteira, Portalegre.

a Wheat.

b Chick-peas.

365 Ribas, Simao, Guadalupe.

a Wheat and Indian corn.

b Chick-peas, potatoes, onions, and garlic.

366 Silva, Antonio Jose da, Leca do Balio, Oporto.

a Rye.

b Beans.

367 Bogalho, Joao Joaquim, Villa Boim.

a Wheat.

b Beans.

368 Calca e Pina, Antonio, Souzel, Portalegre.

a Cereals.

b Leguminous articles.

369 Couto, Joaquim Lucio do, Elvas, Portalegre.

a Wheat.

b Chick-peas.

370 Figueiredo, Jose Paulo Teixeira de Matheus, Villa Real.

a Indian corn.

b Potatoes.

371 Direction of Works of the River Mondego and the Figueira bar, Coimbra.

a Indian corn, rye, and oats.

b Seeds.

372 Cordes, Balthazar, Barcarena, Lisbon.

a Wheat.

b Beans.

373 Cardozo, Antonio Augusto Correa da Silva, Cellorico, Guarda.

a Rye, wheat, and barley.

b Kidney beans, and chick-peas.

374 Gomes, Antonio Xavier Correa, Sattam, Viseu.

a Pannick and rye.

b Beans.

375 Fernandes, Manuel Ignacio, Telões, Villa Real.

a Rye, Indian corn.

b Beans.

376 Fernandes, Antonio Vicente d'Almeida, Benavente, Santarem.

a Indian corn.

b Kidney beans and chick-peas.

377 Formosinho, Jose Maria Gomes, Serpa, Beja.

a Rye and rye.

b Beans.

378 Fragozo, S. Thiago, Lisbon.

a Rice.

b Kidney beans.

379 Fernandes, Joaquim Filipe, Beja.

a Wheat.

b Leguminous plants.

380 Fuza, Domingos Antonio, Evora.

a Wheat, rye, and barley.

b Beans.

381 Guerra, Joaquim Jose da, Elvas, Portalegre.

a Wheat.

b Beans and peas.

382 Vaz Preto Geraldes, Manuel Louza, Castello Branco.

a Wheat.

b Beans.

383 Egreja, Manuel Antonio, Torroso, Oporto.

a Indian corn.

b Beans.

384 Inchaedo, Jose Antonio Dias Mourao, Portalegre.

a Cereals.

b Kidney beans.

385 Marreco, Miguel Antunes, Miranda do Corvo, Coimbra.

a Indian corn.

b Beans.

386 Leas, Manuel da Cunha, Sobreira, Oporto.—Wheat.

b Beans.

387 Egreja, Jose Francisco de Serra, Novaes, Oporto.

a Wheat and Indian corn.

b Beans.

388 Saraiva, Francisco Martins, Belmonte, Castello Branco.

a Cereals.

b Onions.

389 Sobrinho, Rafael Baptista, Alvito, Beja.

a Wheat.

b Beans.

390 Souza e Mello, Antonio Machado de, S. Sebastian, Ponta Delgada.

a Barley and corn.

b Kidney beans.

391 Souza, Manuel Lopes de, Guarda.

a Cereals.

b Kidney beans and chick-peas.

b Potatoes.

394 Matto, Antonio Mendes de, Alpedrinha, Castello Branco.

a Cereals.

b Leguminous fruits.

395 Vaz, Eduardo Augusto da Cruz, Castello Branco.

a Wheat.

b Chickpeas and beans.

396 Vasella, Jose ju, Gomes, Serpa, Beja.

a Wheat.

b Beans.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Products.

<table>
<thead>
<tr>
<th>Page</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>398</td>
<td>Boa, Viscount of, Vista, Beja.— Wheat. 620.</td>
</tr>
<tr>
<td>405</td>
<td>Oliveira, Manuel Rodrigues, Fraguas, Viseu.— Indian corn, wheat. 620.</td>
</tr>
</tbody>
</table>

or classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Products.

433 Casa Nova, Manuel Gonsalves, Beires, Oporto.—Wheat, corn, Indian corn, barley. 620

434 Christina, Manuel Lopes, Alhaes, Viseu.—Wheat. 620

435 Carvalho, Luis Xavier do Amaral, Rio de Moinhos, Viseu.—Wheat and Indian corn. 620

436 Calcado, Antonio Jose, S. Pedro, Villa Real.—Indian corn. 620

437 Cadaval, Francisco de Sousa, Villa Nova da Cerveira, Viana do Castello.—Wheat and Indian corn. 620

438 Coelho, Antonio Jose, Villa do Tamega, Villa Real.—Wheat and Indian corn. 620

439 Coelho, Joao dos Santos, Villa Nova de Souto de El Rei, Viseu.—Indian corn and wheat. 620

440 Azevedo, Joao Rodrigues de, Benavente, Santarem.
   a Wheat. 620
   b Chick-pea. 621

441 Peixoto, Jose Nunes de Sousa, Penafiel, Oporto.
   a Indian corn. 620
   b Vegetable seed. 624

442 Cadaval, Francisco de Sousa, Villa Nova da Cerveira, Viana do Castello.—Beans. 623

443 Corte Real, Antonio Freire, Valle de Prazeres, Castello Branco.—Kidney beans. 621

445 Abreu, Francisco Rodrigues de, Abrantes, Santarem.—Kidney beans. 621

446 Alcantara, Francisco Augusto Mendes de, Lages, Coimbra.—Beans. 621

447 Alves, Jose Martins, Novais, Oporto.—Beans. 621

448 Administrative Council of Coimbra.—Leguminous fruits. 621

449 Grillo, Manuel Francisco, Ribeiro de Niza, Portalegre.
   a Kidney beans. 621
   b Potatoes. 622

450 Ramires, Jose Peres, S. Tiago, Lisbon.
   a Kidney beans. 621
   b Linseed. 621

451 Leao, Jose Maria Carneiro, Figueira, Oporto.
   a Fennich grass. 620
   b Beans. 621
   c Millet-seed. 624

452 Veiga, Jose Mendes, Covilha, Castello Branco.
   a Pumpkins, leguminous fruits, and potatoes. 621
   b Seeds. 624

453 Rosa de Jesus, Maria Angelica, Porto—Turnips, radishes, etc. 624

454 Monteiro, Julio Pereira, Villa Fernando, Guarda.—Potatoes. 622

455 Vasconcellos, Duarte, Loureiro, Viseu.—Hops. 623

456 Alvim, Joao Cardoso de Sousa, Alter do Chao, Portalegre.—Mustard. 623

457 Calcdado, Antonio da Costa, S. Pedro, Villa Real.—Beans. 621

458 Castro, Miguel Ozorio, Cabral de Santa Clara, Coimbra.—Beans and peas. 621

459 Carvalho, Antonio Jose de, Elvas, Portalegre.—Chick-pea. 621

460 Coelho, Jose Justino, Villa do Tamega, Villa Real.—Beans and chick-peas. 621

461 Andrade, Francisco B. d’Almeida, Celorico Guarda.
   a French and other beans. 621
   b Potatoes. 622

462 Alvarraoa, Joao de, Bom Sucesso, Elvas, Portalegre.
   a Chick-pea. 621
   b Canary-seed. 624

463 Pimenta, Isidoro E. O. C. Marques, Villa Boim, Portalegre.—Chick-peas and kidney beans. 621

464 Pygnotallli, Jose de Cunha, Guarda.
   a Kidney beans. 621
   b Linseed. 624

465 Freire, Joao Pereira, Penafiel, Oporto.
   a Beans. 621
   b Pine kernels and seeds. 624

466 Santos, Ascendo Jose dos, Valenca, Viana do Castello.—Beans and peas. 621

467 Pereira, Jose Geraldo de Sa, Trancoso, Guarda.—Kidney beans. 621

468 Bartheleme, Jose, Fernandes, Marvao, Portalegre.—Kidney beans. 621

469 Condesa d’Anadia, Santa Clara, Coimbra.—Beans. 621

470 Carvalho, Jose Fernandes Antunes de, Goves, Coimbra.—Beans. 621

471 Cruz, Jose Bento, Armamar, Viseu.—Bean. 621

472 Castro, Jose d’Almeida Siloa e Miranda do Corvo, Coimbra.—Beans. 621

473 Costa, Antonio Ferreira da, Villa Chia de Cangueiros, Viseu.
   a Beans. 621
   b Potatoes. 622

474 Azevedo, Jose de, Alter do Chao, Portalegre.—Kidney beans. 621

475 Braga, Luiz Barboza, Penafiel, Oporto.—Beans. 621

476 Barjona, Pedro Simoes Affonso, S. Thome de Misa, Coimbra.—Beans. 621

477 Poiarea, Antonio Jose da Silva, Cantanhede, Coimbra.—Beans. 621

478 Souza, Jose Luis Rodrigues de, Valenca, Viana do Castello.—Beans. 621

479 Silva, Antonio Jose de Sousa e, Vallongo, Oporto.—Beans and onions. 621

480 Pinto, Antonio Rodrigues, S. Bartholomeu, Coimbra.—Beans, chick-peas, and lupines. 621

481 Pinto, Luis Marques, Elvas, Portalegre.—Beans. 621

482 Pinto, Antonio Mascaraede, Villa Beira, Portalegre.—Chick-peas. 621

483 Pinto, Augusto Leal de Gouvea, Miranda do Corvo, Coimbra.—Beans. 621

484 Mello, Bento de Castro Coelho e, S. Thiago, Coimbra.—Beans. 621

485 Martins, Joaquim, Boucas, Oporto.—Beans. 621

486 Joaquim Guilherme de Vasconcellos & Sons, Elvas, Portalegre.—Leguminous plants. 621

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Products.

487 Jara, Loule, Faro.—Carob beans. 621
488 Guimaraes, Victorino Barbosa, Perncil, Oporto.—Beans. 621
489 Gomes, J. Carlos, & Moura, P. A., Margens de S. Salvador, Aveiro.—Peas, linens, lintil. 621
490 Torres, Bernardo Jose, Novaes, Oporto.—Garlic. 621
491 Tenorio, Matheus Rodrigues, Alter do Chao, Portalegre.—Kidney beans. 621
492 Gomes, Jose Libnio, Villa Nova de Portimao, Faro.—Carob. 621
493 Martins, Jeronimo, & Son, Lisbon.—Beans. 621
496 Moreira, Luis Jose, Lanudos, Oporto.—Beans. 621
497 Martins jr., Manuel Jose, Amarim, Oporto.—Beans. 621
498 Mattos, Manuel Henrique de, Goes, Coimbra.—Beans. 621
499 Moutinho, Joaquim Thomé, Gondomar, Oporto.—Beans. 621
500 Faro, Joaquim de Carvalho Azevedo, Reizende, Viseu.—Beans. 621
501 Fernandes, Jose Antonio, Vila Nova do Castello.—Beans. 621
502 Ferreira, Joao Dias, Valongo, Oporto.—Beans. 621
503 Falcao, Maria Miquelina, Miranda do Corvo, Coimbra.—Beans. 621
504 Ferreira, Manuel da Costa, Marvao, Portalegre.—Kidney beans. 621
505 Fernandes, Joaquim Pinto, Campello, Oporto.—Beans. 621
506 Freire, Amancio Antonio de Segueira, Alemquer, Lisbon.—Kidney beans. 621
507 Gomes, Joao Carlos, Ilhavo, Aveiro.—Beans. 621
508 Vieira, Venancio Dias de Figueiredo, Eiro, Aveiro.—Beans. 621
509 Visentzio, Francisco Manuel, Tavira, Faro.—Carob. 621
510 Santos, Antonio Joaquim, Viana.—Beans. 621
511 Soares, Jose B., Celorio, Guarda.—Kidney beans and chick-peas. 621
512 Sampaio, Alexandre Tavares de Mello, Guarda.—Kidney beans and chick-peas. 621
514 Silva, Jose Nunes da, Elvas, Portalegre.—Beans. 621
515 Dias, Luis Antonio, Miranda do Corvo, Coimbra.—Beans. 621
516 Meira, Matthias, Ribeira de Niza, Portalegre.—Kidney beans and chick-peas. 621
517 Neves, Adelino, Santo Antonio dos Olivais, Coimbra.—Beans. 621
518 Neves, Francisco Xavier, Azinhos, Braganza.—Chick-peas. 621
519 Neves, Jose Marquesdias, Vallongo, Oporto.—Beans. 621
520 Negro, Joaquim d’Almeida, Portimao, Faro.—Carob. 621
521 Oliveira, Fortunato Antonio, Goes, Coimbra.—Beans. 621
522 Ozorio, Alvaro de Azevedo, Tarouca, Viseu.—Beans. 621
523 Vasconcellos, Manuel S. Quesada, Candieixa, Coimbra.—Chick-peas. 621
524 Magalhaes, Francisco F. Sinde, Coimbra.—Beans. 621
525 Pinto, Clemencia, Villa Boim, Portalegre.—Chick-peas. 621
526 Pimentel, Antonio Augusto de Aoregas, Castelo Branco, Braganza.—Chick-peas, lupines. 621
527 Martins, Anselmo Jose, Ciro, Villa Real.—Beans. 621
528 Lapa, Joaquim Pereira, Seracelhe, Viseu.—Beans. 621
529 Leite, Antonio Bernardo d’Oliveira, Cabecibeiras de Bisto, Braga.—Beans. 621
530 Lessa, Antonio dos Santos, Bouca, Oporto.—Beans. 621
531 Monteiro, Francisco Vaz, Ponto de Sor, Portalegre.—Kidney beans. 621
532 Oliveira Soares, M. E. de, Evora. a Cereal. 620
533 Moron, Jose Antonio Martins, Viana do Alentejo.—Windsor beans. 621
534 Lemos, Joao Gonsalves de Sousa, Coimbra.—Beans. 621
535 Ozorio, Manuel de Azevedo Ferrao, Monforte, Castello Branco.—Kidney beans. 621
536 Macedo Pinto, Joaquim Ferreira de, Tabaco, Viseu.—Beans. 621
537 Lopes, Jose Ramos, Airo, Braga.—Beans. 621
538 Mourao, Victorino F. C., Lordello, Villa Real.—Beans. 621
539 Motta, Abel Maria, Rabacal, Coimbra.—Chick-peas. 621
540 Lobo, Jose Maria, Guarda.—Kidney beans. 621
541 Lopes, Jacintho, Elvas, Portalegre.—Beans and chick-peas. 621
542 Miranda, Joaquim Lobo de, Lagos, Faro.—Beans. 621
543 Menezes, Jose Vasconcellos Carneiro, Marco de Canavezes, Oporto.—Beans. 621
544 Loureiro, Antonio Lopes, Amorim, Oporto.—Beans. 621
545 Leite, Joao Baptista de Araujo, Mirandella, Braganza.—Chick-peas. 621
546 Leite, Joaquim Maria Felgueiras, Mogadouro, Braganza.—Chick-peas. 621
547 Lima, Antonio Joaquim Fernandes, Villa Nova da Cerveira, Viana do Castello.—Beans. 621
548 Macedo jr., Ventura Luis de, Lisboa.—Kidney beans, chick-peas. 621
549 Mattos, Manuel Antonio de, Campo Maior, Portalegre.—Chick-peas. 621
550 Mendes, Casemiro Esteves, Avis, Portalegre.—Kidney beans. 621
551 Moreira, Domingos, jr., Boucas, Oporto.—Beans. 621
552 Maia, Manuel de Avededo, Villa do Conde, Oporto.—Beans. 621
553 Maia, Jose Gomes, Amorim, Oporto.—Garlic. 621
554 Leitao, Alberto, Penacova, Coimbra.—Chick-peas and beans. 621

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural, Animal, and Vegetable Products.

556  Salgado, Marriano Roza, Laranudos, Oporto.—Beans.  621
557  Santos, Joaquim Ferreira, S. Martinho do Campo, Oporto.—Beans.  621
558  Souza, Pedro Augusto Pereira Abreu e, Santa Maria, Villa Real.—Beans.  621
559  Rodrigues, Francisco Pedro, Grande, Lisbon.—Beans.  621
560  Reis, Antonio Simoes dos, Condeixa, Coimbra.—Beans.  621
561  Rebello Valente & Allen, Oporto.—Beans.  621
562  Matta, Anacleto de Fonseca, Sardoal, Santarem.—Kidney beans.  621
563  Mendes, Raymundo Jose Soares, Abrantes, Santarem.—Chick-peas, kidney beans.  621
564  Guedes, Viscount de, Evora.—Beans.  621
565  Carreira, Jose Ivo, Peniche, Leiria.—Castor-oil beans.  621
566  Albergaria, Thomas Antonio Pinto Soares, Villa Cha, Aveiro.—Beans.  621
567  Coelho, Jose Justino, Villa do Tamega, Villa Real.—Beans.  621
568  Carvalho, Luis Xavier do Amaral, Rio de Moinhos, Viseu.—Beans.  621
569  Seixas, Jose Maria Ayres de, Gaivao, Portalegre.—Beans.  621
570  Silva, Marcellino Ferreira da, Lisbon.—Chick-peas and kidney beans.  621
571  Silva, Jeronimo Jose Alves da, Elvas, Portalegre.—Chick-peas.  621
572  Silva, Antonio Jose da, Boucas, Oporto.—Beans.  621
573  Factory of Tobacco, Leialdade, Oporto.—Cut leaf, cigar, cigarettes, and snuff.  623
574  Factory of Miguel Augusto da Silva Pereira, Oporto.—Tobacco.  621
575  Factory of Tobacco, Liberdade, Oporto.—Cut tobacco, cigars, and cigarettes.  623
576  Lisbon Tobacco Co., Lisbon.—Cigars and snuff.  623
578  Ferreira & Co., Lisbon.—Chocolate.  623
579  Vasconcellos, Duarte, Loureiro, Viseu.—Hops.  623
580  Cunha, Antonio Jose, Paredes de Coura, Vianna do Castelo.—Millet seed.  624
581  Coutinho, Luis C. de Lucena, Arrago, Villa da Fonte, Viseu.—Millet seed.  624
582  Camello, Joaquim Augusto da Silveira, Penafiel, Oporto.—Seeds.  624
583  Administrative Council of Cantanhede, Coimbra.—Seeds.  624
584  Albergaria, Thomas Antonio Pinto Soares, Villa Cha, Aveiro.—Grape seed.  624
585  Mesquita, Pedro Jose de, Sines, Coimbra.—Linseed.  624
586  Margarido, Luis Jose Ferreira, Villa Nova de Foscos, Guarda.—Sunach.  624
587  Alvim, Joao Cardoso de Souza, Alterido do Chao, Portalegre.—Linseed.  624
588  Sousa, Jose Luis Rodrigues, V. de Duijo, Vianna do Castello.—Linseed.  624
589  Castel-Branco, Manuel de Barros, Portalegre.—Acorns.  624
590  Fernandez, Joaquim Filipe, Beja.—Acorns and seeds.  624
591  Valente, Jose Justino d'Oliveira, Estarreja, Aveiro.—Seeds, pine kernels.  624
592  Guerreiro, Antonio Manuel, Villa Nova da Cerveira, Vianna do Castello.—Linseed.  624

Marine Animals, Fish Culture, and Apparatus.

593  Neto, Manuel Jose Setubal, Lisbon.—Preserved fish.  641
594  Ornellas & Linder, Lisbon.—Preserved fish.  641
595  Fabrica Povoense, Povoa de Varzim.—Preserved fish.  641
596  Freitas, Joao S., Jr., Setubal, Lisbon.—Preserved sardines.  641
597  Direction of the Works of Mondego River and Figueira bar, Coimbra.—Preserved fish.  641
598  Romao, Joanna Balbina, Aveiro.—Preserved fishes.  641
599  Leite & Co., Francisco, Alcantarilha, Faro.—Salt tunny-fish.  642
600  Pilao e Luxes, A. d'O., e J. G. L. Ovar.—Models of fishing nets.  647
601  Oliveira, Gaspar Jose, Oporto.—Fishing nets.  647

Animal and Vegetable Products.

600  Gomes, J. Carlos, & Moura, P. A., Marques de S. Salvador, Aveiro.  650
a Seaweeds.  650
b Olive oils.  662
601  Queiroz, Jose de Sequeira Pinto, S. Sebastian do Duque, Vianna do Castello.  650
a Seaweeds.  650
b Wine and brandy.  660
602  Morgado, Francisco Xavier Annes, Miranda do Douro, Braga.  653
a Cheese.  653
603  Formosinho, Jose Maria Gomes, Serpa, Beja.  651
b Cheese.  651
604  Franco, Jose da Costa, Beja.—Cheese.  651
605  Coelho, Antonio, Gouvea, Guarda.—Cheese.  651
606  Lobo, Jose Maria, Guarda.—Cheese.  651
607  Saraiva, Francisco Martins, Belmonte, Castello Branco.—Cheese.  651
608  Sobrinho, Jose Guerreiro de L. Ferreira, Beja.—Cheese.  651
609  Callado, Joao da Costa, Jr., Alter do Chao, Portalegre.—Cheese.  651
610  Pereira, Jose do, Castello de Vide, Portalegre.—Cheese.  651
611  Penedo, Francisco Antonio, Beja.—Cheese.  651
612  Valladares, Pedro d'Ordez, Castelo Branco.  651
a Cheese.  65
b Olives.  61
b Wine.  61
b Olive oil.  61
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

613 Viegas, Agostinho Thomas dos Santos, Cea, Guarda.
   a Cheese. 651
   b White wine. 660
   c Olive oil. 662

614 Vicondeza d'Oleiros, Castello Branco.
   a Cheese. 651
   b Olives. 666
   c Olive oil. 662

615 Calcia e Pina, Antonio, Souzel, Portalegre.
   a Cheese. 651
   b Honey. 664
   c Preserved meats. 656
   d Olive oil. 662

616 Pimentel, Jose Reis, Castello de Vide, Portalegre.
   a Cheese. 651
   b Honey. 664

617 Aboim, Joao Cardoso de Souza, Alter do Chao, Portalegre.
   a Cheese. 651
   b Preserved meats. 656
   c Wines and vinegar. 660

618 Abrunhosa, Joao Caetano de Castello Branco.
   a Cheese. 651
   b Olives and preserved meat. 656
   c Olive oil. 662

619 Alvim, Joao Cardoso de Souza, Alter do Chao, Portalegre.
   a Cheese. 651
   b Preserved meat. 656
   c Wine and vinegar. 666

621 Coelho, Manuel Diogo, Castello de Vide, Portalegre.
   a Cheese. 651
   b Preserved meats and olives. 656

622 Alcantara, Francisco Augusto Mendes de, Lagares, Coimbra.
   a Cheese. 651
   b Wine and brandy. 660

623 Caual, Eliziario, Cea, Guarda.
   a Cheese. 651
   b Red wine. 660
   c Vegetable oils. 662

   a Cheese. 651
   b Honey. 654
   c Preserved meat. 656
   d Brandy. 660

624 Fernandes, Joaquim Filipe, Beja.
   a Cheese. 651
   b Olive oil. 662

624a Boa, Viscount da, Vista, Beja.
   a Cheese. 651
   b Olive oil. 662

25 Gago, Joao Henriques Nunes, Galveas, Portalegre.
   a Cheese. 651
   b Olive oil. 662

26 Vaz Preto, Geraldas, Manuel Louisa, Castello Branco.
   a Cheese. 651
   b Honey. 654
   c Wine. 650
   d Olive oil. 662

27 Ferreiro, Manuel Guerra, Freixo d'Espada à Cinta, Braganca.
   a Cheese. 651
   b Honey. 654
   c Olives. 664
   d Olive oil. 662

628 Taborda, Joao Manuel Correa, Preixoxo d'Espada à Cinta, Braganca.
   a Cheese. 651
   b Olives. 666
   c Olive oil. 662

629 Goncalves, Jose Joaquim, Elvas, Portalegre.
   a Cheese. 651
   b Honey. 664

630 Manuel, Joaquim Trigueiros Pesteau, Castello Branco.
   a Cheese. 651
   b Olive oil. 662

631 Oliveira Soares, M. E. de, Evora.
   a Cheese. 651
   b Honey. 654
   c Vinegar. 660
   d Olive oil. 662

632 Oliveira, Jose Miguel de, Moura, Beja.
   a Cheese. 651
   b Preserved meat. 656

633 Lobo, Bartholomeo Jose, Oliveira do Hospital, Coimbra.
   a Cheese. 651
   b Red wine. 660
   c Olive oil. 662

634 Veiga, Jose Mendes, Covilha, Castello Branco.
   a Cheese. 651
   b Dried fruits and olives. 656
   c Vinegar. 660
   d Olive oil. 662

   a Butter and cheese and milk. 651
   b Olives, gums, preserved meat and fruits. 656

636 Raposo, Joao, do Carmo, Moura.
   a Cheese. 651
   b Olives. 660
   c Olive oil. 662

637 Pinto, Luis Marques, Elvas, Portalegre.
   a Cheese. 651
   b Preserved meat. 656

638 Pinto, Joaquim Pereira da Costa, Sousel, Portalegre.
   a Cheese. 651
   b Olive oil. 662

639 Moraes, Rodrigo Antonio Leite de, Oporta.—Hides. 652

640 Viuva Chaves & Son, Guimarães.—Leather and skins. 652

641 Alcntara & Bros., Joao Antonio, Lisbon.—Leather and skins. 652

642 Godinho, Francisco Ferreira, Cruz, Quebrada.—Leather and skins. 652

643 Jose Maria d'Andrade, & Bros., Valencia.—Leather and calfskin. 652

642a Lamos, Jose, & Co., Lisbon.—Belting and cables for machinery. 652

644 Santos, Narcizo Jose dos, Evora.—Animal charcoal. 652

645 Lamas & Co., Jose, Lisbon.—Leather. 652

645a Ramos, Joaquim Antonio, Beja.—Goatskins. 652

646 Ferreira, Camillo P. da C., Oliveira d'Azeméis.—Leather. 652

647 Joao Antonio Alcntara & Sons, Lisbon.—Leather and skins. 652

or classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

648 Gama, Antonio Domingos d'Oliveira, Oporto.—Hides.

649 Ferreira, Antonio Cypriano, Lisbon.—Leather and skins.

650 Fernandes, Lucas, Macao, Santarem.—Skins.

651 Ferreira & Bro., Casas dos Gallegos, Santarem.—Kidskins.

652 Cassola, Antonio Joaquim, Portalegre.—Leather and skins.

653 President of the Municipal Chamber of Lisbon.—Tallow.

654 Jeronymo, Francisco Manuel, Coimbra.—Leather, calfskin.

655 Jose Maria d'Andrade & Bros., Valencia.—Leather, calfskin.

656 Oliveira, Custodio de, Adufe, Braga.—Glue.

657 Vijuva, Machado, & Sons, Alcanena.—Hides.

658 Cerqueira, Lima, & Co., Vianna do Castello.—Leather, hides, skins, and glue shavings.

659 Smitd, Joao Luiz, Oporto.—Skins.

660 Martins, Andre, Sobrado, Oporto.—Wax.

661 Vera, Manuel, Melres, Oporto.—Honey.

661a Mello, Antonio Jose Teixeira, Lisbon.—Wax.

662 Tenorio, Matheus Rodrigues, Alter do Chao, Portalegre.—Honey.

662a Silva, Diogo Monteiro, Lisbon.—Manufactured wax.

663 Terregon, Antonio Joaquim, Redondo, Evora.—Honey.

664 Juzarte, Jose Francisco, Monforte, Portalegre.—Honey.

665 Garcia, Jose Camillo, Almodovar, Beja.—Wax.

666 Espada, J. C., Vallejo, Portalegre.—Honey.

670 Garcao, Jose Maria, Elvas, Portalegre.—Honey and wax.

671 Figueiredo, Joaquim de, Aviz, Portalegre.—Honey.

672 Contreiras, Jose da Silva, Almodovar, Beja.—Honey-cob and honey.

673 Bussaco, Jose Rodrigues, Grandala, Lisbon.—Honey.

674 Boucinha, Manuel da Costa, Balthasar, Oporto.—Honey and honey-comb.

675 Braga, Joao Jose de Sousa, Oporto.—Honey.

676 Mello, Antonio Jose, Ferreira, Lisbon.—Honey and wax.

677 Moraes, Jose, Basilio de Arronches, Portalegre.—Honey.

678 Atlen Rebelo Volente, Oporto. a Honey. b Wines. c Olive oil.

679 Pessoa, Luis Manuel da Costa, Alfardega de Fc, Braganca.—Honey.

680 Loureiro, Bento Maria, Aldeia Nova, Beja.—Honey.

681 Saramago, Francisco Ferreira, Reguengo, Evora.—Honey.

682 Sena, Joao Pereira, Montargil, Portalegre.—Honey.

683 Vinva de Manuel, Pedro do, Alter do Chao, Portalegre.—Wax.

684 Vassallo, Jose Baptista, Alcanena, Santarem.—Bleached wax.

685 Vieira, Francisco de Semas, Cunha, Evora.—Honey.

686 Vieira, Jose Augusto, Evora Ciudad, Evora.—Honey, white and yellow wax.

687 Miranda, Joaquim Antonio de Reguengo, Portalegre.—Honey and honeycomb.

688 Moreira, David Martins, Castello de Vide, Portalegre.—Bleached wax.

689 Moita, Jose Francisco, Aldeia Nova, Beja.—Honey.

690 Raposa, Vicente Narcizo, Castello de Vide, Portalegre.—Honey.

691 Silva, Joao Miguel, Santa Eulalia, Portalegre.—Honey.

692 Costa da Mendiga, Jose da, Mendiga, Leiria.—Honey.

693 Santos, Luis Marcelino dos, Freiro, Braganca.—Honey.

694 Silva, Antonio Mendes da, Linhares, Braganca.—Honey.

695 Pereira, Jeronymo, Serpa, Beja.—Honey.

696 Pinheiro, Jose de Sousa Idanha a, Nova Castello, Braganca.—Honey.

697 Carvalho, Jose Fernandes Antonio de, Goes, Coimbra.—Honey.

698 Abreu, Jose Martins de, Aloens, Viscu.—Honey.

699 Albergaria, Thomas Antonio Pinto, Loases, Villa Cha Avero.—Honey and wax.

700 Almeida, Francisco de Mattos, Penafiel, Porto.—Wax.

701 Adelino, Joao Manuel Joaquim, Elvas, Portalegre.—Honey.

702 Almida, Joaquim S. Momao, Castello de Vide, Portalegre.—Honey.

703 Perez, Roure, & Co., S. Thiago do Cacem, Lisbon. a Honey and wax. b Rice. c Wine. d Olive oil.

704 Lemos, Francisco Antonio Pereira, Vilarhelios, Braganca. a Honey. b Red wine.

705 Falcao, Jeronymo Fernaldes, Lamas, Coimbra. a Honey. b Wine.

706 Bello, Manuel Gueci fao, Marcas, Santarem. a Honey. b Wines. c Olive oil.
Animal and Vegetable Products.

707 Pimentel, Antonio Augusto de Moraes, Castello Branco, Bragança.
   a Honey. 654
   b Olives. 655
   c Olive oil. 662

708 Baptista, Jose Antonio, Miranda, Bragança.
   a Honey. 654
   b Brandy. 655

709 Baptista, Jose Ignacio de Macedo, Miranda, Bragança.
   a Honey. 654
   b Brandy. 655

710 Allen Rebelo Volente, Oporto.
   a Honey. 654
   b Port and muscadine wine. 660
   c Olive oil. 655

711 Administrador do Concelho de Polares, Polares, Colmbra.
   a Wax. 654
   b Olive oil. 662

712 Pinto, Clemencia, Villa Boim, Portalegre.
   a Honey. 654
   b Brandy. 655

713 Andrade, Antonio Pequito, Leiras de Cavais, Portalegre.
   a Honey. 654
   b Dried grapes. 656

714 Calca e Pina, Augusto, Sourel, Portalegre.
   a Honey. 654
   b Olive oil. 662

715 Figueiredo, Jose Cereira de, Sattam, Viseu.
   a Honey. 654
   b Wine. 655

716 Coelho, Jose Fialho, Mousa, Beja.
   a Honey. 654
   b Preserved meat. 656

717 Fernandes, Manuel Ignacio, Tel-Jos, Villa Real.
   a Honey. 654
   b Dried chestnuts. 656

718 Fonseca Santos, Antonio Germano da, Redondo, Evora.
   a Honey. 654
   b Wine. 655
   c Vinegar. 662
   d Olive oil. 662

719 Gouvea, Jose dos Santos, Constancia, Santarem.
   a Honey. 654
   b Wine. 655

720 Fernandes, Jose Manuel, Redondo.
   a Honey. 654
   b Vinegar. 660

721 Magalhaes, Jose Joaquim do Silva, Villa Nova da Gaia, Oporto.
   a Wax. 654
   b Olive oil. 662

722 Tocha, Jose Rodrigues, Estremos, Coimbra.
   a Honey. 654
   b Olives. 655
   c Wine and vinegar. 660
   d Olive oil. 662

723 Monte, Jose Manuel do, Redondo, Evora.
   a Wax and honey. 654
   b Brandy and vinegar. 660
   c Olive oil. 662

724 Nunes, Antonio Candido, Elvas, Portalegre.
   a Honey. 654
   b Olive oil. 662

725 Miranda, Antonio Augusto Lobo de Lagos, Faro.
   a Honey. 654
   b Wine, brandy, vinegar. 660
   c Olive oil. 662

   a Honey. 654
   b Wine and brandy. 660

727 Menezes, Jose de Vasconcellos, Canavezes, Porto.
   a Honey. 654
   b Wine and vinegar. 660
   c Olive oil. 662

728 Margiochi, Francisco, jr., S. Simoes, Lisbon.
   a Honey. 654
   b Wine. 660
   c Olive oil. 662

729 Marcal, Joao Lopes, Evora.
   a Honey. 654
   b Olive oil. 662

730 Pinto Basto, Augusto Ferreira, Oliveira do Bairro, Aveiro.
   a Honey. 654
   b Olive oil. 662

731 Silva, Joaquim Nunes da, Elvas, Portalegre.
   a Honey. 654
   b White wine. 655

732 Sobrinho, Rafael Baptista, Alvito, Beja.
   a Honey. 654
   b Wine. 660

733 Vasconcellos, Catharina Mousinho Almadaminus, Nisa, Portalegre.
   a Honey. 654

734 Viscount of Guedes, Evora.
   a Honey. 654
   b Wine. 660
   c Olive oil. 662

735 Mattos, Manuel Antonio de, Campo Maior, Portalegre.
   a Honey. 654
   b Dried grapes. 656
   c Brandy, wine, vinegar. 660

736 Mira, Jose Paulo de, Evora.
   a Honey. 654
   b Vinegar. 660
   c Olive oil. 662

737 Montoa, Diogo Lopes, Castello Branco.
   a Honey. 654
   b Olive oil. 662

738 Morgado, Joas Aloes, Constanca, Santarem.
   a Honey. 654
   b Brandy, red and white wine, vinegar. 660
   c Olive oil. 662

739 Matta, Antonio Nunes, Grandola, Lisbon.
   a Honey. 654
   b Wine. 660

740 Queimado, Isidoro Maria, Redondo, Evora.
   a Honey. 654
   b Brandy, white wine, and vinegar. 660

741 Rosa, Jose da Graça Pereira, Nisa, Portalegre.
   a Honey. 654
   b Preserved meat. 660
   c White wine, brandy, and vinegar. 660
   d Olive oil. 662

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

742 Rosa, Joaquim Mathews Vieira, 
Villa Nova de Ourem, Santarem. 
  a Honey.  
  b Olive oil.  

743 Rodrigues, Francisco Pedro, Gran-
dela, Lisbon. 
  a Wax and Honey.  
  b Wine.  
  c Olive oil.  

744 Sa, Antonio Alceo do Conto e, Ger-
munde, Oporto. 
  a Honey.  
  b Olive oil.  

745 Santos, Joaquim Ferreira, S. Mar-
tinho do Campo, Oporto. 
  a Honey.  
  b Wine.  

746 Serra, Joaquim, Valle Formoso, 
Santarem. 
  a Honey.  
  b Olive oil.  

747 Sa, Sabino Barros de, Pouco de 
Sundo, Santarem. 
  a Honey.  
  b Olive oil.  

748 Santos, Ascendo Jose dos, Valenca, 
Vianna do Castello. 
  a Wax.  
  b Sweetmeats.  
  c Wine.  

749 Pereira, Joao M., Constancia, San-
tarem. 
  a Honey.  
  b Olive oil.  

750 Pedroso, Henrique Caldeira, Cas-
tello Branco. 
  a Honey.  
  b Olives.  
  c White wine.  
  d Olive oil.  

751 Bertao, Ladislau Xavier, Torrao, 
Beja. 
  a Honey.  
  b Olive oil.  

752 Rosado, Joao Antonio Margues, 
Redondo, Evora. 
  a Honey.  
  b Red and white wine, and brandy.  
  c Olive oil.  

753 Rosado, Antonio Joaquim da Silva, 
Zambujeiro, Evora. 
  a Honey.  
  b Red wine.  

754 Pinheiro, Candido Alberto A., Mon-
xique, Faro. 
  a Honey.  
  b Olives.  
  c Olive oil.  

755 Mascarenhas, S., Faro.—Dried 
fruits.  

756 Moura, Francisco Antonio Mar-
gues, Ilhavo, Aveiro.—Olives.  

757 Menezes, Jose Correa, Lamego, Vi-
seu.—Dried fruits.  

758 Mattos, Maria do Livramento, 
Poroporto.—Preserved fruit.  

759 Maria do, Gloria, Co., Oporto.— 
Preserved fruits.  

760 Leal, Costa, & Co., Lisbon.—Pres-
served meats, fish, and fruits.  

761 Torres, Rodrigo Bravo, Novelas, 
Penafiel.—Olives and pickled pepper-
pods.  

762 Trigo, Antonio Manuel de Sousa, 
Moncorvo, Braganca.—Sweetmeats.  

763 Themuda, Engracia Narcisa, Bar-
celos.—Sweetmeats.  

764 Teixeira, Francisco de Sa, Salsedas, 
Viseu.—Dried figs.  

765 Victorino, Jose, Braganca.—Ham.  

766 Varsea & Coelho, Oporto.—Pres-
served meats, fish, olives, etc.  

767 Tapadinha, Jose Joaquim, Portale-
gre.—Preserved meats.  

768 Trindade, Alfredo, Faro.—Figs.  

769 Themudo, Jose Vicente, Castello de 
Vide, Portalegre.—Preserved meats.  

770 Sanhoso, Jose Regoa.—Elder-
berries, raisins, and dried figs.  

771 Oliveira & Co., Jose Antonio dc. 
Preserved meats, fish, fruits, vegetables, 
and sweetmeats.  

772 Jose Joaquim dos Neves & Sons, 
Lisbon.—Dried figs.  

773 Lehmann, J. W., Gustav, Oporto. 
—Sweetmeats.  

774 Guimaraes, Antonio, Faro.—Dried 
figs.  

775 Gomes, Jose Libanius, Villa Nova 
de Portimao, Faro.—Dried figs.  

776 Gouvea, Jose Bernardino d'Abr, 
Sande, Viseu.—Preserved fruits.  

777 Rodrigues & Nephew, Fernando, 
Lisbon.—Preserved meat, vegetables, and 
fruits.  

778 Franco, Joaquim, Portimao, Faro. 
—Dried figs.  

779 Ferreira Convent, Ferreira d'Aves, 
Viseu.—Dried plums.  

780 Dantas Pimenta, Jose Maria, Tor-
res Novas, Santarem.—Dried fruit.  

781 Castanheiro, Balthazar Rodrigues, 
Lisbon.—Sweet fruits.  

782 Barros, Jose Xavier Pereira, Villa 
Real, Tras-os-Montes.—Sweetmeats.  

783 Leitao, Alberto, Penacova, Coim-
bra.—Dried damsons.  

784 Pimenta, Anna Augusta de Souza, 
S. Joao de Lobrigos, Viseu.—Dried fruits.  

785 Ornellas & Lisher, Lisbon.—Pres-
served fruits and vegetables, sweetmeats 
and fruits.  

786 Le Ceq, Jose Jose, Castello de 
Vide, Portalegre.—Olives.  

787 Silva, Domingos da, Elvas, Porta-
legre.—Olives.  

788 Valentim, Jose, Arraiolos, Evora. 
—Preserved meats.  

789 Mendes, Augusto Alexandre Es-
teves, Aviz, Portalegre.—Preserved meat.  

790 Mascarenhas, Luis de, Portimao, 
Faro.—Dried figs.  

791 Rodrigues, Antonio Manuel, Vin-
has, Braganca.—Sausages.  

792 Romao, Joanna Balbina, Aveiro.— 
Sweetmeat.  

793 Mello, Luis de Mendonca e, Tavira, 
Faro.—Dried figs.  

794 Miranda, Joao Eduardo Lobo de, 
Faro.—Dried figs.  

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

798 Roza, Julia Pimenta Ceboral, Setubal, Lisbon.—Preserved orange. 656
799 Rijo, Joaquin Antonio, Elvas, Portalegre.—Olives. 656
800 Regallo, Jose Maria da Fonseca, Campo Maior, Portalegre.—Olives. 656
801 Serzedello, Joao Pereira, Elvas, Portalegre.—Preserved asparagus and olives. 656
802 Souza, Jose Saldanha Oliveira e.—Olives. 656
803 President of the Commission of Vienna, Vienna do Castelho.—Preserved fish. 656
804 Mina, S. Thome de, Coimbra.—Preserved fish. 656
805 Vidamrel, J. J. da, Trinidad Dias, Coimbra.—Preserved fish. 656
806 Callisto, Manuel M. Pimentel, Coimbra.—Preserved fish. 656
807 Carvalho, Albino Justiniano, Coimbra.—Dried figs. 656
808 Campbell, Evaristo Jose Ferraz de Moraes, Ancaes, Braganca.—Raisins. 656
809 Carvalho, Antonio Miguel de, Satam, Viseu.—Olives. 656
810 Correa, Antonio de Sousa, Oporto. —Olives. 656
811 Cellais Convent, Santo Antonio do Olives.—Preserved fruits. 656
812 Carmo, Bazilia Maria do, Arronches, Portalegre.—Preserved meat. 656
813 Conceicao, Joas Nunes da, Elvas, Portalegre.—Dried fruit, olives, and pickles. 656
814 Belem, Silvestre Polycarpo Correa, Lisbon.—Preserved fruits, preserved fish, and vegetables. 656
815 Campos, Luis Jose de, S. Pedro de Miragaia, Oporto.—Olives. 656
816 Castro, Joaquim Gaeto de, Oporto.—Ham. 656
817 Piteira, Fernandes Joaquim Filippe, Reguengo, Evora.—Pork meat. 656
818 Proenca, Vasconcellos, Faro.—Figs. 656
819 S. Bento d’Ave Maria Convent, Oporto.—Sweetmeat. 656
820 Semide Convent, Semide, Coimbra.—Preserved turnips. 656
821 Silva, Francisco Ferreira da, Oporto.—Sausages. 656
822 Sta. Clara Convent, Guimaraes.—Sweetmeats. 656
823 Souza, Conceicao Margues, Alves, Oporto.—Preserved fruits. 656
824 Sta. Rosa de Lima Convent, Guimaraes.—Preserved fruits. 656
825 Santa Clara Convent, Santa Clara, Coimbra.—Sweetmeat. 656
826 Rocha, Feliciano Antonio da, Setubal, Lisbon.—Preserved fish. 656
827 Passos, Jose Francisco Rodriguez, Fuzeta, Faro.—Dried figs. 656
828 Peixoto, Augusto Gavia, Serpa, Beja.—Olives. 656
829 Botelho, Antonio C., Fayal, Azores.—Sausages. 656
830 Carvalho, Rosa Guilhermina de, Cancellor Velha, Porto.—Chocolate. 656
831 Cid, Jose Ignacio, Mirandella, Braganca.—Olives, murt. 656
832 Cruz, Jose Bento, Armamamar, Viseu.—Honey. 656
833 Angelica, Rosa de Jesus Maria, —Preserved fruits. 656
834 Barros, Rita Candida de, Castello de Vide, Portalegre.—Olives. 656
835a Pereira, Pedro Maria Dantas, Torres Vedras, Santarem. a Dried grapes. 656
  b Olive oil. 656
835 Larcher, Emilia Adelaide, Portalegre. a Preserved fruits. 656
  b Syrups of groseille. 656
836 Miranda, Joaquim, Lobo de, Lagos, Faro. a Dried figs. 656
  b Red wine and vinegar. 656
837 Martins, Isidoro, Borba, Evora. a Dried fruits. 656
  b Wines. 656
  c Olive oil. 656
838 Negrao, Joaquim d’Almeida, Portimao, Faro. a Dried figs. 656
  b Wine. 656
839 Gallope, Fernando dos Santos, Portalegre. a Current syrup. 656
  b Wine. 656
840 Bentos, Antonio Joaquim, Serpa, Beja. a Olives. 656
  b Olive oil. 656
841 Andrada, Antonia Garcia de, Elvas, Portalegre. a Preserved meat. 656
  b Olive oil. 656
842 Castello Branco, Joao da Silva Ferrao, Santa Iria, Lisbon. a Pickles, preserved fruits, and sardines in oil. 656
  b Olive oil. 656
843 Cunha, Joaquim Gulherme da, Castello Branco. a Olives. 656
  b Wines. 656
  c Olive oil. 656
844 Castel-Branco, Antonio Mendo, Cadilhe, Alter do Chao, Portalegre. a Preserved meat. 656
  b Vinegar. 656
  c Olive oil. 656
845 Atalaya, Count of, Santarem. a Honey. 656
  b Wine. 656
  c Olive oil. 656
846 Guerra, Jose da Conceicao, Elvas, Portalegre. a Dried fruits. 656
  b Wine and liquor. 656
847 Theotonio, Joaquim Manuel, Serpa, Beja. a Olives. 656
  b White wine. 656
  c Olive oil. 656
848 Taborda, Antonio Theodoro Ferreira, Penamacor, Castello Branco. a Olives. 656
  b Red wine. 656
  c Olive oil. 656

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

849 Trincao, Roman Antunes, Lapas, Santarem.
   a Dried figs and grapes. 666
   b Wines and brandy. 666

850 Administrative Council of Lusado, Lusado, Oporto.
   a Dried fruit. 666
   b Red wine. 666

852 Almeida, Bernardo Caeiro de, Serpa, Beja.
   a Olives. 666
   b Olive oil. 662

853 Barboza, Paulo da Silva, Oporto.
   a Sweetmeats. 666
   b Biscuits. 661

854 Burguet, Miguel Serrao, Sardoal, Santarem.
   a Olives, dried fruit. 666
   b Vinegar. 666

855 Costa Falcao, Antonio Ozorio d'Azevedo da, Alpredinha, Castello Branco.
   a Olives. 666
   b White wine. 666
   c Olive oil. 662

856 Figueiredo, Antonio Jose de, Carrazeda d'Anclies, Braganca.
   a Olives. 666
   b Wine. 666
   c Olive oil. 662

857 Ferreira, Antonio Manuel, Torres Novas, Santarem.
   a Dried fruits. 666
   b Wine and brandy. 666

858 Feria, Jose Maria de la, Serpa, Beja.
   a Olives. 666
   b Wine and brandy. 666

859 Figueira, Gaspar Augusto, Evora.
   a Sugared almonds. 666
   b Wines and brandy. 666

860 Ferreira & Co., Lisbon.
   a Candy. 666
   b Syrups. 669
   c Lemonade. 669

861 Martins, Jeronymo, & Son, Lisbon.
   a Dried fruits. 666
   b Wines. 666
   c Olive oil. 662

862 Guedes, Francisco Domingues, Castello Branco.
   a Sausages. 666
   b Olive oil. 662

863 Magalhaes, Luis Antonio, Aldeia Nova do Cabo, Castello Branco.—Timber, corkwood, sweet fruits.
   a Dried fruits. 666
   b Vine. 666
   c Olive oil. 662

864 Mendes, Luis Antonio Soares, Castello Branco.
   a Dried chestnuts. 666
   b Vinegar. 666

865 Macedo Pinto, Joaquim Ferreira de, Tobaco, Viseu.
   a Preserved fruits, elderberries. 666
   b Wines. 666
   c Olive oil. 662

866 Lemos, Antonio Maria Tovar de Moura, Beja.
   a Olives. 666
   b Vinegar. 662
   c Olive oil. 662

867 Lacerda, Jose de Aragao Costa, Aldeia Nova do Cabo, Castello Branco.
   a Olives, potatoes. 666
   b Wine, vinegar. 666

868 Nunes, Guilherme, Francisco Pereira, Oliveira do Hospital, Coimbra.
   a Dried fruits. 666
   b Wheat flour. 657
   c White wine and vinegar. 666

869 Lima, Honorio Fiel, Portalegre.
   a Preserved fruits. 656
   b Wine. 660
   c Olive oil. 662

870 Larcher Marcal, Maria Adelaide, Portalegre.
   a Preserved fruits, truffles. 666
   b Syrups. 659

871 Souza, Manuel Alves de, Castello Branco.
   a Olives. 666
   b Olive oil. 662

872 Souza Pinto, Francisco de Gamboa, Castello Novo, Castello Branco.
   a Olives. 666
   b Olive oil. 662

873 Vaz, Eduardo Augusto da Cruz, Castello Branco.
   a Preserved meat, olives. 666
   b Red wine. 666
   c Olive oil. 662

875 Santa Anna, Jose Candido de, Elvas.
   a Olives. 666
   b Olive oil. 662

876 Salgado, Julio Bivar d'Azevedo, Sardoal, Santarem.
   a Dried pears. 666
   b Wines. 666
   c Olive oil. 662

877 Pinto, Francisco Xavier de Moraes, Mirandella, Braganca.
   a Raisins. 666
   b Red wine. 660

878 Perdigao, Miguel Salvador R., S. Miguel de Machede, Evora.
   a Preserved fruit. 666
   b Wine. 660

879 Pinto, Antonio Joaquim Nogueira, Villa Real.
   a Red wine. 666
   b Raisins. 666

880 Pires, Antonio Joaquim, Lisbon.
   a Sweet fruits and meats. 656
   b Liquors. 660

881 Ramos, Joao Joaquim, Redondo, Evora.
   a Preserved grapes. 656
   b Starch. 658
   c Red and white wine, brandy. 666

882 Pimenta, Jose Maria Dantas, Torres Novas, Santarem.
   a Dried figs. 656
   b Wine and brandy. 660

883 Costa, Jose Rodrigues da, Penamacor, Castello Branco.
   a Olives. 666
   b Olive oil. 662

884 Antonio, Eduardo, Montalvao, Portalegre.
   a Preserved meat and fruits. 666
   b Olives and olive oil. 666

885 Teixeira, Francisco Loureiro, Campello, Oporto.—Wheat flour. 657

886 Veiga, Maria Christina de Napoles Figueiredo, Goes, Coimbra.—Potato flour. 657

887 Lopes, Alvaro Pereira de Bettencourt, Ponta Delgada.—Flour. 657

888 Lima, Lino, Anclies, Braganca.—Wheat and rye flour. 657

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

889 Leao, Antonio Moreira, Guilhaume, Oporto.—Wheat and rye flour. 657
890 Egreja, Manuel Antonio, Torroso, Oporto.—Corn flour. 657
891 Egreja, Jose Francisco de Serra, Novaes, Oporto.—Wheat and corn flour. 657
892 Moreira, Joas Baptista, Rates, Oporto.—Wheat flour. 657
893 Gomes, Jose da Costa, Balazar, Oporto.—Wheat flour. 657
894 Ferreira, Januario da Silva, Elvas, Portalegre.—Corn flour. 657
899 Costa & Brother, Portalegre.—Corn flour. 657
901 Acacio Manuel Pereira, & Augusto Risques, Alter do Chao, Portalegre.—Corn, wheat, and rye flour. 657
902 Nunes, Vicente Ferreira, Lisbon, Lisbon.—Rice. 657
903 Pinto, Joao da Arevedo, Campello, Oporto.—Corn flour. 657
904 Villar, Manuel Pereira, Torroso, Oporto.—Barley flour. 657
905 Moreno, Jose Joaquim, S. Thiago, Lisbon.—Rice. 657
906 President of the Municipality of Penafiel, Oporto.—Corn flour. 657
907 Costa, Antonio Ignacio da, Elvas, Portalegre.—Corn flour. 657
908 Silva, Antonio de Sousa e Vallongo, Oporto.—Corn flour. 657
909 Silva, Antonio Manuel, Vimioso, Braganca.—Wheat flour. 657
910 Souza, Victorino Alves, Oporto.—Wheat flour. 657
911 Pereira, Henrique Augusto, Setubal, Lisbon.—Wheat flour. 657
912 Pinto, Antonio Rodrigues, Coimbra.—Wheat flour. 657
913 Casa Nova, Manuel Gonsalves, Beires, Oporto.—Barley flour. 657
914 Carvalho, Jose Joaquim de, Ermida, Villa Real.—Wheat flour. 657
915 Pullido, Manuel, Marvao, Portalegre.—Wheat flour. 657
916 Silva, Antonio Lopes da, Balasar, Oporto.—Corn flour. 657
917 Conceicao, Jose dos Santos, Lea de Buhl, Oporto.—Indian corn flour. 657
918 Camara, Hermelinda Gago da, Ponta Delgada, Azores. a Potato flour. 657 b Macaroni. 658
919 Camara, D. H. Gagoda, Ponta Delgada, Azores. a Arrowroot flour, potato. 657 b Macaroni. 658
920 Baptista & Co., Lisbon. a Wheat flour. 657 b Macaroni. 658
921 Chaves & Brother, Lisbon. a Semolina. 657 b Macaroni. 658
922 Pamperio, Ricardo de Souza, Vallongo, Oporto. a Wheat flour. 657 b Biscuits. 661
923 Pamperio, Antonio de Sousa Motta, Vallongo, Oporto. a Wheat flour. 657 b Biscuits. 661
924 Alves & Bros., Lisbon.—Macaroni. 658
924 Mendonca, Thomaz Antunes de, Lisbon.—Starch and rice powder. 658
925 Sobrinho, Felix Fernandes Torres, Oporto.—Macaroni. 658
926 Rodrigues, Jose Galhardo, Oporto.—Macaroni. 658
928 Lemos, Francisco Ferreira de, Oporto. a Macaroni. 658 b Refined sugar. 659
929 Manso, Jose Marques, S. Bartholomeu, Coimbra.—Oregate syrup. 659
930 Madeira Sugar Manufacturing Co., Funchal, Madeira. a Sugar. 659 b Molasses brandy. 660
931 Silva, Francisco da, Chamusca, Santarem.—Red wine. 660
931 a Nascimento, Manuel Antonio, Ponta Delgada.—Samples of liquors. 660
932 Amaral, Antonio da Costa Correa, Santa Comba Dao, Viseu.—Red wine. 660
933 Araujo, Joaquim Cardoso de, Oliveira de Barro.—Red wine. 660
934 Affonso, Domingos, Aivalisa, Lisbon.—Wines and vinegar. 660
935 Almeida, Francisco Manuel de, Serpa, Beja.—White wine. 663
936 Aguilar, Jr., Bernardo Teixeira de, Lisbon.—Red and white wine. 660
938 Joao Bento, Valle Passos, Villa Real.—Red wine. 660
939 Allen, George, & Co., Lisbon.—Port wine. 660
940 Gama, Manuel Telles da, Lisbon.—Wines. 660
941 Haul, J., Roope, Teage, & Co., Oporto.—Port wine. 660
942 Eca, Jose Ferreira de, Vallongo, Oporto.—Brandy. 660
942 a Ramalho, Jose Maria, Evora. a Red wine. 660 b Olive oil. 662
943 Fialho, Jacintho Maria, & Son, Ferreira, Beja.—Red wine. 660
944 Rodrigues Leitao, J. J., & Sons, Funchal, Madeira.—Madeira wine and white grape juice. 660
945 Vasconcellos, Adelino d’Almeida, Nelas, Viseu.—White wine. 660
946 Freire, Bernardo Xavier, Guarda.—White wine. 660
947 Freire, Amancio Antonio de Sequeira, Alemquer, Lisbon.—Wine. 660
948 Gomes, Joao Carlos, Ilhavo, Aveiro.—Brandy. 660
948 a Garcia, Antonio Joaquim, Samil, Braga.—Wine. 660
951 Galvao, Jose Augusto Ferreira Peixoto, Montemor-o-Velho, Coimbra.—Brandy. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

952 Guisado, Joao Baptista Ribeiro, Feitiche, Leiria.—Wine and vinegar. 660
953 Galvao, Sabino Jose M. dos Anjos, Azueira, Lisbon.—Wine. 660
954 Galdardo, Francisco Ferreira, Penamacor, Castelo Branco.—Red wine. 660
955 Guedes, Antonio Pinto de Carvalho, Nogueira, Villa Real.—Red wine. 660
956 Iglesias, Manuel, Lisbon.—Wine. 660
957 Janes, Jose Alonso, Requegua, Evora.—Red wine. 660
958 Mello, E. Bento de Castro Coelho e, S. Thiago, Coimbra.—Red wine. 660
959 Monteiro, Manuel F., Portalegre.—Vinegar. 660
961 Esteves, Manuel de Miranda, Celorico, Guarda.—Red wine. 660
962 Infante, Jose Maria de Magalhaes, Cantonhehe, Coimbra.—White wine, brandy, and vinegar. 660
963 Esteves, Joao Manuel, Gondomil, Vama do Castello.—Wine. 660
964 Kebe, E., & Co., Oporto.—Port wine. 660
965 Drach, Jose Ribeiro Guimaraes, Abrantes, Santarem.—White wine. 660
966 Franqueira, Romao, Fontelonga, Braganca.—Brandy. 660
967 Ferro, Narcizo Teixeira Martins, Oporto.—Wine. 660
968 Ferreira & Durado, Oporto.—Port wine. 660
969 Cabral, Paes F., & Sons, Sernache, Viseu.—Wine. 660
970 Ferreira, Antonio Adelida, Godim, Villa Real.—Wine. 660
971 Fortez, Jose Maria, Santar, Viseu.—Wines. 660
972 Faria, M. A. P., Ramos, Colorico de Basto, Braganca.—Wine. 660
973 Freitas, Domingos Antonio de, Ameias, Coimbra.—Wine. 660
974 Fonseca, Joaquim Apolinario, Christello Couvo, Vama de Castello.—Wine. 660
975 Ferreira, Jose Joaquim Gomes, Castanheira, Braganca.—Wine. 660
976 Ferreira, Jose Mendes, Lamego, Viseu.—Wine. 660
977 Feijo, Anselmo Guilherme Borges, Godim, Villa Real.—Wine. 660
978 Ribas, Limas, Guarda.—White and red wines. 660
979 Fonseca, Bernardo da Silveira Pinto da, Varzea de Abrunbaes, Viseu.—Wine. 660
980 Fonseca, Themudo de Magelhees da, Lamego.—Wine. 660
981 Fragozo, Jose Maria, Chamusca, Santarem.—Wine. 660
982 Fialho, Francisco Antonio, Aldeia do Mata, Evora.—Red wine. 660
983 Figueiredo, Antonio Joaquim Marques, Vila Nova de Reguengo, Evora.—Red wine. 660
984 Falcao, Jose Maria Fernandez, Cadafais, Lisbon.—Wine. 660
985 Fonseca, Jose Maria da, Lisbon.—Wine and cognac. 660
986 Franco, Manuel Antunes, Cortegana, Lisbon.—Red wine. 660
987 Ferrari, Gustavo, Lisbon.—Wine. 660
988 Falcao, Francisco Paes de Mattos, Brigel, Beja.—Wine and vinegar. 660
989 Ferreira, Joaquim Ignacio, Lisbon.—Wine. 660
990 Duarte, Julio Cesario Ferreira, Arcos de Aver, Lisbon.—Red wine. 660
991 Dias, Jose da Fonseca, Oliveira do Bairro, Aver, White wine. 660
1000 Deus, Jose Rodrigues de, Torres Novas, Santarem.—Wine. 660
1001 Dias, Daniel Jose Ferreira, Torres Novas, Santarem.—Wine. 660
1002 Duarte, Jose Baptista, Castello de Vide, Portalegre.—Wine. 660
1003 Doria, Jose, Beja.—Wine. 660
1004 Doria, E., Covilha, Castello de Vide, Brandy. 660
1005 Dejante & Co., Bom Successo, Lisbon.—Wine. 660
1006 Coelho, jr., Antonio Ferraz, Cadas da Rainha, Leiria.—White wine. 660
1007 Cardoso, Manuel Pedro, Sobral de Monte Agraço, Lisbon.—Wine. 660
1008 Campos, Antonio Joaquim Potes, Evora.—Red wine. 660
1009 Castilho, Antonio de, Villa Soeiro, Guarda.—Red wine. 660
1010 Costa, Francisco, Collares, Lisbon.—Red wine. 660
1011 Dias, Manuel Ignacio, Goes, Coimbra.—Vinegar. 660
1012 Duraes, Luis Antonio, Parada, Viseu.—Wine. 660
1013 Dow & Co., Oporto.—Port wine. 660
1014 Frexedas, Joao Felix de Faria, Castello de Vide, Portalegre.—Wine. 660
1015 Fernandez, Antonio Vicente d’Almeida, Benavente, Santarem.—Wines. 660
1016 Figueira, Jose Ricardo de Carvalho, Peniche, Leiria.—Wine. 660
1017 Fernandez, Joao Salvino d’Almeida, Benavente, Santarem.—Wine. 660
1018 Ferraz & Choque, Lisbon.—Wine. 660
1019 Faria, Simao Paes de, Torres Novas, Santarem.—Wine and brandy. 660
1020 Falcao, Joao de Sousa, Alpiarca, Santarem.—Wine and brandy. 660
1021 Ferreira, Francisco de Souza, Rio Maior, Santarem.—White wine. 660
1022 Climaco, jr., Joao, Matacaes, Lisbon.—Red wine. 660
1023 Costa, Joao Victorino Pereira da, Torres Vedras, Lisbon.—White wine. 660
1024 Torre Novas, Count of, Lisbon.—Wine. 660
1025 Carneiro, Antonio Soares, Lagoa, Faro.—Red wine. 660
1026 Caldeira, Ricardo Jose, Alegrete, Portalegre.—Wine. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

1027 Camara, Jose Maria Figueiredo
Cabral da, Otta, Lisbon.—Wine. 660

1028 Alcacos, Count of, Paco d'Arcos, Lisbon.—Wine. 660

1029 Cunha, Gregorio da, Olhalva, Lisbon.—Wine. 650

1030 Garcia, Pedro de Sousa, Estremoz, Evora.—Wine and brandy. 650

1031 Gomes, Jose.—Brandy. 660

1032 Guapo, Jose Daniel, Portalegre.—Wines. 660

1033 Godinho, Francisco, Regueiro, Evora.—Wines. 660

1034 Jansen, J. H., & Co., Lisbon.—Beer, and ginger beer. 660

1035 Kopke & Co., Massarelos, Oporto.—Wines. 660

1036 Rodrigues, J. J. Leitao, & Sons, Povoa, Madeira.—Madeira wine. 650

1037 Jacintho Maria Fialho & Son, Ferreira, Beja.—Red wine. 650

1039 Coelho, Luis Pires, Sardoal, Santarem. 650

1040 Cortez, Benedicto, Celorico, Guarda.—Red wine. 650

1041 Calleia, Cyriano Ribeiro, Lisbon.—Wine. 660

1042 Costa, Agostinho N. d'Oliveira, Villa Franca de Xira, Lisbon.—Wine. 650

1043 Castello, Lucas da Silva Cardozo, Campo Grande, Lisbon.—Wine. 650

1044 Costa, Joao Cezario, Evora.—Red wine. 660

1045 Castello Branco, D. Joaquima Ferrao, Lisbon.—Wine. 660

1046 Carvalho, Joseavelino N. de Carvalho, Torres Vedras, Lisbon.—Red wine. 660

1047 Brito, Augusto Pereira, Torres Novas, Santarem.—Red and white wine and brandy. 660

1048 Bexiga, Antonio Soares, Torres Novas, Santarem.—Brandy. 650

1049 Bivar, Jeronymo d'Almeida Coelho de, Portimao, Faro.—Red wine. 660

1050 Bivar, Jeronymo, Faro.—Red and white wine. 650

1051 Borges, Jose, Corroados, Santarem.—Red and white wine. 650

1052 Bello, Francisco Serriano Carvalho, Castello de Vide, Portalegre.—White and red wine. 660

1053 Baracho, Jose de Sousa, Torres Novas, Santarem.—Red wine. 660

1054 Cordes, Balthasar, Barcarena, Lisbon.—Red and white wine. 660

1055 Carvalho, Joaquim Freire de, Villa de Frades, Beja.—Red and white wine. 660

1056 Aragao, Francisco de Pina, Lianares, Guadara.—White and red wine. 660

1057 Abreu, Antonio de, Olhalva, Lisbon.—Wine. 660

1058 Abreu, Francisco Antonio Maxino, Azambuja.—Wine. 660

1059 Azevedo, Manuel Rodrigues de, Benavente, Lisbon.—Wine. 660

1060 Branco, Joao Vicente, Massarelos, Oporto.—Olio.—Gin. 660

1061 Barros, Antonio Manuel Ferreira, Ucanha, Viseu.—Brandy. 660

1062 Barao de Nellas, Nellas, Viseu.—Wine. 660

1063 Borga, Francisco Maximino, Villa Nova de Ourem, Santarem.—Red and white wine. 660

1064 Batalhos, Jose dos, Prazeres, Cartaxo, Santarem.—Red and white wine. 660

1065 Pereira, Manuel Augusto, Lisbon.—Red and white wine. 660

1066 Peixoto, Antonio Jose da Cunha e Oio, Lisbon.—Wine. 660

1067 Rocha, Jose Alexandre da, Vale de Prazeres, Castello Branco.—Red wine. 660

1068 Pinheiro, Joaquim Garcia, Villa Nova, Regueiro, Evora.—Red wine. 660

1069 Prego, Ezequiel de Paula Sa, Alemquer, Lisbon.—White and red wine. 660

1070 Affonso, Joao Hiario, Redondo, Evora.—Wine and brandy. 660

1071 Alves, Sabastido, Borba, Evora.—Red wine. 660

1072 Azeveda, Manuel Rodrigues de, Bucellas, Lisbon.—White wine. 660

1073 Assis, Domingos Francisco de, Alhandra, Lisbon.—Red wine. 660

1075 Barbosa, Manuel Paes Ferrao, Povo de Midoes, Coimbra.—Red wine. 660

1076 Baiza, Miguel de Sousa, Sanfins, Villa Real.—Wine, muscadine wine. 660

1077 Ramalho, Esteves Goncalves, Villa Nova de Regueiro, Evora.—Red wine. 660

1078 Reixo, Jose Antonio Nunes, Vilacosa.—White wine. 660

1079 Silva & Cosens, Oporto.—Port wine. 660

1080 Soares, Antonio, Carrazedde d'Anacias, Braganca.—Vinegar. 650

1081 Sousa, Bernardo Jose de Mello, Penafiel, Oporto.—Vinegar. 650

1082 Pimenta, Jose Maria, Dantas, Villa Nova.—Wine. 650

1083 Pereira, Candido Manuel, Lavrado, Lisbon.—Wine. 650

1084 Ramalho, Antonio Jose, Reguenego, Evora.—White wine. 660

1085 Pinheiro, Jose, Azambuja, Lisbon.—Red and white wine. 650

1086 Ferreira, Jose Henriques, Lisbon.—Red wine. 650

1087 Fragoso, jr., Luis Antonio, Ferreira, Cuba.—Wine. 660

1088 Figueira, Boaventura da Piedade, Cuba, Beja.—White wine. 660

1089 Fialho, Francisco d'Abreu, Portimao, Faro.—Red wine. 660

1090 Gonsalves, Jose dos Santos, Taboa, Coimbra.—Red wine. 660

1091 Fragoso, Manuel Figueira Sonto Mayor, Vilaigueira, Beja.—Wines. 660

1092 Guerra, Jose Ignacio Pinto, Miranda do Douro, Braganca.—Wine and vinegar. 660

1093 Guerra, Francisco Aranches do Amaral, Coimbra.—Wine and vinegar. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
### Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1094</td>
<td>Fora, Jose Augusto dos Santos, Figueira da Foz, Coimbra.—Wine.</td>
</tr>
<tr>
<td>1095</td>
<td>Faria, Francisca Albertina de, Rates, Oporto.—Wine.</td>
</tr>
<tr>
<td>1096</td>
<td>Fonseca, Manuel Coelho da, Oliveira de Hospital, Coimbra.—Wine.</td>
</tr>
<tr>
<td>1097</td>
<td>Fonseca, Francisco Maximio da, Sondol, Viseu.—Wine.</td>
</tr>
<tr>
<td>1098</td>
<td>Figueiredo, Manuel, Gonsalves, Aveiro.—Wine.</td>
</tr>
<tr>
<td>1099</td>
<td>Ferreira, Adriano Baptista, Vareca, Aveiro.—White wine.</td>
</tr>
<tr>
<td>1100</td>
<td>Freire, Joao Pereira, Penafiel, Oporto.—Wine.</td>
</tr>
<tr>
<td>1101</td>
<td>Falcão, Maria Miguelsa, Miranda do Corvo, Coimbra.—Brandy.</td>
</tr>
<tr>
<td>1102</td>
<td>Bassoa, Jose Luis de, S. Momcide, Viana do Castelo.—Wine and brandy.</td>
</tr>
<tr>
<td>1103</td>
<td>Brandao, Francisco Antonio, Reborda, Viana.—White wine.</td>
</tr>
<tr>
<td>1104</td>
<td>Brito, J. F. L. Costa, Parada, Viseu.—White wine.</td>
</tr>
<tr>
<td>1105</td>
<td>Barreira, Antonio, jr., Alfantega da Fe, Braganca.—Red wine.</td>
</tr>
<tr>
<td>1106</td>
<td>Boto, Joao de Sousa Dounas, Edveda, Viseu.—Red wine.</td>
</tr>
<tr>
<td>1107</td>
<td>Brandao, Augusto Ferreira, Vareca, Aveiro.—White wine.</td>
</tr>
<tr>
<td>1108</td>
<td>Bernardo Augusto Lopes &amp; Co., Figueira da Foz, Coimbra.—Red wine.</td>
</tr>
<tr>
<td>1109</td>
<td>Barao do Calvario, Penafiel, Oporto.—Wines.</td>
</tr>
<tr>
<td>1110</td>
<td>Barao, José Correa de, Sabrosa, Villa Real.—Red wine.</td>
</tr>
<tr>
<td>1111</td>
<td>Lopes, Jacintho, Elvas, Portalegre.—Red and white wine.</td>
</tr>
<tr>
<td>1112</td>
<td>Lima, Carlos Joa Ribeiro, Melgaco, Viana do Castelo.—Wine.</td>
</tr>
<tr>
<td>1113</td>
<td>Lima, Joao Jose Xavier de, Vill Alva, Beja.—White wine.</td>
</tr>
<tr>
<td>1114</td>
<td>Lisboa, Antonio da Silva, Penafiel, Oporto.—Wine.</td>
</tr>
<tr>
<td>1115</td>
<td>Laranja, Manuel Duarte, Coruche, Santarem.—White wine.</td>
</tr>
<tr>
<td>1116</td>
<td>Leite, Francisco de Paula, Alcacer do Sal, Lisbon.—Wines.</td>
</tr>
<tr>
<td>1117</td>
<td>Leal, Francisco da Costa, Arneiro, Lisbon.—Red wine.</td>
</tr>
<tr>
<td>1118</td>
<td>Oliveira Soares, Eduardo, Evora.—Red wine.</td>
</tr>
<tr>
<td>1119</td>
<td>Bintrago, Jose Carriero d’Almeida de, Tusefel, Lisbon.—Red wine.</td>
</tr>
<tr>
<td>1120</td>
<td>Silva, Daniel Pereira da, Celorico, Guarda.—Wine.</td>
</tr>
<tr>
<td>1121</td>
<td>Silveira, Joao Vicente de, Abriga, Lisbon.—Wines.</td>
</tr>
<tr>
<td>1122</td>
<td>Silva, Jose Gomes da, Collares, Lisbon.—Wine.</td>
</tr>
<tr>
<td>1123</td>
<td>Souza, Joao Candido de Castro e, Beja.—White wine.</td>
</tr>
<tr>
<td>1124</td>
<td>Souza, Jose Maximo Coelho J., Gacha, Santaarem.—Red wine.</td>
</tr>
<tr>
<td>1125</td>
<td>Silva, Antonio Martins da, Redondo, Evora.—Red wine.</td>
</tr>
<tr>
<td>1126</td>
<td>Sereto, Domingos Francisco, Villa Nova de Reguengos, Evora.—Red wine.</td>
</tr>
<tr>
<td>1127</td>
<td>Silva, A. Augusto da, Lisbon.—Wine.</td>
</tr>
<tr>
<td>1128</td>
<td>Salgado, Antonio Lopes Vidigal, Coruche, Santarem.—Red wine.</td>
</tr>
<tr>
<td>1129</td>
<td>Simoes, Francisco, Villa Soeiro, Guarda.—Red wine.</td>
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<td>1130</td>
<td>Sao, Antonio Manuel da Cunha e, Torres Vedras, Lisbon.—Wines.</td>
</tr>
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<td>1131</td>
<td>Souza, Joaquim da Silva, Ribeira de Baixo, Leiria.—Brandy.</td>
</tr>
<tr>
<td>1132</td>
<td>Silva, Francisco Jose de Bastos e, Torres Vedras, Lisbon.—Wines.</td>
</tr>
<tr>
<td>1133</td>
<td>Santos, Joao Bernardo dos, Lisbon.—Wine.</td>
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<tr>
<td>1134</td>
<td>Souza, Francisco Jose de, Laurigeira, Lisbon.—Red wine.</td>
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<tr>
<td>1135</td>
<td>Silva, Ernesto de Mendonca e, Abrigada, Lisbon.—Wines.</td>
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<tr>
<td>1136</td>
<td>Silveira, Antonio Pires da, Villa Franca de Xira, Lisbon.—Wines.</td>
</tr>
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<td>1137</td>
<td>Ozorio, Jose Augusto de Sa Pereira, Breitrende, Viseu.—Red wine.</td>
</tr>
<tr>
<td>1138</td>
<td>Ozorio, Antonio Perfeito Pereira, Figueira de Castelo, Viseu.—Wine.</td>
</tr>
<tr>
<td>1139</td>
<td>Oliveira, Domingos Carneiro de, Agrela, Porto.—Wine.</td>
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<td>1140</td>
<td>Nunes, Jose Cabrita, Lagoa, Faro.—Red wine.</td>
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<td>1141</td>
<td>Outeiro, Viscount of, Fundo, Castelo Branco.—Red wine.</td>
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<td>1142</td>
<td>Vasconcellos, Joaquim Guilherme de, Elvas, Portalegre.—Red and white wine.</td>
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<td>1143</td>
<td>Silva, Francisco Candido da, Torres Novas.—Wine.</td>
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<td>1144</td>
<td>Silveira, Joao Vicente da, Abrigada, Lisbon.—Wine.</td>
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<td>Vasconcellos, Antonio de, Villa Nova, Vidigueira, Beja.—White wine.</td>
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<td>1147</td>
<td>Vilhena, Agostinho de, S. Thiago, Lisbon.—Red wine.</td>
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<tr>
<td>1148</td>
<td>Esperanca, Viscount of, Cuba, Beja.—Red and white wine and vinegar.</td>
</tr>
<tr>
<td>1149</td>
<td>Nogueira, Henrique de Sa, Portalegre.—Red wine.</td>
</tr>
<tr>
<td>1150</td>
<td>Nascimento, Manuel Antonio do, Ponta Delgada, Azores.—Liqueur and brandy, cognac.</td>
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<tr>
<td>1151</td>
<td>Oliveira, Jose Bernardo de, Mondim de Basto, Villa Real.—Brandy.</td>
</tr>
<tr>
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<td>Oliveira, Antonio Simoes de, Mioimdo, Viseu.—Wine.</td>
</tr>
<tr>
<td>1153</td>
<td>Offley, Cramp, &amp; Forresters, Oporto.—Wine.</td>
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<td>Vasconcellos, Adelino d’Almeida, Nélia, Viseu.—White wine.</td>
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<td>Serrado, Viscount of, Viseu.—Wine.</td>
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<td>1156</td>
<td>Villafanha, Antonio de, Tondella, Viseu.—Red and white wine.</td>
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<td>Valle, Jose de Seixas do, Bassar, Viseu.—Wine.</td>
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<td>1158</td>
<td>Veiga, Ricardo Antonio da, Povoa de Midoes, Coimbra.—Red wine.</td>
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<tr>
<td>1159</td>
<td>Thomue, Viscount of, Soure, Coimbra.—Red wine.</td>
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<td>1160</td>
<td>Valle, Manuel de Sousa Dias, Oporto.—Wine.</td>
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<td>1161</td>
<td>Vieira, Venancio Dias de Figueiredo, Eiro, Aveiro.—Wine.</td>
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</tbody>
</table>

*For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.*
Animal and Vegetable Products.

1162 Moidenta da Beira, Viscount of, Viseu.—Red wine. 660
1163 Viuva Pinto, & Son, Lisbon.—Red and white wine. 660
1164 Viuva, Pevelin, & Sons, Torres Vedras, Lisbon.—Red and white wine. 660

1165 Welsh Brothers, Funchal, Madeira.—Madeira wine, grape juice, etc. 660
1166 Abrigada, Viscount of, Lisbon.—Muscatel and other wines. 660
1167 Mossamedes, Viscount of, Bemfica, Lisbon.—Wine. 660
1168 Carnide, Viscount of, Carnide, Lisbon.—Red and white wine. 660
1169 Veloso, Antonio Guedes, Cambres, Setubal, Lisbon.—Red wine. 660
1170 Vihena, Barbosa Arthur Peres de, Cartaxo, Guarda.—Red wine. 660
1171 Sagiosa, Viscountess of, Sagiosa, Guarda.—White wine. 660
1172 Nunes, Jose Jacintho, Grandola, Lisbon.—Wine. 660
1173 Nobre, Manuel de Barros, Tavora, Viseu.—Red wine. 660
1174 Neves, Fortunato Vieira das, Taboa, Coimbra.—White wine. 660
1175 Vas Freire, Jose Sebastiao Torres, Evora.—Red and white wine. 660
1176 Pereira, Widow Theotonio, & Sons, Lisbon.—White and red wine. 660
1177 Velho, Francisco da Rosa, Evora.—Red and white wine. 660
1178 Formosinho, Widow of Joao Martins, Lagoa, Faro.—Wine. 660
1179 Velles, Luis Nunes de, Portalegre.—Brandy. 660
1180 Judice, A. J., Widow of, Mexilhoeira, Faro.—Wine. 660
1181 Menezes, Jose Maria da Silveira, Bocha.—White wine. 660
1182 Mazzotti, Antonio Maria Dias P. Chaves, Colares, Lisbon.—White and red wine. 660
1183 Machado, Pedro Xavier, Portalegre.—White wine. 660
1184 Martins, Miguel Castro, Montargil, Portalegre.—Wines. 660
1185 Mattos, Bento F. M., Mondim de Basto, Villa Real.—Wine. 660
1186 Lisboa, Luis Emilio, Vieira, Lisbon.—Wine. 660
1187 Neves, Jose Eloy das, Cadaval, Lisbon.—White and red wine, and brandy. 660
1188 Natividade, Jose Goncalves, Constancia, Santarem.—White wine. 660
1189 Lobo, Francisco Teixeira, Sabrosa, Villa Real.—Muscadine wine. 660
1190 Lima, Jose Duarte, Cartaxo, Santarem.—Red and white wine, brandy. 660
1191 Mello, Hyginio Otto de Queiros, Lancas, Viseu.—Red wine. 660
1192 Lebre, Manuel Ferreira, Anadia, Aveiro.—Red wine. 660
1193 Lemos, Alexandre Maria de, Lamego, Viseu.—Red wine. 660
1194 Montes, Jose Nunes Moraes, Castello Branco.—Red wine. 660

1195 Martins, Benedicto Matheus, Elvas, Portalegre.—Wine. 660
1196 Macedo, Luis A. da A. Estremos, Evora.—Red wine. 660
1197 Macedo, Camillo de Jr., Pesada Regua, Villa Real.—Wines and brandy. 660
1198 Magalhaes, Luis Francisco da Silva, Villarinho de S. Romao, Villa Real.—Red wine. 660
1199 Leitao, Alipio, Penacova, Coimbra.—Red wine and vinegar. 660
1200 Meirelles, Antonio de Chaves, Povoa de Midoes, Coimbra.—Red wine. 660
1201 Lima, Jose Duarte, Cartaxo, Lisbon.—Wine. 660
1202 Moraes, Jose Alves de, Vinhaes, Braganza.—Wine. 660
1203 Madeira, Jose, Povoa de Midoes, Coimbra.—Red wine. 660
1204 Leite, Francisco de Moraes, Villa Fiera, Braganza.—Wine and vinegar. 660
1205 Leite, Guilherme da Costa, Santo Thadeu, Porto.—Wine. 660
1206 Oliveira, Augusto Jose de, Lisbon.—Red wine. 660
1207 Oliveira, Jose Vaz Rato de, Alter do Chao, Portalegre.—Brandy and vinegar. 660
1208 Ornellas, A. de, Funchal, Madeira.—Madeira wine. 660
1209 Magalhaes, Joao Guedes de, Red wine. 660
1210 Moraes, Joaquim Claudio de, Regoa, Villa Real.—Red wine. 660
1211 Monteiro, Joaquim Soares, Mesquinha, Oporto.—Wine. 660
1212 Magalhaes, Roberto Augusto Pinto de, Val de Mendis, Villa Real.—Red wine. 660
1213 Motta, Luiz Antonio, Ferreira da Beira, Villa Real.—Wines. 660
1214 Mourao, Luis Teixeira, Ca zal de Loives, Villa Real.—Red wine. 660
1215 Marques, Joao Antonio de Meirelles, Villa Real.—Red wine. 660
1216 Monteiro, Jose Justino Teixeira, Covas do Douro, Villa Real.—Red wine. 660
1217 Mello, Joso, C. de Rosa Malheiro, Candido, Villa Real.—White wine, brandy. 660
1218 Matheus, Jose Felixino, S. Miguel de Lobriga, Villa Real.—Wine. 660
1219 Lobo, Nicolau Joaquim Salles, Evora.—Red wine, vinegar. 660
1220 Lopes, Jose Ramos, Airo, Braga.—Wine. 660
1221 Meirelles, Antonio Nunes de Chaves, Povoa de Midoes, Coimbra.—Red wine. 660
1222 Miranda, Jose Victorino de, Matacaes, Lisbon.—Red wine. 660
1223 Pinto, Joao Adriano, Aifandega da, F, Braganza.—Brandy. 660
1224 Pascoal, Otero, Oporto.—Beer. 660
1225 Macedo, Antonio Luis de, Arruda dos Vinhos, Lisbon.—Red wine. 660
1226 Martins, Luis Antonio, Torres Vedras, Lisbon.—Wine. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14
Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Year</th>
<th>Exhibitor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1227</td>
<td>Moniz, Antonio Bernardino da Fonseca, Barcol, Guarda</td>
<td>Wine. 660</td>
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<tr>
<td>1228</td>
<td>Madeira, Alexandre Jose, Canedo, Villa Real</td>
<td>Wine. 660</td>
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<tr>
<td>1229</td>
<td>Monteiro, Abilio Affonso da Silva, Venteosa do Bairro, Aveiro</td>
<td>Red wine. 660</td>
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<tr>
<td>1230</td>
<td>Mello, Antonio Maria de, Miranda do Corvo, Coimbra</td>
<td>Red wine. 660</td>
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<td>1231</td>
<td>Marques Esteves Jose, Aldeia de Matos, Evora</td>
<td>White and red wine. 660</td>
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<tr>
<td>1232</td>
<td>Marques Maria Jose Perpetua, Redondo, Evora</td>
<td>Red wine. 660</td>
</tr>
<tr>
<td>1233</td>
<td>Pavao, Antonio Augusto Gonsalves, Villa Real</td>
<td>Wine. 660</td>
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<td>1234</td>
<td>Pinheiro, Custodio Jose, Valverde, Villa Real</td>
<td>Wine. 660</td>
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<td>1235</td>
<td>Moura, Christiano Augusto da Silva, Aldeia de Midoes, Coimbra</td>
<td>Red and white wine. 660</td>
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<tr>
<td>1236</td>
<td>Moraes &amp; Mouro, Figueira, Coimbra</td>
<td>Wine. 660</td>
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<td>1237</td>
<td>Lima, Antonio Joaquim Fernandes, Villa Nova da Cerveira, Vila do Castello</td>
<td>Wine. 660</td>
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<td>1238</td>
<td>Marques, Esteves Jose, Evora</td>
<td>Brandy. 660</td>
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<td>1239</td>
<td>Miranda, Felix Honorio Gomes de, Torres Vedras, Lisbon</td>
<td>Red and white wine. 660</td>
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<td>1240</td>
<td>Lima, Jose Duarte de, Cartaxo, Santarem</td>
<td>Wine, vinegar. 660</td>
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<td>1241</td>
<td>Leito, Manuel Pinto, Fontes, Villa Real</td>
<td>Wine. 660</td>
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<td>1242</td>
<td>Lago, Francisco d’Assis Pereira do, Arcos, Braganca</td>
<td>Red wine. 660</td>
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<td>1243</td>
<td>Mattos, Joao Chissostomo de Carvalho, Vilafranca, Viseu</td>
<td>Red wine. 660</td>
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<td>1244</td>
<td>Leiva, Joaquim Fortunato, Portalegre</td>
<td>Brandy. 660</td>
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<td>1245</td>
<td>Lopes, Manuel Joao, Fuseta, Faro</td>
<td>Red wine. 660</td>
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<td>1246</td>
<td>Negreiros, Bento Antonio, Trigo de Miranda, Braganca</td>
<td>Red wine. 660</td>
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<td>1247</td>
<td>Nepales, Miguel Tudella de Souza, Castellos, Viseu</td>
<td>White wine. 660</td>
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<td>1248</td>
<td>Lima, Antonio dos Santos, Pavia de Midoes, Coimbra</td>
<td>Brandy. 660</td>
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<td>1249</td>
<td>Leitao, A. Baptista Covilha, Castello Branco</td>
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<td>Lopes, Antonio Camillo da Silva, Coruche, Santarem</td>
<td>White wine. 660</td>
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<td>Lopes, Jose Olaia, Castello Branco</td>
<td>Wines. 660</td>
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<td>Lobo, Bernardino Vas, Celoric of Busto, Braga</td>
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<td>1253</td>
<td>Lopes, Joao da Cunha, Silvares, Viseu</td>
<td>Vine. 660</td>
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<td>1254</td>
<td>Lobo, Jose Nogueira Pereira, Ranhudos, Viseu</td>
<td>Wine. 660</td>
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<td>1255</td>
<td>Leao, Manuel da Cunha, Sobreira, Oporto</td>
<td>Corkwood and corks. 660</td>
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<td>1256</td>
<td>Lima, Joao Ferreira, Braganca</td>
<td>White wine. 660</td>
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<td>Magalhaes, Francisco Jose, Portalegre</td>
<td>Red wine. 660</td>
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<tr>
<td>1258</td>
<td>Motta, Ranulfo Antonio, Ponte, Faro</td>
<td>Red and white wine. 660</td>
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<td>1259</td>
<td>Mello, Miguel Antonio de Sousa, Villa Franca de Xira, Lisbon</td>
<td>Red wine. 660</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
| 1292 | Corte Real, Antonio Freire, Valle de Frazeres, Castello Branco.—Red wine and brandy. | 660 |
| 1293 | Rego, Francisco Maia do, Alfonte da Fê, Bragança.—Red wine. | 660 |
| 1294 | Roma, J. M. Goncalves, Trovis-coso, Vianna.—Wine. | 660 |
| 1295 | Robollo, Domingos Jose, Castello Branco.—Red wine. | 660 |
| 1296 | Roquette, Jose Ferreira, Salva-terra, Santarem.—Wines. | 660 |
| 1297 | Ramires, Balthazar Peres, Evora.—Wine and vinegar. | 660 |
| 1298 | Ramalho, Antonio Pinheiro, Re-gues, Evora.—White wine. | 660 |
| 1299 | Ramos, Antonio Pedro de Car-vallho, Río Maior, Santarem.—White wine. | 660 |
| 1300 | Rosa, Jose Maria, Río Maior, Santarem.—White wine. | 660 |
| 1301 | Rapoza, Joaquim Nunes Vieira, Coruche, Santarem.—Red wine. | 660 |
| 1302 | Ribeiro, Joaquim Antonio, Alca-var, Lisbo.—Red wine. | 660 |
| 1303 | Rodrigues, Manuel Antonio, So-breira, Villa Real.—White wine. | 660 |
| 1304 | Chaves, Jose Luciano Pereira, Carrica, Viseu.—Wine. | 660 |
| 1305 | Borges de Sousa, Asambuja, Lis-bon.—White wine. | 660 |
| 1306 | Costa, Jose da, Abravizes, Viseu.—Wine. | 660 |
| 1307 | Bernardo, Vasco, Coruche, Santa-rem.—Red wine. | 660 |
| 1308 | Cossart, Gordon, & Co., Madeira wine. | 660 |
| 1309 | Carvalho, Jose Raymundo Lopes de, Torres Novas, Santarem.—Red wine. | 660 |
| 1310 | Carnelho, Victorino Antonio do Reis, Anca, Constantanha.—Vinegar. | 660 |
| 1311 | Carvalho, Francisco Garcia de, Arganil, Coimbra.—Vinegar. | 660 |
| 1312 | Socio, Balthazar Rodrigues, Jr., Campo Maior, Portalegre.—Brandy. | 660 |
| 1313 | Subrino, Jose Martins Leitao, Villa de Frades, Beja.—Red wine. | 660 |
| 1314 | Silva, Antonio Jose da, Salvatera, Santarem.—Red wine. | 660 |
| 1315 | Sauvage, C., Vendas Novas, Evo-ra.—Brandy. | 660 |
| 1316 | Sequeira e Sa, Francisco Theo-dorio, Vidigueira, Beja.—White wine. | 660 |
| 1317 | Soure, Joaquim Manuel Soares de, Ferreira, Beja.—Red wine. | 660 |
| 1318 | Santos, Jose Fogaco de C. e, Al-jubere, Lisbon.—Wine. | 660 |
| 1319 | Silva, Joaquim Jose de Freitas e, Cartaxo, Santarem.—Wines. | 660 |
| 1320 | Santos, Antonio Vicente dos, Aphandra, Lisbon.—Wines. | 660 |
| 1321 | Silva, Jose Maria da, Elvas, Por-talegre.—Brandy and red wine. | 660 |
| 1322 | Canto e Castro, Miguel do, Lisbon.—White wine. | 660 |
| 1323 | Calasons, Jose Dias de S., Gaviao, Portalegre.—Red wine. | 660 |
| 1324 | Coutinho, Luis da Silva, Cascaes, Lisbo.—White and red wine. | 660 |
| 1325 | Costa, Antonio Jacome da, Gaviao, Portalegre.—Brandy. | 660 |
| 1326 | Silva, Jose Goncalves da, Portalegre.—Red wine and brandy. | 660 |
| 1327 | Soares, Jose Severino, Ribeira de Santarem.—Wines and alcohol. | 660 |
| 1328 | Carvalho, Jose Joaquim de, Ere-mida, Villa Real.—Wine. | 660 |
| 1329 | Couraca, Jose de Gouveia, Faia, Viseu.—Wine. | 660 |
| 1330 | Castello Branco, Fernando d’Almeida Loureiro, S. Miguel do Alteiro, Viseu.—Wine. | 660 |
| 1331 | Carinho, Bartholomeu, Montar-gil, Portalegre.—Red and white wine. | 660 |
| 1332 | Caidas, Manuel Duarte Silva, S. Joao Baptista, Santarem.—Red wine. | 660 |
| 1333 | Couto, Antonio Severino do, Fragaca, Lisbon.—Wine. | 660 |
| 1334 | Castro, Jose d’Almeida Silva e, Miranda do Corvo, Coimbra.—Vinegar. | 660 |
| 1335 | Carvalho, Ananias Cardoso de, S. Thiago, Viseu.—Wine. | 660 |
| 1336 | Cabral, Constantino do Valle, Coimbra.—Port wine. | 660 |
| 1337 | Cabral, Antonio Paes, Senhorim, Viseu.—Wine. | 660 |
| 1338 | Carvalho, Aloino Pinto Teixeira de Santa Martha de, Penaguiio, Vila Real.—Wine. | 660 |
| 1339 | Cabrita, Joao Carlos, Cuba, Beja.—Wine. | 660 |
| 1340 | Cabreira, Antonio, Evora.—Red and white wine and brandy. | 660 |
| 1341 | Carvalhosa, Jose Felix de Almei-da, Odisqueira, Lisbon.—White wine. | 660 |
| 1342 | Costa Cabral, Joao Rebelha de, Lisbon.—Red and white wine. | 660 |
| 1343 | Pereira, Antonio d’Almeida, S. Pedro de Franca, Viseu.—Wine. | 660 |
| 1344 | Pecanha, Jose Pereira de Castro, Viana do Castello.—Wine. | 660 |
| 1345 | Carvalho, Antonio Marques de, Chamada, Santarem.—White and red wine and brandy. | 660 |
| 1346 | Carvalhalho, Jose Affonso de, Villa Franca de Xira, Lisbon.—Red and white wine. | 660 |
| 1347 | Cunha, Joao Augusto da, S. Joa de Almeida, Santarem.—Red and white wine. | 660 |
| 1348 | Cardoso, jr., Setubal, Lisbon.—Wines and liquors. | 660 |
| 1349 | Carvalho, Francisco Jose de, Faro.—Anisette brandy. | 660 |
| 1350 | Capello, Manuel Joaquim da Silva, Alva, Beja.—Red wine. | 660 |
| 1351 | Costa, Jose Maria da, Alhandra, Lisbon.—Red wine. | 660 |
| 1352 | Costa, Domingos Antonio da, Elvas, Portalegre.—Red and white wine. | 660 |
| 1353 | Cunha, Joao Augusto da, S. Joa de Almeida, Santarem.—Red and white wine. | 660 |
| 1354 | Condessa Geraz de Lima, Lisbon.—Wine. | 660 |
| 1355 | Camara, Tristao Prestrrello da, Funchal, Madeira.—Dry Madeira wine. | 660 |
| 1356 | Claro, Francisco Germano, Lis-bon.—Red and white wine. | 660 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Name and Description</th>
<th>Place of Origin</th>
<th>Wine Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1337</td>
<td>Campos, Francisco Ferreira, Rio</td>
<td></td>
<td>Red wine</td>
</tr>
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<td>Cruz, Manuel Mendes da, Lagos</td>
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<td>Carneiro, Custadio Gil dos Reis,</td>
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<td>Red wine and brandy</td>
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
1424 Administrative Council of Montenior-o-o-Velho, Montenior-o-Velho, Coimbra.—Vegetable Products. 660
1425 Alcoforado, Maria H. S., Barcelos, Braga.—Wine. 660
1426 Amaral, Antonio Gomes Silva do, Cima de Villa, Viseu.—Wine. 660
1427 Andrade, Bernardo Antonio da Silva, Cima de Villa, Viseu.—Wine. 660
1428 Almeida, Jose Bernardo de, Lodos, Viseu.—Wine. 660
1429 Amaral, Leonor Carvalho Fonseca, Manguade, Viseu.—Wine. 660
1430 Amaral, Bernardo Rodrigues do Espinho, Viseu.—Wine. 660
1431 Avelino, Joaquim Cumieira, Villa Real.—Bastardo and muscadine wine. 660
1432 Azevedo, Antonio Lopes de Nogueira, Villa Real.—Red and white wine. 660
1433 Pereira, Joaquim J. Peral, Lisbon.—Wines. 660
1434 Aragao, Alexandre A. de Mattos Marques, Vassuncos, Seixal Grande, Coimbra.—Vinegar. 660
1435 Antonio Nicolau d’Almeida Jr., & Bro., Oporto.—Wine, port wine, and brandy. 660
1436 Amaral, Pedro d’Albuquerque Silva, Manguade, Viseu.—White and red wines. 660
1437 Andresen, J. H., Oporto.—Port wine. 660
1438 Rodrigues, Antonio Caetano, & Co., Oporto.—Wines. 660
1439 Alves, Francisco, Passacas, Villa Real.—Wine. 660
1440 Moura, Antonio Gomes de, & Co., Oporto.—Wine and port wine. 660
1441 Sarmento, Bernardo Figueiredo Sepalveda, Santa Justa, Braganca.—Red and white wine. 660
1442 Souza, Joaquim Jose de, Ferreira, Viana do Castelo.—Wine. 660
1443 Silva, Antonio Xavier Torres e Vila de Cachimba.—Wine. 660
1444 Santos, Antonio dos, Povoa de, Lusitanaes, Viseu.—Wine. 660
1445 Sampaio, Jose da Cunha, Villa Nova de Famalicao, Braga.—Wines. 660
1446 Souza, Jose da Cunha, Villa Nova de Famalicao, Braga.—Wine. 660
1447 Souza, Jose da Cunha, Villa Nova de Famalicao, Braga.—Wine. 660
1448 Sousa, Jose Henriques Coelho de, Refoyos, Braga.—Wine. 660
1449 Paes, Antonio da Silva, Parada, Viseu.—White and red wine. 660
1450 Pinares, Antonio Jose da Silva, Conde de, Coimbra.—Red wine. 660
1451 Pereira de Mello, Antonio Leite, Peral, Lisbon.—Wines. 660
1452 Silva, Antonio Ferreira da, Sabrosa, Villa Real.—White wine. 660
1453 Silva, Antonio da, Nogueira, Villa Real.—Red wine. 660
1454 Sequeira, Luis Clemente de, Ervedosa, Viseu.—Red wine. 660
1455 Sousa, Hector de Lemos e, Sargesmil, Viseu.—Wine. 660
1456 Soares, Joao Baptista Ribeiro, Lamego, Viseu.—Red and white wine. 660
1457 Sousa, Manuel Jose, Coimbra.—Red wine. 660
1458 Sousa, Julio Cesar, Paradolinho, Villa Real.—Red and white wine. 660
1459 Serodio, Jose Antonio Goncalves, Passos, Villa Real.—Wine and brandy. 660
1460 Sandeman & Co., Oporto.—Port wine. 660
1461 Agricultural Society of Oporto, Oporto.—White and red wine. 660
1462 Portella, J., Jose Ferreira, Anadia, Aveiro.—Red wine. 660
1463 Pinto, Antonio Peixoto, Sabrosa, Villa Real.—Wine. 660
1464 Pinto, Manuel Ferreira, Cambres, Viseu.—Red wine. 660
1465 Silva, Francisco Pereira da Carrascada, Viseu.—Wine. 660
1466 Simoes, Antonio Augusto da Costa, Vissacaria, Aveiro.—White wine. 660
1467 Sarmento, Antonio Ferreira, Vilahe, Braganca.—Wine. 660
1468 Seabra, Alexandre de, Arcos, Aveiro.—Red and white wine. 660
1469 Sobral, Jose Joaquim, Soutello, Viseu.—Muscadine and white wines. 660
1470 Sousa, Jose Luis Rodrigues de, Viana da Castelo.—Wine. 660
1471 Simoes, Joaquim Antonio, Figueira, Coimbra.—Red and white wine, brandy, vinegar. 660
1472 Salgado Domingos, Carrasella, Vissacaria, Braganca.—Red wine. 660
1473 Pinto Coelho, Carlos Z., Lisbon.—White and red wine. 660
1474 Pereira, Joaquim, Cadaval, Lisbon.—Red wine. 660
1476 Paulo Jorge, Carcavellos, Lisbon.—Red and yellow wine. 660
1477 Pereira, Antonio Rodrigues, Peniche, Leiria.—Wine and vinegar. 660
1478 Pinheiro, Antonio Joaquim, Palmaco, Castelo Branco.—Red wine. 660
1479 Pimenta, Jacintho Francisco, Pouto Sor, Portuguese.—Red and white wine. 660
1480 Prego, Joaquim Romao Mendes, Reguengo, Evora.—Red wine. 660
1481 Pinheiro, Joaquim Garcia, Reguengo, Evora.—Vinegar. 660
1482 Pinto, Maria Rita Ramos Borges, Folgosa, Viseu.—Red and white wine. 660
1483 Pereira, Adriano Rodrigues, Anadia, Aveiro.—Red wine. 660
1484 Portella, Jose Ferreira, Anadia, Aveiro.—Wine. 660
1485 Serrado, Viscount of, Viseu.—Wine. 660
1486 Villafanhia, Antonio de, Tondella, Viseu.—Red and white wine. 660
1487 Siqueira, Henrique Nunes, Santar, Viseu.—Wine. 660
1488 Gomes, Antonio Luiz, Valenca, Viana do Castelo.—Wine and brandy 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
1490 Guimarães, Victorino Barbosa, Penafiel, Oporto.—Wine. 660
1491 Guisado, Joao Baptista Ribeiro, Peniche, Leiria.—Wine and vinegar. 660
1492 Galvão, Sabino José M. dos Anjos, Loures, Lisbon.—Wine. 660
1493 Vasconcellos, Francisco P. Carvalho, Valle Caxevê, Braga.—Wine. 660
1495 Vasconcellos, Augusto Cesar Carvalho, Valle Caxevê, Braga.—Wine. 660
1496 Vasconcellos, Bento M. Pereira Pita, Monção, Viana do Castelo.—Wine. 660
1497 Veiga, José da Cunha Costa, Póvoa de Almada, Coimbra.—Red wine. 660
1498 Montaõril, Viscount of S. Victor, Braga.—Wine. 660
1499 Vieira, Bernardo de Campos, Taixbo, Coimbra.—Red wine. 660
1500 Teixira, Francisco Manuel, Miranda, Bragança.—Red wine. 660
1502 Teixeira, José Luis, Mirandella, Bragança.—Red wine. 660
1503 Teixeira, Joao Firmino, Mirandela, Bragança.—Wine. 660
1504 Themes, Fortunato de Cerqueira, Valdégim, Viseu.—Red wine. 660
1505 Tavares, José da Costa Andrade, Alpedrinha, Castelo Branco.—Red wine. 660
1506 Tavares, João da Silva, Estremos, Évora.—Corkwood. 660
1507 Tavares, Antonio Bernardo Xavier, Portalegre.—Red wine. 660
1508 Torres e Oliveira, Henriqueta Josepha Pereira, Fundão, Castelo Branco.—Wine. 660
1509 Tavares, José Antônio, Lisbon.—White wine. 660
1510 Telles, Manuel Joaquim, Évora.—Red wine. 660
1511 Themudo, Antonio Dias, Coimbra.—Cognac and liquer. 660
1512 Trigo, Jose Antonio Horta da, Villarica, Bragança.—White wine. 660
1513 Tacho, Jose Maria da Silva, Tragosella, Viseu.—Wine. 660
1514 Teixeira, Joao B. Pacheco, Celorico de Basto, Braga.—Wine. 660
1515 Tavares, Antonio Jose, Covilha, Castelo Branco.—Wine and vinegar. 660
1516 Jusarte, Jose Carlos, Parada, Viseu.—White wine. 660
1517 Royal Wine Company of Alto Douro, Oporto.—Vinegar, port wine 1815-1875. 660
1518 Lacerda, Alberto Araujo Figueiro dos, Vinhos, Leiria.—Red wine. 660
1519 Michon & Guissac, Oporto.—Brandy of grains. 660
1520 Madeira, Antonio, Goes, Coimbra.—Brandy. 660
1521 Morga, Antonio Ignacio, Oporto.—Brandy. 660
1522 Mendes, Jose Rebelo Cardoso, Timpeira, Vila Real.—Wine. 660
1523 Machado, Manuel Alves, Celorico de Basto, Braga.—Wine. 660
1524 Magalhaes, Antonio de Barros, Sattam, Viseu.—Wine. 660
1525 Marques, Jacintho, Saigeiros, Viseu.—Red and white wine, brandy. 660
1526 Magalhaes, Manuel Alexandre, de Bidosoa, Viseu.—Wine. 660
1527 Machado, Domingas Alves, Casa de Basto, Braga.—Wine. 660
1528 Moura, Luis Manuel Alves, Celorico de Basto, Braga.—Wine. 660
1529 Moscoito, Simao P. Velho, Monsoo, Viana.—Wine. 660
1530 Moura, Augusto, Celorico de Basto, Braga.—Wine. 660
1531 Moraes, Antonio Carlos, Boelle, Oporto.—Wine. 660
1532 Moraes, Antonio Fernandes, Abellheira, Viana do Castelo.—Wine. 660
1533 Marques, Jose Pasara, jr., Viseu.—Red and white wine. 660
1534 Martins, Manuel Jose, Gondomil, Viana da Castelo.—Wine. 660
1535 Meses, Manuel Antonio, Horta da Villarica, Braganca.—Wine. 660
1536 Martins, Jose da Veiga, Carrazeda da Anacles, Bragança.—Red wine. 660
1537 Magalhaes, Joao da Veiga, Viana, Braganca.—Wine. 660
1538 Moraes, Domingos Alves, Poca, Braganca.—Wine. 660
1539 Miranda, Antonio Bernardino, Horta da Villarica, Bragança.—White wine. 660
1540 Basto, Manuel Jose Teixeira, S. Miguel de Reiçao, Braga. a Wine. 660 b Olive oil. 662
1541 Abacasis Brothers, Lisbon. a Port wine. 660 b Olive oil. 662
1542 Castro, Luis de Mello T. Soares d'Albegaria, S. Thiago, Coimbra. a Brandy. 660 b Olive oil. 662
1543 Carvalho, Joao Antonio, Pedrogam, Santarem. a White wine. 660 b Olive oil. 662
1544 Carvalho, Carlos Manuel de, Pedrogam, Santarem. a White wine. 660 b Olive oil. 662
1545 Caldeira, Joaquim de, Albuquerque, Castelo Branco. a Wines. 660 b Olive oil. 662
1546 Pereira, Eduardo Augusto, Meixamil, Oporto. a Vinegar. 660 b Olive oil. 662
1547 Consqueiro, Jose Maria, Crato, Portalegre. a Wine. 660 b Olive oil. 662
1548 Conde da Junqueira, Almeirim, Santarem. a Wines. 660 b Olive oil. 662
1549 Cardoso, Manuel Guaidino, Gaia, Torres Novas, Santarem. a Brandy and wine. 660 b Olive oil. 662

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 12-14.
1550 Carvalho, Luis Xavier do Amaral, Rio de Moinho, Viseu.  
  a Wine. 660  
  b Olive oil. 662

1551 Albuquerque, Manuel Lopes, Alvito, Braga. — Wine. 660

1552 Abreu, Honorato Jose Marchado, Zibreira, Lisbon.  
  a Red wine. 660  
  b Olive oil. 662

1553 Picuquatelli, Jose da Cunha, Guarda.  
  a Red and white wine. 660  
  b Olive oil. 662

1554 Ramalho, Domingos Antonio, Falle Redondo, Evora.  
  a Red and white wine and brandy, vinegar. 660  
  b Olive oil. 662

1555 Abreu, Carlos de Souza Pinto, Valle de Prazeres. Castello Branco.  
  a Wine. 660  
  b Olive oil. 662

1557 Antonio Nunes de Souza & Co., Covilha, Castello Branco.  
  a Wine. 660  
  b Olive oil. 662

1558 Athaye, Luis da Silva, Leiria.  
  a Red and white wine and brandy. 660  
  b Olive oil. 662

1559 Accioli, Joao da Fonseca, Portalegre.  
  a Vinegar. 660  
  b Olive oil. 662

1560 Beltraa, Jose de Gouvea de Luce- na, Anca, Coimbra.  
  a Red wine. 660  
  b Olive oil. 662

1561 Bogalho, Joao Joaquim, Villa Boim.  
  a Red and white wine. 660  
  b Olive oil. 662

1562 Durao, Pedro Manuel, Castello de Vide, Portalegre.  
  a Vinegar. 660  
  b Olive oil. 662

1563 Caldas, Manuel Duarte de Silva, Cartaxo, Santarem.  
  a Wine and vinegar. 660  
  b Olive oil. 662

1564 Carreira Joaquim de Salles Simoes, Batatana, Leiria.  
  a Brandy. 660  
  b Olive oil. 662

1565 Faro, Joaquim de Carvalho Aze- vedo, Rezende, Viseu.  
  a Wine. 660  
  b Olive oil. 662

1566 Guimaraes, Jose Lopes, Coimbra.  
  a Red wine and brandy. 660  
  b Olive oil. 662

1567 Falcao, Luis da Costa, Constancia, Santarem.  
  a Wine. 660  
  b Olive oil. 662

1568 Franco, Vital Jose Pereira, Guarda.  
  a Red wine. 660  
  b Olive oil. 662

1569 Ferreira, Angusto Dias, Santarem.  
  a Wine. 660  
  b Olive oil. 662

1570 Franco, Rev., Francisco Guedes, Portalegre.  
  a Vinegar. 660  
  b Olive oil. 662

1571 Francioze, Maria do Carmo, Cartaxo, Santarem.  
  a Vinegar. 660  
  b Olive oil. 662

1572 Guerra, Joaquim Jose da, Elvas.  
  a Wine and brandy. 660  
  b Olive oil. 662

1573 Villarinho, Viscount of, S. Ro- mas, Porto.  
  a Muscadine and other wines. 660  
  b Olive oil. 662

1574 Prime, Viscount of, Viseu.  
  a Red and white wine. 660  
  b Olive oil. 662

1575 Jose Ferreira Pinto Basto, Heirs of, Santa Eulalia de Ferreira, Coimbra.  
  a Red wine. 660  
  b Olive oil. 662

1576 Joaquim Guilherme de Vasconcellos & Sons, Elvas, Portalegre.  
  a Vinegar. 660  
  b Olive oil. 662

1579 Lima, Jorge Abraham d’Almeida, Aldeia de Pato Fires, Lisbon.  
  a Red and white wine. 660  
  b Olive oil. 662

1580 Souza d’Alte, Francisco Rapozo de, Lisbon.  
  a Wines. 660  
  b Olive oil. 662

1581 Silva, Eliza Ludovina da, Covilha, Castello Branco.  
  a Wines. 660  
  b Olive oil. 662

1582 Silva, Manuel Joaquim da, Re- dondo, Evora.  
  a Red wine and vinegar. 660  
  b Olive oil. 662

1583 Souza, Manuel Lopes de, Guarda.  
  a Wines and vinegar. 660  
  b Olive oil. 662

1584 Viva, Barreto, Covilha, Castello Branco.  
  a Red and white wine. 660  
  b Olive oil. 662

1585 Alcacer, Viscount of Sal, Lisbon.  
  a Wine. 660  
  b Olive oil. 662

1586 Oliveira, Rafael Rodrigues de, Torres Novas, Santarem.  
  a Red wine. 660  
  b Olive oil. 662

1587 Castello de Borges, Viscount of, Lisbon.  
  a Wines. 660  
  b Olive oil. 662

1588 Vina Jorge & Sons, Parreiras, Santarem.  
  a Brandy. 660  
  b Olive oil. 662

1589 Vidal, Antonio Jose Rodrigues, Vaccaria, Aveiro.  
  a Red and white wine. 660  
  b Olive oil. 662

1590 Prime, Viscount of, Viseu.  
  a Red and white wine. 660  
  b Olive oil. 662

1591 Caevuo, Viscount of, Gaira, Guarda.  
  a Wine. 660  
  b Olive oil. 662

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 12-14.
Animal and Vegetable Products.

1592 Macedo, Joaquim Augusto de Thomar, Santarem.  
a Wine. 660  
b Olive oil. 662

1593 Esperanca, Viscount of, Jose,  
Lvaro.  
a Brandy, red wine, and vinegar. 660  
b Olive oil. 662

1594 S. Sebastiao, Viscount of, Leiria.  
Brandy. 660  
b Olive oil. 662

1595 Mesquita, Pedro Jose de, Sinde,  
Coimbra.  
a White wine, vinegar. 660  
b Olive oil. 662

1596 Magalhaes, Francisco T., Sinde,  
Coimbra.  
a White wine. 660  
b Olive oil. 662

1597 Oliveira, Verissimo Ferreira A. de,  
Montalvo, Santarem.  
a Red wine, vinegar. 660  
b Olive oil. 662

1598 Pedrozo, Maria Jose Lopes,  
Lavos, Coimbra.  
a Wine, brandy, and vinegar. 660  
b Olive oil. 662

1599 Lopes, Joaquim Emilio, Leiria.  
Aires and brandy. 660  
b Olive oil. 662

1600 Le Coq, Joao Jose, Castello de  
Vide, Portalegre.  
a Wine. 660  
b Olive oil. 662

1601 Larcher, Marcal, Ramiro, Porta-  
legre.  
Brandy. 660  
b Olive oil. 662

1602 Lavita, Jose Eduardo, Porta-  
legre.  
A Vinegar and brandy. 660  
b Olive oil. 662

1603 Larcher, Maria Jose, Portalegre.  
A Vinegar. 660  
b Olive oil. 662

1604 Mendes, Carlos da Costa Pereira,  
Thomar, Santarem.  
a Wine. 660  
b Olive oil. 662

1605 Machado, Pedro Xavier,  
Portalegre.  
a Wine, brandy, vinegar. 660  
b Olive oil. 662

1606 Moraes, Antonio da Silva, Sar-  
dal, Santarem.  
a Wine. 660  
b Olive oil. 662

1607 Quintanilha, Francisco, Cuba,  
Reja.  
a White and red wine. 660  
b Olive oil. 662

1608 Mattoso, Alfredo de Moura, S.  
Thiago, Coimbra.  
a White wine, brandy. 660  
b Olive oil. 662

1609 Rangel, Manuel de Souza, Guilha-  
ufe, Oporto.  
a Wine. 660  
b Olive oil. 662

1610 Rangel, Diogo, Torres Novas,  
Santarem.  
a Alcohol and white wine. 660  
b Olive oil. 662

1611 Rego, Antonio Profrio Gomes do,  
Covilha, Castello Branco.  
a Wine. 660  
b Olive oil. 662

1612 Reis, Antonio Nunes dos, Turci-  
fal, Lisbon.  
a Wine. 660  
b Olive oil. 662

1613 Relvas, Carlos, Gallego, Sants-  
rem.  
a Wine. 660  
b Olive oil. 662

1614 Ramos, Antonio Maria Taborda  
Castello Branco.  
a Red wine. 660  
b Olive oil. 662

1615 Rodrigues, Joao Antonio, Gran-  
dola, Lisbon.  
a Wine. 660  
b Olive oil. 662

1616 Silva, Francisco Candido de,  
Torres Novas, Santarem.  
a Wine and brandy. 660  
b Olive oil. 662

1617 Souza, Pedro Augusto Pereira e  
Aheu, Santa Marinha, Villa Real.  
a Wine. 660  
b Olive oil. 662

1618 Sa, Jose Filippe de, Azoia de  
Iaixo, Santarem.  
a Wine. 660  
b Olive oil. 662

1619 Seixas, Jose Maria Ayres de,  
Gaviao, Portalegre.  
a Wine. 660  
b Olive oil. 662

1620 Caires, Manuel A. de Mello Pe-  
reira, Penalva do Castello, Viseu.  
a Red wine. 660  
b Olive oil. 662

1621 Condesa d'Anadia, Santa Clara,  
Coimbra.  
a White and red wine, and vinegar. 660  
b Olive oil. 662

1622 Castello Branco, Amelia Pinto de  
Tavares, Valle de Praceres, Castello  
Branco.  
a White wine. 660  
b Olive oil. 662

1623 Castello Branco, Ignacio Cardoso  
de B. Caldeira, Portalegre.  
a Red wine. 660  
b Olive oil. 662

1624 Carrilho Bello, AntonioMarcellino,  
Castello de Vide, Portalegre.  
a Red and white wine, and vinegar. 660  
b Olive oil. 662

1625 Castello Branco, Amelia Pinto de  
Tavares, Valle de Praceres, Castello  
Branco.  
a White wine. 660  
b Olive oil. 662

1626 Barao do Salgueiro, Leiria.  
a White and red wine. 660  
b Olive oil. 662

1627 Britto, Joao de, Lisbon.  
a Red and white wine, vinegar. 660  
b Biscuits. 664  
c Corn flour. 667

1628 Barao de Mogadouro, Freixeas,  
Guarda.  
a Red and white wine. 660  
b Olive oil. 662

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

1629 Castro, Miguel Ozorio Cabral de, Santa Clara, Coimbra.  
- Red and white wine.  
- Olive oil.  

1630 Costa, Manuel Fernandes, Lamego, Viseu.  
- Red wine.  
- Olive oil.  

1631 Costa, Lourenco Justimiano da Fonseca, Oliveira do Hospital, Coimbra.  
- Wine.  
- Olive oil.  

1632 Morao, Maria Emilia d'Almeida, Penamacor, Castello Branco.  
- White wine.  
- Olive oil.  

1633 Albinho Jose de Freitas Almeida & Co., Ega, Coimbra.  
- Wines.  
- Olive oil.  

1634 Asambuja, Antonio Maria da, Means, Coimbra.  
- White wine.  
- Olive oil.  

1635 Pontes, Francisco Ferraz Tavares de, Miranda do Corvo, Coimbra.  
- Red wine.  
- Olive oil.  

1636 Pinto, Antonio Rodrigues, Coimbra.  
- A wine and vinegar.  
- Olive oil.  

1637 Pinto, Augusto Leal de Gouvea, Miranda do Corvo, Coimbra.  
- Red and white wine.  
- Olive oil.  

1638 Pereira, Antonio Ignacio, Redondo, Evora.  
- Brandy, red wine, vinegar.  
- Olive oil.  

1639 Accioli, Joao da Fonseca, Portugal.  
- Vinegar.  
- Olive oil.  

1640 Melleiro, Francisco Carmello, Lisbon.—Macaroni.  

1641 Pinto, Jose Clemente, Sta. Cruz, Coimbra.—Macaroni.  

1642 O Cruz, Jose Francisco da, Coimbra.—Biscuits.  

1643 Costa, Eduardo Antonio da, Lisbon.—Biscuits.  

1644 Silva, Eduardo da Conceicao e, Lisbon.—Biscuits.  

1645 Schurmann, Lisbon.—Biscuits.  

1646 Silva, Estevao Ribeiro de, Lisbon.—Bread.  

1647 Aurajo, Antonio Correa de, Coimbra.—Biscuits.  

1648 Administrator of the Conselho of Guimaraes, Guimaraes, Braga.—Olive oil.  

1649 Papanca, Manuel Augusto Mendes, Reguengos, Evora.—Olive oil.  

1650 Pina, Manuel Maria de, Portalegre.—Olive oil.  

1651 Pereira, Jose Ignacio, Elvas, Portalegre.—Olive oil.  

1652 Proença, Francisco Tavares d'Almeida, Castello Branco.—Olive oil.  

1653 Possidonio, Antonio, Montalvao, Portalegre.—Olive oil.  

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products.

<table>
<thead>
<tr>
<th>Page</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>1688</td>
<td>Conde da Graciosa, Arcos, Aveiro.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1689</td>
<td>Costa, Lucio Jose da, Salzedas, Viseu.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1690</td>
<td>Coiminho, Fernando Affonso d'Almeida, Sepins, Coimbra.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1691</td>
<td>Souza, Jose d'Andrade e, Portalegre.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1692</td>
<td>Souza, Jose Saldanha Oliveira e.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1693</td>
<td>Santa Clara, Francisco de Paula, Elvas, Portalegre.</td>
</tr>
<tr>
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</tr>
<tr>
<td>1694</td>
<td>Salazar, Manuel Maia, Torres Novas, Santarem.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1695</td>
<td>Reis, Antonio dos, Lisbon.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1696</td>
<td>Rijo, Joaquim Antonio, Elvas, Portalegre.</td>
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<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1697</td>
<td>Ramires, Manuel Peres, Evora.</td>
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<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1698</td>
<td>Regalho, Antonio Meira, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1699</td>
<td>Ratto, Antonio Gonsalves, Barquinha, Santarem.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1700</td>
<td>Ramos, Manuel Nogueira, Goes, Coimbra.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1701</td>
<td>Rodrigues, Manuel Antonio, Ferradura, Braganca.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1702</td>
<td>Rocha, Serafim de Sousa, Canelas, Oporto.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1703</td>
<td>Rocha, Antonio Coelho da, Gondomar, Oporto.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1704</td>
<td>Mendonca, Joao Themudo de Oliveira, Abrantes, Santarem.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1705</td>
<td>Mentes, Joao Jose Soares, Abrantes, Santarem.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1706</td>
<td>Barao de Casaes do Douro, Casaes do Douro, Viseu.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1707</td>
<td>Lemos, Joao Gonsalves de Souza, Coimbra.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
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<tr>
<td>1708</td>
<td>Leite, Joao Baptista de Araujo, Alcacer, Braganca.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1709</td>
<td>Monteiro, Francisco Vaz, Ponte Sor, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1710</td>
<td>Vasconcellos, Francisco Maria de Sabugal, Guarda.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1711</td>
<td>Vieira, Agostinho Jose, Sto. Ovido, Porto.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1712</td>
<td>Vassea &amp; Coelho, Oporto.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1713</td>
<td>Vasconcellos, Manuel S. Quaresma, Condeixa, Coimbra.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1714</td>
<td>Veiga, Francisco Antonio, Goes, Coimbra.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1715</td>
<td>Vasconcellos, Joaquim Guilherme de Elvas, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1716</td>
<td>Varella Jr., Jose Gomes, Serpa, Beja.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1717</td>
<td>Oliveira Manuel Joaquim de Sendin, Miranda do Douro.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1718</td>
<td>Oliveira, Jose Duarte, Murca, Villa Real.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1719</td>
<td>Valdez, Antonio de Campos, Alcacer do Sal, Lisbon.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1720</td>
<td>Serpa, Francisco Lopez, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1721</td>
<td>Moran, Jose Antonio Martins, Quinta do Abunojo.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1722</td>
<td>Osorio, Manuel de Azevedo Ferro, Monforte, Castello Branco.</td>
</tr>
<tr>
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</tr>
<tr>
<td>1723</td>
<td>Leitao, Joas Paes d'Almeida, Santarem, Viseu.</td>
</tr>
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<tr>
<td>1724</td>
<td>Leite, Jeronimo Augusto Pereira, Caevez, Braga.</td>
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<tr>
<td>1725</td>
<td>Loio, Gaspar, da Silva, Armaimar, Viseu.</td>
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<tr>
<td>1726</td>
<td>Lobo, Jose Maria, Guarda.</td>
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<tr>
<td>1727</td>
<td>Neves, Filho, Adelino St, Antonio dos Olivaes, Coimbra.</td>
</tr>
<tr>
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<tr>
<td>1728</td>
<td>Negrao, Manuel Nicolau Osorio, Ansedo, Oporto.</td>
</tr>
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<tr>
<td>1729</td>
<td>Pinto, Antonio Thomas da Costa, Bibalonga, Braganca.</td>
</tr>
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<tr>
<td>1730</td>
<td>Pereira, Jose Sebastiao Martins, S. Thiago, Coimbra.</td>
</tr>
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</tr>
<tr>
<td>1731</td>
<td>Lima Meyer &amp; Sons, Lisbon.</td>
</tr>
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</tr>
<tr>
<td>1732</td>
<td>Mendes, Raymundo Jose Soares, Abrantes, Santarem.</td>
</tr>
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</tr>
<tr>
<td>1733</td>
<td>Mourato, Mathias, Alpalaio, Portalegre.</td>
</tr>
<tr>
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</tr>
<tr>
<td>1734</td>
<td>Kempe, Guilherme, Lisbon.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1735</td>
<td>Mentes, Casemiro Esteves, Aviz, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1736</td>
<td>Mocinha, Manuel Jeronimo, Campo Maior, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1737</td>
<td>Moraes, Jose Barzilio, Arronches, Portalegre.</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>1738</td>
<td>Lima, Andre Avelino de, Cano, Portalegre.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1739</td>
<td>Chicorro, Andre G., Monforte, Portalegre.</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>1740</td>
<td>Lobo, Thomas Antonio de Araujo, Oporto.</td>
</tr>
<tr>
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<tr>
<td>1741</td>
<td>Souza, Jose Antonio Nunes de Covilha, Castello Branco.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1742</td>
<td>Silva, Jose Nunes, Elvas, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1743</td>
<td>Mello, Higino O. de, Querzola, Santarem.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1744</td>
<td>Azevedo, Mariano de Lemos, Villa Nova de Ourem, Santarem.</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>1745</td>
<td>Araujo, Antonio Joaquim de, Thomar, Santarem.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1746</td>
<td>Almeida, Antonio Mendes, Alcacer do Sal, Lisbon.</td>
</tr>
<tr>
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<td>—Olive oil.</td>
</tr>
<tr>
<td>1747</td>
<td>Almeida, Sebastiao Saldanha, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1748</td>
<td>Bentes, Ignacio Jose, Serpa, Beja.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1749</td>
<td>Cardoso, Antonio Augusto Correia da Silva, Cellorico, Guarda.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1750</td>
<td>Castelio Branco, Joao da Silva Ferrao de, Villa Franca, Lisbon.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1751</td>
<td>Domingues, Victorino Jose, Fara.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
<tr>
<td>1752</td>
<td>Duarte, Egydio Jose, Castello de Vida, Portalegre.</td>
</tr>
<tr>
<td></td>
<td>—Olive oil.</td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 167-174.
Animal and Vegetable Products, Textile Substances.

1753 Freire, Jose Luis Ferreira, Lagoa, Coimbra.—Olive oil. 662
1754 Fernandes, Justiniano Jose, Miranda, Braganca.—Olive oil. 662
1755 Figueiredo, Joao Ferreira de, Villa Flor, Braganca.—Olive oil. 662
1756 Freirena, Ildefonso Numes, Valdigem, Viseu.—Olive oil. 662
1757 Freixedas, Eduardo, Castello de Vide, Portalegre.—Olive oil. 662
1758 Guimaraes, Manuel Antonio da Costa, MiraDella, Braganca.—Olive oil. 662
1759 Guerra, Thomas Ignacio de Melrelles, Moucorvo, Braganca.—Olive oil. 660
1760 Gomes, Joao Manuel, Portalegre.—Olive oil. 662
1762 Gama, Jose Augusto Sanches, Coimbra.—Olive oil. 662
1763 Gama, Joao Cardoso Lemos da, Casa Branca, Portalegre.—Olive oil. 662
1764 Grillo, Manuel Francisco, Ribeira de Nisa, Portalegre.—Olive oil. 662
1765 Blanco, Andre Faustino Peres, Al della Nova, Beja.—Olive oil. 662
1767 Campos, Antonio d'Arano Juzarte de, Portalegre.—Olive oil. 662
1768 Avilez, Count of, Portalegre.—Olive oil. 662
1769 Carvalho, Joao Augusto, Portalegre.—Olive oil. 662
1770 Carvalho, Ezezio Nobre de, Lisbon.—Olive oil. 662
1771 Costa, Manuel Joaquim, Portalegre.—Olive oil. 662
1772 Calheiros, Luis d'Oliveira, Lisbon.—Olive oil. 662
1773 Carvalho, Joao Antonio de, Porto de Moz, Leiria.—Olive oil. 662
1774 Castro, Antonio Maria Queiroz de Mello e, Froezone, Ferreira do Zezere, Santarem.—Olive oil. 662
1775 Figueiredo, Jose Paula Teixeira de, Matheus, Villa Real.—Olive oil. 662
1776 Fernandes, Joaquim Pinto, Campello, Oporto.—Olive oil. 662
1777 Falcao, Maximo, Azinhaga, Santarem.—Olive oil. 662
1778 Fernandes, Joaquim, Mogao, Santarem.—Olive oil. 662
1779 Ferreira, Jose Maria, Chamasca, Santarem.—Olive oil. 662
1780 Ferreira, Joaquim da Motta, Rio Maior, Santarem.—Olive oil. 662
1781 Figueira, Manuel Duarte, Castello Branco.—Olive oil. 662
1782 Ferreira, Joaquim Jose, Elvas, Portalegre.—Olive oil. 662
1783 Falcao, Joao Carlos da Costa, Fun do, Alcaide, Castello Branco.—Olive oil. 662
1785 Escobar, Hermenegildo, Portalegre.—Olive oil. 662
1786 Inchado, Jose Antonio Dias, Moura, Portalegre.—Olive oil. 662
1788 Deus, Joao Rodrigues de, & Co., Torres Novas, Santarem.—Olive oil. 662
1789 Vieira, Agostinho Jose, Sto. Ovidio, Oporto.—Olive oil. 662
1791 Teixeira, Carlos Augusto, Gran do, Lisbon.—Olive oil. 662
1792 Tavares, Antonio Jose, Covilha, Castello Branco.—Olive oil. 662
1793 Tierno, Simeon, Elvas, Portalegre.—Olive oil. 662
1794 Teixeira, Manuel Maria, Miranda, Braganca.—Olive oil. 662
1795 Xavier, Manuel Camillo, Benavente, Santarem.—Olive oil. 662
1796 Yuquete, Jose de Oliveira, Leiria.—Olive oil. 662
1797 Leal, A. Goncalves da Matta, Castanheira.—Olive oil. 662
1798 Mello, Joaquim Jose de, Pampilhosa, Aveiro.—Olive oil. 662

Textile Substances of Vegetable or Animal Origin.

1799 Sarmento, Antonio Ferreira, Vinhaes, Braganca.—Flax. 666
1800 Silva, Domingos d'Almeida e, S. J. de Guimaraes, Oporto.—National flax. 666
1801 Sencadas, Manuel Gomes Moreira, Amorim, Oporto.—Flax. 666
1802 Louza, Augusto Pereira d'Abreu, Sta. Marinha, Villa Real.—Flax. 666
1803 Pyagnetelli, Jose da Cunha, Guarda.—Flax. 666
1804 Cavadas, Jose da Silva, S. Matos, Oporto.—Flax. 666
1805 Mattos, Rita de, Ponta Delgada.—Linen in various stages of preparation. 666
1806 Castello, Antonio de Gouvea Rebello, Serenace, Viseu.—Flax. 666
1807 Souto, Antonio Duarte da Cunho, Freixinho, Viseu.—Flax. 666
1809 Rodrigues, Joaquim, Oporto.—Combed flax. 666
1810 Queiroz, Joaquim Carneiro Leao, Meixomil, Oporto.—Flax. 666
1811 Queiroz, Jose de Sequeira Pinto, S. Sebastian du Duque, Viana do Castello.—Flax. 666
1814 Almeida, Joaquim Ribeiro, Cam panha, Oporto.—Flax. 666
1815 Alergaria, Thomas Antonio Pinto Soares, Villa Cha, Aveiro.—Flax. 666
1816 Administrator of the Counsellor of Alentem, Alentem, Oporto.—Flax. 666
1817 Almeida, Manuel d', Gasanhao, Viseu.—Flax. 666
1818 Coelho, Jose Justino, Villa do Tamega, Villa Real.—Flax. 666
1819 Carvalho, Joaquim Augusto da Silveira, Penafiel, Porto.—Flax. 666
1820 Costa, Manuel Jorge da, Valongo, Oporto.—Flax. 666
1821 Cadaval, Francisco de Sousa, Villa Nova da Ceveria, Viana do Castello.—Flax. 666
1822 Moraes, Antonio da Silva, Sar doal, Santarem.—Flax. 666
1823 Matta, Anacleto da Fonseca, Sar doal, Santarem.—Hemp. 666
1824 Silva, Jose Diogo da, Lisbon—Wood. 666

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp 12-14.
Textile Substances.

1826 Saraiva, Francisco Martins, Belmonte, Castello Branco.
  a Flax. 666
  b Wool. 667
1827 Basto, Manuel Jose Teixeira, S. Miguel de Refoyos, Braga.—Flax. 666
1828 Pimentel, Jose Reis, Castello de Vide, Portalegre.—Flax. 666
1829 Freitas, Jose Monteiro de, Campello, Oporto.—Flax. 666
1830 Ferreia, Joao Dias, Vallongo, Oporto.—Flax. 666
1831 Frausto, Leandro Pinto, Marvao, Portalegre.—Flax. 666
1832 Franco, Joao, Povoa de Meadas, Portalegre.—Flax. 666
1833 Guerra, Thomas Ignacio de Meires, Moncorvo, Braganca.—Flax. 666
1834 Gama, Manuel Telles da, Lisbon.—Wines. 669
1835 Gomes, Antonio Luis, Valenca, Viana do Castello.—Flax. 666
1836 Guerreiro, Antonio Manuel, Villa Nova da Cerveira, Viana do Castello.—Flax. 666
1837 Vieira, Pedro Martins, Cabeceiras de Bastro, Braga.—Flax. 666
1838 Torres, Antonio Alves, Arcos, Oporto.—Flax. 666
1839 Moreira, Joao Baptista, Rates, Oporto.—Flax. 666
1840 Machado, Manuel Barcellos, Viseu.—Flax. 666
1841 Soferal, Victorino da Costa, Monde de Basto.—Flax. 666
1842 Leite, Luis Maria Pêgoqueiras, Mogadouro, Braganca.—Hemp. 666
1843 Leal, Manuel da Cunha, Sobreira, Oporto.—Flax. 666
1844 Nogueira, Francisco Bento, Parades de Couira, Viana do Castello.—Flax. 666
1845 Pedroza, Maria Jose Lopes de Lavos, Coimbra.—Flax. 666
1846 Matos, Rosa de, Island of St. Michael, Ponta Delgada.—Flax, hemp, and hemp-thread. 666
1847 Mesquita, Pedro Jose de, Sinde, Coimbra.—Flax. 666
1848 Leite, Antonio Bernardo d'Oliveira, Cabeceiras de Basto, Braga.—Flax. 666
1849 Mendes, Luis Antonio Soares, Castello Branco.—Flax. 666
1850 Fernandes, Manuel Ignacio, Telheiras, Villa Real.
  a Flax. 666
  b Wool. 667
1851 Montenegro, Joao Joaquim Pereira Telles de Menezes Mozelloes, Viana do Castello.
  a Flax. 666
  b Wool. 667
1852 Rapoza, Luis, Miranda do Douro, Braganca.
  a Flax. 666
  b Wool. 667
1853 Magalhaes, Francisco T., Sinde, Lousã.
  a Flax. 666
  b Wool. 667
1854 Silva, Antonio Lopes da, Balsasar, Oporto.
  a Flax. 666
  b Wool. 667
1855 Santos, Ascencio Jose dos, Valencia, Viana do Castello.
  a Flax. 666
  c Wool. 667
1855a Rosa, Jose da Graca Pereira, Niza, Portalegre.—Wool. 667
1856 Sarmento, Manuel Gomes de, St. Estevao, Villa Real.—Wool. 667
1857a Souza, Manuel Lopes de, Guarda.—Wool. 667
1857a Piteira Fernandez, Joaquim Filipe, Reguengo, Evora.—Wool. 667
1857a Sardinha, Joao Maria da Silva, Monforte, Portalegre.—Wool. 667
1858 Pinto, Antonio Mascarenia, Villa Boim, Portalegre.—Wool. 667
1858a Silveira, Jose Diogo da, Lisbon.—Wool. 667
1858a Monteira, Isidoro E. O. C. Margues, Villa Boim, Portalegre.—Wool. 667
1860 Pereira, Jose Francisco, Castello de Vide, Portalegre.—Wool in the fleece. 667
1861 Pereira, Jeronimo, Serpa, Beja.—Wool. 667
1862 Pimentel, Jose Reis, Povoa de Meadas, Portalegre.—Wool. 667
1863 Continho, Fernando Affonso d'Almeida, Sepins, Coimbra.—Wool. 667
1864 Pimentel, Antonio Augusto de Moraes, Castello Branco, Braganca.—Wool. 667
1865 Couraca, Jose de Gouveia, Faia, Viseu.—Wool. 667
1866 Rio, Antonio Manuel, Miranda do Douro, Braganca.—Wool. 667
1867 Monteiro, Diogo Lopes, Castello Branco.—Wool. 667
1868 Murteira, Manuel Maria, Campo Maior, Portalegre.—Wool. 667
1869 Lacerda, Antonia Augusto de, Chorinde, Visen.—Wool. 667
1870 Costa, Lourenco Justino da Fonseca, Oliveira do Hospital, Coimbra.—Wool. 667
1871 Calca e Pina, Antonio, Souzeli, Portalegre.—Wool. 667
1872 Lecocq, Joao Jose, Castello de Vide, Portalegre.—Wool. 667
1873 Pera, Francisco Marcos, Miranda do Douro, Braganca.—Wool. 667
1874 Pascoal, Eduarda Augusto, Monção, Oporto.—Wool. 667
1875 Lemos, Francisco Antonio Pereira, Villarelos, Braganca.—Wool. 667
1876 Marcal & Bro., Portalegre.—Wool unwashed and washed. 667
1877 Oliveira Soares, M. E. de, Evora.—Wool. 667
1878 Villarelos, Manuel Pereira, Torroso, Oporto.—Wool. 667
1879 Carnev, Jose Antonio, Santa Estilha, Portalegre.—Wool. 667
1880 Casqueiro, Jose Maria, Crato, Portalegre.—Wool. 667

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Textile Substances, Engineering and Administration.

1881 O. veira, Domingos Manuel, Miranda do Douro, Braganca.—Wool. 667

1882 Vasconcellos, Bartholomeu d’Aragao Costa Tavares de, Fundao, Castello Branco.—Wool. 667

1883 Miranda, Antonio Augusto Lobo de, Lagos, Faro.—Wool. 667

1884 Bogalho, Joao Joaquim, Villa Boim.—Wool. 667

1885 Bello, Francisco Severiano Carilho, Castello de Vide, Portalegre.—Wool in the fleece. 667

1886 Coelho, Luis Pires, Sardoal, Santarem.—Wool. 667

1887 Guimaraes, Victorino Barbosa, Penalvel, Oporto.—Wool. 667

1888 Migueis, Joao, Ilhavo.—Wool. 667

1889 Castel Branco, Francisco Barreto Caldeira, Portalegre.—Wool. 667

1890 Falcao, Lazaro Domingos, Povoa, Braganca.—Wool. 667

1891 Geraldes, Manuel Vaz Preto, Loura, Castello Branco.—Wool. 667

1892 Veiga, Jose d’Almeida, Anciaes, Braganca.—Wool. 667

1894 Costa, Joao Carlos, Elvas, Portalegre.—Wool. 667

1895 Cid, Jose Ignacio, Mirandella Braganca.—Wool. 667

1896 Central Commission of the District of Viseu, Viseu. a Wool. 667

& Silk balls. 668

1897 Nunes, Antonio Manuel, Chacim, Braganca.—Raw silk. 668

1898 Franqueira, Romao, Carrazedelo, Braganca.—Cocoons. 668

1899 Cabral, Paco F., & Sons, Sernacetelo, Viseu.—Cocoons and raw silk. 668

1900 Silk Manufacturing Company, Egyptian, Oporto.—Silk balls. 668

Agricultural Engineering and Administration.

1901 Rocha & Co., Lisbon.—Artificial guano. 681

1902 Abattoir of Lisbon, Alcantara, Lisbon.—Artificial manures. 681

1904 Phosphorite Company, Marvensi, Lisbon.—Phosphate of lime. 681

1905 Board of Public Forests, Lisbon. —Garden tools. 700

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.

TURKEY.

(Note.—The Agricultural Exhibit of Turkey is installed in the Main Building, and catalogued in that volume.)
RUSSIA.

(West of West Aisle, Columns 12 to 15.)

Arboriculture, Pomology, Agricultural Products.

Arboriculture and Forest Products.
1 Sidoroff, Michael, St. Petersburg.—Larch wood, larch and cedar strobils. 620
2 Verekha, Peter, St. Petersburg. a Wild-growing trees; collection of sections. 620
b Statistical map of forests (Russia in Europe). 6.6
3 Ostrom Bros., Uleaborb, Finland. —Willow bark, tanning material. 6.02
4 Matteissen, Nicolas, Moscow.—Galium. 6.02
5 Wagner, Charles, Riga.—Fir and pine tree seeds. 6.05
6 Russian Society of Forestry, St. Petersburg.—Seeds of forest-growing trees. 6.5

Pomology.
8 Imperial Russian Horticultural Society, St. Petersburg.—Reproduction of apples growing on the island of Walaam, on the Ladogalake. 610

Agricultural Products.
9 Egert, John von Henziany, Government of Warsaw, District of Radzin.—Eats, barley, in grain and sheaves. 620
10 Dengink, Henrietta, Kishineff, Bessarabia.—American maize. 620
11 Bessarabian Horticultural School, Kishineff. a Bessarabian wheat, maize, and Indian millet. 620
b Linseed and sunflower seed. 6.04
12 Bell, David, Alexandrovsk Farm, near St. Petersburg.—Wheat, rye, barley, oats, and timothy grass-seed. 6.20
13 Novossiltsceff, John, Voin, Government of Orel.—Rye, barley, oats, red clover, rape, and tares. 6.20
14 Pirsoff, George, Michalafskoe, Government of Voronesch, District of Orstrogisk.—Wheat and oats. 6.09
15 Penzin, John, Samara.—Wheat. 6.20
16 Pligihon, Philip, Volks, Government of Saratoff.—Wheat. 6.20
17 Shatiloff, Joseph, Mokhovoe, Government of Tula, District of Novossil.—Wheat, rye, barley, and oats in grains and sheaves. 6.02
18 Stichinsky, Simon, Gololobovo, near Voronesh.—Wheat and oats. 6.20
19 Vassilichkoff, Prince Victor, Troobtchino, Government of Tambow, District of Lebedian.—Wheat, rye, and oats. 6.20
20 Warschafuszy, A., St. Petersburg.—Wheat, rye, and oats. 6.20
21 Wickberg, Charles, Sederkylia, Finland, Government of Nyland.—Wheat, rye, barley, and timothy grass-seed. 6.20
22 Grotensfeld, Nicolas, Finland, St. Michael.—Buckwheat. 6.20
23 Engelkoff, Alexis, Archangelokoe, near Voronesh. a Wheat, oats, peas. 6.20
b Timothy and French grass-seeds. 6.24
24 Institute of Agriculture & Forestry, New Alexandria, Government of Lublin, District of Alexandroff.—Wheat. 6.20
25 Fastrezmsky, Stanislas, Yurkou and Demitlany, Government of Kielce, District of Pithnhow.—Wheat, rye, peas, millet, barley, and oats. 6.20
26 Kazan Model Farm.—Wheat, rye, oats, timothy grass, clover, tares, and cornspurry seed. 6.20
27 Karymsheff, Nicolas, Polossey, Government of Pskoff, District of Porkhoff.—Wheat, rye, and oats. 6.20
28 Korf, Baron Michael, Selzo, near St. Petersburg.—Wheat, rye, barley, and oats. 6.20
29 Krapotkine, Prince Demetrius, Kablyino, Government of Kizan, District of Kizik.—a Samples of wheat and buckwheat. 6.20
b Peas. 6.21
30 Labenski, W., Okence, Government and District of Warsaw.—Wheat and rye. 6.20
31 Lyvchne, Theodore, St. Petersburg.—Wheat. 6.20
32 Maltzoff, Michael, Nikolaevas, Government of Samara, Belotoorka.—Wheat. 6.20
33 Marynska Model Farm, near Saratoff.—Samples of cereals. 6.20
34 Gorki Model Farm, Government of Mogileff.—Wheat and rye in grain and sheaves. 6.20
35 Petrovski Rural Academy Model Farm, near Moscow.—Wheat, rye, barley, and oats. 6.20
36 Mookhin, John, Moscow.—Red clover, timothy grass, white and black tares. 6.20
37 Nostitz, Count John, Government of Ekaterinoslav, District of Novo, Moskov.—Red wheat and barley. 6.20
38 Obratnof, Paul, Uralsk.—Summer wheat. 6.20
39 Odessa Exchange Committee, Odessa.—Wheat, rye, barley, maize, and millet. 6.20
40 Ookhin Brothers, Pokrovskoe, Government of Samara, District of Novo, Ovon.—Wheat. 6.20

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural, Animal, and Vegetable Products, Fish Culture.

41 Petrovski, Michael, Stadly, Government of Radom, District of Sandomir.—Wheat. 620
42 Pleshanoff, John, Samara.—Wheat. 620
43 Zablotski-Dessetoysky, Paul, Krymsky, Government of Kiev, District of Tchigirin.
   a Red wheat. 620
   b Leaf tobacco. 623
   c Cotton and beet seed. 623
44 Zakrezyvsky, Felix, Staro, Government of Warsaw, District of Gostynin.—Wheat in grain and sheaves. 620
45 Odessa Exchange Committee.—Peas and French beans. 621
46 Mariyńska Model Farm, near Saratoff.—Common and French beans. 621
47 Levchine, Theodore, St. Petersburg.—a Peas. 621
   b Rape seed. 624
49 Deugink, Henrietta, Kishineff, Bessarabia.—Pearl lentils. 621
50 Bessarabian Agricultural School, Kishineff.—Sweet French beans, white red. 621
51 Doorooentcha, Sadook, Kremenchoug, Government of Poltava.—Tobacco and cigarettes. 623
52 Donaiaef, Nicephore, Moscow.—Tobacco and cigarettes. 623
53 Asmoloff & Co., Basil, Rostaff on the Don.—Tobacco and cigarettes. 623
54 Abramoff, Moscow.—Tobacco and cigarettes. 623
55 Doorooentcha, Moshe, Paltawa.—Tobacco and cigarettes. 623
56 Kooshnareff, James, Rostaff on the Don.—Tobacco and cigarettes. 623
57 Kraft Brothers, Alexander & Osvald, St. Petersburg.—Tobacco, cigars, and cigarettes. 623
58 Lafarne, St. Petersburg.—Tobacco and cigarettes. 623
59 Rymarenko, Martha, Moscow.—Leaf tobacco. 623
61 Petroff Bros., St. Petersburg.—Leaf tobacco. 623
62 Philitis, Stephen, Moscow.—Tobacco and cigarettes. 623
63 Mylnikoff & Zazoobrin, Irkootsk.—Tobacco and cigars. 623
64 Matteisson, Nicolas, Moscow.—Bell pepper. 623
65 Weiss, C.A., Riga.—Roasted chicory-root. 623
66 Pykhoff Brothers, Rostaff, Government of Faroslav.—Chicory-root roasted. 623
67 Meyer, L., St. Petersburg.—Ficcoffee, and chocolate. 623
68 Hofmark, Bruno, St. Petersburg.—Chicory-root, roasted and jinda. 623
69 Harman, O. W., Riga.—Chicory-root raw and roasted. 623
70 Maximoff, Basil, Zagorie, Government of Kostroma, District of Nevekhta.—Bohemian hops. 623
71 Kharkoff Model Farm.—Bohemian hops. 623
73 Tzytsoooin, Theodore, St. Petersburg.—Leaf tobacco. 623
74 Sokoloff, John, St. Petersburg.—Tobacco, cigars, and cigarettes. 623
75 Saatchi & Mangooobi, St. Petersburg.—Tobacco and cigarettes. 623
77 Zapevaloff, Alexander, St. Petersburg.—Kitchen-garden plants and seeds. 624
78 Waag & Sons, Dobovuka, Government of Saratoff.—Mustard seed. 624
79 Vassilitchikoff, Prince Victor, Turobetchino, Government of Tamboff, District of Lebedian.—Beet and timothy grass-seeds. 624
80 Ritter, Leopold, Moscow.—Collection of kitchen-garden plants seeds. 624
81 Repnin, Prince, Nicholas, Fagotin, Government of Poltawa, District of Pirlatin.—Linseed. 624
82 Pleshanoff, John, Samara.—Linseed. 624
83 Abratoff, Paul, Uralisk.—Linseed. 624
84 Müller, Christian, Doobovuka, Government of Saratoff, District of Tzatinn.—Mustard seed. 624
85 Marijynska Model Farm, near Saratoff.—Hemp and poppy seed. 624
86 Karamycheff, Eugene, Torioke, Government of Tver.—Linseed. 624
88 G r a t c h e f f, E., St. Petersburg.—Grains and vegetables. 624
89 Dookhoff Brothers, St. Petersburg.—Linseed. 624

Water Animals, Fish Culture, and Apparatus.
91 Sirdogoff, Michael, St. Petersburg.—Fish from the Northern Ocean. 641
92 Mangold, Charles, St. Petersburg.—Preserved fish. 641
93 Sokoloff, Nicolas, St. Petersburg.—Isinglass and viazingo. 646
94 Schultz, Alexander, Astrakhan.—Isinglass and viazingo. 646
95 Matteisson, Nicolas, Moscow.—Isinglass. 646

Animal and Vegetable Products.
97 Odnoosehfsky, M., & Sons, St. Petersburg.—Pars, sable, blue fox, etc. 642
98 Ulich, Gustavus, Warsaw.—Albumen, dried blood, and blood extract. 642
99 Sivokhin, E., St. Petersburg.—Honey. 644
100 Berliniski, George, Warsaw.—Prepared French mustard. 656
101 Chief Intendancy of War, St. Petersburg.—Preserved meat and vegetables. 656
102 Yacoview, John, St. Petersburg.—Preserved greens and mushrooms. 656
103 Sivokhin, E., St. Petersburg.—Preserved greens and mushrooms. 656
104 Semenkov, Victor, Oostie, Government of Vologda.—Mew extract. 656
105 Sirdogoff, Michael, St. Petersburg.—Salt reindeer tongues from the Island of Nova Zembla. 656

For classes of exhibits, indicated by numbers at end of title, see Classification, pp. 12-14.
Animal and Vegetable Products.

106 Nikitin, Alexander, Smolensk.—Fruit preserves. 656
107 Mangold, Charles, St. Petersburg.—Preserved meats. 656
108 Ninberg, Otto, Uleaborg, Finland.—Preserved game. 656
109 Likhinon, Gregory, St. Petersburg.—Cranberry juice condensed by freezing. 656
110 Fooirkhin, Paul, St. Petersburg.—Fruit paste (pastila). 656
111 Martens, Julius, St. Petersburg.—Coffee extract, dry and liquid. 656
112 Company for the Supply of Food, Varenesh and Moscow.—Preserved meat and vegetables for the army. 656
113 Petroff, John, St. Petersburg.—Cranberry juice. 656
114 Abrikosov's Sons, Moscow.—Preserves, marmalade, fruit-paste. 656
115 Stethany, F., Mitau.—Wheat-flour. 657
116 Waag & Sons, Doobovka, Government of Saratoff. a Mustard-flour, decorticated mustard-seed and husks. 657 b Mustard-seed oil and cake. 662
117 Verevitin, Alexia, Mzensk, Government of Orel.—Wheat-flour and decorticated grain. 657
118 Taldykin, Catherine, Eletz, Government of Orel.—Wheat-flour and decorticated grain. 657
119 Müller, Christian, Doobovka, Government of Saratoff, District of Tarasitin. a Mustard-flour, decorticated seed and husks. 657 b Mustard-seed oil and cakes. 662
120 Matteissen, Nicolas, Moscow.— a Flour and groats. 657 b Anise and mustard seed oil. 662
122 Golikoff, K. P., Frtzeach, Government of Riazan, District of Spassk.—Starch and glucose. 658
123 Tarnoosky, Basil, Parafevka, Government of Ternagoff, District of Brest.—Raw sugar. 659
124 Galitzyn, Prince Victor, Slavgorod, Kharkoff, Government of Akhtyvka.—Raw beet-root sugar. 659
125 Hermanoff Sugar Manufacturing Company, Government of Warsaw.—Refined sugar in loaves and crystalized. 659
126 Gnevan Sugar Manufacturing Company, Government of Warsaw.—Refined sugar. 659
127 Wassitchikoff, Prince Victor, Troodetchina, Government of Tamboff, District of Lepetz.—Raw beet-root sugar. 659
128 Warsaw Sugar Manufacturing Company, Warsaw.—Refined sugar. 659
129 Sokolovka Sugar Manufacturing Company, Government of Podolia, District of Olgopol.—Refined beet-sugar. 659
130 Ostroff Sugar Manufacturing Company, Warsaw.—Sugar refined. 659
131 Sergeieff, Alexis & Apraxin, Count John, Pens.—Refined beet-root sugar. 659
132 Nathanson, Jacob, Warsaw.—Sugar refined. 659
133 Mlodzescin Sugar Mill, Government of Warsaw.—Sugar refined in leaves and powder. 659
134 Meek, Charles von, Brailovka, Government of Podolia, District of Vinitsa.—Beet-root sugar, raw and refined. 659
135 Lanin, Nicolas, Moscow.—Fruit syrups and juices, effervescence fruit liquors and mineral waters. 659
136 Kumps, Richard, Sobolevka & Tsharnomin, Government of Podolia, District of Qasslin.—Sugar, raw and refined. 659
137 Krajinoe Sugar Mill Company, Government of Plock.—Sugar. 659
138 Kesher, Frederic, St. Petersburg.—Refined beet-root sugar. 659
139 Yozefow Sugar Manufacturing Company, Government of Warsaw.—Refined sugar. 659
140 Goozov Sugar Manufacturing Company, Government of Warsaw.—Refined sugar. 659
141 Dobrolininsky Sugar Manufacturing Company, Government of Warsaw.—Sugar, raw and refined. 659
142 Maizner, N. Lanenta, & Fzabelin, Sugar Mills, Government of Warsaw.—Beet-root sugar, raw and refined. 659
143 Lysackowice Sugar Manufacturing Company, Government of Warsaw.—Refined sugar. 659
144 Leonoff Sugar Manufacturing Company, Government of Warsaw.—Beet-root sugar, refined. 659
145 Paskevitch, F., Soodak, Crimea.—Wine. 660
146 Doolvetoff, David, Simpheropol, Crimea.—White wine. 660
147 Imperial Nikitsky Garden, Yalta, Crimea.—White and red wine. 660
148 Fonoodocley, John, Goorsoof District, Yalta, Crimea.—Wine. 660
149 Kniajevitch, Antoine, Alushta, Crimea.—Crimian wine. 660
150 Lancki, Robert, Soodack, Crimea.—Red and white wine. 660
151 Lanin, Nicolas, Moscow.—Liquors. 660
152 Hartwig, Herman, Malo Danilof brewery near Kharkoff.—Beer, mead, and malt. 660
153 Worontzoff, Prince Simoa, Massandra, Crimea.—Red and white wines. 660
154 Bashmakoff, S. D., St. Petersburg.—Spirits and liquors. 660
155 Desharicot, A., Moscow.—Spirits, cordials, and liquors. 660
156 Makaroff, Petrus, Tiflis.—Kakhetician wine, red and white. 660
157 Rajevski, Nicolas, Crimea district, Yalta.—Wines. 660
158 Brantzeff, Victor, Irkoutask.—Cordials and liquors. 660
159 Fokrath & Co., St. Petersburg.—Cordials and liquors. 660
160 Greysmil, Alexander, Moscow.—Spirits. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification. pp. 12-14.
Animal and Vegetable Products, Textile Substances.

161 Grote, Alexander von, Lemburg.—Cumin seed. 660
162 Korf, Baron K., St. Petersburg.—Spirits and liquors. 660
163 Karali, G. N., & Co., St. Petersburg.—Cordials, liquors, and spirits. 660
164 Kalashnikoff, Peter, Pskoff.—Spirits, cordials, and liquors. 660
165 Tankowski, T., Warsaw.—Cordials and liquors. 660
166 Scheierman & Co., Riga.—Vinegars. 660
167 Lutoslawski, T., Drozdovo, Government & District of Lomza.—Bottled beer. 660
168 Krause, W., Warsaw.—Beer. 660
169 Tigezem Brewery Company, near Riga.—Malt extract. 660
170 Doordin, John, St. Petersburg.—Beer. 660
171 Zyszykin, M. Y., Brothers, Moscow.—Cordials, liquors, and artificial champagne. 660
172 Wickel, Y., Helsingfors.—Swedish punch. 660
173 Varaksin, Demetrius, & Sanin, George, Kazan.—Spirits and liquors. 660
174 Traverse, Marquis Alexander de Looga, Government of St. Petersburg.—Cordials and liquors. 660
175 Stemnikovski, A., Warsaw.—Corn brandy and mead. 660
176 Smirnoff, Peter, Moscow.—Cordials, spirits, and liquors. 660
177 Rouget, Pauline, Moscow.—Cordials and liquors. 660
178 Petroff, W., St. Petersburg.—Spirits, cordials, and liquors. 660
179 Natus, T., & Co., St. Petersburg.—Spirits and liquors. 660
180 Martini, G., St. Petersburg.—Spirits, cordials, and liquors. 660
181 Lilieroith, Victor, Helsingfors.—Imperial and fruit punch. 660
182 Landrin, George, St. Petersburg.—Ponbons and chocolate. 661
183 Zaitzeff, Simon, Moscow.—Cakes and gingerbread. 661
184 Sivakhin, E., St. Petersburg.—Gingerbread. 661
185 Meyer, L., St. Petersburg.—Gingerbread and buns. 661
186 Lapin, N. & A., Brothers, St. Petersburg.—Cakes, marmalade, chocolate, and confectionery. 661
187 Koodriazveff, A. & G., Brothers, Moscow.—Sweatmeats and sugar candy. 661
188 Ootkin, Basil, Tver.—Cakes. 661
189 Belolipetzk, Michael, Tooala.—Cakes. 661
190 Tzelikoff, Theodore, Moscow.—Vegetable oils and linseed oil cakes. 662
193 Zablotsky, Desselovsky Paul, Kryniki, Government of Kief, District of Tchigirin.—Canuline seed oil, 662

Textile Substances of Vegetable or Animal Origin.

195 Agricultural Museum of the Ministry of Domains, St. Petersburg.—Samples of cotton and cotton seed grown in Turkestan, Central Asia. 665
196 Wishaw, Alfred, St. Petersburgh.—Volgodra flax. 666
197 Warschaفسкий, A., St. Petersburg.—Flax. 666
198 Repnin, Prince Nicolas, Fagotin, Government of Poltawa, District of Periatin.—Flax in different stages of preparation. 666
199 Pskoff Statistical Committee.—Flax from the Government of Pskoff. 666
200 Nemiloff, Anthony, Orel.—Hemp cleaned and uncleaned. 666
201 Maximoff, Basil, Zagorye, Government of Kostroma, District of Nereckha.—Flax raw and clean. 666
202 Kazan Model Farm, Kazan.—Flax. 666
203 Karamysheff, Nicholas, Polossy, Government of Pskoff, District of Pokhlof.—Flax. 666
204 Karamysheff, Eugene, Torjok, Government of Tver.—Flax. 666
205 Gent & Co., Pskoff.—Flax. 666
206 Riga Exchange Committee, Riga.—Flax and hemp. 666
207 Cartau, Robert, Pskoff.—Flax. 666
208 Vassilieff, Nicolas, Ovckque.—Flax, clean and half clean, flax tow. 666
209 Bykoff, Theodore, Volodga.—Flax. 666
210 Mariolaki, P., Rostoff on the Don.—Washed wool of the Russian Domsky breed. 667
211 Stichinsky, Simon, Gololobovo, near Voronesh.—Wool in fleece. 667
212 Orloff, Nicolas, Repievka, Government of Saratoff, District of Balashoff.—Wool in fleece. 667
213 Warschaفسкий, A., St. Petersburg.—Wool, Rambouillet and Rambouillet Negretti breeds. 667
214 Moshevski, Wladislav, Odessa.—Wool of common Don breed. 667
215 Mariynska Model Farm, near Saratoff.—Wool in fleece. 667
216 Labensky, V., Okene, Government & District of Warsaw.—Samples of wool. 667
217 Karlovka Estate of H. F. H. the Grand Duchess Catharine Mihaelovna, Government of Poltawa, District of Constantinoegrad.—Merino wool for carded and combed wool-stuffs. 667
218 Komarovsky, Count, Government & District of Orel.—Wool in fleece, Russian and Negretti breeds. 667
219 Glinka, Nicolas, Szczuzew, Government of Lomza, District of Ostroleka.—Wool. 667
220 Ganshin Brothers & Co., Moscow.—Washed wool, Metis and Trigai breed. 667
221 Fatz, Theodore, Olviopol, Government of Kherson.—Wool in fleece, Spanish breed. 667

For classes of exhibits, indicated by numbers, end of entries, see Classification, pp. 12-14.
Machines, Implements, Engineering, and Administration.

222 Falz, Fein, Edward, Kakhovka, Government of Tauride.—Washed and unwashed wool. 667
223 Baklanoff’s, K. K., Sons, Moscow.—Washed wool, merino breed. 667
224 Pokrovsky Sisterhood of Charity, Moscow.—Cocoons of silk-worms, floss and raw silk. 668
225 Lootchinsky, Laurentius, Oaman, Government of Kief.—Cocoons, raw and floss silk. 668
226 Kozishnikoff, Peter, Veliki Oostioog, Government of Vologda.—Bristles. 669

Machines, Implements, and Processes of Manufacture.

227 Lilpop, Rau, & Loevenstein, Warsaw.
   a Reaping-machine. 672
   b Threshing-machine for corn and clover seed. 673

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Arboriculture, Agricultural Products, Fish Culture.

Arboriculture and Forest Products.

1 Kuwangiyu-Riyo (Imperial Board of Agriculture, Industry, & Commerce), Tokio.
   a Specimens of trees. 600
   b Dyewoods, barks, and galls. 602
   c Resins, etc. 603

2 Matsu-o, I., Tokio.—Bamboo. 601

Agricultural Products.

3 Kuwangiyu-Riyo (Imperial Board of Agriculture, Industry, & Commerce), Tokio.
   a Rice, millet, wheat, sorghum, Indian corn, etc. 600
   b Beans, peas, etc. 621
   c Teas, green and black. 623
   d Seeds. 624

4 Kaitakushi (Department for the Colonization of the island of Yesso).—Heay. 620

5 Shirakawa-ken, Local Government of.—Tobacco leaves, cut and uncut. 623

6 Kagoshima-ken, Local Government of.—Tobacco leaves, cut and uncut. 623

7 Shiga-ken, Local Government of.—Tobacco leaves, cut. 623

8 Kiyoto, Municipality of, Kiyoto-fu.—Tobacco leaves, cut and uncut. 623

9 Osaka, Municipality of, Osaka-fu.—Tobacco leaves, cut and uncut. 623

10 Nagasaki-ken, Local Government of.—Cigars. 623

11 Saga-ken, Local Government of.—Tobacco. 623

12 Noda, D., Kumamoto, Province of Higo.—Tobacco leaves and cigars. 623

13 Kiriu-Kosho-Kuwaisha (First Japanese Manufacturing & Trading Company), Tokio.—Cigarettes and tea. 623

14 Susuki, S., Province of Hiuga.—Tea. 623

15 Kuruki, Y., Province of Hiuga.—Tea. 623

16 Otori, M., Province of Hiuga.—Tea. 623

17 Sato, S., Province of Hiuga.—Tea. 623

18 Womura, I., Province of Hiuga.—Tea. 623

19 Watanabe, M., Province of Hitachi.—Green tea. 623

20 Yebihara, Y., Province of Hitachi.—Green tea. 623

21 Katakura, J., Province of Hitachi.—Green tea. 623

22 Kuroda, N., Province of Higo.—Green tea. 623

23 Kamimura, N., Province of Higo.—Green tea. 623

24 Kaku, S., Province of Higo.—Green tea. 623

25 Fujita, H., Province of Higo.—Green tea. 623

26 Kobori, C., Province of Higo.—Green tea. 623

27 Hirano, H., Province of Higo.—Black tea. 624

28 Tanaka, K., Province of Chikugo.—Black tea. 623

29 Kawai, S., Province of Omi.—Green tea. 623

30 Maino, R., Province of Omi.—Green tea. 623

31 Hayashi, Y., Province of Tosa.—Green tea. 623

32 Morikawa, K., Province of Yetschizen.—Green tea. 623

33 Hori, G., Province of Iwami.—Tea. 623

34 Miura, G., Province of Mino.—Tea. 623

35 Miyazaki, T., Province of Hinzen.—Green tea. 623

36 Sato, I., Province of Yetshigo.—Green tea. 623

37 Yanagida, K., Province of Yetshigo.—Black tea. 623

38 Imai, K., Province of Totomi.—Green tea. 623

39 Fukukawa, S., Province of Totomi.—Green tea. 623

40 Ozaki, I., Province of Suruga.—Green tea. 624

41 Minobe Chiubeye, Kiyoto.—Green tea. 624

42 Nagaya Buyemon, Kiyoto.—Tea. 624

43 Asada Toyemon, Kiyoto.—Green tea. 623

44 Kambayashi, Sansho & Sanmin, Uji, Province of Yamashiro.—Tea, implements and apparatus used for the preparation. 623

45 Kiriu-Kosho-Kuwaisha (First Japanese Manufacturing and Trading Company), Tokio.—Tea. 623

46 Marunaka, M., Kanazawa, Province of Kaga.—Tea. 623

Marine Animals, Fish Culture, and Apparatus.

47 Kuwangiyu-Riyo (Imperial Board of Agriculture, Industry, & Commerce), Tokio.
   a Shells. 615
   b Shagreen and sturgeon skins. 616

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Animal and Vegetable Products, Textile Substances.

48 Kiriu-Kosho-Kuwaisha (First Japanese Manufacturing & Trading Company), Tokio.—Nets, baskets, hooks, rods, lines, and other apparatus used for fishing. 647

49 Nagasaki-ken, Local Government of.—Fishing implement and apparatus. 647

Animal and Vegetable Products.

50 Nagura, O., Kiyoto.—Vegetable Isinglass. 650

51 Kuwangiyo-Riyo (Imperial Board of Agriculture, Industry, & Commerce), Tokio. 
   a Hides, furs, horns. 652
   b Feathers of crane and pheasant. 653
   c Preserved fruits prepared with sugar. 656
   d Flour. 657
   e Starch. 658
   f Sugar. 659

52 Kumagai, K., Kiyoto.—Vegetable Incense. 653

53 Kaitaku-shi (Department for Colonization of the Island of Yesso).—Preserved meat and fish. 656

54 City Chemical Laboratory, Kiyoto. 
   a Sugar candy. 659
   b Mulberry wine, lemonade, punch, and other drinks. 660

55 Kawa-zaki, Tokio.—Sake, sweet liquors, spirits, and other alcoholic liquors. 660

56 Matsuya, H., Tokio.—Sweet liquors, wines, and malt liquors. 660

57 Sawada, Z., Tomo, Province of Bingo. —Sweet liquors. 660

58 Hashimoto, S., Tokio.—Spirits, sake, sweet liquors, and soy. 660

59 Kitakaze Yu, Hiigo, Province of Setzu.—Vinegars. 663

60 Naga-oka, Z., Tokio.—Soy and sweet liquors. 660

61 Mori, R. & K., Ito, Tokio.—Soy. 660

61a Nishi-wo Matsutaro, Kiyoto.—Yatsushashiyaki (kind of cracknel). 661

Textile Substances of Vegetable or Animal Origin.

62 Government Cotton Factory, Sakai, Province of Setzu.—Cotton in raw state, and in all stages of preparation. 665

63 Maru, T., Province of Iwami.—Ramie, raw and prepared. 666

64 Hattori, Z., Province of Iwami.—China grass, spooled. 666

65 Asaya, T., Tokio.—Hemp, ramie, jute, etc. 666

66 Takamura, R., Province of Totomi.—Fibres. 666

67 Rio-ku, han, Loochoo Island.—Fibres of Musa-Basho, and China grass. 666

68 Kuwangiyo-Riyo-no-yosankakari (Government establishment for Experimental Silkworm-Breeding), Tokio.—Silk in cocoon and reeled. 666

69 Tamamura, Y., Ishi-i-mura, Province of Shimodzuke.—Silk, reeled. 668

70 Marunako, M., Kanazawa, Province of Kaga.—Silk, reeled. 668

Agriculture Engineering and Administration.

71 Kuwangiyo-Riyo (Imperial Board of Agriculture, Industry, & Commerce), Tokio.—Plows, scythes, harrows, and grain cradles. 670

Ornamental Trees, Shrubs, and Flowers.

72 Kuwangiyo-Riyo (Imperial Board of Agriculture, Industry, & Commerce). 
   a Evergreen trees and shrubs. 700
   b Herbaceous perennial plants. 701
   c Lilies. 702
   d Ornamental foliage. 703
   e Ferns. 7-7
   f New plants, with origin. 708

Garden Tools, Accessories of Gardening.

73 Kuwangiyo-Riyo (Imperial Board of Agriculture, Industry, & Commerce), Tokio.—Fences, gates, etc. 722

Garden Construction.

74 Miyagi, C., Garden laid out by. 733

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Arboriculture, Pomology, Agricultural Products.

Arboriculture and Forest Products.

1 Asuero, Eduardo, Province of Tarlac.—Dita bark. 620
2 Provincial Board, Province of Batangas.
   a Penuvia Guianacum bark. 620
   b Maiden’s hair. 604
3 Inspection-General of Woods and Forests.
   a Timber, lumber, barks, charcoal, etc. 600
   b Ornamental woods. 622
   c Dyce woods and barks. 622
   d Gums and resins. 603
4 Olano, Casto, Manila, Province of Manila.—Section of Pterocarpus santalinus L. 601
5 Provincial Board, Province of Samar.
   a Cane. 621
   b Balao. 603
6 Jesus, Francisco de, Province of Pampanga.—Camanchile bark. 602
7 Provincial Board, Province of Masbate.—White pitch. 603
8 Cortina, Mariano de la, Bawang, Province of Batangas.—Abilo resin. 603
9 Orduña, Eduardo, Province of Batangas.—Resins and gums, macabuhay. 603
10 Labhart & Co., Province of Manila.
   —Mastic. 622
11 Provincial Board, Province of Tayabas.—White pitch. 603
12 Provincial Board, Province of Iloilo.—Seeds. 605

Pomology.

13 General Inspection of Woods & Forests.—Fruits. 611
14 Provincial Board, Province of Manila.—Cocoa nuts. 611

Agricultural Products.

15 Cirer, Manuel, Province of Tarlac.—Rice. 620
16 Arque, Benito, Province of Cariete. 620
17 Salvia, Fulgencio, Province of Camarines, S.—Rice. 620
18 Santos, Apolinario, Province of Bulacan.—Rice. 620
19 Rico, José, Province of Na Ecya.—Rice. 620
20 Otero, Manuel G., Province of Nva, Exija.—Rice. 620
21 Rodriguez, Ambrosio, Sariaya, Province of Tayabas.—Wheat. 620
22 Lijan, Diego, Province of Tarlac.
   a Rice. 620
   b Mungos. 622
23 Naves, Andres, Province of Bulacan.
   a Anajao. 620
   b Angolong hiline, tapecan, etc. 622
24 Provincial Board, Province of Antique.
   a Bote. 620
   b Cocoa and coffee. 623
25 Provincial Board, Province of Samar.
   a Rice. 620
   b Seeds. 624
26 Provincial Board, Province of Batangas.
   a Maize and rice. 620
   b Arbuxa root. 622
   c Cocoa and coffee. 623
27 Provincial Board, Province of Benguet.
   a Rice. 620
   b Beans. 621
   c Coffee. 623
   d Seeds. 624
28 Lorenzo, Catalino, Province of Pampanga.—Arrowroot. 622
29 Provincial Board, Province of Samar.—Cascalote, tabiguiig, arbuxa root, etc. 622
30 Valmaceda, Esteban, Province of Bulacan.—Gogo. 622
31 Provincial Board, Province of Bulacan.—Matang-ulang and arbuxa root. 622
32 Adrian, Lucia A., Province of Mindoro.—Yuro. 622
33 Provincial Board, Province of Masbate.—Gogo. 622
34 Reyes, Andres, Province of Samar.
   a Sagaparilla root. 622
   b Laurel. 622
35 Provincial Board, Province of Mindanao.
   a Gogo. 622
   b Cocoa and coffee. 623
36 Orduña, Eduardo, Province of Batangas.
   a Campnot root. 622
   b Tuba and millet seed. 624
37 Rodo, Luciano P. de, Province of Cavite.—Coffee. 623
38 Provincial Board, Province of Manila.—Cinnamon, pepper, etc. 623
39 Lopez, Felix, Province of Cavite.—Coffee. 623
40 Temprado, Ramon F., Province of Camarines Sur.—Coffee. 623
41 Gallardo, Francisco, Province of Bohol.—Coffee. 623
42 Sanz, Victor, San José, Province of Leyte.—Coffee. 623
43 Spanish Nation, Province of Manila. 623
   —Leaf and manufactured tobacco, cigars, and cigarettes. 623

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural, Animal, and Vegetable Products.

44 Ruiz, Juan, Province of Laguna.—Coffee. 623
45 Velarde, Angel, Province of Cavite.—Cocoa and coffee. 623
46 Teodoro, Saturnino, Province of Tarlac.—Cocoa. 623
47 Mendosa, Gregorio, Province of Tarlac.—Coffee. 623
48 Alcantara, Dámasco, Sariaya, Province of Batangas.—Cocoa. 623
49 Hernandez, Telesoro, San José, Province of Batangas.—Coffee. 623
50 Catigbac, Norvento, Province of Batangas.—Coffee. 623
51 Ron, A., & Son, Province of Cebu.—Coffee. 623
52 Nieves, Agapito, Province of Albay.—Cocoa and coffee. 623
53 Saucian, Cirió, Guinobatan, Province of Albay.—Cocoa and coffee. 623
54 Economical Society, Province of Benguet.—Tea leaves. 623
55 Nieves, Agapito, Province of Masbate.—Tea leaves. 623
56 Provincial Board, Province of Camarines Sur.
   a Coffee. 623
   b Lumbang seed. 624
57 Peñalosa, Andrés, Province of Batangas.
   a Cocoa. 623
   b Lumbang seed. 624
58 Prieto, Federico, Province of Albay.
   a Coffee. 623
   b Pili seed. 624
59 Rodríguez, Lucía, Province of Pampanga.—Seeds. 624
60 Provincial Board, Ilocos Sur.—Seeds. 625
61 Mamanal, Luisa, Province of Tarlac.—Indigo seed. 624
62 Dairit, Florentino, Province of Pampanga.—Lumbang seed, sesame seed. 624
63 Leonard, Quinton, Province of Laguna.—Lumbang seed. 624
64 Baneg, Jo, Province of Bulacan.—Lumbang seed. 624
65 Provincial Board, Province of Pampanga.—Pili seed. 624
66 Peñalosa, Andres, S. Pablo, Province of Batangas.—Lumbang seed. 624
67 Guzman, Miguel de, Province of Bulacan.—Canary beans. 624
68 Mora, José, Province of Mindoro.—Castor beans. 624
69 Liñán, Diego, Province of Tarlac.—Beneseed. 624
70 Argoncillo, Ramón, Province of Batangas.—Coffee. 624
71 Jesus, Francisco de, Province of Pampanga.—Indigo seed. 624

Land Animals.

72 Inspection-General of Woods & Forests.—Zoological specimens. 630

Water Animals, Fish Culture, and Apparatus.

74 Provincial Board, Province of Manila.—Tortoise and other shells. 645
75 Provincial Board, Province of Bohol.—Mother-of-pearl shells. 645
76 Macatangay, Jorgé, Province of Batangas.—Fishing nets. 647
77 Garin, Nicolás, Province of Manila.—Fishing nets. 647
78 Garcia, Nicolás, Province of Manila.—Model of fishing net. 647

Animal and Vegetable Products.

79 Pagdangca, Gavino, Gumaca, Province of Tayabas.—Sponges. 650
80 Provincial Board, Province of Bohol.—Flying-fox skins. 652
81 Provincial Board, Province of Laguna.
   a Buffalo horns. 652
   b Coconut oil. 652
82 Provincial Board, Province of Manila.
   a Varnished cowhides, cut hides, deer skins, shark skin, etc. 652
   b Birds’ nests and feathers. 652
   c Pickled fish. 656
83 Osmena, Rita, & Co., Province of Cebu.
   a Buffalo horns and sipay. 652
   b Perfume pastilles. 655
   c Sugar. 659
   d Cocoa oil. 662
84 Provincial Board, Province of Leyte.—Honey. 654
85 Provincial Board, Province of Camarines.—Virgin wax. 654
86 Estrada, Saturnino, Gumaca, Province of Tayabas.—Virgin wax. 654
87 Inspection-General of Woods & Forests.
   a Wax and honey. 654
   b Tapioca, sago, arrowroot, and other flours. 657
88 Casas, Calixta, Province of Cebu.—Perfume pastilles. 655
89 Garcia, Regino, Province of Manila, Cavite, Bulacan, Laguna, and Iloc. Negros.—Hulled rice. 657
90 Posar, José, Province of Mindoro.—Hulled rice. 657
91 Pasig, Agustín, Province of Mindoro.—Hulled rice. 657
92 Provincial Board, Province of Cavite.—Hulled rice. 657
93 Alvar, Benito, Province of Cavite.—Hulled rice. 657
94 Ocampo, Benigno de, Province of Pampanga.—Arrowroot flour. 657
95 Provincial Board, Ilocos Sur.—Arrowroot flour. 657
96 Rodríguez, Lucía, Province of Pampanga.—Arrowroot flour. 657
97 Bravo, Antonio, Province of Batangas.—Sugar. 659
98 Guiones, Joaquín, Province of Batangas.—Sugar. 659
99 Argoncillo, Ramón, Province of Batangas.—Sugar. 659

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
DEPT. VI.—AGRICULTURE.

Animal and Vegetable Products, Textile Substances.

100 Rico, José, Province of Nueva Eri-
ja.—Sugar. 659
101 Macan, Luis, Calumpit, Province
of Bulacan.—Sugar. 659
102 Aragon, Incocencia, Malate, Provi-
ence of Manila.—Fruit syrups. 659
103 Garcia, P., Province of Manila.—
Fruit syrups. 659
104 Provincial Board, Tanuan, Prov-
ince of Leyte.—Sugar. 659
105 Gonzalez, Victorina, Province of
Antique.—Sugar. 659
106 Lirer, Manuel, Province of Tarlac.
—Sugar. 659
107 Liñan, Diego, Province of Tarlac.
—Sugar. 659
108 Puig, José, Province of Pampanga.
—Sugar. 659
109 Ocampo, Manuel de, Province of
Pampanga.—Sugar. 659
110 Puig, Andrés, Province of Pamp-
ga.—Sugar. 659
111 Miranda, Bernardo V. de, San Fer-
aando, Province of Pampanga.—Sugar.
659
112 Lorenzo, Catalino, Province of
Pampanga.—Sugar. 659
113 Sasatin, Leoncia, Province of Pamp-
ga.—Sugar. 659
114 Buisán, Julian, Province of Pamp-
ga.—Sugar. 659
115 Jesus, Laureano, Province of Pamp-
ga.—Sugar. 659
116 Enson, Catalino, Province of Pamp-
ga.—Sugar. 659
117 Ocampo, Benigno de, Province of
Pampanga.—Sugar. 659
118 Leon & Santos, José, Province of Pamp-
ga.—Sugar. 659
119 Puig, Andrés, Province of Pamp-
ga.—Sugar. 659
120 Gil, Rafael, Province of Pampanga.
—Sugar. 659
121 Tison, José, Province of Pampanga.
—Sugar. 659
122 Ker, Benito, Province of Pampanga.
—Sugar. 659
123 Rosa & Son, Province of Cebu.
—Sugar. 659
124 Onchica, Andrés, Province of La-
guia.—Sugar. 659
125 Provincial Board, Province of Ant-
ique.—Sugar. 659
126 Provincial Board, Province of Min-
danao.—Sugar 659
127 Jesus, Francisco de, Province of Pamp-
ga. 659
128 Rodriguez, Lucia, Province of Pamp-
ga. 659
129 Leon, Celestino de, Province of Pamp-
ga. 659
130 Inchausti & Co., Province of Mani-
la.—Alcohol. 660
131 Reyes, Vicente, Province of Lagu-
da.—Cocoa wine. 660
132 Besa Santos, Mateo, Province of Man-
ila.—Palo-maria oil. 660
133 Provincial Board, Province of Sa-
mar.—Cocoanut oil. 660
134 Maringan, Jocinto, Province of Ba-
tangas.—Benesed oil. 660
135 Provincial Board, Province of Ho-
cos Sur.—Palo-maria and other vegetable
oils. 660
136 Provincial Board, Province of Vi-
sayas.—Talagang oil. 660
137 Beso Santos, Mateo, Province of Bul-
acan.—Palo-maria oil. 660
138 Naves, Andrés, Province of Bul-
can.—Cocoanut oil. 660
139 Banes, Jo, Province of Bulacan.—
Lambang oil. 660
140 Provincial Board, Province of Ca-
marines N.—Bakao oil. 660
141 Dairit, Florentino, Province of Pam-
panga.—Lambang oil. 660
142 Tribula, Eleuterio, Province of Pam-
panga.—Lambang oil. 660
143 Maceda, Leon, Province of Laguna.
Cocoanut oil. 660
144 Provincial Board, Province of Pam-
panga.—Benesed oil. 660
145 Orduña, Eduardo, Province of Bat-
tangas.—Lausina oil. 660
146 Inspection-General of Woods & For-
ests.—Vegetable oils. 660
147 Provincial Board, Province of Bat-
tangas.—Tuba and cocoanut oil. 660
148 Zugadi, Nicolás, Provinces of Bul-
cacan, Ilocos Sur, Lae, Batangas, and
Camarenes N.—Vegetable oils. 660
149 Provincial Board, Province of Bul-
cacan.—Lambang and benesed oil. 660

Textile Substances of Vegetable or
Animal Origin.

150 Macatangay, Agaton, Province of Bat-
tangas.—Cotton. 665
151 Reyes, Juana, Province of Batan-
gas.—Cotton. 665
152 Dimayuga, Procesa, Province of Bat-
tangas.—Cotton. 665
153 Reyes, Juan, Province of Bohol.—
Raw cotton. 665
154 Roa, A., & Son, Province of Cebu.
—Cotton. 665
155 Beluyos, Damian, Province of Ba-
taan.—Cotton. 665
156 Provincial Commission, Province
of Benguet.—Cotton. 665
157 Orduña, Eduardo, Province of Bat-
tangas. 665
158 Provincial Board, Province of Ba-
tangas. 660
159 Provincial Board, Province of Min-
danao. 660
160 Gomez, Enrique, Province of Abra.
—Textile substances. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Textile Substances, Machines, Implements.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>161</td>
<td>Provincial Board, Province of Camarines Sur.—Abacá fibres.</td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>Bravo, Antonio, Guagua, Province of Pampanga.—Balibago barks.</td>
<td></td>
</tr>
<tr>
<td>163</td>
<td>Provincial Board, Province of Samar.—Bonote.</td>
<td></td>
</tr>
<tr>
<td>164</td>
<td>Cortina, Mariano de la, Province of Batangas.—Maguey plant.</td>
<td></td>
</tr>
<tr>
<td>165</td>
<td>Provincial Board, Province of Manila.—Balibago fibres.</td>
<td></td>
</tr>
<tr>
<td>166</td>
<td>Argoncillo, Eustaquito, Lopez, Province of Tayabas.—Abacá fibres.</td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>Figueroa, Andrés, Province of Albay.—Abacá fibres.</td>
<td></td>
</tr>
<tr>
<td>168</td>
<td>Rodríguez, José, Vigan, Province of Ilocos Sur.—Maguey.</td>
<td></td>
</tr>
<tr>
<td>169</td>
<td>Muñoz &amp; Bros., Province of Albay.—Abacá and cabo-negro.</td>
<td></td>
</tr>
<tr>
<td>170</td>
<td>Provincial Board, Province of Camarines N.—Balibago fibres and abacá.</td>
<td></td>
</tr>
<tr>
<td>171</td>
<td>Gallegos, Tomás, Province of Albay.—Abacá lupiz.</td>
<td></td>
</tr>
<tr>
<td>172</td>
<td>Medina, Ildefonso, Province of Mindoro.—Abacá.</td>
<td></td>
</tr>
<tr>
<td>173</td>
<td>García, Cirilo, Guinobatan, Province of Albay.—Abacá.</td>
<td></td>
</tr>
<tr>
<td>174</td>
<td>Provincial Board, Burasun, Province of Leite.—Cabo-negro and Nabo.</td>
<td></td>
</tr>
<tr>
<td>175</td>
<td>Parochial Curate, Province of Pangasinan.—Textile substances.</td>
<td></td>
</tr>
<tr>
<td>176</td>
<td>Banson, Nicolas, Province of Batan.—Textile vegetable fibres and samples of work.</td>
<td></td>
</tr>
<tr>
<td>177</td>
<td>Banson, Arcadio, Province of Batan.—Dantant cord.</td>
<td></td>
</tr>
<tr>
<td>178</td>
<td>Provincial Board, Province of Pangasinan.—Textile vegetable fibres and samples of work.</td>
<td></td>
</tr>
<tr>
<td>179</td>
<td>Mangataren, Parson of, Pangasinan.—Alinoa bark and ropes.</td>
<td></td>
</tr>
<tr>
<td>180</td>
<td>Provincial Board, Province of Bohol.—Malacapás.</td>
<td></td>
</tr>
<tr>
<td>181</td>
<td>Jesús, Francisco de, Province of Pampanga.—Cord of thistle fibres.</td>
<td></td>
</tr>
<tr>
<td>182</td>
<td>Provincial Board, Province of Pampanga.—Textile vegetable fibres.</td>
<td></td>
</tr>
<tr>
<td>183</td>
<td>Vera, Rosa de, Province of Albay.—Nito.</td>
<td></td>
</tr>
<tr>
<td>184</td>
<td>Provincial Board, Province of Antigua.—Textile vegetable substances.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.</td>
<td></td>
</tr>
</tbody>
</table>

185 | Llamas, Gabriel, Province of Manila.—Dugtung-ajas bindwood.                   |                                 |
| 186 | Provincial Board, Province of Albay.—Bark and abacá fibres.                 |                                 |
| 187 | Provincial Board, Province of Laguna.—Abacá.                                |                                 |
| 188 | Reyes, Andrés, Province of Samar.—Abacá.                                    |                                 |
| 189 | Juan, Fernando, Tanauan, Province of Leite.—Abacá lay-a-jon.                 |                                 |
| 190 | Peñaflor, Ines, Province of Cavite.—Abacá.                                  |                                 |
| 191 | Nieva, Calixto M., Province of Mindoral.—Abacá.                             |                                 |
| 192 | Perfecto, Teodora, Province of Camarines Sur.—Abacá.                        |                                 |
| 193 | Gallegos, Tomás, Province of Batangas.—Abacá lupiz.                         |                                 |
| 194 | Perez, Agustin, Province of Albay.—Abacá fibres.                           |                                 |
| 195 | Rivera, Gregorio, Orion, Province of Bataan.—Balibago fibres.               |                                 |
| 196 | Reyes, Juana, Lemery, Province of Batangas.—Prepared abacá.                  |                                 |
| 197 | San Isidro, Parson of, Province of Pangasinan.—Cabilagana roots, and split bark. |                               |
| 198 | Esteves, Félix, Province of Albay.—Nito and pina.                           |                                 |
| 199 | Adriatano, Luciano M., Province of Mindora.—Cabo negro.                      |                                 |
| 200 | Zugadi, Nicolas, Province of Bulacan.—Nito.                                 |                                 |
| 201 | Provincial Board, Province of Bohol.—Textile vegetable fibres, etc           |                                 |
| 202 | Buison, Julian, Province of Pampanga.—Bark of the buri palm tree.            |                                 |
| 203 | Peele, Hubbell, & Co., Santa Mesa, Province of Manila.—Abacá rigging.        |                                 |
| 204 | Villamarzo, Tiburcio, Province of Tayabas.—Cabo negro cables, nabo and pasao fibres. |                     |
| 205 | Rivera, L. de, Province of Bataan.—Bark of the malacacas tree.               |                                 |
| 206 | Panda, Corporation of, Province of Antigua.—Pineapple leaf fibres.           |                                 |

Machines, Implements, and Processes of Manufacture.

207 | Provincial Board, Province of Bulacan.—Plows.                               | 670 |
| 208 | García, Nicolas, Province of Manila.—Model of a sugar cane mill.            | 673 |
ANNEXES AND SPECIAL EXHIBITS IN THE DEPARTMENT OF AGRICULTURE.

No. 69. CANADIAN LOG HOUSE.
Size, 40 feet by 64.

Is one story high, constructed of logs, and located close by the British government Buildings. Its materials and contents constitute an exhibit of Canadian arboriculture and forest products.

No. 144. CUBAN ACCLIMATION GARDEN.

EMILE LACHAUME, Proprietor.

Contains a variety of tropical plants, etc. Situated south of Horticultural Hall.
No. 165. WAGON BUILDING.

Size, 144 feet by 196 feet.

Constructed of wood, one story high, situated north-east of Agricultural Hall, consists of three lines of sheds. Is used to display wagons, trucks, etc.

Arboriculture and Forest Products.

1. Reppard, R. B., Savannah, Ga.—Yellow pine timber.
2. Decrow, A. W., Bangor, Maine.—Scavenger.

Agricultural Engineering and Administration.

17. Rech, Jacob, Philadelphia, Pa.—Milk wagon.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.

18. Becker, Jacob, jr., Seymour, Ind.—Farmers’ wagon.
20. Lengert, George, & Son, Philadelphia, Pa.—Express wagons.
23. Wright Spring Co., Denmark, Iowa.—Wagon springs.
24. Heytler, Frank, Burlington, Iowa.—Wagon.
27. French & Co., Davenport, la.—Piano truck.
29. Funk & Hertzler, Burlington, la.—Farm wagon.
30. Rauch, Charles, Cleveland, O.—Ice wagon.
31. Harrison, Lautz Bros., & Co., South Bend, Ind.—Dump wagon.
33. Fish Bros. & Co., Racine, Wis.—Farm and California rack bed wagons.
34. Moline Wagon Co., Moline, Ill.—Farm and spring wagons.
35. Schuttler, Peter, Chicago, Ills.—Spring farm and freight wagons.
37. Milburn Wagon Co., Toledo, O.—Spring farm and freight wagons, sleds.

No. 166. POMOLOGICAL BUILDING.

Size, 182 feet by 192 feet.

Constructed of wood, one story high, situated east of Agricultural Hall. Is designed for the exhibit of fruits in season.
No. 167. BREWERS’ BUILDING.

Architect, H. J. SCHWARZMANN.—Size, 272 feet by 96 feet.

Erected under the auspices of the United States Brewers’ Association.

Constructed of wood in the style of Machinery Hall, and situated on Lansdowne drive, opposite the northeast corner of Agricultural Hall. It contains a model brewery, and exhibits the several processes of manufacturing malt liquors.

Agricultural, Animal, and Vegetable Products.

<table>
<thead>
<tr>
<th>Agricultural Products</th>
<th>Animal and Vegetable Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Palin, Thomas, Brooklyn, N. Y.—Malt.</td>
<td>29 Howe &amp; French, Boston, Mass.—Isinglass.</td>
</tr>
<tr>
<td>6 Committee on Barley &amp; Malt, New York, N. Y.—Barley and malt.</td>
<td>31 Greenway, John, Syracuse, N. Y.—Ale and porter.</td>
</tr>
<tr>
<td>7 Perot’s, Francis, Sons, Philadelphia, Pa.—Barley and malt.</td>
<td>32 Hartung &amp; Krantz, Honesdale, Pa.—Beer.</td>
</tr>
<tr>
<td>12 Pardee, Charles W., Oswego, N. Y.—Barley and malt.</td>
<td>37 Hinckel, Frederick, Albany, Pa.—Ale, porter, and beer.</td>
</tr>
<tr>
<td>13 Lynde, B. A., Buffalo, N. Y.—Malt.</td>
<td>38 Yuengling &amp; Sons, Pottsville, Pa.—Ale, porter, and beer.</td>
</tr>
<tr>
<td>16 Poke, Charles, Chicago, Ill.—Malt.</td>
<td>41 Bolton, S., &amp; Sons, Lansburg, N. Y.—Ale.</td>
</tr>
<tr>
<td>19 White, Rufus P., New York, N. Y.—Malt and barley.</td>
<td>44 Smith, Robert, Philadelphia, Pa.—Ale.</td>
</tr>
<tr>
<td>24 Dole Bros., Boston, Mass.—Hops.</td>
<td>49 Reuter &amp; Alley, Boston, Mass.—Ale.</td>
</tr>
<tr>
<td>25 Schlesinger Bros., New York, N. Y.—Hops.</td>
<td>50 For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.</td>
</tr>
</tbody>
</table>
Animal and Vegetable Products, Machines, Implements.

50 Walker, J., & Co., Cincinnati, O.—Ale. 660
51 Clausen, H., & Co., New York, N. Y.—Beer. 660
52 Anheuser, E., & Co.'s Brewing Association, St. Louis, Mo.—Malt liquor. 660
53 Pfannenstiel, C., Philadelphia, Pa.—Beer. 660
54 Ruppert, Jacob, New York, N. Y.—Beer. 660
55 Gukes, C., Philadelphia, Pa.—Ale. 660
56 Philip Best Brewing Co., Milwaukee, Wis.—Malt liquor. 660
57 Jones, David, New York, N. Y.—Malt. 620
58 Barkey, Peter, Reading, Pa.—Beer. 660
59 Feigh, Adrian, New York, N. Y.—Beer. 660
60 Kane, E., & Co., Brooklyn, N. Y.—Beer. 660
61 Rulssan & Horrman, Stapleton, N. Y.—Beer. 660
62 Hufnalg's, A., Sons, New York, N. Y.—Beer. 660
63 Ziegela, Albert, Buffalo, N. Y.—Beer. 660
64 Schmitte & Kohne, New York, N. Y.—Beer. 660
65 Jos. Schlitz Brewing Co., Milwaukee, Wis.—Beer. 660
66 Mayer & Bachman, Staten Island, N. Y.—Beer. 660
67 Bechtel, George, Staten Island, N. Y.—Beer. 660
68 Grasser & Brand, Toledo, O.—Beer. 660
69 Ferris, H., & Son, New York, N. Y.—Ale. 660
70 Ehrel, George, New York, N. Y.—Beer. 660
71 Ebeling, Philip & William, Morrisania, N. Y.—Beer. 660
72 Hoffman & Merkel, New York, N. Y.—Beer. 660
73 Loewer, Valentine, New York, N. Y.—Beer. 660
74 Urg. Joseph, St. Louis, Mo.—Beer. 660
75 Lemp, Wm. J., St. Louis, Mo.—Beer. 660
76 Eltes & Betz, New York, N. Y.—Beer. 660
77 Mark, J. & F., Brooklyn, N. Y.—Beer. 660
78 Finck, A., & Son, New York, N. Y.—Beer. 660
79 Voigt, E. W., Detroit, Mich.—Beer. 660
80 Kuechle, Joseph, St. Josephs, Mo.—Beer. 660
81 Rose, Miss Sophie, Baltimore, Md.—Beer. 660
82 Boeulllein, C., Bro., & Co., Bennett's Station, Pa.—Beer. 660
83 Seiger, 1., Baltimore, Md.—Beer. 660
84 Schlotterer, S., Philadelphia, Pa.—Beer. 660
85 Howard & Fuller, Brooklyn, N. Y.—Ale. 660
86 Schwaner & Amend, New York, N. Y.—Beer. 660
87 McKechnie, J. & A., Canandaigua, N. Y.—Ale and beer. 660
88 Philip Best Brewing Co., Milwaukee, Wis.—Beer. 660
89 N. M. Wm. A., & Co., New York, N. Y.—Ale. 660
90 Hughes, H. R. & M., Pittston, Pa.—Ale. 660
91 Liebmann's, S., Sons, Brooklyn, N. Y.—Beer. 660
92 Hollender & Co., New York, N. Y.—Beer. 660
93 Lyman, T. C., & Co., New York, N. Y.—Ale. 660
94 Hawkins, Chas. P., New York, N. Y.—Ale. 660
95 Anheuser, E., Co.'s Brewing Association, St. Louis, Mo.—Beer. 660
96 Planagan & Wallace, New York, N. Y.—Ale. 660
97 Besley's Waukegan Brewing Co., Chicago, Ill.—Ale. 660
98 Von der Horst, J. H., Baltimore, Md.—Beer. 660
99 Beadleton, Price, & Woerz, New York, N. Y.—Ale. 660
100 Stein, Conrad, New York, N. Y.—Beer. 660

Machines, Implements, and Processes of Manufacture.

101 Kampf, Stephen, Albany, N. Y.—Malt-shovels. 670
102 Lynde, B. A., Buffalo, N. Y.—Malt-shovels. 670
103 Knapp, S. P., New York, N. Y.—Malt shovels. 670
104 Beardsley, B. A., Waterville, N. Y.—Hop press. 673
105 Ingraham & Beard, Chicago, Ill.—Grain separator and grader. 673
106 Keastner, Chas., & Co., Chicago, Ill.—Feed-mills. 674
107 Haberman, S., New York, N. Y.—Beer-swinger. 674
108 White's N. Y. Malt House, New York, N. Y.—Plows, shovels, etc. 670
109 White, John G., & Co., Philadelphia, Pa.—Elevator buckets, etc. 674
110 Roos, Aug., New York, N. Y.—Beer-swinger. 674
111 Zoller, A., Hoboken, N. J.—Barrel washer, valves, and faucets. 674
112 Steubing, Henry, New York, N. Y.—Ice-swimmer. 674
113 Decker, John, & Son, Philadelphia, Pa.—Ice-swimmers, watering-can, funnels, and yeast-sieve. 674
114 Iron C'ad Can Co., New York, N. Y.—Apparatus for preserving ales, beer, etc. 674

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Machinery, Implements, Engineering, Administration.

115 Trotman & Ott, Philadelphia, Pa.—Cooler. 674
116 Spiess, Fr., New York, N. Y.—Malt-mill. 674
117 Schalk, C. W., Reading, Pa.—Malt-mill. 674
118 Hupfel, Adolf G., New York, N. Y.—Barrel-rolling machine. 674
119 Bergner, Theodore, Philadelphia, Pa.—Cork-driver, valves. 674
120 Muto, John M., Brooklyn, N. Y.—Beer-cooler, ice-swimmer, baskets. 674
121 Union Hardware Co., New York, N. Y.—Beer-coolers. 674
122 Kirby Bung Manufacturing Co., Cincinnati, O.—Bung machine and saw. 674
123 Cornell, G. B., Chicago, Ill.—Bung-bushes. 675
124 Union Machine Works, New York, N. Y.—Malt-mill. 674
125 Haas, Edward, Philadelphia, Pa.—Malt-mill, scrouer, and cleaner. 674
126 Stoll, Chas., Brooklyn, N. Y.—Scales, malt-mill. 674
127 Bremer, J. L., Bro., & Co., New York, N. Y.—Grain-bags. 674
128 Littlejohn, L., New York, N. Y.—Bung-bushes and tools. 674
129 Spiess, Fr., New York, N. Y.—Pumps, belt-stretcher, shaving-machine. 674
130 Storms, James, Buffalo, N. Y.—Elevator buckets. 674
131 Gendar, W. F. & T. V., New York, N. Y.—Brewers' instruments. 674
132 Schmah, Martin, New York, N. Y.—Copper-washing apparatus. 674
133 Woehrle, W., Milwaukee, Wis.—Ice-swimmer. 674
134 Murphy, C. J., New York, N. Y.—Testing-still. 674
135 Hupfel, J. C. G., New York, N. Y.—Barrel-rising machine. 674
136 Woehrle, Chas., New York, N. Y.—Elevator buckets. 674
138 Morrison, J., Portsmouth, N. H.—Hoghead. 675
139 Burkhart, G. J., & Co., Philadelphia, Pa.—Vats and tanks. 675
140 Link, John, Cincinnati, O.—Barrels and kegs. 675
141 Fisher & Hall, Philadelphia, Pa.—Cedar tubs. 675
142 Smith, John M., & Son, Philadelphia, Pa.—Steep-tub. 675
143 Dieringer, C., Cincinnati, O.—Coopers' work. 675
144 Lutz, R. F., Wabash, Ind.—Kegs and staves. 675
145 Schwarzwalder & Son, New York, N. Y.—Kegs, barrels, and hogheads. 675
146 Luckhaupt Bros., Columbus, O.—Kegs. 675
147 Wendt, Samuel, Brooklyn, N. Y.—Tubs. 675
148 Seligsberg, Arnold, New York, N. Y.—Tubs, vats, malt-holders, and chests. 675

Agricultural Engineering and Administration.

149 White's N. Y. Malt House, New York, N. Y.—Corks. 682
150 Saal & Schlich, Philadelphia, Pa.—Beer wagon and machinery. 682
151 Wenkenbach, W. L., Philadelphia, Pa.—Beer-wagon. 682
152 Kiesler, Joseph, New York, N. Y.—Beer-wagon. 682
153 Brunner, August F., New York, N. Y.—Plan of ice-house. 683
154 Wisker, Aug., Boston, Mass.—Model of brewery. 682
155 Weilbacher, P., New York, N. Y.—Hop-kiln. 683
156 Stoll, Charles, Brooklyn, N. Y.—Model of brewery. 683
157 Holden, D. L., Philadelphia, Pa.—Drawings of ice and refrigerating machines. 683
158 Seligsberg, A., New York, N. Y.—Grain-box. 683
159 White's N. Y. Malt House, New York, N. Y.—Kiln flooring and furnace. 683
160 Bergner, Theodore, Philadelphia, Pa.—Malt turner and kiln. 683
161 Spangenberg, Schroeder, & Co., Milwaukee, Wis.—Wire kiln surface. 683
162 Hughes, W. W., & Son., Philadelphia, Pa.—Malt-kiln, etc. 683
163 Hamps, Otto, New York, N. Y.—Model malt-kiln. 683
164 Lieber, Robert, Boston, Mass.—Model of brewery. 683
165 Korn, George W., Philadelphia, Pa.—Refrigerator. Brewers' store. 683
166 Shada, O. S., Philadelphia, Pa.—Block of coal. 102
167 German Rock Asphalt Co., New York, N. Y.—Cement flooring. 103
168 White's New York Malt House, New York, N. Y.—Cement flooring. 103
169 Mock, Isidor, Brooklyn, N. Y.—Cement floors. 103
170 Meyers, A. G., Brooklyn, N. Y.—Compound for lining barrels. 103
171 Wehn, G. H., Philadelphia, Pa.—Artificial stone. 103
172 Doerchuck, Gustav, Brooklyn, N. Y.—Varnish. 202
173 Hatter, Carl, New York, N. Y.—Bottle-stoppers. 215
174 Brown & Jones, Waterville, N. Y.—Stove to dry hops. 222
177 Tuchfarber, F., & Co., Cincinnati, O.—Show-cases. 262
178 Simon, A., New York, N. Y.—Vacuum-vacuums. 283

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Agricultural Engineering and Administration.

179 Wells, Hope, & Co., Philadelphia, Pa.—Metallic signs. 263
180 Trageser, John, New York, N. Y.—Copper work. 284
181 Toope, Charles, New York, N. Y.—Grate-bars. 573
182 Brown, A. & F., New York, N. Y.—Horizontal engine, shafting, pulleys, etc. 552
183 Vogt, Henry, & Bro., Brooklyn, N. Y.—Tubular boiler. 552
184 Brown, A. & F., New York, N. Y.—Shafting, pulleys, and hangers. 553
185 Albany Lubricating Compound & Cup Co., New York, N. Y.—Oil cups. 555
186 Niagara Steam Pump Works, Brooklyn, N. Y.—Pumps. 560
187 Schutt & Georhing, Philadelphia, Pa.—Pumps. 560
188 George F. Blake Manufacturing Co., New York, N. Y.—Steam pumps. 560
189 Zinsser, Wm., & Co., New York, N. Y.—Pumps. 560
190 Knowles Steam Pump Works, New York, N. Y.—Pumps. 560
191 Cope & Maxwell Manufacturing Co., Cincinnati, O.—Air pumps. 561
192 Krakovice, F. O., Walkertown, Ind.—Ventilator. 562
193 Otis Bros., New York, N. Y.—Elevator. 563
194 Bawer, E., Brooklyn, New York.—Racking-off hose. 584
195 Maegerlein, Chas., Chicago, Ill.— Hose. 564
196 Fairbanks & Ewing, Philadelphia, Pa.—Scales. 571
197 Haas, Edward, Philadelphia, Pa.—Scales and hopper, etc. 571
198 Buffalo Scale Co., Buffalo, N. Y.—Scales. 571
199 Willing & Co., New York, N. Y.—Racking-cock. 587
200 Schmitz, Theodore, New York, N. Y.—Britannia measures. 587
201 Guth, H., New York, N. Y.—Brewers' instruments. 587
202 Tagliabue, Charles J., New York, N. Y.—Brewers' instruments. 587
203 Travis, M. W., New York, N. Y.—Weighing and measuring implements. 587
204 Fiederlin, F., New York, N. Y.—Mashing-machine. 587
205 Schafhau, John, New York, N. Y.—Mashing-machine. 587
206 Schimper & Immen, Newark N. J.—Mashing-machine. 587
207 Spittler & Lang, New York, N. Y.—Mashing and shaving machine. 587

GREAT BRITAIN.

Animal and Vegetable Products, Engineering, Administration.

Animal and Vegetable Products.  
1 Pickering, Jonathan, Stockton-on-Tees, England.—Must. 661

Agricultural Engineering and Administration.  
2 Lawrence & Co., London, England.—Refrigerators. 63

CANADA.

Animal and Vegetable Products.  
1 Davis, T., & Bro., Toronto, Canada.—Porter and ale. 661
2 Keith & Son, Halifax, N. S.—Ale. 661

GERMANY.

(West of Nure, Column 1 to 4.)

Agricultural Products.

1 Schlemmer, August von, Hochheim, Germany.—Malt. 623

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
No. 168. THE HOUSE APIARY.

Size, 10 feet by 16 feet.

J. S. Coe, Montclair, N. J.

Exhibits thirty-two colonies of Italian, Corinthian, and Cyprian bees at work making honey. Situated east of the Pomological Building.

No. 169. GUANO BUILDING.

Situated east of the Women's Pavilion, and north of Fountain Avenue. Is used for the exhibition of fertilizers.

No. 171. WINDMILLS.

1 Eclipse Windmill Co., Beloit, Wis.
   —Three windmills for pumping water, grinding, etc.
2 U. S. Wind Engine & Pump Co.,
   Batavia, Ill.—Two windmills.
3 Stover Wind Engine Co., Greens-\ncastle, Pa.—One windmill.
4 Hartford Pump Co., Hartford, Conn.
   —One windmill for raising water by com-
   pressed air.

No. 172. HEADQUARTERS OF THE "PRACTICAL FARMER."

(Newspaper.)

Size, 10 feet by 16 feet.

J. R. Garretson, Proprietor, Rochester, N. Y.

Situated east of the Pomological Building. Office of the paper.

No. 173. HAY PRESS.


P. K. Dedrick & Co., Albany, N. Y.

Exhibits the perpetual baling press.

No. 176. BOILER HOUSE.

Size, 40 feet by 100 feet.

Situated directly east of Agricultural Hall, contains two Mast sectional boilers, manufactured at Springfield, Ohio, 100 horse-power each, which furnish steam to the machines in Agricultural Hall.
The Stated Displays in the Agricultural Department of the International Exhibition are as follows:

**AGRICULTURAL PRODUCTS.**

<table>
<thead>
<tr>
<th>Product</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pomological Products and Vegetables</td>
<td>May 16th to 24th.</td>
</tr>
<tr>
<td>Strawberries</td>
<td>June 7th to 15th.</td>
</tr>
<tr>
<td>Early Grass Butter and Cheese</td>
<td>June 26th to July 6th</td>
</tr>
<tr>
<td>Early Summer Vegetables</td>
<td>June 20th to 24th.</td>
</tr>
<tr>
<td>Honey</td>
<td>June 20th to 24th.</td>
</tr>
<tr>
<td>Raspberries and Blackberries</td>
<td>July 3rd to 8th.</td>
</tr>
<tr>
<td>Southern Pomological Products</td>
<td>July 15th to 22nd.</td>
</tr>
<tr>
<td>Melons</td>
<td>August 22nd to 26th.</td>
</tr>
<tr>
<td>Peaches</td>
<td>September 4th to 9th.</td>
</tr>
<tr>
<td>Northern Pomological Products</td>
<td>September 11th to 16th.</td>
</tr>
<tr>
<td>Autumn Vegetables</td>
<td>September 15th to 23rd.</td>
</tr>
<tr>
<td>Cereals</td>
<td>September 23rd to 30th.</td>
</tr>
<tr>
<td>Potatoes and Feeding Roots</td>
<td>October 2nd to 7th.</td>
</tr>
<tr>
<td>Grapes</td>
<td>October 10th to 14th.</td>
</tr>
<tr>
<td>Autumn Butter and Cheese</td>
<td>October 15th to 21st.</td>
</tr>
<tr>
<td>Nuts</td>
<td>October 23rd to November 1st.</td>
</tr>
<tr>
<td>Autumn Honey and Wax</td>
<td>October 23rd to November 1st.</td>
</tr>
</tbody>
</table>

**FIELD EXHIBITIONS.**

<table>
<thead>
<tr>
<th>Exhibit</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mowing Machines, Tedders, and Hay Rakes</td>
<td>June 26th to 30th.</td>
</tr>
<tr>
<td>Reaping Machines</td>
<td>July 5th to 10th.</td>
</tr>
<tr>
<td>Fly-Casting Tournament</td>
<td>August 15th.</td>
</tr>
</tbody>
</table>

**LIVE STOCK.**

<table>
<thead>
<tr>
<th>Animal</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horses</td>
<td>September 1st to 14th.</td>
</tr>
<tr>
<td>Dogs</td>
<td>September 1st to 8th.</td>
</tr>
<tr>
<td>Neat Cattle</td>
<td>September 21st to October 4th.</td>
</tr>
<tr>
<td>Sheep</td>
<td>October 10th to 18th.</td>
</tr>
<tr>
<td>Swine</td>
<td>October 10th to 18th.</td>
</tr>
<tr>
<td>Poultry</td>
<td>October 27th to November 6th</td>
</tr>
</tbody>
</table>

STATED DISPLAYS.
EXHIBITIONS OF LIVE STOCK.

1. The live stock display at the International Exhibition will be held within the months of September, October, and November, 1876; the periods devoted to each family being as follows: Horses, mules, and asses, from September 1st to 14th. Dogs from September 1st to 8th. Horned cattle, from September 21st to October 4th. Sheep, swine, and goats, from October 10th to 18th. Poultry will be exhibited from October 27th to November 6th.

2. Animals to be eligible for admission to the International Exhibition must be, with the exception of trotting stock, walking horses, matched teams, fat and draught cattle, of such pedigree that the exhibitor can furnish satisfactory evidence to the Chief of Bureau, that as applied to thoroughbred horses, as far back as the fifth generation of ancestors on both sides, they are of pure blood and of the same identical breed. As to short-horned cattle, they are registered in either Allen's, Alexander's, or the English herd-books. As to Holsteins, Herefords, Ayrshires, Devons, Guernseys, Brittanys, K errys, and other pure breeds, they are either imported or descended from imported animals on both sides. As to Jerseys, they are entered in the Herd Register of the American Jersey Club, or in that of the Royal Agricultural Society of Jersey. As to sheep or swine, they are imported or descended from imported animals, and that the home-bred shall be of pure blood as far back as the fifth generation.

3. The term breed, as used, is intended to comprehend all family divisions, where the distinction in form and character dates back through years of separation; for instance, it is held that the progeny of a pure-blood Jersey and a pure-blood Guernsey is not a thoroughbred breed as to card and animal, and, as such, is necessarily excluded.

4. In awarding prizes to animals of pure blood, the judges will take into consideration chiefly the relative merits as to the power of the transmission of their valuable qualities: a cardinal object of the Exhibition being to promote improvement in breeding stock.

5. In case of doubt relative to the age of an animal, satisfactory proof must be furnished or the animal will be subject to examination by a veterinary surgeon; and should the state of detinon indicate that the age has not been correctly stated, the person so entering as an exhibitor will be prohibited from exhibiting in any class.

6. The forms of classification for awards, as given under each head, are intended except in the case of trotting stock, walking horses, matched teams, fat and draught cattle to apply to the animals of any pure breed that are entered for competition.

7. The Exhibition being open to the world, it is of the first importance that the best of their kind only be brought forward, as the character of the stock will be judged by the general average of those exhibited.

8. Exhibitors will be expected to furnish their own attendants, on whom all responsibility of the care of feeding, watering, and cleaning the animals, and also of cleaning the stalls, will rest.

9. Forage and grain will be furnished at cost prices, at depots conveniently located within the grounds. Water can be had at all hours, ample facilities being provided for its conveyance and distribution throughout the stock yards.

10. Exhibitors must supply all harness, saddlery, vehicles, and other appointments, and all such must be kept in their appointed places.

11. The Commission will erect ample accommodation for the exhibition and promotion of live stock, yet contributors who may desire to make special arrangements for the display of their stock, will be afforded facilities at their own cost. Fractious animals, whether stallions, mares with foals, or bulls, will be provided with stalls of suitable character.

12. All stalls will be regularly and distinctly numbered; corresponding numbers on labels of uniform character will be given to each exhibitor, and no animal will be allowed to pass from its stall without its proper number attached.

13. Numbers alone will distinguish stock in the show yards, preceding the awards of prizes.

14. The judges of live stock will make examination of all animals on the opening day of each serial show, and will for that day have exclusive entrance to the show yard.

15. No premium will be awarded an inferior animal, though there be no competition.

16. All animals will be under the supervision of a veterinary surgeon, who will examine them before admission, to guard against infection, and who will also make a daily inspection and report. In case of sickness the animal will be removed to a suitable inclosure especially prepared for its comfort and medical treatment.

17. When animals are taken sick, the exhibitors may either direct the treatment themselves, or allow the veterinary surgeon appointed by the Commission to treat the case. In this latter event the exhibitor will be charged for all expenses incurred. All possible care will be taken of animals exhibited, but the Commission cannot be held responsible for any injury or accident.

18. Airing will be provided for the display and exercise of horses and cattle.

19. On the last day of each serial show, a public auction may be held of such animals as the exhibitors may desire to sell. Animals may be sold at private sale at any time during their exhibition. During the period of a serial show, no animal, even in the event of being sold, will be allowed to be definitely removed.

20. An official catalogue of the animals exhibited will be published.
EXHIBITIONS OF LIVE STOCK.

21. Exhibitors of thoroughbred animals must, at the time of making their entries, file with the Chief of the Bureau a statement as to their pedigree, affirmed or sworn to before an officer authorized to take affidavits, and the papers so filed shall be furnished to the Judge of Exhibits.

22. The ages of live stock must be calculated up to the opening day of the exhibition of the class to which they belong.

23. Sheep breeders, desiring to exhibit wool, the produce of the flocks, will display not less than five fleeces.

24. All animals must be entered according to the prescribed rules as given in forms of entry, which forms will be furnished to the Chief of the Bureau of Agriculture.

BREEDING HORSES.

Mares entered as breeding animals must have had foals within one year of the show, or if in foal, certificates must be furnished to that effect.

All foals exhibited must be the offspring of the mare with which they are at foot.

Awards will be made to respective breeds for pure bred turf stallions, six years and over; pure bred turf stallions, four years and under six years; pure bred stallions, over two years and under four years; pure bred turf mares, six years and over; pure bred turf mares, over two and under six years.

Awards will be made for trotting stallions, six years and over; trotting stallions, over four years and under six; trotting stallions, over two years and under four; pure bred draught stallions, over four years and under six years; pure bred draught stallions, over two years and under four years; pure bred draught stallions, six years and over; pure bred draught stallions, over four and under six years; pure bred draught stallions, six years and over; pure bred draught stallions, six years and over.

RUNNING AND TROTTING HORSES

Shall be judged according to their record up to August 15th, 1876, due regard being had to present condition.

Awards will be made for running horses having made fastest record; trotting stallions having trotted a mile within two-thirty; mares and geldings having trotted a mile within two-twenty-five.

WALKING HORSES.

Fast-walking horses, whether bred for agricultural purposes or the saddle, will compete in the ring for awards.

MATCHED TEAMS.

Awards will be made for matched teams having trotted a mile in two-thirty-five; matched stallions for heavy draught, over sixteen hands high, and over fifteen hundred pounds weight each; matched geldings for heavy draught, over sixteen hands high, and over fifteen hundred pounds weight each; matched mares for heavy draught, over fifteen hands high, and over fourteen hundred pounds weight each; matched mules for heavy draught, over fifteen and a half hands high, and over thirteen hundred pounds weight each.

BREEDING ASSES.

Awards will be made to respective breeds of pure bred jacks over six years; pure bred jacks over three years and under six; pure bred she-asses over six years; pure bred she-asses over three years and under six.

NEAT CATTLE.

No cow will be eligible for entry unless accompanied with a certificate that, within fifteen months preceding the show, she had a living calf, or that the calf, if born dead, was born at its proper time. No heifer entered as in calf must be accompanied by a certificate that she shall have been bulled before the first of April, or present unmistakable proof of the fact to the Judges. No bull above one year old can be entered unless he have been in no stallion and the attendant be provided with a leading stick, which must be used whenever the animal is taken out of stall. Awards will be made for the best herd of each breed, the breeding animals of any herd; one bull, four cows, none under fifteen months.

Neat cattle, of each respective breed, will compete individually for awards: bulls, three years and over; bulls over two years and under three years; bulls over one year and under two years; cows four years and over; cows over three and under four years; cows or heifers in calf, over two years and under three years; yearling heifers. A sweepstake award will be made for the best bull of each breed. A sweepstake award will be made for the best cow of any breed.

FAT AND DRAUGHT CATTLE.

Animals entered as fat and draught cattle need not be of pure blood, but will compete on individual merits. Fat cattle must be weighed, and in general those will be judged best which have the greatest weight with the least surface and offal.

Awards will be made for best fattened steer of any age and breed; best fattened cow of any age or breed; most powerful yoke of oxen; most rapidly walking yoke of oxen; most thoroughly trained yoke of oxen; most thoroughly trained team of three or more yokes of oxen.

BREEDING SHEEP.

All sheep offered for exhibition must be accompanied with certificate to the effect that they have been shorn since the first of April, and the date given. If not fairly shorn, or if clipped so as to conceal defects, or with a view to improve the form or appearance, they will be excluded from competition.

Awards will be made to respective breeds for the best sheep of five animals of same breed and including one ram, the ewes all having had living lambs the past spring.

Awards will be made to respective breeds for rams two years and over; shearing rams. A sweepstake award will be made for the best ram, respectively of long, middle, and fine woolled breeds.

Awards will be made to respective breeds for ewes in pens of three, all having had living lambs; shearlings in pens of three.

A sweepstake award will be made for the best pen of three breeding ewes, respectively of long, middle, and fine woolled breeds.

FAT SHEEP.

Fat sheep entered for competition must be weighed, and in general those will be judged best which have the greatest weight, with the least surface and offal.

Awards will be made for pen of three best fattened sheep of each breed; pen of three best fattened sheep of any breed.

BREEDING SWINE.

Every competing sow above one year old must have had a litter, or be in pig, and the owner must give proof of these facts required. If a litter of pigs be sent with a sow, the young pigs must be sucklings, the offspring of the sow, and must not exceed the age of three months.
Awards will be made to respective breeds for the best pen of one boar and two breeding sows; for pen of sow and litter.

Awards will be made to respective breeds for boars two years old and over; boars one year old and under two years; boars between nine months and one year; breeding sows two years old and over; breeding sows one year old and under two years; pen of three sow pigs between nine months and one year.

A sweepstakes award will be made for the best boar of any breed. A sweepstakes award will be made for the best sow of any breed.

**FAT SWINE.**

Fat swine entered for competition must be weighed, and, in general, those will be judged best which have the greatest weight, with the least surface and offal.

Awards will be made for pairs of best fatted hogs of each breed; pairs of best fatted hogs of any breed.

**DOGS.**

Benches will be furnished free of charge. Exhibitors may themselves assume the cost of attendance upon their animals, but to provide for them who cannot conveniently attend the Exhibition, the Commission will assume the expenses of feeding and daily care, upon the payment of an attendance charge of three dollars upon each animal.

Awards will be made to respective breeds for dogs of two years and over; dogs of one year and under two; pups.

A sweepstakes award will be made for the best foreign-bred dog of any breed. A sweepstakes award will be made for the best home-bred dog of any breed.

Awards will be made to respective breeds for bitches of two years and over; bitches of one year and under two; bitch pups.

A sweepstakes award will be made for the best foreign-bred bitch of any breed. A sweepstakes award will be made for the best home-bred bitch of any breed.

**POULTRY.**

Poultry can only be exhibited in coops made after specifications furnished by the Bureau of Agriculture. The Commission will furnish coops and attendance upon payment of one dollar on each bird of the gallinaceous division, and two dollars on each pair of the aquatic division.

Awards will be made to respective breeds for pairs of one year and over, of chickens, turkeys, ducks, geese, swans, pigeons, guineas, and ornamental birds; for pairs under one year.

**FISH.**

Living fishes will be displayed in both fresh and salt water aquaria.

Awards will be made for largest display of fish of each species; largest display of fish of all species.
DEPARTMENT OF HORTICULTURE.
No. 151. HORTICULTURAL HALL.

Size 383 by 193 feet.

Architect, H. J. SCHWARZMAN.

Contractor, JOHN RICE, Philadelphia.

Wrought iron furnished by KEYSSTON BRIDGE COMPANY, Pittsburgh, Pa.

Cast iron furnished by SAMUEL J. CRESSWELL, Philadelphia.

Painting by JOSEPH CHAPMAN, Philadelphia.

Masonry by MOORE & SCATTERGOOD, Philadelphia.

APPROPRIATIONS of the City of Philadelphia have provided the Horticultural Building, which is to remain in permanence as an ornament of Fairmount Park. It is on the Lansdowne Terrace, a short distance north of the Main Building and Art Gallery, and has a commanding view of the Schuylkill river and the northwestern portion of the city. The design is in the Moorish style of architecture of the twelfth century, the principal materials externally being iron and glass. The main floor is occupied by the central conservatory, 230 by 80 feet, and 55 feet high, surmounted by a lantern 170 feet long, 20 feet wide, and 14 feet high. Running entirely around this conservatory, at a height of 20 feet from the floor, is a gallery 5 feet wide. On the north and south sides of this principal room are four forcing houses for the propagation of young plants, each of them 100 by 30 feet, covered with curved roofs of iron and glass. Dividing the two forcing houses in each of these sides is a vestibule 30 feet square. At the centre of the east and west ends are similar vestibules, on either side of which are the restaurants, reception room, offices, etc. From the vestibules ornamental stairways lead to the internal galleries of the conservatory, as well as to the four external galleries, each 100 feet long and 10 feet wide, which surround the roofs of the forcing houses. These external galleries are connected with a grand promenade, formed by the roofs of the rooms on the ground floor, which has a superficial area of 1800 square yards.

The east and west entrances are approached by flights of blue marble steps from terraces 80 by 20 feet, in the centre of each of which stands an open kiosque 20 feet in diameter. The angles of the main conservatory are adorned with eight ornamental fountains. In the basement, which is of fireproof construction, are the kitchen, storerooms, coal-houses, ash-pits, heating arrangements, etc.

The ground was graded and the foundations of Horticultural Hall laid on May 1st, 1875. The building was finished April 1st, 1876. It covers an area for exhibition purposes of 122,500 square feet, and cost about $300,000. This building will be permanent.
HORTICULTURAL HALL.

Scale, 80 ft. to 1 in.


Total Length, 350 ft.  Width, 100 ft.  Height, 65 ft.
CLASSIFICATION.

DEPARTMENT VII.—HORTICULTURE.

ORNAMENTAL TREES, SHRUBS, AND FLOWERS.

CLASS 700.—Ornamental trees and shrubs, evergreens.
CLASS 701.—Herbaceous perennial plants.
CLASS 702.—Bulbous and tuberous rooted plants.
CLASS 703.—Decorative and ornamental foliage plants.
CLASS 704.—Annuals and other soft-wooded plants, to be exhibited in successive periods during the season.
CLASS 705.—Roses.
CLASS 706.—Cactacea.
CLASS 707.—Ferns, their management in the open air and in ferneries, wardian cases, etc.
CLASS 708.—New plants, with statement of their origin.
CLASS 709.—Floral designs, etc.—Cut flowers, bouquets, preserved flowers, leaves, seaweeds. Illustrations of plants and flowers.—Materials for floral designs. Bouquet materials, bouquet holders, bouquet papers, models of fruits, vegetables, and flowers.

Hothouses, conservatories, graperies, and their management.

CLASS 710.—Hothouse and conservatory plants.
CLASS 711.—Fruit trees under glass.
CLASS 712.—Orchids and parasitic plants.
CLASS 713.—Forcing and propagation of plants.
CLASS 714.—Aquatic plants under glass, or in aquaria, etc.
CLASS 715.—Horticultural buildings, propagating houses, hotbeds, etc., and modes of heating them. Structures for propagating and forcing small fruits.
CLASS 716.—Portable or movable orchard houses and graperies, without artificial heat. Frames, beds.

Garden tools, accessories of gardening.

CLASS 720.—Tools and implements.—Machines for the transplanting of trees, shrubs, etc. Portable forcing pumps, for watering plants in greenhouses and methods of watering the garden and lawn.
CLASS 721.—Receptacles for plants.—Flower pots, plant-boxes, tubs, fern cases, jardinieres, etc. Window gardening. Plant and flower stands, ornate designs in iron, wood, and wire.
CLASS 722.—Ornamental wirework, viz.: fences, gates, trellis bordering of flower beds, porches, Park seats, chairs, garden statuary, vases, fountains, etc. Designations, labels, numbers.

Garden designing, construction, and management.

CLASS 731.—Treatment of water for ornamental purposes, cascades, fountains, reservoirs, lakes.
CLASS 732.—Formation and after-treatment of lawns.
CLASS 733.—Garden construction, buildings, etc.—Rockwork, grottoes. Rustic constructions and adornments for private gardens and public grounds.
CLASS 734.—Planting, fertilizing, and cultivating.
Trees, Shrubs, Flowers, Hot-House Plants.

Ornamental Trees, Shrubs, Flowers, and Floral Designs.

1 Wharton, Joseph, Philadelphia, Pa.—Eucalyptus globulus. 700
2 Bingham, Rodolphus, Camden, N. J.—Nelumbium luteum; sarracenia purpurea, drosera. 702
3 Bliss, G. K., & Sons, New York, N. Y.—Gladiolus, breckleyeasia. 702
2 Lovering, Joseph S., Philadelphia, Pa.—Decorative foliage, plants, etc. 703
3 Graham, Hugh, Philadelphia, Pa. a Decorative and ornamental foliage plants, ferns, etc. 702
b Begonias, soft-wooded plants, etc. 704
c Ferns, in collection. 707
d Floral designs and cut flowers. 709
4 Pennock Brothers, Philadelphia, Pa. a Foliage plants. 703
b Cut-flower designs. 709
4 Boyle, W. F., Philadelphia, Pa.—Decorative and ornamental foliage plants. 703
4 Compton, Louis F., New Brighton, N. Y.—Variety of coleons. 703
4 Eagle, Louis J., Philadelphia, Pa.—Decorative and ornamental foliage plants. 703
4 Robertson, Thomas, Philadelphia, Pa.—Decorative and ornamental foliage plants. 703
5 The Misses Richardson, Philadelphia, Pa.—Cactus. 706
6 Fitzgerald, R., Philadelphia, Pa.—Cactus. 706
7 Miller & Sievers, San Francisco, Cal. a Collection of Pacific coast cactus. 706
b Collection of ferns. 707
8 Such, George, South Amboy, N. J. a Decorative and ornamental foliage plants. 703
b Cactus, in collection. 706
c New plants. 708
9 Moon, Mahlon, & Son, Morrisville, Pa.—Collection of ferns. 707
10 Dick, John, Philadelphia, Pa. a Cactus. 706
b Ferns. 707
11 Miller & Hayes, Philadelphia, Pa.—Ferns from Australia. 707
12 Parsons, S. B., & Sons, Flushing, N. Y. a Varieties of ferns. 707
b Skeleton plants. 709
13 Sturtevant, Edmund D., Bordentown, N. J.—Ferns. 707
14 Saunders, William, Washington, D. C.—New and rare plants. 708
14a Riechers, I., New York, N. Y.—Begonia treblore; entirely new begonia. 708
15 Freeman, J. R., Georgetown, D. C.—Seedling begonia (large leaved species). 708

16 Dreer, Henry A., Philadelphia, Pa. a Ferns in ferneries and in wardian cases. 707
b Floral designs. 709
17 Henderson, Peter, New York, N. Y.—Wire designs for cut flowers, bouquet papers, and materials. 709
19 Parisian Flower Co., New York, N. Y.—Artificial tropical leaf-plants and bouquets. 709
20 Kresken, H. Acosta, Cincinnati, Ohio.—Preserved flowers, leaves, grasses, bouquets, baskets, crowns, etc. 709
20b Huss, J. & Francois, Flushing, N. Y.—Japanese and American skeleton ferns. 709
20d Kift, Joseph, & Son, Philadelphia, Pa.—Floral designs, cut flowers, bouquets, etc. 709
20e Peple, A., Brooklyn, N. Y.—Fancy grasses, baskets, etc. 709
20f Ringwalt, G. P. B., Philadelphia, Pa.—Autumnal leaf-leaves. 709
20g Smith, Stephen W., Philadelphia, Pa.—Preserved natural flowers. 709
20h Iles, F., Philadelphia, Pa.—Wire floral designs. 709
21 Cook, Mrs. O. A., San Francisco, Cal.—Preserved natural flowers. 709
22 Rolker, August, & Sons, New York, N. Y.—Preserved flowers and grasses, bouquet papers, tin foil, wire, frames, etc. 709
23 Leopold, Emil L., New York, N. Y.—Fancy flower baskets, in straw, different shapes and styles. 709
24 Le Moul, Adolphe, New York, N. Y.—Preserved flowers, representation of a lake with natural water lilies. 709
25 Jansen, Edward, 104 West 18th street, New York, N. Y.—Fancy flower baskets, imitation coral, white gilt, straw, brown willow, and fancy wire. 709
Fine novelties will be out for the coming fall season. Sample cards and price lists sent on application.
26 Rue, Miss Lizzie, Philadelphia, Pa.—Models of fruits and flowers. 709
27 Williamson, A. & H. A., 438 N. 8th St., Philadelphia, Pa.—Wax models of fruits, vegetables, flowers, ferns, autumn and foliage leaves. 709
Instructions given and orders executed. 32 premiums awarded. 709
28 Moffatt, Isaac, Philadelphia, Pa.—Models of named American fruits, fac-simile of choice specimens. 709

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
Hot-House Plants and Appliances, Gardening Implements.

29 Brossé, Madame S. C., San Francisco, Cal.—Collection of California sea-mosses. 709
30 Loving Brothers, Buffalo, N. Y.—Floral designs, comprising monograms, in italics, etc. 709
31 Klag, Philip, New York, N. Y.—Preserved natural flowers. 709
31a Hazlehust & Young, Philadelphia, Pa.—Cut flowers. (Special concession to sell in the Exhibition grounds.) 709

Hot-Houses, Conservatories, Graperies, and their Management.

33 Graham, Hugh, Philadelphia, Pa.—Hot-house and conservatory plants, erotic. 710
34 Lovering, Joseph S., Philadelphia, Pa.—Hot-house and conservatory plants. 710
35 Price, Stephen S., Philadelphia, Pa.—Hot-house and conservatory plants. 710
36 Committee of the Congressional Library of the United States (Botanic Garden), Washington, D. C.—Official, medical, tropical, and semi-tropical plants. 710
37 United States Agricultural Department, Washington, D. C.—Official and medicinal plants, mahogany, cocoa, chocolate, guava, papaw, rose apple, etc. 710
38 Baldwin, Mrs. M. W., Philadelphia, Pa.—Hot-house and conservatory plants. 710
39 Zoological Society, Philadelphia, Pa.—Australian tree fern. 710
40 Bines, Samuel M., Philadelphia, Pa.—India rubber tree. 710
41 Merryweather, Ann E., Camden, N. J.—Aloe. 710
42 Sellers, John, jr., Philadelphia, Pa.—Hot-house and conservatory plants. 710
43 Cummings, William, Philadelphia, Pa.—Orange tree, banana, ivy, and date palm. 710
44 Faust, William F., Philadelphia, Pa.—Philodendron pertusum and water lily. 710
45 Mackenzie, Thos. J., Philadelphia, Pa.—Hot-house and conservatory plants, plants of commerce. 710
46 Johnson, Joseph, Philadelphia, Pa.—Water plant. 710
47 Cuthbert, Allen, Philadelphia, Pa.—Orange tree. 710
48 Carpenter, Mrs. George W., Philadelphia, Pa.—Collection of conservatory plants. 710
50 Abbott, Charles F., Philadelphia, Pa.—Century plants (green and striped), saguaro plant. 710
52 Agnew, Hannah M., Philadelphia, Pa.—Banana. 710
53 Morris, Galloway C., Philadelphia, Pa.—Hot-house and conservatory plants. 710
54 Hoffner, Jacob, Cincinnati, Ohio.—Sago palm over 200 years old, belonged to Robert Morris in 1776. 710
55 Stokton, John A., Philadelphia, Pa.—Fig tree. 710
56 Weightman, William, Philadelphia, Pa.—Hot-house and conservatory plants. 710
57 Hance, A., & Sons, Red Bank, N. J.—Cycas revoluta. 710
58 Schaffer, William L., Philadelphia, Pa.—Sago palms. 710
59 Cope, Alfred, Philadelphia, Pa.—Century plants. 710
60 Such, George, South Amboy, N. J.—Perns, hot-house, and conservatory plants. 710
61 Clark, E. W., Philadelphia, Pa.—Orchids, etc. 712
62 Moon, Mahlon, & Son, Morrisville, Pa.—Variegated pineapple. 710
63a Sturtevant, Edmund D., Bordentown, N. J.—Orchids and parasitical plants. 712
64 Wilson, John G., New York, N. Y.—Portable green-house boiler, hot water pipe with vapor pan attached. 715
64a Myers, Thomas J., & Son, Philadelphia, Pa.—Green-house boiler for heating conservatories. 715
65 Buck, John, Philadelphia, Pa.—Boiler for heating-houses, conservatories, etc. 712
64c Warner, James, Philadelphia, Pa.—Boiler for heating-green-houses, etc. 715
66 Jordan Horticultural Co., St. Louis, Mo.—Heating apparatus for green-houses. 715
65a Hitchings & Co., New York, N. Y.—Corrugated fire-box, boilers, and base-burning water-heater for warming green-houses, conservatories, etc. 715
66 Smith & Lynch, Boston, Mass.—Portable boilers for heating green-houses. 715
67 Ellis, Charles R., New York, N. Y.—Base-burning boilers for heating green-houses, graperies, etc. 715

Garden Tools, Accessories of Gardening.

69 Jones, John M., Palmyra, N. Y.—Horticultural and floricultural implements of various styles and modifications. 1st. Revolving-staff implements for pruning, transplanting, weeding, and cultivating. 2d. Implements to be used with one hand, for weeding, transplanting, and cultivating, and in some its forms is very convenient and attractive for ladies' use. 720
69a Bliss, B. K., & Sons, New York, N. Y.—Hand seed-sower, fertilizer dropper. 720
69b Jenkins, George E., Concord, N. H.—Portable sprinkler and fountain for irrigating and ornamenting lawns, etc. 720
69c Farra, L. D., Philadelphia, Pa.—Lawn sprinkler. 720
70 Wheeler, W. P., Boston, Mass.—Hose liquid distributor, watering pot, insect annihilator, for garden and field, liquid manure distributor. 720
Garden Ornaments, Accessories, and Designs.

71 Moon, Mahlon, & Son, Morrisville, Pa.—
a Wheel hoe. 720
b Vase. 721
c Lead label. 722

72 Dreer, Henry A., Philadelphia, Pa.—
a Tools and implements. 720
b Receptacles for plants, fern cases, etc. 721

73 Bingham, O. A., Keene, N. H.—Revolving flower stand. 721

74 Hews, A. H., & Co., North Cambridge, Mass.—Flower pots, hanging pots, ferneries, garden vases, etc. 721

75 Pierce, Mrs. M. R., New York, N. Y.—Window attachments and other improved flower stands with water receptacle, sprinkling pan, and draining saucer. 721

76 Chase, James, Rochester, N. Y.—Combined aquarium, plant stand, bird cage, and fernery. 722

77 McClunie, Thomas, Hartford, Conn.—Drainer and evaporator with globe attachments for pots, vases and hanging baskets. 723

78 Rolker, August, & Sons, New York, N. Y.—Flower pots, boxes, fern cases, flower stands, etc. 721

79 Hills, George, Plainville, Conn.—Revolving flower stand with fountain attachment. For hydrants, self-sprinkling, surplus water caught by drip-pan. 721

80 Perine, M., & Sons, Baltimore, Md.—Flower pots, stone and fancy earthenware. 723

81 Pennock Brothers, Philadelphia, Pa.—Wardian cases, ferneries with shades 721

82 Hess, John M., & Sons, Philadelphia, Pa.—Chandelier designs with baskets, hanging baskets, hanging ferneries, vases, etc. 721

83 Freeman & Smith, Racine, Wis.—
a Aquaria, ferneries, fountain, vases, etc. 721
b Plant stands, flower-pot brackets, window boxes and shelves, tree-tub castors, etc. 722

Illustrated catalogue free. Goods packed flat for shipment.

84 Racine Hardware Co., Racine, Wis.—
a Plant and flower stands, ferneries, aquaria, etc. 722
b Fountains, vases, settees, etc. 722

85 Galloway & Graff, Philadelphia, Pa.—
a Parlor vases, window boxes, pots, fern cases, baskets, etc. 721
b Terra-cotta statuary, vases, tazzas, pedestals. 722

86 Page, W. H., & Co., Greenville, Conn.—
a Plant stands. 721
b Trellises. 722

87 Chase, Benj., jr., Derry, N. H.—Round-tapering flower stakes. 722

88 Balderston, George, Colora, Md.—Sectional vases. 722

89 Henderson, Peter, Jersey City, N. J.—For plant, garden, and veranda trellises. 722

90 Harvey & Adamson, Philadelphia, Pa.—Oriental and Japanese garden vases, statuary, etc. 722


92 Mott, J. L., Iron Works, New York, N. Y.—Garden statuaries, vases, etc. 722

93 Sanguinetti, Percy A., Philadelphia, Pa.—Glass-covered metallic labels, tree-protecting boxes. 722

94 Mayer, Charles, Baltimore, Md.—Self-acting water fountain. 722

95 Ebert, John, Philadelphia, Pa.—Parlor self-driving fountain. 722

96 Ives, F., Philadelphia, Pa.—Wire baskets, flower stands, etc. 722

96 Mueller, Quackenboss & Co., Philadelphia, Pa.—Vases in artificial stone designs. 722

97 Brown, J. Morton, Philadelphia, Pa.—Grape-vine trellises. 722

98 Moorhead Clay Works, Philadelphia, Pa.—Terra-cotta vases. 722

Garden Designing, Construction, and Management.

99 Miller & Hayes, Philadelphia, Pa.—Designs for laying out gardens and improving country residences. 723

101 Weidenmann, Jacob, New York, N. Y.—Set of plans for beautifying and improving country homes; survey, drainage, planting, and general maps. 730

102 Heissinger, F. X., New York, N. Y.—Designs for landscape gardening. 729

103 McClunie, Thomas, Hartford, Ct.—
a Designs for laying out gardens, and the improvement of public grounds. 720
b Essay on formation and after-treatment of lawns. 721
c Metallic lawn gutters, curb, and drain. 723

103 Bliss, B. K., & Sons, New York, N. Y.—Globe sundial, adapted to any latitude. 730

103 Shove, Geo. A., Dighton, Mass.—Designs for a sanatorium. 342

103 Phoenix Stone Manufacturing Co., Philadelphia, Pa.—Artificial stone. 715

103 Rion, James H., Winsboro, S. C.—Section of cork-oak raised from an acorn. 600

OUT-DOOR EXHIBITS.

Ornamental Trees, Shrubs, and Flowers.

1 Bingham, Rudolphus, Camden, N. J.—Water lilies. 720

1a Salt, James, Philadelphia, Pa.—Fig tree. 720

1 Blasi, B. K., & Sons, New York, N. Y.—Gladiolus brachybiennis. 720

2 Mackenzie, Thomas J., Philadelphia, Pa.—Decorative foliage plants. 703

2a Wilson, Charles H., Lower Merion, Pa.—Collection of geraniums. 713

For classes of exhibits, indicated by numbers at end of entries, see Classification. pp. 12-14.
Garden Ornaments, Designs, Tools, Ornamental Plants.

26 Gibson & Bennet, Woodbury, N. J.—Collection of verbenas. 703
2c Harris, Wm. K., Philadelphia, Pa.—Collection of geraniums. 703
a Bulbous and tuberous-rooted plants. 702
b Ornamental foliage plants. 702
c Annuals and soft-wooded plants. 704
a Ferns, in ferneries and wardian cases. 707
3a Scott, Robert, Philadelphia, Pa.
a Collection of geraniums; Zonolas geraniums. 703
b Collection of roses. 705
a Annuals and other soft-wooded plants. 705
b Roses, in collection. 705
4a Marc, Gabriel, Woodside, N. Y.—Collection of roses. 705
5 Moon, Mahlon, & Son, Morrisville, Pa.
a Ornamental trees, shrubs, etc. 700
b Herbaceous plants. 701
c Gladiolus, dahlias, etc. 702
d Flowering and ornamental plants, etc. 703
e Soft-wooded plants. 704
f Roses, in collection. 705
g New plants. 708
h Allen's new American hybrid gladiolus, raised by C. L. Allen, Long Island, New York. 702
i H. E. Hooker's new grape Brighton, very early, hardy, and excellent. 708
j E. Y. Teas' new tri-colored cana, and new geraniums. 703
k Wm. H. Moon's collection of new callias. 703
a Herbageous perennial plants. 701
b Bulbous and tuberous-rooted plants. 702
c Annuals and other soft-wooded plants. 704
7 Sturtevant, Edmund D., Bordentown, N. J.—Herbaceous plants. 701
b Ferns. 707
8 Such, George, South Amboy, N. J.
a Ornamental trees, shrubs, etc. 700
b Herbageous perennial plants. 701
c Bulbous and tuberous-rooted plants. 702
a Ornamental trees, shrubs, etc. 700
b Decorative and ornamental plants. 703
c Soft-wooded plants. 704
d Roses. 705
e New plants. 708
10 Wilson, William C., Astoria (L. I.), N. Y.—Plants for flower beds. 703
11 Henderson, Peter, 35 Courtlandt st., New York, N. Y.—250 varieties of new and rare geraniums, comprising double zonale, silver tri-color and golden tri-color sorts; also a circular bed of 500 plants, representing the "massing" or "ribbon" style of gardening by the use of different colored leaves. Located on and near Agricultural avenue. 704
a Hardy trees and shrubs. 700
b New plants. 708
13 Zeller, Charles, Flatbush, Long Island, N. Y.—Monthly carnations, tropical plants, lilies, and cut-flowers a specialty. 704
14 Champond, Louis F., New Brighton, N. Y.—Pansies. 705
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.

15 Hance, A., & Son, Red Bank, N. J.—New hardy ornamental plants and shrubs. 708
16 Parsons, S. B., & Sons, Flushing, N. Y.
a Deciduous trees, evergreens, and shrubs. 709
b New plants from Japan. 708
17 Brookes, Bro., & Thomas, West Chester, Pa.
a Conifers. 707
b Ivies. 703
18 Parsons, R. B., & Co., Flushing, N. Y.
a Evergreen trees and shrubs, conifers, rhododendrons, kalmias, etc., deciduous trees, magnolias, azaleas, etc. 700
b Roses, in collection. 705
19 Miller & Hayes, Philadelphia, Pa.
a Ornamental trees and shrubs. 700
b Decorative plants. 703
c Roses, in collection; Centennial geranium. 705
a Ornamental trees and shrubs, abies and retinospora, from Japan. 700
b Roses, in collection; Centennial geraniums. 705
21 Moore, Samuel H., junior, Philadelphia, Pa.—Fig tree. 700
22 Hexamer, F. M., New Castle, N. Y.—Begonia Froehelli, a new bedding plant, Mont Blanc, a new hybrid. 708

Garden Tools, Accessories of Gardening.

23 Peck & Skilton, Westville, Conn.
a Rustic goods for house. 721
b Rustic goods for grounds. 722
24 Mott, J. L., Iron Works, New York, N. Y.—Fountains, vases, statuary, and settees. 722
25 Hanson, O. O., Philadelphia, Pa.—Galvanized railing, fences, gates, seats, vases, etc. 722
26 Gossin, F., Philadelphia, Pa.—Terra-cotta vases. 722
27 Mitchell, Wilson, Philadelphia, Pa.—Potsilica (artificial stone) fountain basins, vases, tiles, etc. 722
28 Walker, M., & Sons, Philadelphia, Pa.—Wrought-iron railing, ornamental gates, farm and hurdle fence, wirework 722
29 Brown, J. Morton, Philadelphia, Pa.—Grape-vine trellises. 722
30 O'Brien Bros., Yonkers, N. Y.
a Hanging baskets, etc. 721
b Rustic gates, settees, chairs, stands, vases, etc. 722
31 Moorhead Clay Works, Philadelphia, Pa.—Terra-cotta vases. 722
31a Elmore, Daniel, Trumansburg, N. Y.—Settees and chairs. 722
(For ground of American Restaurant.)

Garden Designing, Construction, and Management.

32 Sturtevant, Edmund D., Bordentown, N. J.—Rustic adornments. 733
33 O'Brien Bros., Yonkers, N. Y.—Rustic summer-houses, etc. 733
PENNSYLVANIA RAILROAD

IS THE

GREAT TRUNK LINE

AND

FAST MAIL ROUTE

OF THE UNITED STATES.

PULLMAN PALACE CARS

ARE RUN OVER IT FROM

New York, Philadelphia, Baltimore, and Washington,

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CHICAGO, CINCINNATI, ST. LOUIS, and LOUISVILLE,

Making the QUICKEST TIME and passing through the MOST ATTRACTIVE SCENERY on the Continent.

EXPRESS TRAINS

Over this route run GREATER DISTANCES WITHOUT STOP than over any other railway in the World.

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Can be procured at 838 Chestnut Street, Corner Broad and Chestnut Streets, No. 116 Market Street, Depot, Thirty-second and Market Streets, Centennial Depot, Philadelphia, and at the offices of the Company in all principal cities and towns.

FRANK THOMSON,

General Manager.

D. M. BOYD, Jr.,

General Passenger Agent.
Is printed and published every day in the year, at 166, 168, and 170 Nassau Street, New York City. Its regular edition on secular days now (April, 1876) averages about 149,000; its weekly edition over 88,000; and its Sunday issue is nearly 100,000. It thus prints and sells more than a million copies a week, which are read all over the United States. This is a circulation unprecedented in American journalism, and it is constantly on the increase. In proof of this, let the following figures testify. They show the number of copies of The Sun printed every week during the year ending March 11, 1876.

<table>
<thead>
<tr>
<th>Week Ending</th>
<th>Copies Printed</th>
<th>Week Ending</th>
<th>Copies Printed</th>
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</thead>
<tbody>
<tr>
<td>March 20</td>
<td>819,382</td>
<td>September 18</td>
<td>800,358</td>
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<tr>
<td>27</td>
<td>845,382</td>
<td>25</td>
<td>858,778</td>
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<tr>
<td>April 2</td>
<td>857,556</td>
<td>October 2</td>
<td>863,935</td>
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<tr>
<td>10</td>
<td>865,956</td>
<td>9</td>
<td>870,320</td>
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<td>17</td>
<td>856,076</td>
<td>16</td>
<td>878,082</td>
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<tr>
<td>24</td>
<td>858,270</td>
<td>23</td>
<td>874,026</td>
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<tr>
<td>May 1</td>
<td>869,542</td>
<td>20</td>
<td>870,160</td>
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<tr>
<td>8</td>
<td>867,850</td>
<td>27</td>
<td>882,248</td>
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<tr>
<td>15</td>
<td>877,450</td>
<td>November 6</td>
<td>908,580</td>
</tr>
<tr>
<td>22</td>
<td>874,946</td>
<td>13</td>
<td>882,372</td>
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<tr>
<td>29</td>
<td>886,276</td>
<td>20</td>
<td>847,815</td>
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<tr>
<td>June 5</td>
<td>873,782</td>
<td>27</td>
<td>886,248</td>
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<tr>
<td>12</td>
<td>869,769</td>
<td>December 4</td>
<td>845,378</td>
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<tr>
<td>19</td>
<td>880,348</td>
<td>11</td>
<td>1,042,716</td>
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<tr>
<td>26</td>
<td>883,846</td>
<td>18</td>
<td>956,294</td>
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<tr>
<td>July 3</td>
<td>898,892</td>
<td>25</td>
<td>933,864</td>
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<tr>
<td>10</td>
<td>867,674</td>
<td>8</td>
<td>952,201</td>
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<td>17</td>
<td>877,400</td>
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<tr>
<td>24</td>
<td>876,282</td>
<td>22</td>
<td>969,910</td>
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<tr>
<td>31</td>
<td>874,210</td>
<td>29</td>
<td>967,850</td>
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<tr>
<td>August 7</td>
<td>863,558</td>
<td>February 6</td>
<td>993,080</td>
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<tr>
<td>14</td>
<td>875,982</td>
<td>12</td>
<td>1,024,647</td>
</tr>
<tr>
<td>21</td>
<td>880,488</td>
<td>19</td>
<td>1,027,209</td>
</tr>
<tr>
<td>28</td>
<td>870,502</td>
<td>26</td>
<td>1,014,766</td>
</tr>
<tr>
<td>September 4</td>
<td>872,211</td>
<td>March 4</td>
<td>1,014,998</td>
</tr>
<tr>
<td>11</td>
<td>860,755</td>
<td>11</td>
<td>1,028,951</td>
</tr>
</tbody>
</table>

Total: 46,799,769

In printing these papers, no less than three million four hundred and twenty-six thousand six hundred and ten (3,426,610) pounds of paper were consumed.

***

ADVERTISING RATES.

Daily and Sunday, 40 cents a line, ordinary advertising; large type, 80 cents; and preferred positions, 50 cents to $2.50, according to classification.

Weekly, 50 cents a line; no extra charge for large type. Preferred positions from 75 cents to $2.00.

SUBSCRIPTION RATES.

Daily (4 pages), by mail, $0.55 a month, or $6.50 a year, postpaid; with Sunday edition, $7.70.

Sunday (8 pages), $1.20 per year, postpaid.

Weekly (8 pages), $1.20 per year, postpaid.

Address, THE SUN, New York.
34 Peck & Skilton, Westville, Ct.—
Rustic buildings. 733

35 Lebanon Building & Paving Block Company, Lebanon, Pa.—Building blocks of annealed slag paving. 733


35b Elmore, Daniel, Trumansburg, N. Y.—Summer-houses and pagodas. 733


36a Machines, materials, staple products of the soil of the United States, specimen plants fertilized with guano. 734

36b Commercial fertilizers, phosphatic, calcareous, etc. 631

37 Boileau, A., New York, N. Y.—
Trained fruit trees. 734

38 Austin, R., Camden, N. J.—Cranberry vines. 734

39 Miller & Sievers, San Francisco, Cal.—Collection of cones of the Pacific coast, coniferae. 605

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
DEPT. VII.—HORTICULTURE.

GREAT BRITAIN.

Ornamental Trees, Shrubs, Tools, and Accessories of Gardening.

Ornamental Trees and Shrubs.

1 Veitch, James, & Sons, Royal Exotic* Nursery, London.
   a Collection of standard and dwarf rhododendrons, standard and dwarf hollies, standard Portugal laurels 700
   b Collection of new Japanese coniferæ. 708
2 Waterer, Anthony, Knap Hill Nursery, Woking, Surrey.—Rhododendrons and azaleas (in tent). 700
3 Williams, B. S., Victoria & Paradise Nurseries, London.—Collection of new and rare plants, orchids, and ferns of recent introduction. 708

4 Bull, William, Chelsea, London.—Illustration of new and rare plants. 709

Garden Tools, Accessories of Gardening.

5 Barnard, Bishop, & Barnard,Norfolk Iron Works, Norwich.
   a Lawn-mowers, garden-rollers, horse-reels, water-barrows, croquet-netting, espalier-trainers, etc. 720
   b Garden-chairs. 722

6 Doulton, H., & Co., Lambeth, London.—Terra-cotta work, statue of Diana (heroic size), Amazon vase, and sundry other vases. 722

NEW ZEALAND.

Ornamental Trees and Shrubs.

1 New Zealand.—Esculent fern root. Will germinate if crushed and planted in rich soil and shady place; collection of ferns. 707

JAMAICA.

Hot-Houses, Conservatories, and their Management.

Hot-Houses, Conservatories, and their Management.

1 Thompson, Robert, Jamaica.—Collection of economic plants. 710

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
### CANADA.

**Gardening Appliances.**

<table>
<thead>
<tr>
<th>Garden Tools, Accessories of Gardening.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Wells, William, Beamsville, Ont.—</td>
<td>Flower-pots and saucers.</td>
</tr>
<tr>
<td><strong>2</strong> Ahern, J. H., Paris, Ont.—Flower-</td>
<td></td>
</tr>
<tr>
<td>pots and saucers.</td>
<td>721</td>
</tr>
<tr>
<td><strong>3</strong> Pratt, Chorless, London, Ont.—</td>
<td>Flower-pots and saucers.</td>
</tr>
<tr>
<td><strong>4</strong> Welding, E., Brantford, Ont.—</td>
<td>Flower-pots and saucers.</td>
</tr>
<tr>
<td><strong>5</strong> Farrar, G. H. &amp; L. E., St. John, Q.—</td>
<td>Fancy flower-pots.</td>
</tr>
<tr>
<td><strong>6</strong> Hobson, Walter, Quebec, Q.—</td>
<td>Flower-pots.</td>
</tr>
</tbody>
</table>

### FRANCE.

**Ornamental Plants, Hot-Houses, Ornaments, Designs.**

<table>
<thead>
<tr>
<th>Ornamental Trees, Shrubs, and Flowers.</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Roempler, L., Nancy.—Ornamental</td>
<td></td>
<td>700</td>
</tr>
<tr>
<td>plants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2</strong> Leroy, Louis, Angers, Maine-and-</td>
<td>Ornamental plants and fruit</td>
<td>700</td>
</tr>
<tr>
<td>Loire.—</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong> Verdier, E., senior, Paris.—Gladiol-</td>
<td></td>
<td>702</td>
</tr>
<tr>
<td>us.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4</strong> Verdier, Charles, Paris.</td>
<td></td>
<td>702</td>
</tr>
<tr>
<td><strong>a</strong> Gladiolus.</td>
<td></td>
<td>702</td>
</tr>
<tr>
<td><strong>b</strong> Roses.</td>
<td></td>
<td>705</td>
</tr>
<tr>
<td><strong>4a</strong> Lacharme, Fr., Lyons.—A collection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>of roses; thirty-seven varieties origi-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>nated and grown by exhibitor.</td>
<td></td>
<td>705</td>
</tr>
<tr>
<td><strong>4b</strong> Allegatoire, Lyons.—New zonal</td>
<td></td>
<td></td>
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<tr>
<td>double geraniums, originated and grown</td>
<td></td>
<td></td>
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<tr>
<td>by exhibitor.</td>
<td></td>
<td>708</td>
</tr>
<tr>
<td><strong>4c</strong> Sisley, Jean, Lyons.—New zonal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>geraniums, originated and grown by ex-</td>
<td></td>
<td></td>
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<tr>
<td>hibitor.</td>
<td></td>
<td>708</td>
</tr>
<tr>
<td>—Plots, flowers, and vegetables.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6</strong> Roempler, L., Nancy.—Hot-house</td>
<td></td>
<td>720</td>
</tr>
<tr>
<td>plants.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7</strong> Pinel, C. P., Paris.—Application of</td>
<td></td>
<td>713</td>
</tr>
<tr>
<td>electricity to germination and fructifica-</td>
<td></td>
<td></td>
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<tr>
<td>tion.</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Garden Tools, Accessories of Gardening.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8</strong> Lichtenfelder, Paris.—Monumental</td>
<td>Hot-houses.</td>
</tr>
<tr>
<td>hot-houses.</td>
<td></td>
</tr>
<tr>
<td><strong>9</strong> Couette, La Briche, Seine.—Porta-</td>
<td></td>
</tr>
<tr>
<td>ble tents, kiosk, and sheds; folding</td>
<td></td>
</tr>
<tr>
<td>arm-chairs, bedsteads.</td>
<td></td>
</tr>
<tr>
<td><strong>10</strong> Durenne, A., Paris.—Monumental</td>
<td></td>
</tr>
<tr>
<td>fountain.</td>
<td></td>
</tr>
<tr>
<td><strong>11</strong> Lichtenfelder, Paris.—Garden fur-</td>
<td></td>
</tr>
<tr>
<td>niture; elastic seats; iron gates and trellises.</td>
<td></td>
</tr>
<tr>
<td><strong>12</strong> Thiry, J., jr., Paris.—Trellises</td>
<td></td>
</tr>
<tr>
<td>and galvanized iron fences.</td>
<td></td>
</tr>
<tr>
<td><strong>13</strong> Walcker, W., Paris.—Garden</td>
<td></td>
</tr>
<tr>
<td>seats.</td>
<td></td>
</tr>
</tbody>
</table>

**Garden Designing, Construction, and Management.**

<p>| Garden Designing, Construction, and |  |</p>
<table>
<thead>
<tr>
<th>Management.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>14</strong> Bonvoisin, A., Paris.—Garden</td>
<td></td>
</tr>
<tr>
<td>plants.</td>
<td></td>
</tr>
<tr>
<td><strong>15</strong> Duvaliers, F., Paris.—Park and garden</td>
<td></td>
</tr>
<tr>
<td>plans; books on parks and gardens.</td>
<td></td>
</tr>
<tr>
<td><strong>16</strong> Vilmorin, Andrieux, &amp; Co., Paris.—</td>
<td></td>
</tr>
<tr>
<td>Photographs of flowers, vegetables, and plants; samples of seeds.</td>
<td></td>
</tr>
<tr>
<td><strong>17</strong> Ratine, Paris.—Rocky grotto.</td>
<td></td>
</tr>
</tbody>
</table>

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
GERMANY.

Garden Designing, Construction, and Management.

2 Eichler, Gustav, Sans Souci.—Plans for gardens.

AUSTRIA.

Garden Designing, Construction, and Management.

1 Pohl, Charles, Austria.—Standard currants and gooseberries.

NETHERLANDS.

Fruit Trees, Ornamental Plants, Flowers, Designing.

<table>
<thead>
<tr>
<th>Ornamental Trees, Shrubs, and Flowers</th>
<th>Garden Designing, Construction, and Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Galesboot, J. P. R., Amsterdam.—Fruit trees.</td>
<td>6 Groenewegen, A. C., Haarlem.—The flowers of Haarlem.</td>
</tr>
<tr>
<td>2 Boer, W. C., Boskoop.—Ornamental trees and shrubs.</td>
<td>7 Nes, Az. P. van, Boskoop.—Trained fruit trees.</td>
</tr>
<tr>
<td>3 Krelage, J. H., Haarlem. a Bulbs. b Collection of gladiolus, etc.</td>
<td>8 Galesboot, J. P. R., Amsterdam.—Trained fruit trees.</td>
</tr>
<tr>
<td>4 Nes, Az. P. van, Boskoop.—Trees, shrubs, and flowers.</td>
<td></td>
</tr>
</tbody>
</table>

SWEDEN.

Garden Tools.

1 Von Essen, H. H., Baron, Tidaholm.—Gardeners' Scissors.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-14.
ITALY.

Garden Decoration.

Garden Tools, Accessories of Gardening.
1 Foley, Margaret A., Rome.—Marble Fountain.

LUXEMBURG.

Ornamental Trees.

Ornamental Trees, Shrubs, and Flowers.
1 Support & Notting, Limpertsberg, near Luxemburg.—Rose trees.

HAWAII.

Ornamental Trees.

Ornamental Trees and Shrubs.
1 Hawaiian Islands.—Ferns.

ARGENTINE REPUBLIC.

Ornamental Plants, Designs.

Ornamental Trees, Shrubs, and Flowers.
1 Provincial Commission, Province of Santiago del Estero.—Cacti.
2 Fuente, Diego de la, Province of Corrientes.—Caraguata plant.
3 Gelos, Martin, Province of La Rioja.—Scarlet oak, coccus cacti.
4 Provincial Commission, Province of Mendoza.—Cacti.
5 Provincial Commission, Province of Cordoba.—Cacti.
6 Forkel, F., Province of Buenos Ayres.—Projected plan of the park "'3d of February."

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
## SPAIN.

Ornamental Trees, Shrubs, Flowers, Garden Designing.

<table>
<thead>
<tr>
<th>Ornamental Trees, Shrubs, Flowers, and Floral Designs</th>
<th>3 Poey, Juan, Havana, Cuba.—Forty plants presented to the U. S. Centennial Commission.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Lachau, Jules, Havana, Cuba.—Collection of plants, cacti, new plants.</td>
<td>710 Garden Designing, Construction, and Management.</td>
</tr>
<tr>
<td>Hot Houses, Conservatories, Grapevines, and their Management.</td>
<td>4 Lachau, Jules, Havana, Cuba.—</td>
</tr>
<tr>
<td>2 Lachau, Jules, Havana, Cuba.—Agaves, euphorbias.</td>
<td>a Physiology of plants.</td>
</tr>
<tr>
<td></td>
<td>b Rustic and stone work.</td>
</tr>
</tbody>
</table>

## PHILIPPINE ISLANDS.

Ornamental Trees and Shrubs.

<table>
<thead>
<tr>
<th>Ornamental Trees and Shrubs.</th>
<th>707</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Philippine Islands.—Ferns.</td>
<td>707</td>
</tr>
</tbody>
</table>

## No. 170. HORTICULTURAL ANNEX.

North of Horticultural Hall. Constructed of wood and iron, in the form of a tent, and covered with canvas. Designed for the exhibition of flowers and plants during the season.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-14.
THE
American Newspaper Union.

A. J. AIKENS, President.

<table>
<thead>
<tr>
<th>Newspaper Union</th>
<th>Copies</th>
<th>Weekly Rate</th>
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</thead>
<tbody>
<tr>
<td>New York</td>
<td>315</td>
<td>$3.00</td>
</tr>
<tr>
<td>Illinois</td>
<td>117</td>
<td>$2.00</td>
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<tr>
<td>Wisconsin</td>
<td>85</td>
<td>$3.50</td>
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<tr>
<td>Minnesota</td>
<td>145</td>
<td>$1.50</td>
</tr>
<tr>
<td>Iowa</td>
<td>73</td>
<td>$.75</td>
</tr>
</tbody>
</table>

THE ORIGIN OF CO-OOPERATIVE NEWSPAPER ADVERTISING.

Co-operative newspaper printing, as now practised, originated in Wisconsin twelve years ago. It is termed co-operative for the reason that one side of each of the newspapers is printed at a central office, and the paper sent in its half-printed state to the home office, where it is completed with editorials, local news, and other matter prepared by the editor or publisher. In December, 1846, the idea of co-operation, with advertisements, occurred to Mr. Aikens, while yet serving his time as an apprentice, in printing the message of President Polk on one side of a country newspaper of New England at Boston, and the other half being printed at the local office.

Mr. A. J. Aikens, a practical printer and business man, conceived the idea of reducing the cost of ready-printed paper, as it is now termed, to country publishers, by making an agreement with them to use a certain space in each of their papers for advertisements that he might procure. This plan of co-operation he put into practice twelve years ago, at the office of Cramer, Aikens & Cramer, Milwaukee. It at once became successful, leading to the establishment of co-operative newspaper printing-offices in Chicago, New York, St. Louis, Cincinnati, Memphis, St. Paul, and other places. There are now over two thousand newspapers printed upon the co-operative plan in the United States and Canadas, and the number is constantly increasing, it having more than doubled in the last five years. The enterprise is no longer an experiment, but an established success, and the system is one yielding manifold advantages to advertisers as well as to local publishers.

The American Newspaper Union

Is essentially national. The papers represented in it are located in all the States of the Union and in nearly five hundred county seats. They circulate over the whole area of the country from Maine to Colorado, distributing at least one hundred copies every year to each square mile of the settled portions of the United States.

Although, as a whole, the Union List is national, covering all sections, it is so made up of different members as to be susceptible of easy division into sections—East, Middle, West, South.

The distribution of the papers is as follows:

<table>
<thead>
<tr>
<th>State</th>
<th>Copies</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England</td>
<td>78</td>
</tr>
<tr>
<td>Ohio</td>
<td>122</td>
</tr>
<tr>
<td>Illinois</td>
<td>117</td>
</tr>
<tr>
<td>New York</td>
<td>261</td>
</tr>
<tr>
<td>New Jersey</td>
<td>27</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>65</td>
</tr>
<tr>
<td>Virginia</td>
<td>21</td>
</tr>
<tr>
<td>No. and So. Carolina</td>
<td>24</td>
</tr>
<tr>
<td>Missouri</td>
<td>17</td>
</tr>
<tr>
<td>Michigan</td>
<td>86</td>
</tr>
<tr>
<td>Kansas</td>
<td>52</td>
</tr>
<tr>
<td>Minnesota</td>
<td>79</td>
</tr>
<tr>
<td>Iowa</td>
<td>85</td>
</tr>
<tr>
<td>Nebraska</td>
<td>15</td>
</tr>
<tr>
<td>Texas</td>
<td>29</td>
</tr>
<tr>
<td>Tennessee</td>
<td>29</td>
</tr>
<tr>
<td>Alabama</td>
<td>32</td>
</tr>
<tr>
<td>New York</td>
<td>118</td>
</tr>
<tr>
<td>New Jersey</td>
<td>13</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>25</td>
</tr>
<tr>
<td>Virginia</td>
<td>24</td>
</tr>
<tr>
<td>No. and So. Carolina</td>
<td>26</td>
</tr>
<tr>
<td>Ohio</td>
<td>121</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>89</td>
</tr>
<tr>
<td>Minnesota</td>
<td>79</td>
</tr>
<tr>
<td>Iowa</td>
<td>85</td>
</tr>
<tr>
<td>Nebraska</td>
<td>15</td>
</tr>
<tr>
<td>Missouri</td>
<td>17</td>
</tr>
<tr>
<td>Kansas</td>
<td>52</td>
</tr>
<tr>
<td>Alabama</td>
<td>32</td>
</tr>
<tr>
<td>Texas</td>
<td>29</td>
</tr>
<tr>
<td>Tennessee</td>
<td>29</td>
</tr>
<tr>
<td>Louisiana</td>
<td>11</td>
</tr>
<tr>
<td>Mississippi</td>
<td>29</td>
</tr>
<tr>
<td>Other States</td>
<td>46</td>
</tr>
</tbody>
</table>

AGGREGATE CIRCULATION.

The circulation of these papers is large and constantly increasing. It is larger than the circulation of any other lists or combinations of country papers in the United States—the last aggregate weekly circulation being seven hundred thousand seven hundred and thirty copies (700,730).

SEND TO EITHER OFFICE FOR A CIRCULAR.
Ph. J. Lauber's

Centennial Restaurant
NEAR HORTICULTURAL HALL, CENTENNIAL GROUNDS,
IMPORTER OF WINES.

RESTAURANT, 24 South Fifth Street,
PHILADELPHIA.

Corner of Belmont and Fountain Avenues,
NEAR THE LAKE.

FRENCH RESTAURANT,
LES TROIS FRÈRES PROVENCAUX.

The same which had such a great success in the Vienna Exhibition, in 1873.

CH. VERDIER,
of the MAISON DOREE, of Paris, Proprietor.

Near the Lake, opposite the U. S. Government Building.

LONDON.

BY ROYAL LETTERS PATENT.

CORRY & CO.'S

GOLD MEDAL GINGER ALE,
And other Pure Aerated Waters.

CROMAC SPRINGS, BELFAST, IRELAND.
Original Manufacturers (for exportation of the world-renowned GINGER ALE, and proprietors, in perpetuity, of the celebrated Cromac Sprin). Established 1875. Beware of spurious imitations.

SEE STAND IN AGRICULTURAL HALL.

1873. 1875.

HIGGIN'S FACTORY FILLED SALT,
Which is prepared expressly for Dairy purposes, is admitted by all Chefs and Packers who use it, to preserve Hams and Bacon in the finest possible condition, and to impart an unusually fine color and appearance to the Fat; and its great purity makes it especially valuable for the curing of Jutter and Cheese. It never cakes in the sack. Sample bags may be had gratis on application to Messrs. Geo. Raphael & Co., Philadelphia.


Price Medal

CLEEVE HOOPER, Junr.,
Leather, Hide and Bark Factor.
6, 7 & 8, NEW WESTON STREET,
BERMONDSEY, LONDON, S.E.,
ENGLAND.

STATISTICAL APPENDIX.
STATISTICAL APPENDIX.

UNITED STATES.

The United States of America occupy the entire width of the central portion of North America, between latitude 24° 30' and 49° north, and from longitude 66° 50' and 124° 30' west. They are bounded, north, by New Brunswick, Canada (from which they are separated by the river St. Lawrence and the great lakes), and British Columbia; on the south, by Mexico and the Gulf of Mexico; east, by the Atlantic; and west, by the Pacific Ocean. Their greatest breadth, from Cape Cod, on the Atlantic, to the Pacific, near the parallel of latitude 42 degrees, is about 2600 miles. Their greatest length, from the northern boundary of Maine to Key West, in Florida, is about 1600 miles. Their mean length, from east to west, is about 1600 miles, and from north to south about 1300 miles. Their area, according to calculations founded on the report of the Commissioner of the General Land Office, for 1867, is 3,057,407 square miles, or 1,956,740,480 acres. This, however, is exclusive of the district of Alaska, in the extreme northwest of the continent, purchased from Russia, and comprising 577,350 square miles, or 369,529,600 acres. Including Alaska, the entire area of the United States and territories is 3,634,797 square miles.

Three mountain ranges, the Appalachian chain towards the east, the Rocky Mountains in the centre, and the Sierra Nevada in the west, divide the United States into four great regions. The first of these is the Atlantic slope, or all that portion lying east of the Appalachian or Alleghany range; the second, lying between the Appalachian and the Rocky Mountains, is known as the basin of the Mississippi and Missouri; the third is the country between the Rocky Mountains on the east and the Sierra Nevada on the west; the fourth extends from the Sierra Nevada to the Pacific Ocean, and is known as the Pacific slope.

The Appalachian or Alleghany mountains extend from the State of Mississippi northeast through the States of Alabama, Georgia, Tennessee, North Carolina, Virginia, Pennsylvania, New York, and Vermont, for about 1200 miles, at a variable distance of from 70 to 300 miles from the Atlantic coast, and with an average breadth of about 100 miles. Their mean height is from 2000 to 3000 feet, half of which consists in the elevation of the mountains over the adjacent plains, and the rest in the elevation of these plains above the sea. The White Mountains of New Hampshire, belonging to this chain, reach a height of 6220 feet, and the Black Mountain, of North Carolina, is 6732 feet above the level of the sea. The Rocky Mountains are a prolongation of the Mexican Cordillera, and some of their highest peaks attain to between 12,000 and 15,000 feet above the level of the sea. Their average altitude is about 8500 feet. The Sierra Nevada, or Snowy Mountains, are 10° to 12° west of the Rocky Mountains. Under different names, and with different altitudes, this range extends from the peninsula of lower California to Alaska, some of its passes being about 9000 feet, and its highest summits about 16,000 feet above the level of the sea.

The rivers of the United States are of great magnitude and importance. Of those flowing east and south the principal are the Mississippi and Missouri, which, with their tributaries, the Ohio, Arkansas, Red, Yellowstone, and Nebraska rivers, give to the interior an extent of inland navigation and a facility of communication unequalled on any other continent. Among the principal rivers flowing into the Atlantic, are the Hudson, Delaware, Susquehanna, Potomac, Savannah, and St. Johns. The Columbia, Sacramento, and Colorado flow into the Pacific Ocean. The Mississippi,
Alabama, Colorado (of Texas), and Rio Grande (the last named forming the boundary between Texas and Mexico), empty into the Gulf of Mexico. The area of the water-basins has been estimated as follows: Rivers flowing into the Pacific, 644,040 square miles; into the Atlantic, 488,877; into the Gulf of Mexico, 1,683,325 square miles, of which 1,257,457 are drained by the Mississippi-Missouri rivers. The coastline on both oceans has a length of about 13,200 miles, excluding the numerous bays and sounds, besides 3600 miles on the great northern lakes.

The following table shows the area and population of each State and Territory:

<table>
<thead>
<tr>
<th>STATES</th>
<th>POPULATION IN 1870</th>
<th>AREA IN SQUARE MILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama,</td>
<td>909,992</td>
<td>50,722</td>
</tr>
<tr>
<td>Arkansas,</td>
<td>484,471</td>
<td>53,168</td>
</tr>
<tr>
<td>California,</td>
<td>560,247</td>
<td>188,981</td>
</tr>
<tr>
<td>Colorado,</td>
<td>39,864</td>
<td>104,000</td>
</tr>
<tr>
<td>Connecticut,</td>
<td>537,454</td>
<td>4,759</td>
</tr>
<tr>
<td>Delaware,</td>
<td>125,013</td>
<td>2,120</td>
</tr>
<tr>
<td>Florida,</td>
<td>187,748</td>
<td>58,268</td>
</tr>
<tr>
<td>Georgia,</td>
<td>1,184,109</td>
<td>58,000</td>
</tr>
<tr>
<td>Illinois,</td>
<td>2,539,891</td>
<td>55,410</td>
</tr>
<tr>
<td>Indiana,</td>
<td>1,680,037</td>
<td>33,809</td>
</tr>
<tr>
<td>Iowa,</td>
<td>1,154,020</td>
<td>55,045</td>
</tr>
<tr>
<td>Kansas,</td>
<td>364,509</td>
<td>81,318</td>
</tr>
<tr>
<td>Kentucky,</td>
<td>1,321,011</td>
<td>37,680</td>
</tr>
<tr>
<td>Louisiana,</td>
<td>728,915</td>
<td>41,346</td>
</tr>
<tr>
<td>Maine,</td>
<td>626,015</td>
<td>35,000</td>
</tr>
<tr>
<td>Maryland,</td>
<td>736,894</td>
<td>11,124</td>
</tr>
<tr>
<td>Massachusetts,</td>
<td>1,457,331</td>
<td>7,800</td>
</tr>
<tr>
<td>Michigan,</td>
<td>1,184,059</td>
<td>59,451</td>
</tr>
<tr>
<td>Minnesota,</td>
<td>439,706</td>
<td>83,531</td>
</tr>
<tr>
<td>Mississippi,</td>
<td>827,922</td>
<td>47,136</td>
</tr>
<tr>
<td>Missouri,</td>
<td>1,721,205</td>
<td>65,350</td>
</tr>
<tr>
<td>Nebraska,</td>
<td>122,693</td>
<td>75,995</td>
</tr>
<tr>
<td>Nevada,</td>
<td>42,491</td>
<td>104,125</td>
</tr>
<tr>
<td>New Hampshire,</td>
<td>318,300</td>
<td>9,280</td>
</tr>
<tr>
<td>New Jersey,</td>
<td>656,066</td>
<td>8,320</td>
</tr>
<tr>
<td>New York,</td>
<td>4,382,759</td>
<td>47,000</td>
</tr>
<tr>
<td>North Carolina,</td>
<td>1,071,301</td>
<td>50,704</td>
</tr>
<tr>
<td>Ohio,</td>
<td>2,065,260</td>
<td>39,964</td>
</tr>
<tr>
<td>Oregon,</td>
<td>90,923</td>
<td>95,274</td>
</tr>
<tr>
<td>Pennsylvania,</td>
<td>3,521,051</td>
<td>49,000</td>
</tr>
<tr>
<td>Rhode Island,</td>
<td>217,353</td>
<td>1,306</td>
</tr>
<tr>
<td>South Carolina,</td>
<td>795,606</td>
<td>34,000</td>
</tr>
<tr>
<td>Tennessee,</td>
<td>1,258,520</td>
<td>45,600</td>
</tr>
<tr>
<td>Texas,</td>
<td>818,579</td>
<td>274,350</td>
</tr>
<tr>
<td>Vermont,</td>
<td>339,551</td>
<td>10,212</td>
</tr>
<tr>
<td>Virginia,</td>
<td>1,225,163</td>
<td>35,348</td>
</tr>
<tr>
<td>West Virginia,</td>
<td>442,014</td>
<td>23,000</td>
</tr>
<tr>
<td>Wisconsin,</td>
<td>1,054,670</td>
<td>53,924</td>
</tr>
</tbody>
</table>

ORGANIZED TERRITORIES.

Arizona,                     | 9,658              | 113,916          |
Dakota,                      | 14,181             | 159,932          |
District of Columbia,         | 131,700            | 64               |
Idaho,                       | 14,999             | 80,294           |
Montana,                     | 20,595             | 143,776          |
New Mexico,                  | 91,874             | 121,281          |
Utah,                        | 86,786             | 84,476           |
Washington,                  | 23,955             | 69,994           |
Wyoming,                     | 9,118              | 97,883           |

TERRITORIES NOT ORGANIZED.

Alaska,                      |                    | 577,340          |
Indian,                      |                    | 68,091           |

Total,                       | 38,538,351         | 3,602,424        |
In a country extending through 24° of latitude, and nearly 60 of longitude, the climate varies considerably. In the north, along the British frontier, the winter is very severe; during this season the snow is sufficiently abundant in New England to admit the use of sleighs, and the ice on the rivers strong enough to bear the passage of horses and wagons. As far south as Pennsylvania and New Jersey, the thermometer falls, in winter, below zero; rising, in summer, to nearly 100° Fahr. Along the Atlantic coast, between latitude 41° and 45°, the climate is colder in winter and warmer in summer, by nearly 10°, than in those parts of Europe which lie under the same parallels. Snow, however, rarely falls south of latitude 30°, nor is it frequently seen south of the Potomac, except on mountains. The mean annual temperature of Albany is about 49°; of New York and Cincinnati, about 51°; of Philadelphia, 54°; of Natchez, 65°, and of Cantonment Brooke, in Florida, 72°. The temperature along the Pacific is much higher than in corresponding latitudes on the eastern coast.

The Mississippi valley is very fertile. In the Eastern States there still exist large forests of valuable timber, such as beech, birch, maple, oak, pine, syruce, elm, ash, walnut; and, in the South, live-oak, water-oak, magnolia, palmetto, tulip tree, cypress, etc., remnants of the wooded region which formerly extended over the whole Atlantic slope, but into which great inroads have been made by advancing civilization. Apples, pears, cherries, and plums flourish in the North; peaches, melons, and grapes in the Middle States; pineapples, pomegranates, figs, almonds, and oranges in the South. Maize is grown from Maine to Louisiana, and wheat throughout the Union; tobacco as far north as Connecticut, and in the Western States south of Ohio. There is not much cotton raised north of 35°, though it grows as far north as 39°. Rice is cultivated in South Carolina, Georgia, Louisiana, and as far north as St. Louis, Mo. The sugar-cane grows as high as 33°, but does not thoroughly succeed beyond 31° 30'. The vine and mulberry tree grow in various parts of the Union; oats, rye, and barley throughout the North and the mountainous parts of the South; and hemp, flax, and hops in the Western and Middle States. The following figures, taken from the report of the ninth census (1870), will convey an idea of the extent of the annual productions of agriculture:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring wheat</td>
<td>112,549,733 bushels</td>
</tr>
<tr>
<td>Winter wheat</td>
<td>175,195,583 &quot;</td>
</tr>
<tr>
<td>Rye</td>
<td>16,918,795 &quot;</td>
</tr>
<tr>
<td>Indian corn</td>
<td>760,944,459 &quot;</td>
</tr>
<tr>
<td>Oats</td>
<td>282,107,157 &quot;</td>
</tr>
<tr>
<td>Barley</td>
<td>20,761,305 &quot;</td>
</tr>
<tr>
<td>Buckwheat</td>
<td>9,821,721 &quot;</td>
</tr>
<tr>
<td>Rice</td>
<td>73,635,021 pounds</td>
</tr>
<tr>
<td>Tobacco</td>
<td>262,735,541 &quot;</td>
</tr>
<tr>
<td>Cotton</td>
<td>3,011,966 bales</td>
</tr>
<tr>
<td>Peas and beans</td>
<td>5,746,927 bushels</td>
</tr>
<tr>
<td>Irish potatoes</td>
<td>143,337,173 &quot;</td>
</tr>
<tr>
<td>Sweet potatoes</td>
<td>21,709,524 &quot;</td>
</tr>
<tr>
<td>Wine</td>
<td>3,092,469 gallons</td>
</tr>
<tr>
<td>Hay</td>
<td>27,319,648 tons</td>
</tr>
<tr>
<td>Clover seed</td>
<td>639,857 bushels</td>
</tr>
<tr>
<td>Grass seed</td>
<td>583,188 &quot;</td>
</tr>
<tr>
<td>Sugar (from cane)</td>
<td>87,013 hhds</td>
</tr>
<tr>
<td>Maple sugar</td>
<td>28,443,645 pounds</td>
</tr>
<tr>
<td>Molasses</td>
<td>23,564,469 gallons</td>
</tr>
<tr>
<td>Dairy Products—Butter</td>
<td>514,092,683 pounds</td>
</tr>
<tr>
<td>Cheese</td>
<td>53,492,153 &quot;</td>
</tr>
<tr>
<td>Milk sold</td>
<td>235,500,569 gallons</td>
</tr>
<tr>
<td>Wool</td>
<td>100,102,387 pounds</td>
</tr>
<tr>
<td>Wax</td>
<td>631,129 &quot;</td>
</tr>
<tr>
<td>Honey</td>
<td>14,702,815 &quot;</td>
</tr>
</tbody>
</table>

The same report gives the cash value of farms in the United States at $89,262,803,861; of farming implements and machinery, at $336,878,429; live stock, at $1,525,276,457.
Total estimated value of all farm productions, including betterments and additions to stock, $2,447,538,658. Value of orchard products, $47,335,189; products of market gardening, $267,719,229.

There were, at the same time, 8,690,219 horses, 28,074,382 cattle, 28,477,951 sheep, and 25,184,540 hogs.

Except a few small isolated fields, all the bituminous coal in the United States lies west of the Appalachian chain, where a vast series of coal beds stretch from the mountains west through Ohio, Indiana, and Illinois, parts of Kentucky and Alabama, into the State of Missouri, and as far as two hundred miles beyond the Mississippi. Anthracite coal is found most extensively in Pennsylvania; also in Western Virginia and the eastern portion of Ohio and Illinois. The oil-wells of northwestern Pennsylvania contain apparently inexhaustible stores of mineral oil or petroleum. Numerous salt-springs exist in New York, Virginia, Pennsylvania, and the Western States. Iron is distributed most abundantly through the coal measures in Pennsylvania, Ohio, Virginia, and Tennessee, the ore containing from 25 to 33 per cent. of metal. Iron ore also abounds in the Northwestern States; and that found in one part of Vermont yields 78 per cent. of iron. A large proportion of the ore found in this part of the Union is magnetic. Lead is found in various places, but more especially in Missouri, Wisconsin, and Illinois. In some parts of Wisconsin this ore yields from 60 to 70 per cent. of lead. Large deposits of copper have been found in Michigan, in the Lake Superior region. Gold, in large quantities, and silver, have been found in the States and Territories west of the Rocky Mountains. Gold has also been found in Virginia, the Carolinas, Georgia, and Tennessee. Quicksilver, zinc, manganese, with lime and building stone, are the other chief mineral products. The following figures are from the Statistics of Mining, Table VIII, Report of the Ninth Census (1870):

<table>
<thead>
<tr>
<th>VALUE OF PRODUCTS.</th>
<th>$838,495,745</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthracite coal,</td>
<td>$35,029,247</td>
</tr>
<tr>
<td>Bituminous coal,</td>
<td>5,201,312</td>
</tr>
<tr>
<td>Copper,</td>
<td>7,266,613</td>
</tr>
<tr>
<td>Gold, placer mined,</td>
<td>$2,568,531</td>
</tr>
<tr>
<td>&quot; hydraulic mined,</td>
<td>16,677,508</td>
</tr>
<tr>
<td>Quartz, gold and silver bearing,</td>
<td>13,204,138</td>
</tr>
<tr>
<td>Iron ore,</td>
<td>736,004</td>
</tr>
<tr>
<td>Lead,</td>
<td>19,304,224</td>
</tr>
</tbody>
</table>

The mechanical and manufacturing establishments of the Union, in 1870, numbered 252,148, using steam-engines of 1,215,711 horse-power and 1,130,431 horse-power in water-wheels, and employing 2,053,696 hands. The amount of capital invested is $2,118,208,769; annual wages, $775,584,343; material used, $2,488,457,242, and the total products $4,232,325,442. The chief manufacturing States are Pennsylvania, New York, Massachusetts, Ohio, Illinois, New Jersey, Connecticut, and Rhode Island.

The importations for the year ending June 30th, 1875, were:

| Merchandise,            | $533,005,536 |
| Gold and silver,        | 20,894,217   |
| **Total,**              | $553,899,753 |
| Foreign exports,         | 8,141,578,611|
| Gold and silver,        | 8,275,013    |
| **Total,**              | 82,329,624   |

The gold value of domestic exports, during the same period, was $583,141,229.
In the length of miles of railway open to traffic, the United States exceed all other nations, although in the proportion of miles of railway to miles of area, it ranks below some of the smaller and more densely populated states of Europe. The following figures, from Poor's "Railway Manual," illustrate the growth of the railway system in the United States:

<table>
<thead>
<tr>
<th>Year</th>
<th>Miles in Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1830</td>
<td>23</td>
</tr>
<tr>
<td>1840</td>
<td>2,818</td>
</tr>
<tr>
<td>1850</td>
<td>9,021</td>
</tr>
<tr>
<td>1860</td>
<td>20,935</td>
</tr>
<tr>
<td>1870</td>
<td>52,808</td>
</tr>
<tr>
<td>1874</td>
<td>72,623</td>
</tr>
</tbody>
</table>

During the year 1874, the gross earnings were $320,466,016, of which $379,466,935 was for freight, and $140,999,081 for passengers. Net earnings, $189,570,958; dividends paid, $67,042,942.

The government of the United States is, by the Constitution, intrusted to three separate authorities, the executive, the legislative, and the judicial. The executive power is vested in a President, who is elected every four years, and is eligible for re-election. The legislative power is vested in two houses, the Senate and the House of Representatives, the President having a veto power, which may be overcome by a two-thirds vote of both houses. Two senators from each State are elected by the legislature thereof, for the term of six years; and representatives are chosen in each State, by popular vote, for two years. The number of Representatives for each State is allotted in proportion to its population, one for each 135,230.

The supreme judicial authority is vested in a Chief Justice and eight Associate Justices, who are appointed for life by the President, by and with the consent of the Senate.

The government of each State is on the same model as that of the general government. There is a governor chosen by popular vote, and a State legislature, similarly chosen, composed of two houses. Each State also has a constitution which prescribes its form of government.

The following statistics apply to the army and navy of the United States in 1875: The army consisted, July 1st, 1875, of 220,4 commissionered officers, and 25,000 enlisted men; the navy of 175 vessels, with an armament of 1232 guns, 8500 men, 1254 commissioned, and 490 non-commissioned officers on the active list.

The postal service is conducted by the general government. During the fiscal year ending June 30th, 1875, it carried 601,921,520 letters, 117,215,850 stamped wrappers, 13,956,750 newspapers, and 31,094,500 postal cards. The money orders amounted to $75,425,854.

The telegraph lines belong to private corporations. Their total length, in January, 1875, was 75,000 miles; length of wires, 185,000 miles; number of offices, 6172; number of messages transmitted during the year 1874, 13,700,000.

Education is conducted by the separate States. In general the primary schools are supported by a property tax, and nearly all the States have school funds in addition, the income of which is distributed among the towns in proportion to the number of pupils educated. The gifts with which, during late years, private individuals have endowed institutions of learning, prove a growing appreciation of the claims of the higher education.

The following statistics are collated from the report of the ninth census, 1870:

**PUBLIC SCHOOLS.**

<table>
<thead>
<tr>
<th>NUMBER OF SCHOOLS</th>
<th>TEACHERS EMPLOYED</th>
<th>PUPILS IN ATTENDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MALE.</td>
<td>FEMALE.</td>
</tr>
<tr>
<td>125,059</td>
<td>167</td>
<td>109,024</td>
</tr>
</tbody>
</table>

UNITED STATES.
The schools "Not Public" are arranged under two headings: "Classical, Professional, and Technical," and "Other Schools."

"NOT PUBLIC" SCHOOLS (Classical, Professional, and Technical).

<table>
<thead>
<tr>
<th>NUMBER.</th>
<th>TEACHERS.</th>
<th>PUPILS.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MALE.</td>
<td>FEMALE.</td>
</tr>
<tr>
<td>Classical, etc.,</td>
<td>2,545</td>
<td></td>
</tr>
<tr>
<td>Other Schools,</td>
<td>14,025</td>
<td></td>
</tr>
</tbody>
</table>

INCOME.

<table>
<thead>
<tr>
<th>PUBLIC.</th>
<th>NOT PUBLIC.</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Taxation of Public Funds, . . .</td>
<td>$58,855,507</td>
</tr>
<tr>
<td>&quot; Endowments, . . . . . . . . . . . .</td>
<td>144,533</td>
</tr>
<tr>
<td>&quot; Other Sources, including Tuition, .</td>
<td>5,039,633</td>
</tr>
<tr>
<td></td>
<td>$64,030,673</td>
</tr>
</tbody>
</table>

The total number of libraries returned was 163,353, containing 44,539,184 volumes. Of these, 107,673 were private libraries, containing 25,571,503 volumes. In the opinion of the superintendent of the census, these results are "manifestly far below the truth."

The newspaper and periodical press comprised, in 1875, 7870 publications, divided as follows: Daily, 1718; tri-weekly, 80; semi-weekly, 107; weekly, 5957; bi-weekly, 24; semi-monthly, 106; monthly, 802; bi-monthly, 8; quarterly, 68.
GREAT BRITAIN.

The following brief table is given (approximately) of the area, population, revenue, and commerce of the British Empire. It is not possible to give the exact figures, but for all practical purposes those now given will be sufficient. The colonies which exhibit are treated under their proper names.

<table>
<thead>
<tr>
<th>NAME OF COUNTRY</th>
<th>AREA IN SQUARE MILES</th>
<th>POPULATION</th>
<th>REVENUE</th>
<th>PUBLIC DEBT</th>
<th>IMPORTS AND EXPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great Britain and Ireland</td>
<td>122,518</td>
<td>31,857,338</td>
<td>$3,80,60,000</td>
<td>$3,555,100,000</td>
<td>$3,262,900,000</td>
</tr>
<tr>
<td>Indian Possessions, etc.,</td>
<td>1,558,254</td>
<td>24,000,000</td>
<td>243,500,000</td>
<td>559,310,000</td>
<td>479,300,000</td>
</tr>
<tr>
<td>Other Eastern Possessions</td>
<td>22,047</td>
<td>3,400,000</td>
<td>10,714,000</td>
<td>7,712,000</td>
<td>43,830,000</td>
</tr>
<tr>
<td>Australasia</td>
<td>3,047,000</td>
<td>2,100,000</td>
<td>533,570,000</td>
<td>210,140,000</td>
<td>365,250,000</td>
</tr>
<tr>
<td>North America</td>
<td>3,200,500</td>
<td>4,000,000</td>
<td>1,027,000</td>
<td>73,050,000</td>
<td>4,200,000</td>
</tr>
<tr>
<td>Africa</td>
<td>250,000</td>
<td>1,400,000</td>
<td>4,870,000</td>
<td>7,712,000</td>
<td>43,830,000</td>
</tr>
<tr>
<td>West Indies</td>
<td>12,707</td>
<td>1,075,000</td>
<td>33,400,000</td>
<td>4,200,000</td>
<td>45,700,000</td>
</tr>
<tr>
<td>European Possessions</td>
<td>120</td>
<td>163,000</td>
<td>21,915,000</td>
<td>1,217,500</td>
<td>73,050,000</td>
</tr>
<tr>
<td>Various settlements</td>
<td>96,171</td>
<td>200,000</td>
<td>4,870,000</td>
<td>3,165,500</td>
<td>21,915,000</td>
</tr>
<tr>
<td>Totals</td>
<td>8,779,534</td>
<td>203,047,338</td>
<td>738,405,900</td>
<td>2,678,500</td>
<td>4,660,590,000</td>
</tr>
</tbody>
</table>

The United Kingdom of Great Britain and Ireland is the full designation of the country more generally known as Great Britain or the United Kingdom. It includes the two large islands of Great Britain and Ireland, and the adjacent smaller islands, together with the Channel Islands and the Isle of Man.

The following table exhibits the area, in English square miles, and population, according to the last census of the several constituent parts:

<table>
<thead>
<tr>
<th>AREA</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>50,922</td>
</tr>
<tr>
<td>Wales</td>
<td>7,397</td>
</tr>
<tr>
<td>Scotland</td>
<td>31,324</td>
</tr>
<tr>
<td>Great Britain</td>
<td>89,648</td>
</tr>
<tr>
<td>Ireland</td>
<td>32,481</td>
</tr>
<tr>
<td>Isle of Man, and Channel Islands</td>
<td>122</td>
</tr>
<tr>
<td>Army and Navy, and Merchant Seamen</td>
<td>122,518</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The island of Great Britain lies between latitude 49° 57′ 30′′ and 58° 40′ 24′′ north, and between longitude 1° 46′ east, and 6° 13′ west, and is the largest island in Europe. It is bounded on the north by the Atlantic, on the east by the North Sea, and on the south by the English Channel, and on the west by the Atlantic, the Irish Sea, and St. George’s Channel. Its greatest length is about 608 miles, and its greatest breadth (from Land’s End to the east coast of Kent), about 300 miles.

England, which may be roughly said to be divided from Scotland on the north by the Cheviot Hills and the Rivers Tyne and Solway, and from Wales by the Severn
and Dee, is, except on the west and north, for the most part a level country, so cultivated as to be highly productive. The other districts have mineral riches, as iron, tin, lead, copper, and coal, which make abundant amends for the poverty of their surface. Wales is generally mountainous, and also has great mineral wealth.

The greater part of the surface of Scotland is irregularly distributed into mountains and valleys, a very small proportion spreading into level plains. The eastern coast forms a waving, continuous, and rarely broken line; the western is extremely irregular, being deeply indented with bays and arms of the sea, and exhibiting steep promontories and mountainous islands. The whole country is physically divided into Highlands and Lowlands—the former comprehending the northwest, west, and central portions; the latter, generally speaking, the east coast and the country south of the Forth and Clyde.

Ireland is an island lying between 51° 26' and 55° 23' north latitude, and 5° 20' and 10° 26' west longitude. It is about 60 miles to the west of England. On three sides it is washed by the Atlantic Ocean, and on the east by the Irish Sea and St. George's Channel. Its greatest length is, from north to south, 306 miles, and from east to west 120 to 180 miles. Ireland is divided into the four provinces of Ulster, Leinster, Munster, and Connaught, which are again subdivided into 32 counties.

The geology of Great Britain is of peculiar importance. British geologists have given to the world the names whereby the various strata are known, and British rocks form the typical series of the earth's strata. The whole recognized series of stratified deposits occur in Britain, one or two only being more fully developed elsewhere; and it is only in these singular cases that the foreign equivalents are taken as the types. British geology is no less important from the influence it has had in the development of the country, its mineral wealth, especially the coal and iron, being the real sinew of Britain's wealth and power.

In the year 1874, there was produced from the ore nearly 6,000,000 tons of pig iron, value £16,479,372; and 385 ounces of gold were raised, value £1540. Copper, tin, lead, zinc, silver, and other metals brought the total value of metals produced up to £19,539,070. The aggregate value of all the minerals, metals, coal, etc., obtained in the United Kingdom in 1874, was £67,834,313. Included in this were 125,043,257 tons of coal, value £46,349,194.

The climate of Great Britain is mild and equable in a remarkable degree, the winters being considerably warmer and the summers colder than at places within the same parallels of latitude. The mean temperature of England is 49.5°, and of Scotland 47.5°.

Very few species of plants or animals are peculiar to Great Britain. The flora, for the greater part, resembles that of Germany; but in the south of England there is, as might be expected, a closer correspondence with that of the northwest of France; and some plants found in the Channel Islands and on the French coast appear nowhere in Britain but on the southwest coast of England. The mountains of Wales, Cumberland, and Scotland have a vegetation resembling that of Scandinavia more than that of the mountains of central or southern Europe. The state of the case is much the same as to the fauna. There are, however, many remarkable instances both of plants and animals, which, from these apparent relations to continental Europe, might be expected in Great Britain, and which are not indigenous to it; as, for instance, among plants, the Norway spruce, and among animals, the lemming, both common in Scandinavia. The progress of civilization and of cultivation has completely banished from Great Britain many of the animals which were once numerous, as bears, wolves, etc. On the other hand, many plants which were unquestionably introduced by man, have become thoroughly naturalized.

For administrative purposes, Great Britain with its surrounding islands (excepting the Channel Islands and the Isle of Man, which are under peculiar jurisdiction) is divided into 84 counties or shires.
The soil of Great Britain is almost exclusively devoted to the production of the two primary necessities of society,—breadstuffs (chiefly wheat, barley, and oats) and grass, roots, etc., as food for domestic animals. The annual value of the pastures and meadow hay is immense. The total extent of land returned in 1872, as being under all kinds of crops, bare fallow and grass, was 31,004,173 acres in Great Britain, 15,746,547 acres in Ireland, 88,573 in the Isle of Man, 18,626 acres in the island of Jersey, and 2,007 acres in the islands of Guernsey, Alderney, etc., making a total for the United Kingdom of 46,869,325 acres. The number of horses included in the agricultural returns was 1,808,259: the number licensed in Great Britain was 857,045; the number of others than agricultural horses exempt from license duty, was probably about 35,000; and the number belonging to the army at home may be stated at 15,000, which would bring the total number of horses in the United Kingdom up to 2,715,000. The total number of cattle returned for the United Kingdom in 1872, was 9,718,000; sheep, 32,246,000; pigs, 4,178,000.

Constabulary returns, based upon information obtained from farmers and others and received by the Boards of Guardians, show that in the year 1873, Ireland produced 469,563 quarters of wheat, 6,912,765 quarters of oats, 1,016,339 quarters of barley, 25,576 quarters of bere and rye, 48,375 quarters of beans and peas, 2,683,060 tons of potatoes, 4,429,697 tons of turnips, 515,690 tons of mangold wurzel, 278,923 tons of cabbage, 19,843 tons of flax, and 3,306,163 tons of hay. At the end of 1873, Ireland had 4,142,400 head of cattle, 4,432,053 sheep, 532,146 horses and 1,042,244 pigs.

The following table shows the condition of the textile industries of the United Kingdom, 1874:

<table>
<thead>
<tr>
<th>NO. OF FACTORIES</th>
<th>HANDS EMPLOYED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>2,655</td>
</tr>
<tr>
<td>Woollen</td>
<td>1,800</td>
</tr>
<tr>
<td>Worsted</td>
<td>692</td>
</tr>
<tr>
<td>Flax</td>
<td>449</td>
</tr>
<tr>
<td>Silk</td>
<td>818</td>
</tr>
<tr>
<td>Shoddy</td>
<td>185</td>
</tr>
<tr>
<td>Hemp</td>
<td>61</td>
</tr>
<tr>
<td>Jute</td>
<td>210</td>
</tr>
<tr>
<td>Hair</td>
<td>27</td>
</tr>
<tr>
<td>Hosiery and other factorys</td>
<td>557</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>7,294</strong></td>
</tr>
</tbody>
</table>

The government of Great Britain is of the kind known as a "constitutional monarchy," in which the sovereign accepts of his dignity under an express agreement to abide by certain prescribed conditions. The sovereignty is hereditary in the family of Brunswick, now on the throne, and in the person of either a male or a female. The executive government of the United Kingdom is vested nominally in the crown, but practically in a committee of Ministers, commonly called the Cabinet, which has come to absorb the functions of the ancient Privy Council, the members of which, bearing the title of Right Honorable, are sworn "to advise the king according to the best of their cunning and discretion," and "to help and strengthen the execution of what shall be resolved." Though not the offspring of any formal election, the Cabinet is virtually appointed by Parliament, and more especially by the House of Commons, its existence being dependent on the possession of a majority in the latter body.

The powers of Parliament are politically omnipotent within the United Kingdom, its colonies and dependencies. It can make new laws, and enlarge, alter, or repeal those existing. Its authority extends to all ecclesiastical, temporal, civil, or military matters, as well as to altering or changing the constitution of the realm. Parliament is the highest court of law, over which no other has jurisdiction.

The budget estimates for the financial year 1875-76, laid by the Chancellor of the Exchequer before the House of Commons, April 15th, 1875, was as follows:
Total revenue, .................................................. £75,685,000
" expenditure, ................................................ 75,266,000
" estimated surplus, ....................................... £419,000

The following figures show the numerical strength of the military force in the United Kingdom in 1875:

Cavalry, ................................................... 13,358
Artillery, ................................................... 19,418
Engineers, ................................................... 4,020
Infantry, .................................................... 55,590
Total, ....................................................... 92,386

The army estimates of March 31st, 1876, contain votes of money for four classes of reserves, as follows:

Militia, ..................................................... 139,018
Yeomanry cavalry, ........................................ 15,130
Volunteers, .................................................. 161,150
Enrolled pensioners and army reserve force, ............. 32,000

The total force of the British army in India was stated, in the estimates of 1875–76, to amount to 63,197.

On the 1st of December, 1874, the navy consisted of 233 steamers and sailing vessels, manned by crews aggregating 60,000.

The following are the statistics for the year 1874 of the tonnage of British and foreign vessels (sailing and steam) entered and cleared at ports in the United Kingdom from and to foreign countries and British possessions:

<table>
<thead>
<tr>
<th></th>
<th>ENTERED.</th>
<th>CLEARED.</th>
<th>TOTAL.</th>
</tr>
</thead>
<tbody>
<tr>
<td>British,</td>
<td>14,833,644</td>
<td>15,256,639</td>
<td>30,090,283</td>
</tr>
<tr>
<td>Foreign,</td>
<td>7,534,866</td>
<td>7,804,408</td>
<td>15,339,274</td>
</tr>
<tr>
<td>Total,</td>
<td>22,368,510</td>
<td>23,061,047</td>
<td>45,429,557</td>
</tr>
</tbody>
</table>

There were, in 1874, 20,872 vessels, with crews aggregating 203,606, and of a registered tonnage of 5,864,588.

On the 1st of January, 1875, there were 16,448 miles of railway open in the United Kingdom. The statistics of capital, passengers, receipts, and working expenses for the year 1874 were as follows: Total capital paid up (shares, loans), £2,970,456,106; number of passengers, 478,316,701; total of traffic receipts, £277,109,238; working expenses, £158,040,397.

The number of letters delivered in 1874 was, in England and Wales, 804,000,000, in Scotland, 90,000,000, and in Ireland, 73,000,000. Of postal cards there were 66,000,000 delivered in England and Wales; 9,000,000 in Scotland; and 4,000,000 in Ireland; total for the United Kingdom, 79,000,000.

The number of newspapers and book packets delivered in 1874 was 207,000,000 in England and Wales, 29,000,000 in Scotland, and 23,000,000 in Ireland; total, 259,000,000. The number of money orders in 1874, in the whole of the United Kingdom was 15,900,562, of the aggregate value of £26,296,441. At the end of the year the total amount of deposits held by the Post Office Savings Bank was £24,030,711.

There were 19,116,634 telegraph messages forwarded from postal telegraph stations in the year 1874. The number of post offices at the end of 1874 was 12,950. The total number of telegraph offices, at the same date, was 5600, including 1300 railway telegraph offices. The total length of the postal telegraph wires at the end of 1874 was 107,000 miles.
In England, the chief institutions for education are the ancient national universities of Oxford and Cambridge; the more recent institutions of London, Durham, and Lampeter, in Wales; the classical schools of Eton, Westminster, Winchester, Harrow, Charter House, and Rugby; Owens College, Manchester, and other colleges and schools, chiefly for physical science; the various military schools; the colleges of the dissenting denominations; the middle class schools, either started by individual teachers or by associated bodies acting as directors, to whom the teachers are responsible; and the schools of design.

For primary education, a national system has now been established. Under the Elementary Education Act for England, 1870, a popularly elected school board is established in any district where the existing schools are deficient. Schools under the act are supported by school-rates and fees, and by parliamentary grants, varying according to the number of pupils, and their proficiency, as tested by different standards of examination. They are at all times to be open to government inspection. It is left to the discretion of school boards to make education compulsory.

Scotland possesses four universities for the higher branches of education, viz.: Edinburgh, Glasgow, St. Andrew's, and Aberdeen, besides a variety of other minor colleges. The Scotch education act, 1872, is modelled after the English act, but differs from it by enacting that a school board is to be elected in every parish and burgh; by making it illegal for parents to omit educating their children, between five and thirteen, in reading, writing, and arithmetic; and by comprehending higher class schools.

The number of the day-schools in Great Britain, inspected in 1871, was 10,700; the daily average attendance throughout the year was 1,434,428; 1,724,689 scholars were present at inspection; 875,298 were examined; and 598,203 passed the prescribed tests. On the registers of the inspected day-schools were 2,055,312 children, of whom 517,344 were under six years of age, 1,332,229 between six and twelve, and 205,739 above twelve; 2709 night-schools, were inspected, having an average attendance of 86,206 each night. In December, 1871, there were in Great Britain 15,605 certificated teachers, 1196 assistant teachers, and 21,854 pupil teachers.

Ireland is well supplied with educational establishments, having three universities, a large number of endowed schools, and an admirable system of mixed schools.

Commission from GREAT BRITAIN and Colonies to the International Exhibition:

His Grace the Duke of Richmond and Gordon, K. G.,
Lord President of the Council.
The Rt. Hon. Viscount Sandon, M. P., Vice-President of the Committee of Council on Education.

Executive Staff:

Col. Herbert Sandford, R. A., Joint Executive Commissioner.
Prof. Thomas C. Archer, F. R. S. E., Joint Executive Commissioner.
A. J. R. Trendell, Secretary.
T. A. Wright, Superintendent Industrial Space.
John Anderson, I.L.D., Superintendent General Machinery.
Joseph Middleton Jopling, Superintendent Fine Arts.
B. T. Brandreth Gibbs, Superintendent Agriculture and Horticulture.
J. H. Cundall, Assistant General Superintendent and Engineer.
Hugh Willoughby Sweny, Assistant Superintendent Catalogue and Official Publications.
Frederick J. Hodgkinson, Financial Clerk.
E. E. Cooper, Assistant for Machinery.
Ernest Charrington, Clerical Assistant.
J. M. Brett, Clerical Assistant (India Section).
H. A. P. Rooke, Clerical Assistant (Passenger and Transport Arrangements).
NEW ZEALAND.

NEW ZEALAND, a British colony in the South Pacific Ocean, consists of three principal islands, called, respectively, the North, South, and Stewart Islands. There are several small islets—mostly uninhabited—dependent on the colony; the chief of them are the Chatham Islands and the Auckland Islands. The New Zealand group is situated about 6500 miles west of South America, and about 1200 miles east of Australia. The entire group lies between 34° and 48° south latitude and 166° and 179° east longitude. The three principal islands extend in length 1100 miles, but their breadth is extremely variable, ranging from 46 miles to 250 miles; the average breadth being about 140 miles. The North and South Islands are separated by Cook Strait, which is crossed by steamers in about two hours.

The total area of New Zealand is about 100,000 square miles, or 64,000,000 acres. According to a census taken March 31st, 1874, the population (exclusive of the aborigines) numbered 299,514 souls. It is estimated that the present white population (April, 1876) is about 400,000. The Maori population, according to an approximate census taken on June 1st, 1874, was 45,470.

The aborigines, called Maoris, who formerly caused much trouble, though a large number have always sided with the British, are now peacefully settling down to agricultural pursuits, and, since 1871, permanent tranquility appears to have been established.

The New Zealand Islands are of primitive rocks and tertiary plains, but a great portion of the entire area is occupied by mountains, among which are many extinct and a few active volcanoes. The mountains are mostly clothed with evergreen forests of luxuriant growth, interspersed with fern-clad ranges, and occasionally with treeless grassy plains. Extensive and rich valleys and sheltered dales abound in the North Island; and in the east of the South Island there are many extensive plains of rich land, admirably adapted either for agriculture or cattle-breeding. Water and water-power are found in great abundance in the colony, and the numerous rivers are subject to sudden floods from the melting of the mountain snows. As a rule, however, the streams are short, and are not navigable for more than 50 miles above their mouths. The chief is the Clutha, in the South Island, and the Waikato river, in the North Island, which latter, issuing from the Taupo lake (30 miles long by 20 broad), flows in a northern direction for 200 miles, and reaches the sea on the west coast.

In the North Island, around Lakes Rotomahana and Rotorua, are a number of grand and beautiful geysers, which throw up water heated to the boiling point. The southwest coast of the South Island is indented with a number of deep sounds, of which Milford Sound is the chief. In this sound the water is unfathomable; the only way of securing a ship being to moor it, stem and steru, to the trees which overhang the water. Steamers of 2000 tons have been thus moored. The geology of New Zealand is remarkable and varied in a high degree. The mountains, which are of every variety of outline, are chiefly composed of the schist and slate-rocks, primary sandstone, and limestone. Extensive beds of coal and lignite exist; the former have been to some extent worked, and are at present being largely developed by the construction of railways and harbor works in their vicinity.

Of the whole surface extent of New Zealand, one-fourth is estimated to consist of
dense forest tracts, one-half of excellent soil, and the remainder of waste lands, scoriae hills, and rugged mountain regions. Nearly 40,000,000 acres are supposed to be more or less suitable for agriculture and cattle-breeding. The soil, though often clayey, has in the volcanic districts more than a medium fertility; but the luxuriant and semi-tropical vegetation is perhaps as much due to excellence of climate as to richness of soil. Owing to the prevalence of light and easily worked soils, all agricultural processes are performed with unusual ease. The climate of New Zealand is one of the finest in the world. The country contains few physical sources of disease; the average temperature is remarkably even at all seasons of the year, and the atmosphere is continually agitated and freshened by winds that blow over an immense expanse of ocean. In the North Island, the mean annual temperature is $57^\circ$; in the South Island, $52^\circ$. The mean temperature of the hottest month at Auckland, in the northernmost province, is $68^\circ$, and at Dunedin, in the most southern province, $53^\circ$; of the coldest month, $51^\circ$ and $49^\circ$ respectively. The air is very humid, and the fall of rain is greater than in England, but there are more dry days. All the native trees and plants are evergreens. Forests, shrubberies, and plains are clothed in green throughout the year, the results of which are that cattle, as a rule, browse on the herbage and shrubs of the open country all the year round, thus saving great expense to the cattle-breeder; and that the operations of reclaiming and cultivating land can be carried on at all seasons. The seasons in New Zealand are the reverse of ours; January is their hottest month, and June the coldest. All the grains, grasses, fruits, and vegetables grown in England are cultivated in the colony with perfect success, being excellent in quality and heavy in yield; while, besides these, the vine is cultivated in the open air, and maize, the taro (Caladium esculentum), and the sweet potato are cultivated with success in the sunny valleys of the North Island.

The temperature, it will be thus observed, is very equitable, for while the summers are as cool as those of England, the winters are as warm as those of Italy. The mean annual temperature of Auckland is nearly the same as at Rome; at Wellington, nearly the same as at Milan; at Dunedin, nearly the same as at London. The official reports of the British Army Medical Department show that, where the annual mortality from all diseases out of every 1000 British soldiers quartered in the United Kingdom was 16, it was only 5 out of every 1000 in the troops quartered for more than 25 years in New Zealand. In other words, this colony appears to be peculiarly favorable to the duration of human life.

In connection with this, it may be mentioned, in order to show the redundancy of the population in New Zealand, that in 1874 the births were 49,005 per 1000 of the population, and the death rate was only 12.97 per 1000, while the marriages were 8.81 for every 1000 people.

The entire acreage under crop, in February, 1875, was 1,788,800. Of the crop, the principal were wheat, oats, barley, potatoes, and sown grass. At the same date, the number of holdings was 16,092, the population being 296,018. The average yield of wheat was, in 1875, over 28 bushels per acre.

The live stock of the colony consisted, at the census of March 1st, 1874, of 99,859 horses, 494,917 cattle, 11,704,853 sheep, 123,021 pigs, and 1,053,198 head of poultry.

Large gold fields were discovered in the spring of 1857. In the year 1874, there were 376,338 ounces of gold, of the declared value of $7,525,655, exported from New Zealand, the average annual yield of the gold fields since 1862 being 538,072 ounces, or value of $111,395,149, while from April 1st, 1857, to December 31st, 1875, the total quantity of gold exported was 8,025,675 ounces, valued at $151,271,293 gold.

The principal produce of the colony is wool, 46,848,735 pounds, valued at $14,173,475, having been exported in 1874.

The total imports of the colony during the year 1874 were $40,609,060; the total exports, $26,256,345.
The class of people most required in New Zealand are farmers with a small capital, carpenters, who can earn, according to their skill, from 11 shillings to 15 shillings per diem, and single women, who always gain good wages, and rarely stop in service for a long time, being greatly in demand in the matrimonial market. All classes of laborers find ready employment at remunerative rates.

By an imperial statute, passed in 1852, the legislative power is vested in the Governor and a Parliament of two chambers; the first called the Legislative Council, and the second the House of Representatives, and collectively, the General Assembly. The Legislative Council consists at present of 49 members, nominated by the crown for life; and the House of Representatives of 83 members, elected by the people for five years. Two Maoris sit in the Legislative Council, and 4 in the House of Representatives. Two of the latter also are members of the Executive Council. The Governor is assisted by an Executive Council, composed of the responsible ministers for the time being, and any others he may appoint. Members of both branches receive pay at the rate of $787 for the session, which generally lasts three months. Every owner of a freehold worth $250, or tenant house-holder, in the country at $25, in the town at $50 a year rent, is qualified to vote for members of the House, and is eligible for membership. The seat of government is at Wellington, a town of about 12,000 people, and centrally situated.

The colony is divided into nine provinces; four in the North, and five in the South Island. Each of these provinces is governed by an elected Superintendent and Provincial Council. In 1875, the General Assembly passed a bill declaring that the provincial governments should cease to exist after the close of their next session. The form of local government which is to take the place of provincial government has not been decided upon, but will probably take the shape of legislative powers.

In the year 1874, the total ordinary revenue (including provincial) was $9,367,240, and the territorial revenue, $5,754,500, which, with incidental receipts of $221,320, makes the total general revenue—ordinary, territorial, and incidental—amount to $15,343,060. The total ordinary expenditure by general and provincial governments was $14,803,555.

Beyond the ordinary expenditure, a sum of $13,629,465 was spent, which is charged to the loan account. The public debt of New Zealand amounted, at the end of 1874, to $66,834,680, and as a loan expenditure is still proceeding, it is estimated that the total debt will shortly amount to about $95,000,000. Against this there is a sinking fund already amounting to $5,000,000, and, moreover, a large amount has been spent on reproductive works. In 1870, the sum of $20,000,000 was authorized to be borrowed for the purposes of emigration and public works (such as railways, roads, telegraphs, water-races, bridges, etc.), besides $5,000,000 for defence and other purposes. Since then, further large loans have been contracted for public works. To assist in the development of these works, a vast number of emigrants have been brought into the country, receiving either free passage from England or a grant of land. Railways are now being constructed throughout the islands, 260 miles being open for traffic; 420 miles under construction, of which a good deal is near completion; and 330 miles are authorized to be constructed.

Under the stimulus of the public works and emigration policy, no less than 43,965 emigrants arrived in New Zealand in 1874.

On the 31st of December, 1874, the colony had 2632 miles of telegraph lines, and 5284 miles of wires. The number of telegrams during the year was 84,4301, of which total 7.4,582 were private, and the remainder government messages.

During the year 1874, the post office received 4,339,165 letters, and dispatched 4,719,291. The total number of newspapers received was 3,872,668, and dispatched, 2,434,024. Money orders to the number of 62,712 and the amount of $1,315,820 were issued during 1874.

Grammar and free schools, endowed from the public revenues of the various
provinces, several colleges, and two universities, one being established in Otago and the other a corporation endowed by the general government, are the principal educational institutions.

The shipping entered in 1874 consisted of 856 vessels, with a tonnage of 399,296. Of these, 237 vessels, measuring 201,017 tons, were British; 552, measuring 170,303 tons, colonial; and 67, measuring 27,976, were foreign. Of the foreign vessels entered, 50 were American. Coasters are not included in the above statistics. In 1874 the number of vessels entered coastwise was 14,351, and their tonnage 1,353,085.

The number of individual exhibits included in this Catalogue from New Zealand is 1114.

Commission from New Zealand to the International Exhibition:

The Hon. William Gisborne.
William Hort Levin, Esq.
Daniel McIntyre, Esq., Consular Agent of the United States Government at Wellington.
James Hector, Esq., C. M. G., M.D., F. R. S., Special Commissioner to Philadelphia.
Arthur Thomas Bothamley, Secretary.
NEW SOUTH WALES.

NEW SOUTH WALES, a British colony in the southeastern portion of Australia, is bounded on the north by a line which, beginning at Point Danger, in latitude 28° 8' south, follows several lines of heights across the Dividing Range till it meets the 29th parallel, which forms the rest of the boundary westward; on the west by the 141st meridian; on the east by the Pacific Ocean; and the line separating it from Victoria on the south runs from Cape Howe, at the southeast of the island, northwest to the source of the Murray, and then along that stream, in a direction west by north, to the western boundary of the two colonies.

Its area is 323,437 square miles, and its population in 1874 was, exclusive of aborigines, 584,278. At the same date the population of Sydney, the capital, was 150,000. Within the colony of New South Wales, the mountain range, which girdles nearly the whole island, is most continuous and elevated, and is known as the Dividing Range. The section of this mountain system on the southern boundary of the colony, called the Australian Alps, rises in Mount Kosciusko to 6500 feet. From this the range extends northward, the water-shed being from 50 to 150 miles distant from the east coast, and thus divides the colony into two slopes, with two distinct water systems. The rivers on the eastern side descend with great rapidity, and in oblique tortuous courses, their channels often forming deep ravines. Many of them are navigable in their lower course for sea-going steamers. The principal are the Richmond, Clarence, Macleay, Manning, Hunter, Hawkesbury, and Shoalhaven. The numerous streams that rise on the west side of the water-shed within the colony, all converge and empty their waters into the sea through one channel within the colony of South Australia. The southern and main branch of this great river system is the Murray. The other great trunks of the system are the Murrumbidgee, which is navigable, the Lachlan, at times reduced to a string of ponds, and the Darling. The Macquarie, passing through the rich district of Bathurst, is a large tributary of the Darling, but it reaches it only in the rainy seasons. The coast line from Cape Howe to Point Danger is upwards of 700 miles long, and presents numerous good harbors formed by the estuaries of the rivers. Owing to the great extent of the colony, stretching as it does over eleven degrees of latitude, the climate is very various. In the northern districts, which are the warmest, the climate is tropical, the summer heat occasionally rising in inland districts to 120°, while on the high table-lands weeks of severe frost are sometimes experienced. At Sydney, the mean temperature of the year is about 65°. The mean heat of summer, which lasts here from the beginning of December to the 1st of February, is about 80°, but it is much modified on the coast by the refreshing sea breeze. The annual fall of rain is about 50 inches. Rain sometimes descends in continuous torrents, and causes the rivers to
rise to an extraordinary height. Sometimes the rains almost fail for five or six months in succession. Along the coast, for 300 miles from the northern boundary, the soil and climate are admirably adapted for the growth of cotton, and that plant has already been cultivated as far south as the river Manning (latitude 32° south). Farther south the climate is more temperate, and is fitted to produce all the grain products of Europe. Immense tracts of land, admirably adapted for agriculture, occur in the southwestern interior; while in the southeast coast districts the soil is celebrated for its richness and fertility. In the north, the tobacco plant, the vine, and sugar-cane are grown; and pineapples, bananas, guavas, lemons, citrons, and other tropical fruits are produced. In the cooler regions of the south, peaches, apricots, nectarines, oranges, grapes, pears, pomegranates, melons, and all the British fruits are grown in perfection, and sometimes in such abundance that pigs are fed with them. Wheat, barley, oats, and all the cereals and vegetables of Europe are also grown.

In 1875, New South Wales had 22,872,882 sheep, 856,699 horned cattle, 346,691 horses, and 219,958 pigs. The total area of land under cultivation, at the same date, embraced 469,957 acres, of which there were under wheat, 166,911 acres, under barley, 3984 acres, under oats, 17,974, under rye, 1342, under maize, 119,956.

New South Wales is believed to be richer in coal than the other territories of Australia. In 1874 there were 28 mines worked, producing in the year 1,298,400 tons of coal, valued at £786,152.

The gold mines of New South Wales cover a vast area, extending chiefly over the districts called the Western Fields, the Northern Fields, and the Southern Fields. Of these the Western Fields are the most important, furnishing three-fourths of the total supply. The gold exports of 1873 consisted of 200,134 ounces, value £773,439. The yield from the copper mines, in 1873, was 6027 tons.

The total exports during the year 1874 were £12,345,603; imports, £11,293,739.

The constitution of New South Wales vests the legislative power in a Parliament of two houses, the first called the Legislative Council, and the second the Legislative Assembly. The Legislative Council consists of not less than 21 members, nominated by the crown, and the Assembly of 72 members, elected by sixty constituencies. To be eligible a man must be of age, a natural-bom subject of the Queen, or, if an alien, he must have been naturalized for five years, and resident for two years before election. There is no property qualification for electors, and the votes are taken by secret ballot. The executive is in the hands of a governor, nominated by the crown, who acts under the advice of ministers responsible to Parliament.

The public revenue during 1874 was £4,664,568; the expenditure, £4,426,040. The public debt, chiefly incurred for railways and other public works, amounted, at the end of 1874, to £10,842,415.

New South Wales possesses 436 miles of railways. Of electric telegraph, there were in the colony 8000 miles of wire, at the end of 1874. Number of paid messages transmitted during 1874, 385,000; number of telegraph stations, 105.

The post office of the colony transmitted 9,300,000 letters, 4720 newspapers, and 250,000 packets in 1874.

The number of schools, public and private, in 1872, was 1464, with 106,691 pupils.

Commission from New South Wales to the International Exhibition:

His Honor, Sir James Martin Knight, Chief Justice, President.
Hon. John Hay, President of the Legislative Council, Vice-President.
Hon. George Wigram Allen, Speaker of the Legislative Assembly, Vice-President.
STATISTICAL APPENDIX.

Commissioners:

The Rev. Chas. Badham, D.D.
Samuel Bennett, Esq.
James Byrns, Esq.
R. W. Cameron, Esq., Resident Commissioner, N. Y.
The Hon. G. H. Cox, M. L. C.
J. R. Fairfax, Esq.
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Benjamin Palmer, Mayor of Sydney.
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Edward Flood, Esq., of Sydney.
Dr. R. W. Forbes, of New York.
Patrick Alfred Jennings, Esq., of Sydney.
The Honorable Jacob Levi Montefiore, of Sydney, a member of the Legislative Council of New South Wales.

George Oakes, Esq., of Sydney.
Joseph James Phelps, Esq., of Sydney, a member of the Legislative Assembly of New South Wales.

George Russell, Esq., of Scotland.
The Honorable James White, of Sydney, a member of the Legislative Council of New South Wales.

Christopher Rolleston, Esq.
William Morris, Esq.
Charles Robinson, Esq., Secretary.
VICTORIA.

VICTORIA comprises the southeast corner of Australia, at that part where its territory projects furthest into cool southern latitudes. Wilson's Promontory, to the southeast, the most southerly headland, just passes the 39° of south latitude, while the most northern point, which is at the opposite or northwest extreme, is in south latitude 34°. The longitude comprises 9°,—between 141° and 150° east of Greenwich. To the west is the colony of South Australia, separated by the 141° of east longitude, to the north is New South Wales, separated by the line of the Murray river eastwards from 141° east longitude to its source, and thence by a straight line southeast to Cape Howe, and from Cape Howe to South Australia again the colony is bounded on the south by Bass's Strait. The extreme length is east and west, and is about 500 miles, by an extreme width north and south of 300 miles. But a remarkable indentation of both the north and south boundaries opposite each other, about the middle of the colony, reduces the breadth between the head of the Port Phillip inlet and the Murray to only 120 miles. The superficial area is 88,198 English square miles.

Although Victoria may be called mountainous, as compared with the general flatness of Australia, it has much of the quiet and peculiar scenery characteristic of that division of the world. The highest mountain in Australia, Mount Feathertop, is 6303 feet in height. The largest river, which runs throughout its entire course in Victoria, is the Gouldbourn, 230 miles long. The Murray, which winds for a distance of 630 miles along the northern boundary of Victoria, rises in New South Wales, and falls into the sea in South Australia, so that it can scarcely be called a Victorian river.

The climate is on the whole healthful and agreeable. The average temperature of Melbourne is 57.6°, about the same as that of Marseilles, Bordeaux, Bologna, Nice, and Madrid. The common summer heat is from 65° to 80°, with an occasional advance to 90°, and even to 100°, during hot winds and a dry season. The winter range is mostly from 45° to 60°. Ice occasionally occurs in the midwinter of July, but it rarely, except on elevated ground, survives the noonday sun.

The estimated population of Victoria, on the 31st of March, 1875, was returned at 810,442 by the Registrar-general.

In 1875 there were 1,011,776 acres under crops, including 332,936 acres of wheat, 114,921 of oats, 29,505 of barley, 33,183 of potatoes, 119,931 of hay, and 253,129 of green forage. The gross produce was: wheat, 4,850,165 bushels; oats, 2,121,612 bushels; barley, 619,896 bushels; potatoes, 124,310 tons; hay, 157,261 tons; wine, 577,493 gallons. The total number of horses was, in 1875, 180,254; milk cows, 241,137; horned cattle, 717,251; sheep, 11,221,036; pigs, 137,941. The manufactures of Victoria employed 25,000 persons, and the capital invested in machinery and plant was £5,000,000. The number of persons at work in the gold fields, December 31st, 1874, was 45,151, of whom 12,180, or 27 per cent., were Chinese.

The total value of the imports and exports of Victoria, including bullion and specie, for the year 1874, was as follows: Imports, £16,953,985; exports, £15,441,109. The most important, in value, of the imports are woolens, sugar, cotton, apparel and haberdashery, and tea. The two staple articles of export are wool and gold. The total exports of wool in 1874 amounted to 88,662,311 pounds, of the value of £6,373,641. The export of gold, exclusive of specie, was 1,012,153 ounces, of a declared value of £4,053,288.
The number of mercantile vessels on the register of Victoria, at the end of 1874, was 429, with a total tonnage of 70,666, and crews of 3229 men. Of these vessels 47 were steamers.

The constitution of Victoria was established by an act passed by the legislature of the colony in 1854, and subsequently confirmed by the crown. The legislative authority is vested in a parliament of two chambers—the Legislative Council, composed of 30 members, and the Legislative Assembly, composed of 78 members. A property qualification is required both for members and electors of the Legislative Council. No electoral property qualification is required for graduates of British universities, matriculated students of the Melbourne university, religious ministers of all denominations, certificated schoolmasters, lawyers, medical practitioners, and officers of the army and navy. Six members, or a fifth, of the Legislature Council must retire every two years, so that a total change is effected in ten years. The members of the Legislative Assembly are elected by universal suffrage, for the term of three years. The executive consists of a governor appointed by the crown, and a ministry which must contain at least four members of parliament, and must command a majority in the assembly. The revenue for the year 1874-75 was £4,406,906; the expenditure, £4,425,277. The public debt, incurred entirely for the construction of public works, amounted to £12,485,432 on January 1st, 1875.

Victoria has a more extensive system of railways than any other of the Australasian colonies. On the 1st of January, 1875, there were 457½ miles opened for traffic, and 427 more in course of construction. There were, in 1874, 148 telegraph stations, 4464 miles of wires. Number of telegrams forwarded during the year, 701,080. The work of the post office during the same year, 15,732,888 letters, 6,866,913 newspapers, and 1,269,822 packets. Number of post offices, 802.

The following table shows the educational condition of the population above five years of age:

<table>
<thead>
<tr>
<th></th>
<th>MALES.</th>
<th>FEMALES</th>
<th>TOTAL.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to read and write,</td>
<td>264,665</td>
<td>200,898</td>
<td>474,565</td>
</tr>
<tr>
<td>Able to read only,</td>
<td>30,049</td>
<td>36,336</td>
<td>66,385</td>
</tr>
<tr>
<td>Unable to read,</td>
<td>25,462</td>
<td>26,315</td>
<td>51,777</td>
</tr>
</tbody>
</table>

The state of education among the children, between 5 and 15, showed that 846 children out of 1000 could read, 640 could read and write, and only 154 were totally un instructed. Education in Victoria is gratuitous, secular, and compulsory, and the legislature has voted large sums for the primary education of the people.

The total number of schools is 1867, including 908 "common" schools, with an attendance of 154,353 pupils. (Furnished, in part, by the Victoria Commission.)

Commission from VICTORIA to the International Exhibition:

SIR REDMOND BARRY, Acting Chief Justice of the Supreme Court, President.

Hon. J. J. Casey, M. P.
Hon. J. F. Sullivan, M. P.
Hon. C. J. Jenner, M. L. C.
James Munro, Hon., M. P.
J. McLlwraith, Esq.
L. J. Sherrard, Esq.
COUNT DE CASTELNAU.
Hon. S. H. Bindon.
James Bosisto, Esq., M. P.
Jas. Gatehouse, Esq., Mayor of Melbourne.
John McIntyre, Esq.

J. I. Bleasdale, D.D.
Hon. Sir John O'Shanassy, K.C.M.G.
Hon. Sir James McCulloch, M. P.
Hon. John Alexander Macpherson, M. P.
Hon. John Thomas Smith, M. P.
Leslie James Sherrard, Esq.,
John Danks, Esq.
George Collins Levey, Esq., Secretary.
SOUTH AUSTRALIA.

THE colony of South Australia embraces 25 degrees of latitude through the centre of the continent of Australia, from the Southern to the Indian Ocean, and is bounded on the east by the colonies of Victoria, New South Wales, and Queensland, and on the west by the colony of Western Australia. Its area is 914,730 square miles, or 585,427,200 acres; being about a third of the area of the United States of America, or ten times that of Great Britain. Its population is 210,699.

Its chief exports are wool, wheat, and copper. In 1875 the exports were valued at £4,442,100—namely: of wool, £1,778,297; of agricultural produce, £1,688,035; of metals, £758,664; and of other products, £217,104. Its revenue in 1875 was £1,143,312, its people not being taxed at a higher rate than 25 shillings a head. The people have purchased land of the government to the extent of 4,634,711 acres, of which 1,400,000 are under cultivation; and the average price paid since 1845 is £1 5s. 2d. per acre. The public debt is about £3,000,000; but, as an offset, is a sum of £2,225,000 due for lands sold to occupiers, and payable within six years.

The natural wealth of the colony in healthy climate, fruitful soils, and abundant minerals, has been greatly augmented by useful and substantial improvements. In addition to numerous ports made serviceable for coasting trade, inland traffic is facilitated by 884 miles of excellent macadamized roads, which have cost over £2,000,000; and by railways of nearly an equal further cost. The public and private buildings, both in towns and country, are mostly of well-built stone, with slate or iron roofs. Gardens and orchards, pasture and arable fields cover the more settled portions of the colony, whilst over hundreds of miles outside of these some 6,000,000 sheep, 200,000 head of horned cattle, many thousands of horses, and a few hundred camels, thrive at large on the native vegetation, save that their ranches, or runs, are mostly inclosed in areas of from 5 to 50 square miles with good post and wire fencing.

The best of meat and bread, fruit and vegetables, grow in abundance in South Australia. People there live well at little cost. Labor is well rewarded. There are not, or ought not to be, any able-bodied paupers in the colony. At the savings' banks, which are guaranteed by government, the small deposits of the poorer classes approximate £300,000, on which four to five per cent. interest is paid. Immigration is promoted by annual money votes, which, through Mr. F. S. Dutton, C. M. G., Agent-General for the colony in London, supply free or assisted passages for eligible persons.

The government, the laws, and the social institutions, like the people of South Australia, have an Anglo-Saxon character. There is the fullest civil and religious freedom under a vice-regal governor, whose ministers are chosen by, and are responsible to, a majority of two houses of parliament elected by ballot, as to the larger house, of manhood suffrage alone, and, as to the smaller house, by a slightly restricted property qualification. These organizations have worked harmoniously to the contentment of the people.

Churches and schools are numerous. The facilities for acquiring real property in the colony are great, and laws well secure its quiet enjoyment. The public lands are mostly sold on credit: one-tenth per cent. is paid down as interest on the purchase money, which is not less than twenty shillings per acre. The balance is deferred to the sixth year, a second ten per cent. on the purchase money having been paid on the third year as interest. At the sixth year half the
balance may be renewed for four years at four per cent. if needed; but that the State may secure certain benefit from the sale of its lands under a credit system, the purchaser is bound to effect annual improvements. All metals, precious or other, go to the purchaser. The title to real estate from the crown is by registration, of which the purchaser gets a certificate in simple form. This system is popular, for it is ready and inexpensive at the outset, and is returnable to the registration office for record on it of all subsequent dealings, or for substituted certificate, or certificate as needed, in the event of sales. At the close of 1874 the value of landed property, which had passed under it, amounted to £9,260,186. Adjoining colonies have adopted this law.

The settled portions of the colony of South Australia are sectioned off into counties, and these counties, when arable cultivation requires it, are subdivided into hundreds, whose municipal governing bodies can be elected for local public works and education. Outside the hundreds, in the southern portion of the colony, the public lands are left for purely pastoral occupation, for which fourteen or twenty-one years' leases can be procured at moderate rents, regulated much by distance from ports of shipment, except that, both as to public lands inside or outside the hundreds, rights to search for and work minerals are readily granted. The rent of a mining lease is fixed at ten shillings an acre per annum, on a fourteen years' term, renewable.

For the northern territory of South Australia, with its tropical climate, the land laws are modified. Land there is open for selection and sale at 7s. 6d. per acre, or for lease over ten years at 6d. per acre per annum. And, for the special growth of sugar, cotton, tea, rice, and tobacco, selections varying from 320 to 1280 acres can be made at a rental of 6d. per acre per annum for five years, when, if the land has been inclosed and one-half under cultivation, a free grant is procurable.

In 1872 South Australia erected 1973 miles of telegraph wire across her territory, and, at a cost of £350,000, connected Australia with India and Europe.

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Commission from South Australia (Adelaide) to the International Exhibition:

His Excellency, Sir Anthony Musgrave, C. M. G., Chairman.

Hon. John Crozier, M. L. C., J. P.
Hon. Wentwood Cavanaugh, Esq., M. P., J. P.
Josiah Boothly, Esq., J. P.
E. W. Andrews, Esq., J. P.
S. Davenport, Esq., J. P., Special Commissioner.
George McEwen, Esq., J. P.

Dr. Schomburgh, D. P., J. P.
Caleb Peacock, Esq., J. P.
R. D. Ross, Esq., M. P., J. P.
W. E. Smith, Esq., M. P., J. P.
Walter Hacke, Esq.
J. A. Holden, Esq., J. P.
Joseph Crompton, Esq.
S. V. Pizey, Esq.
F. G. Waterhouse, Esq.
W. A. E. West Erskine, Esq.
C. J. Coates, Esq., Commissioner and Honorary Secretary.
CAFE OF GOOD HOPE.

The colony of the Cape of Good Hope is bounded north and northeast by the Orange river, which divides it, in parts of its course, from the Free State; east and northeast by the Tics, a small tributary of the Orange, the Stormbergen Mountains, and the Indwe and Great Kei, which two rivers separate the Cape Colony from Kaffirland; on the south it is bounded by the Indian Ocean, and on the west by the Atlantic. Latitude 28° 10' to 34° 51' south; longitude 16° 20' to 28° 20' east. The breadth on the greatest meridian is about 450 miles, the length on the largest parallel about 600 miles, and the total area is about 201,000 square miles. The colony is generally considered as forming two sections, the Western and Eastern Provinces, each divided into 16 electoral divisions, which are again subdivided for fiscal and magisterial purposes. The first regular census (1865) gave the following result as to the numbers of the population:

White, or European, .................................. 181,592
Hottentot, ............................................. 81,598
Kaffir, .................................................. 100,536
Other colored, ......................................... 132,655

499,381

Since the census, the annexation of British Kaffraria, Basutoland, Fingoland, and Normansland, added 58,47 whites and 273,830 colored to the population, making the total, 776,158.

Hydrographically, the country, as a whole, is decidedly superior to most parts of Africa. The seaboard presents several comparatively safe and commodious harbors. Of these, however, two—Table Bay in the Western Province, and Algoa Bay in the Eastern—absorb nearly the whole of the foreign trade. Hardly any of the ports command navigable communication with the interior.

The highest range of mountains within the colony is 9000 feet above the sea. The dividing ridge runs parallel with the coast at a distance of 100 miles. Between the principal range and the sea, on the east, there are two other ranges, less continuous and regular; the intermediate one generally more distant from the first than they are from each other.

The prevalent winds—the southeast in summer, and the northeast in winter—mitigate each the rigor, whether heat or cold, of its own season; and, in spite of occasionally sudden and great changes, render the temperature, as a whole, one of the most salubrious and delightful in the world. The mean temperature of the year at Cape Town is about 68° F.; that of the coldest month being 57°, and of the hottest, 79°.

The value of the total exports and imports of the Cape Colony, including British Kaffraria, was, in 1873, as follows:

Imports, .............................................. £5,451,927
Exports, .............................................. 4,011,327

Among the articles of export, wool is the most important, forming nearly ninetenths of the total. Among the other leading items are copper ore, feathers, and sheepskins,
There were, at the end of 1865, in the colony, 692,514 head of cattle and 9,836,065 sheep. The sheep farms are often of very great extent, comprising from 3000 to 15,000 acres and upwards. Those in tillage are comparatively small. The graziers are, for the most part, proprietors of the farms they occupy, paying a quit rent to government, as the original owner of the soil.

COMPARISON OF TOTAL STOCK IN THE COLONY IN 1865 AND 1875.

<table>
<thead>
<tr>
<th></th>
<th>1865</th>
<th>1875</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horses</td>
<td>228,465</td>
<td>207,318</td>
</tr>
<tr>
<td>Mules and asses</td>
<td>24,267</td>
<td>29,517</td>
</tr>
<tr>
<td>Draught oxen</td>
<td>249,291</td>
<td>398,825</td>
</tr>
<tr>
<td>Other cattle</td>
<td>443,004</td>
<td>698,681</td>
</tr>
<tr>
<td>Wooled sheep</td>
<td>8,426,619</td>
<td>10,064,289</td>
</tr>
<tr>
<td>Other sheep</td>
<td>1,465,883</td>
<td>944,050</td>
</tr>
<tr>
<td>Angora goats</td>
<td>121,432</td>
<td>972,733</td>
</tr>
<tr>
<td>Common goats</td>
<td>2,147,807</td>
<td>2,122,808</td>
</tr>
<tr>
<td>Pigs</td>
<td>78,578</td>
<td>110,489</td>
</tr>
<tr>
<td>Ostriches</td>
<td>80</td>
<td>22,257</td>
</tr>
</tbody>
</table>

There were lines of railways of a total length of 134 miles at the end of 1874, and a system of other main lines, as well as of telegraphs, was under consideration by the government.

The constitution vests the executive in the Governor and an Executive Council, composed of certain officeholders appointed by the crown. The legislative power rests with a Legislative Council of 21 members, and a House of Assembly of 66 members.

The income and expenditure of the colony, during 1873, were as follows:

Revenue, ..... £2,078,220
Expenditure, ..... 2,159,658

Included in the above receipts is a loan of £859,000 for public works. The public debt, on the 1st of January, 1875, amounted to £1,723,144.

Commissioner from the Cape of Good Hope to the International Exhibition:

Mr. H. Crawford Coates, Executive Commissioner.
JAMAICA.

JAMAICA, one of the West India Islands, and by far the most important of those belonging to Great Britain, is about 90 miles to the south of Cuba, and stretches in north latitude between 17° 40' and 18° 30', and in west longitude between 76° 15' and 78° 25'. Area, 6900 square miles; population (in 1871), 506,154, of whom less than three per cent. were white. The greatest length of the island is 150 miles, and its greatest breadth, 50 miles. It is traversed from east to west by a heavily timbered ridge called the Blue Mountains, which rises to about 7000 feet. From this range at least 70 streams descend to the north and south shores; one of these, the Black river, affords for small craft a passage of about 30 miles into the interior. The others, owing to the shortness and declivity of their course, are not navigable. Excellent harbors are everywhere to be found. The best of these is formed by a deep and capacious basin, in the southeast quarter of the island, which washes the most spacious and fertile of the plains between the hill country and the coast. Around this inlet, and within a few miles of each other, are all the considerable centres of population, Port Royal, Kingston, and Spanish Town.

The climate varies considerably; the torrid belt of the coast gradually passing into the temperate region of the central heights. The latter is said to be remarkably favorable to longevity; and, after having long been a retreat for the residents themselves, it has lately begun to attract invalids from the United States. To contrast two positions—the one near Kingston harbor, the other at an intermediate elevation of 4000 feet—their annual mean temperature are stated to be respectively 81° and 68° F. In 1871 the chief exports were in value as follows: Sugar, £502,193; rum, £471,267; coffee, £147,562; logwood, £115,423; while the chief imports were: Flour, £135,500, and salt-fish, £92,801. During the same year the revenue amounted to £434,564; the expenditure to £430,154.

The sum of £19,403 was devoted to the support of the schools during the year 1872.

Commissioner from JAMAICA to the International Exhibition:

WM. ROBERT THOMSON, Esq., Kingston.
BAHAMAS.

A CHAIN of islands lying between 21° 42' and 27° 31' N. lat., and 72° 40' and 79° 5' W. long. The group is composed of about twenty inhabited islands and an immense number of islets and rocks. The principal islands are New Providence (containing the capital, Nassau), Abaco, Harbor Island, Eleuthera, Inagua, Mayaguana, St. Salvador, Andros Island, Great Bahama, Ragged Island, Rum Cay, Exuma, Long Island, Crooked Island, Acklin Island, Long Cay, Watling's Island, the Berry Islands, and the Biminis. In 1848 the Turks and Caicos Islands were separated from the other Bahamas and formed into a distinct government, under the government-in-chief of the governor of Jamaica. The Turks and Caicos Islands lie between 21° and 22° N. lat., and 71° and 72° 37' W. long.

There are ten colonial custom-houses and ports of entry in the government of the Bahamas—viz., Nassau, Abaco, Eleuthera, Harbor Island, Exuma, Rum Cay, Long Island, Long Cay, Inagua, and Ragged Island. Considerable quantities of pineapples, oranges, and sponges are exported, chiefly to England and the United States. The pineapple crop is very precarious. The industry of salt-raking has ceased to be remunerative, owing to the duties imposed on salt by the United States. Experiments in coffee-planting and other branches of industry have been commenced under the patronage of the present governor.

The public expenditures for 1874 were £37,283; receipts during the same year, £38,374. The total public debt in 1873 was £65,081.

In 1874 the imports were valued at £183,993, and the exports at £130,293. The census of 1871 gave the population of the colony as 39,162.

The colony's staples are salt, fruit, sponge, barks, dye and furniture woods, guano and straw, turtle-shell, fish-scale, and shell-work.

The articles on exhibition fairly represent the productions and manufactures of these islands, and both might be indefinitely extended. But it is not the commercial position of the Bahamas only which should make a knowledge of them general. Their equality and wonderful salubrity of climate commend them to all who seek a genial, healthy, life-giving atmosphere. As a winter home for the afflicted, Peter Henry Bruce wrote nearly a century and half ago, "It is no wonder the sick fly hither for relief, being sure to find a cure here." Modern travelers also testify that, as a resort from damp and cold to sunshine and summer, for those who require change and climatic benefit, the Bahamas offer peculiar advantages. The heat is tempered by an ocean breeze of softness and purity seldom experienced elsewhere. Tropical flowers gladden the eye, and the luscious pineapple, orange, and melon tempt the palate with their freshness and beauty. Fish abound in the clear pellucid waters surrounding these islands, and the northern fowl seek a home on the lakes. In a word, the Bahamas seem by nature fitted as a grand sanitarium for the afflicted from the North American continent, and as a most desirable winter resort for all who wish to escape the rigors of the northern season.

(The above data have been derived from the special Catalogue of the British section.)

Commission from BAHAMAS to the International Exhibition. Dr. Edward T. Webb, Commissioner, Philadelphia.
BERMUDAS,

Or Somers' Islands, are a cluster of about one hundred small islands, situated on the western side of the Atlantic Ocean, in lat. 32° 15' N. and long. 64° 51' W., at a distance of about 580 miles from the nearest land—viz., Cape Hatteras, in North Carolina. Fifteen or sixteen of these islands are inhabited; the rest are of inconceivable size, the largest, or Bermuda proper, containing less than twenty square miles of land, and nowhere exceeding three miles in breadth.

The islands extend from N.E. to S.W. in a curved line for about twenty miles, bending inward at both extremities, so as to enclose spacious and secure harbors.

Besides the main island, on which the town of Hamilton, the present seat of government, is situated, the principal islands are St. George's, where the ancient town of St. George, the former capital, stands; Ireland Island, where the dockyard is established; Boaz and Watford Islands, occupied entirely by a military detachment, formerly a convict establishment; Somerset, St. David's, Smith's, Cooper's, Nonsuch, Godet's, Port's, and River's. With the exception of one break between Somerset and Watford Islands, there is continuous communication by bridges from St. George's to Ireland Island. The climate has been long celebrated for its mildness and salubrity. The islands produce arrowroot of a fine quality, and an indigenous cedar of great durability, well adapted for ship-building and house-timber. A few whales are occasionally taken in the neighboring waters. Turtle are common.

The islands derive their name from Bermuda, a Spaniard, who sighted them in 1527. They were first colonized by Admiral Sir George Somers, who was shipwrecked there in 1609, on his way to Virginia. On his report the Virginia Company claimed them, and obtained a charter for them from James I. in 1612. This company sold their right for £2000 to an association of 120 persons, who obtained a new charter in 1616, incorporating them as the Bermuda Company, and granting them very extensive powers and privileges. Representative government was introduced in 1620. In 1621 the Bermuda Company in London made a Body of Ordinances for the government of the colony. During the civil war great numbers of emigrants from England were attracted thither by the favorable reports of the climate and soil. Toward the end of the reign of Charles II, grave complaints were made by the inhabitants of the misgovernment of the plantation by the company, and its charter was annulled by process of quo warranto, at Westminster, in 1684–85. Since then the governors have been appointed by the Crown, and laws for the colony enacted by a local legislature, consisting of the governor, council, and assembly. The lands belonging to the company were forfeited to the Crown on the annulment of their charter, and, with the exception of some reserved for public uses, were granted in 1759 to purchasers on small quit-rents, extinguishable on the payment of a fixed sum of money.

During the Revolutionary war in North America the inhabitants suffered great privations from the scarcity of food; and although they export largely certain articles of agricultural produce, especially potatoes, onions, tomatoes, and arrowroot, they are still dependent on foreign supplies for all the flour and most of the meat consumed. Early in the present century the importance of the Bermudas as a naval station came to be recognized. Ireland Island was purchased exclusively by the government, and a dockyard established there. By order in council, dated June
28, 1824, the Bermudas were declared a place where male convicts might be kept at hard labor on the public works; but these islands never were made a penal settlement, strictly speaking, where convicts might be discharged. The establishment was broken up in 1863. On the abolition of slavery in 1834, the system of temporary apprenticeship of the emancipated slaves, permitted by the Act of Parliament in the slave-holding colonies, was dispensed with by the local legislature of Bermuda, so as to entitle the slaves to their absolute freedom six years sooner than was required by Parliament. They and their descendants now form more than a numerical half of the entire population.

In 1846 a lighthouse, visible at more than thirty miles' distance, was erected on the highest land in the colony, the light being 362 feet above the sea. A public library was established in 1839. In 1871 the island of St. George's was connected with the main island by a causeway and road two miles in length, commenced in 1866, and completed at a cost of nearly £30,000. An iron-girder swing-bridge still permits the passage of vessels.

The revenue in 1874 was £29,066, the expenditure £29,800, the public debt £13,234, the imports £252,435, the exports £81,585; total tonnage of vessels entered 72,212; cleared, 71,935. The census of 1871 showed a population of 12,121, of whom 4725 were white, 7396 colored.

(The above data have been derived from the special Catalogue of the British section.)

Commission from BERMUDA to the International Exhibition:

His Hon. Thomas L. Wood, Chief Justice, President.
Hon. Henry Fowler, Receiver-General.
Lt. Col. Bland, R. E.
James Tucker, Esq., Colonial Secretary and Honorary Secretary.
Capt. Lockhart, R. A., A. D. C.

Assistant Commissioners.

A. H. Frazer Lefroy, Esq. | J. B. Heyl, Esq.
W. S. Barr, Esq. | C. C. Keane, Esq.
H. J. Hinson, Esq., M. D.

Resident Commissioner—A. A. Outerbridge, Philadelphia.

BRITISH GUIANA.

This colony is a portion of the South American Continent, extending from east to west about two hundred miles. It includes the settlements of Demerara, Essequibo, and Berbice. It is bounded on the east by Dutch Guiana, from which it is divided by the river Corentyn, on the south by Brazil, on the west by Venezuela, and on the north and north-east by the Atlantic Ocean.

This territory was first partially settled by the Dutch West India Company in 1580. It was from time to time held by Holland, France, and England. It was restored to the Dutch in 1602, but in the following year retaken by Great Britain, to whom it was finally ceded in 1814. It is impossible to determine the exact area of the
CEYLON.

An island situated in the Indian Ocean, off the southern extremity of Hindostan, lying between 5° 55' and 9° 51' N. lat., and 79° 41' and 81° 54' E. long.; its extreme length from north to south—i.e., from Point Palmyra to Dondora Head—is 266 miles; its greatest width 140½ miles, from Colombo on the west coast to Sangemankende on the east.

The climate for a tropical country is comparatively healthy, the heat in the plains, which is nearly the same throughout the year, being much less oppressive than in Hindostan. Along the coast the annual mean temperature is about 80° Fahr.; at Kandy, 1465 feet above the sea level, it is 76° (average of ten years); at Colombo the annual variation is from 76° to 86°; at Galle 70° to 90°; and at Trincomalee 74° to 91°. In the mountain ranges there is of course a great variety of climate, the thermometer at the hill station Nuwara Eliya, which is some 6000 feet above the level of the sea, falling at night as low as 32°.

Ceylon was visited in early days by the Greeks, Romans, and Venetians; in 1505 the Portuguese formed settlements on the west and south of the island; in the next century they were dispossessed by the Dutch. In 1795-6 the British took possession of the Dutch settlements in the island. They were annexed then to the Presidency of Madras, but five years later, in 1801, Ceylon was constituted a separate colony. In 1815 war was declared against the native government of the interior: the Kandyan king was taken prisoner, and the whole island fell under the rule of the British.
STATISTICAL APPENDIX.

By letters patent under the Great Seal, April, 1831, a Council of Government was appointed, and by a supplementary commission to the then governor (March, 1833) the form of government almost as now existing was established.

The public expenditures for 1874 were £1,184,192; receipts, £1,324,328. The total public debt in 1874 was £600,000. In 1874 the total value of imports was £5,691,860, and of exports £4,687,388.

(The above data have been derived from the special Catalogue of the British section.)

SINGAPORE is an island about 25 miles long by 14 wide, situated at the southern extremity of the Malayan peninsula, from which it is separated by a narrow strait about 3/4 of a mile in width. There are a number of small islands adjacent to it which form part of the settlement. The seat of government is the town of Singapore, at the southern point of the island, in lat. 1° 16' N., and long. 103° 53' E.

Penang is an island about 20 miles long and 9 broad, containing an area of 107 square miles, situated off the west coast of the Malayan peninsula in 5° N. lat., and at the northern extremity or entrance to the Straits of Malacca. On the opposite shore of the mainland, from which the island is separated by a strait from 2 to 10 miles broad, is Province Wellesley, a strip of territory forming part of the settlement, averaging 8 miles in width, and extending 45 miles along the coast, including 10 miles of newly-acquired territory to the south of the Krean. The chief town is George Town, in 5° 24' N. lat. and 100° 21' E. long.

Malacca is situated on the western coast of the peninsula, between Singapore and Penang, about 120 miles from the former and 210 from the latter, and consists of a strip of territory about 42 miles in length, and from 8 to 21/2 miles in breadth. The principal town, called Malacca, is 2° 10' N. lat. and 102° 14' E. long.

The revenue during the year 1874 was £309,991, and the public expenditures £317,726.

(The above data have been derived from the special Catalogue of the British section.)

GOLD COAST COLONY, WEST AFRICA.

The Gold Coast Colony, which comprises the British settlements on the Gold Coast and at Lagos, was constituted by a charter under the Great Seal, bearing date the 24th day of July, 1874.
The Gold Coast is the name generally given to a portion of Upper Guinea, between 5° and 4° 20' E. long., stretching along the Gulf of Guinea from the river Assini on the west to the river Volta on the east, between which points are the settlements of Axim, Dixcove, Secondee, Elmina, Cape Coast Castle, Anamaboe, Accra, and Addah. In 1672 a company was formed, called the Royal African Company, which built forts at Dixcove, Secondee, Commendah, Anamaboe, Winnebah, and Accra, besides strengthening Cape Coast Castle, which was already in existence. This company was succeeded in 1750 by the African Company of Merchants, constituted by Act of Parliament, with liberty to trade and to form establishments on the West Coast of Africa between 20° N. and 20° S. lat. This company was dissolved in 1821 by Act of Parliament, and the forts transferred to the Crown, by whom they were placed under the government of Sierra Leone.

The revenue of the Gold Coast for 1874 was £74,868, the expenditure £47,796. The annual imports were £225,525, the exports, £330,624. It has no public debt. The estimated population, including the protectorate, is 400,000.

The revenue of Lagos for 1874 was £39,350, the expenditure £37,296, the public debt £11,631. The imports for the same year were £348,636, the exports £486,227. The population is 62,021.

(The above data have been derived from the special Catalogue of the British section.)

MAURITIUS.

An island lying in the Indian Ocean, between 57° 17' and 57° 46' E. long., and 19° 58' and 20° 32' S. lat. It is 400 miles east of Madagascar. It comprises an area of 676 square miles.

The Mauritius was discovered by the Portuguese in 1507. They claimed possession of it during nearly the whole of the sixteenth century. The first who made any settlement in it were the Dutch in 1598, who named it Mauritius, in honor of their prince Maurice. It was abandoned by them in 1710, and afterward taken possession of by the French. Mauritius was for a long time during the war a source of great mischief to English merchant-vessels and Indiamen, from the facility with which sorties might be made from it upon traders by French men-of-war and privateers. The British government determined on an expedition for its capture, which was effected in 1810. The possession of the island was ratified by the treaty of Paris, 1814.

Mauritius pays £45,000 per annum to the imperial government as military contribution, but this amount is subject to reduction when the garrison is below the standard fixed upon as necessary for the defence of the colony. The total police force is 849.

The revenue for 1874 was £720,130, the expenditure £727,063, the public debt £895,600, bearing six per cent. interest. The imports were £2,427,813, the exports £2,697,892. The estimated population at the close of 1874 was 3,331,371, of whom 233,017 were Indians.

(The above data have been derived from the special Catalogue of the British section.)
QUEENSLAND.

QUEENSLAND occupies the whole of the northeastern portion of Australia, commencing at a point of the east coast about 400 miles north of Sidney, called Point Danger, in latitude 28° 8' south. The greater portion of the southern boundary line is formed by the 29th parallel of south latitude. The eastern seaboard extends about 1300 miles to Cape York, the extreme northern point of the continent, in latitude 10° 40'. The mean breadth of the territory is 900 miles from the eastern coast-line to the meridian of 138° east longitude, which forms the western boundary line. This includes the greater portion of the Gulf of Carpentaria, which has a seaboard of about 900 miles. The whole of Queensland comprises 678,000 square miles,—nearly twelve times the area of England and Wales.

The portion of the colony extending along the eastern coast, is indented with numerous bays, which are the outlets of many navigable rivers, having their sources in the cool gorges and deep recesses of a great mountain range, running north and south, parallel with the sea coast, at a distance of from 50 to 100 miles. The summits of this great dividing range rise from 2000 to 6000 feet above the level of the sea. Numerous spurs are given off from the range, in ridges sloping gradually towards the coast. These ridges are generally composed principally of quartz, and in many places form good natural roads for a considerable distance. The ridges are usually covered with a variety of fine and valuable timber. The iron-bark, bloodwood, box, and other descriptions of wood, very valuable to the farmer for fencing and building, are found here in great abundance.

Unlike almost every other portion of Australia, Queensland is correctly described as "a land of rivers and streams." These rivers find an outlet in the many large and beautiful bays and estuaries on the eastern seaboard. One of these, Moreton Bay, receives the waters of five rivers, which are always navigable. The largest of these, the Brisbane, is navigated by good-sized steamers for 75 miles, and is nearly a quarter of a mile wide at a distance of 15 miles from its mouth. The principal rivers on the eastern seaboard are the Logan, the Brisbane, the Mary, the Caliope, the Boyne, the Fitzroy, the Pioneer and the Burdekin. The longest tidal river in Queensland is the Fitzroy, which drains an area of not less than 50,000,000 of acres, and is navigable as far as Yaruba, 60 miles from its estuary in Keppel Bay. It receives as its principal tributaries, the Dawson, Mackenzie, and Isaacs, large streams flowing for several hundred miles from the northwest, west, and southwestern parts of the interior. The tide at Rockhampton (40 miles from the embouchure of the river) rises 4 feet, and the stream is thus navigable for vessels of considerable burden.

The banks of the rivers are usually well elevated, and in many places consist of very rich alluvium, brought down from the great mountain ranges. This alluvial soil is frequently of very great depth, and is marked everywhere by a magnificent growth of timber, very unlike the ordinary Australian wood.

Beyond the Main, or great dividing range, the country presents features of still greater beauty and fertility. Vast plains—60, 70, or 80 miles across—stretch out their level surface, unbroken by a single tree, but covered with luxuriant grass, and often purpled over with fragrant herbage. These great plains are composed of rich, black soil. They are well watered with a network of streams, which trickle down from the gradual slopes of the mountain range. The soil in this locality is admirably adapted for tillage; and within a certain distance of the mountain range the rains fall with great regularity. The land here is lightly timbered, and is cleared with less labor than on the lower lands, and the soil has proved to be peculiarly adapted for the growth of wheat of the finest quality. The yield per acre in this locality has sometimes been as much as 50, and even 60 bushels, of 63 pounds to the bushel. The
average yield may be estimated at 30 bushels per acre. Indian corn and other cereals as well as all the European fruits grow luxuriantly, and come to the greatest perfection in this highly favored locality, which has been called the Garden of Queensland.

This country, west of the great dividing range, stretches away in a series of fine plateaux for a distance of 400 or 500 miles westward, and, with the interruptions of other mountain ranges crossing the main range at right angles, for upwards of 1000 miles towards the fertile plains bordering the shores of the Gulf of Carpentaria.

The climate of Queensland is said to closely resemble that of Madeira; the mean annual external shade temperature, taken at Brisbane, being very nearly the same as at Funchal in Madeira, though it is a little hotter in the summer and colder in the winter at Brisbane than at Funchal. Moreton Bay, now Brisbane, has for many years been the resort of invalids from all the other British colonies in the southern hemisphere, and has been called the Montpellier of Australia. The summer season is hot,—the thermometer rising sometimes to 90° or even 100° in the shade; but the air is dry, elastic, and healthy, and the sea breezes temper the heat, and make it perfectly endurable, even to the outdoor laborer, in the hottest time of the year. However hot the day, the night is almost invariably cool, even in the most northern parts of the colony.

The growth of cotton and of the sugar-cane has been attempted in recent years, and both industries are reported to be rapidly advancing. At the end of 1873, there were 6663 acres under cotton, and 14,495 acres under sugar-cane, out of a total of 64,218 acres under cultivation.

The live stock at the end of 1873 numbered 99,243 horses, 1,343,093 cattle, 7,268,946 sheep, and 42,884 pigs. It is estimated that there are, at present, about 17,000,000 sheep in the colony.

There are several coal mines in the colony, the produce of which, in 1873, amounted to 33,613 ounces, valued at £22,052. Gold fields were discovered in 1867, the principal of them at Gympie Creek, which had a digging population of 5010 at the end of 1873. The total gold produce amounted to 163,672 ounces, valued at £555,310, in 1873.

The total value of the imports and exports of Queensland, during the year 1875, was: Imports, £3,881,726; exports, £4,544,513. The principal articles of export are gold, wool, tin ore, and raw cotton.

The form of government of Queensland was established December 10th, 1859, on its separation from New South Wales. The power of making laws and imposing taxes is vested in a Parliament of two houses, the Legislative Council and the Legislative Assembly. The former consists of 21 members, nominated by the crown for life. The House of Assembly comprises 42 deputies, returned from as many districts, for five years, by the ballot vote of all taxpayers. The executive is vested in a governor appointed by the crown.

Queensland is divided into 17 municipalities, the largest of which, as regards population, is Brisbane. It contains the city of Brisbane, the capital of the colony and the seat of government, with a population of 19,413, at the end of 1872.

At the end of 1873, there were 218 miles of railway open for traffic. The post office during that year carried 2,456,434 letters, 1,594,792 newspapers, and 93,540 packets. There were 20,968 money orders, to the value of £83,455.

At the end of 1873, there were in the colony, 3609 miles of telegraph wire, wi: 73 stations. The number of messages sent in 1873, was 156,668.

An excellent system of primary education, which, since 1870, has been made is successful and vigorous operation throughout the colony.

Commission from QUEENSLAND to the International Exhibition:

ANGUS MACKAY, ESQ.          W. R. GORDON, ESQ.
P. A. JENNINGS, ESQ.           C. STRAGER, ESQ.
W. B. TOOTH, ESQ.             T. STOMAN, ESQ.
W. HILL, ESQ.
SEYCHELLES ARCHIPELAGO.

The island of Rodrigues, the Seychelles Islands, Diego Garcia, and others, are dependencies of the Mauritius. Rodrigues is situated about 300 miles east of Mauritius. It is 26 miles in length by 12 in breadth. It is cultivated by colonists from Mauritius.

The Seychelles, or Mahe Islands, are situated between the parallels of south latitude 4° and 5°; the total number of acres comprised in this group is 50,120; the distance from Mauritius 940 miles. These islands are under the superintendence of a Chief Civil Commissioner (assisted by a Board of Commissioners) at Mahe, who is appointed by the Secretary of State, but is subordinate to the Governor of Mauritius, from whom he takes instructions.

(The above data have been derived from the special Catalogue of the British section.)

TASMANIA.

Tasmania, formerly known as Van Diemen's Land, is an island about 100 miles S. E. of Australia, from which it is separated by Bass' Strait. It lies between lat. 40° 45' and 43° 35' S., and long. 144° 50' and 148° 20' E. Its greatest length from N. to S. is 186 miles, its medium breadth 165 miles. The total area is 16,778,000 acres, of which 3,982,003 acres are alienated from the Crown by grant and sale; 1,348,400 acres are held under depasturing licenses from the Crown; the total area under cultivation is 326,486 acres. Wheat is cultivated on 57,633 acres; barley on 5,129; oats on 32,704. Consequent on the high duties enforced on agricultural produce by the other Australian colonies, and the fluctuating state of the intercolonial markets, the attention of Tasmanian agriculturists has of late years been turned to the production of wheat for the English market, and this has become the most important article of strictly agricultural produce. The export of grain in the year 1874 was valued at £115,788.

Salubrity and comparative coldness of climate, owing to higher latitude, make Tasmania a breeding station of stud stock for all the Australian continent. The number of horses in 1874 was 23,208, cattle 110,450, and sheep 1,714,168.

Most of the wool produced is merino, the export during the year 1874 amounting to 5,050,520 lbs., which represented a value of £350,713.

Mining industry for many years was confined to gold and coal, but of late tin, iron, and slate have attracted attention. The yield of gold in 1874, produced by 185 persons, was—alluvial 850 oz., quartz 3800 oz. 14 dwt. The quantity of quartz crushed was 3452½ tons. The average yield per ton of stone was 1 oz. 5 dwt. 8½ grs. The average value of gold per ounce was £3 15s. 6d. for alluvial; quartz, £3 15s. 6d. The total value of the produce of gold for 1874 was £18,491. The mineral which occupies the greatest share of attention is tin, the supply of ore being practically unlimited. The total amount raised in 1874 was 450 tons, valued at £78 a ton. The only locality in which silver ore has been worked in Tasmania is Pen-
guin Creek. Of iron the quantity raised during 1874 was 1400 tons; of this quantity 1000 tons were raised at Lempriere, West Tamar, and 400 tons at Lewisham.

The island is intersected by valuable coal-measures. At present the output of Tasmanian coal is not extensive, and the island is mainly supplied from Newcastle, New South Wales, although, for domestic purposes, Tasmanian coal is used to a considerable extent.

Of late years attention has been directed to the slate deposits of Tasmania; the high prices ruling for English slates in the colonial markets has induced the Australian Slate Company to commence work on a fair scale. In 1874 a quarter of a million of slates were prepared for sale at Piper's River.

At Ilfracombe Bay there is an extensive bed of pure white clay which seems very refractory, and which, when mixed with fine quartz (also abundant and close at hand), forms an admirable fire-brick. Common clays are found in all directions and the iron companies are now manufacturing bricks. Kaolin or porcelain clay is also found at Circular Head.

In the West Tamar district limestone quarries have been worked for many years past. There is an immense mountain of blue limestone situated about two miles from the township of Latrobe, on the River Mersey. At the River Don there are very large deposits of pure carbonate of lime, and the eastern districts, especially Fingal, abound with lime of various kinds and qualities.

The principal timber trees of Tasmania—such as blue gum, stringy bark, white gum or gum-topped stringy bark, swamp gum, and peppermint tree—furnish a hard, close-grained, and strong timber. Other useful woods are the huon pine, blackwood, myrtle, swamp gum, sassafras, celery-topped pine, silver wattle, ironwood, native cherry, whitewood, pinkwood, and native pear.

Bark is largely exported to England and New Zealand for tanning purposes. The price of ground bark varies from £4 to £6 per ton at the ports. During the year 1874 about 4870 tons were exported, valued at £22,123. Hops are also largely cultivated. In 1874, 819,145 pounds weight were exported, valued at £42,284.

The principal animals are the kangaroo, wallaby, opossum, and bandicoot, the skins of which are all available for tanning purposes, the fur being highly valuable as rugs, etc. The devil and Tasmanian tiger are formidable beasts, and used to make great havoc among the flocks. The tiger is a low, long-bodied animal with powerful forequarters and a dog-like head, weighing sometimes from sixty to seventy pounds. The devil, though not so large, is more hideous in appearance than the tiger.

Of birds 171 species have been observed, but of these only 20 species are supposed to be peculiar to Tasmania. The notes of many of the birds are very musical, the most remarkable being the reed warbler, the tones of which approach those of the nightingale, the black and white magpie, and the butcher-bird. The principal edible birds are varieties of quail, duck, snipe, golden plover, and pigeons.

There are many species of freshwater fish, the most valuable being the cucumber grayling. Among the estuary fish, those most appreciated as edible are the sole, whiting, garfish, and rock-cod. The best of the deep-sea fish are the trumpeter and kingfish. During the last ten years the salmon trout and brown trout, the tench and perch, have been established in many of the rivers and lakes. Salmon and salmon trout have also succeeded.

The chief industries are brewing, milling, jam-making, fellmongering, tanning, and coopering. Most of the beer is excellent, and is appreciated in the other colonies. In 1874 ale to the quantity of 22,900 gallons was exported. The quantity of jam exported in the same year was 2,648,012 lbs., and 179,762 bushels of fruit, valued together at £120,027. Tasmanian leather is excellent, all varieties from kip to kangaroo being supplied of such quality that a great falling off in the importation of inferior leather from European ports has taken place; and in 1874, £15,513 worth was exported from Hobart Town.
There is one remarkable feature distinguishing Tasmania from all other countries whose statistics have been compared with hers which ought not to be passed by unnoticed—namely, the small mortality among children, particularly those under one year of age. Taking an average of five years, the following results have been arrived at. Out of 100 infants born there died within the first year in Tasmania 9.45; in N. S. Wales, 9.57; in Queensland, 11.07; in Victoria, 11.85; in S. Australia, 14.24; the number in England being about 16; in Scotland about 12½. The percentage of deaths of children under five years was: Tasmania, 20.08; N. S. Wales, 42.14; Victoria, 45.50; Queensland, 46.33; S. Australia, 54.17. The proportion of children under five who died to 1000 children of the same age living was: In Victoria (ten years) about 52½; in England and Wales (thirty years), about 67½; in Tasmania, less than 27. Thus it appears that the mortality of children under five years of age in Tasmania is little more than half that of the least healthy of the Australian colonies. It is also considerably under that of New Zealand, which, as regards the general death-rate, is the most healthy of all the Australasian group.

In 1870 the population, according to the census then taken, numbered 99,328 souls; the estimated population on the 31st of December, 1874, was 104,176. The revenue for 1874 was £327,925, and the expenditure £318,278. The amount expended for public works, roads, bridges, and railways, inclusive of the expenditure on the Launceston and Western District Railway, amounted during the year 1874 to £45,410. The value of imports during the same period was £1,247,785, while that of exports was £925,325.

(The above data have been in part condensed from the official report of the Victoria Exhibition, 1870.)

Commission from Tasmania to the International Exhibition.

H. P. Welch, Esq., Commissioner. P. A. Jennings.

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TRINIDAD.

TRINIDAD is an island lying to the eastward of Venezuela, between N. latitude 10° 3' and 10° 50', W. longitude 61° and 62° 4' of Greenwich. Its length is 65 miles on the southern and 53 miles on the northern side of the island, and its breadth, on the eastern and western sides respectively, 48 and 49 miles. It is separated from the continent of America by the Gulf of Paria, into which fall the northern mouths of the Orinoco. The area of the island is 1754½ square miles. Port of Spain, the chief town and port of entry, according to the census of 1871, contains 23,561 inhabitants. The second town and port of entry is San Fernando, 26 miles south from Port of Spain, with a population of 5006 inhabitants. There are also the minor island towns of St. John, St. Joseph, Aronca, and Arima. The harbor is the finest in the West Indies.

The revenue for 1874 was £276,529, the expenditure £294,006. The public debt is £100,000 for railways and £47,500 secured on general revenue, but recoverable by the colony from other parties. The imports in 1874 were £1,342,992, the exports, £1,412,260. The census of 1871 showed a population of 109,638.

(The above data are derived from the "Colonial Office List," 1876.)
INDIA.

BRITISH INDIA is the name given to those parts of Hither and Further India placed under the administration of the viceroy, or governor-general of India. It does not include Ceylon, which, although a British possession, has its government entirely separate from that of Hindustan; but it extends along the eastern coast of the Bay of Bengal to 10° south latitude, and thus includes part of Further India, or Indo-China.

The following table, from the statistical abstract, relating to British India, for 1873 shows the area and population of the provinces under British administration:

<table>
<thead>
<tr>
<th>TERRITORIES AND PROVINCES UNDER THE ADMINISTRATION OF</th>
<th>AREA IN ENGLISH SQ. MILES</th>
<th>POPULATION</th>
<th>AVERAGE POT. PER SQ. MILE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor-general of India:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ajmere, ...</td>
<td>2,672</td>
<td>426,268</td>
<td>159</td>
</tr>
<tr>
<td>Coorg, ...</td>
<td>2,000</td>
<td>168,312</td>
<td>84</td>
</tr>
<tr>
<td>Berar, ...</td>
<td>16,950</td>
<td>2,231,565</td>
<td>132</td>
</tr>
<tr>
<td>Mysore, ...</td>
<td>27,077</td>
<td>5,055,412</td>
<td>187</td>
</tr>
<tr>
<td>Governor of Madras,</td>
<td>141,746</td>
<td>31,311,142</td>
<td>220</td>
</tr>
<tr>
<td>Lieutenant-governor of Bengal,</td>
<td>127,532</td>
<td>13,042,596</td>
<td>110</td>
</tr>
<tr>
<td>&quot; Northwest Provinces,</td>
<td>80,901</td>
<td>30,769,056</td>
<td>380</td>
</tr>
<tr>
<td>&quot; Punjab, ...</td>
<td>102,061</td>
<td>17,569,752</td>
<td>173</td>
</tr>
<tr>
<td>Chief Commissioner of Oude,</td>
<td>23,973</td>
<td>11,220,747</td>
<td>465</td>
</tr>
<tr>
<td>&quot; Central Provinces,</td>
<td>84,182</td>
<td>9,066,038</td>
<td>108</td>
</tr>
<tr>
<td>&quot; British Burmah,</td>
<td>93,664</td>
<td>2,562,323</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>950,919</td>
<td>191,307,070</td>
<td>201</td>
</tr>
</tbody>
</table>

Cotton is the most important product of Hindustan. Wool will probably soon become a great Indian staple. The chief supply is from the Himalaya and Afghan regions. Hemp and flax, silk from the high lands, coffee, linseed, tobacco, and indigo, are all valuable productions of British India. The leaves and silver blossoms of the tea plant are beginning to cover the Himalaya slopes, and the hilly districts of Bengal, the Northwest Provinces, and the Punjab. Great quantities of rice are raised in Southern India and British Burmah. The Malabar district, Martaban, and Tenasserim furnish thousands of logs of the best teak timber. The cinchona or quinine plant has lately been introduced on the Neilgherries with great success, the original plants having been brought over from Peru.

The total value of the imports of British India, during the year 1874, was as follows:

<table>
<thead>
<tr>
<th>IMPORTS</th>
<th>EXports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merchandise,</td>
<td>£32,593,609</td>
</tr>
<tr>
<td>Treasure,</td>
<td>5,792,533</td>
</tr>
<tr>
<td><strong>Total</strong>,</td>
<td><strong>£38,386,142</strong></td>
</tr>
</tbody>
</table>

The imports and exports, including treasure, were divided as follows:

<table>
<thead>
<tr>
<th>IMPORTS</th>
<th>EXports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bengal,</td>
<td>£17,169,310</td>
</tr>
<tr>
<td>British Burmah,</td>
<td>1,852,459</td>
</tr>
<tr>
<td>Madras,</td>
<td>3,861,057</td>
</tr>
<tr>
<td>Bombay,</td>
<td>15,054,121</td>
</tr>
</tbody>
</table>
The most important articles of exports from India to the United Kingdom, during 1874, were:

<table>
<thead>
<tr>
<th>Article</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>3,668,928 cwts.</td>
<td>£10,325,630</td>
</tr>
<tr>
<td>Jute</td>
<td>4,260,170</td>
<td>3,545,124</td>
</tr>
<tr>
<td>Rice</td>
<td>6,387,966</td>
<td>3,236,232</td>
</tr>
<tr>
<td>Indigo</td>
<td>62,203</td>
<td>1,661,745</td>
</tr>
<tr>
<td>Tea</td>
<td>17,608,538 lbs.</td>
<td>1,566,128</td>
</tr>
<tr>
<td>Hides</td>
<td>321,299</td>
<td>1,351,066</td>
</tr>
</tbody>
</table>

Next to the United Kingdom, the countries having the largest trade with India are China and Japan, the imports from which average £8,500,000 per annum, while the exports to them are of the average value of £12,000,000. Exports of the average value of £5,000,000 are also sent to Egypt, in transit for the United Kingdom.

The following figures show the number and tonnage of vessels, including native craft, which entered and cleared during 1874:

<table>
<thead>
<tr>
<th>Vessels</th>
<th>Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entered</td>
<td>20,435</td>
</tr>
<tr>
<td>Cleared</td>
<td>19,629</td>
</tr>
</tbody>
</table>

The executive authority in India is vested in a Governor-general, or Viceroy, appointed by the crown, and acting under the orders of the Secretary of State for India. The Governor-general, in council, has power to make laws for all persons, whether British or native, foreigners or others, within the Indian territories under the dominion of Her Majesty, and for all subjects of the crown, within the dominions of Indian princes and states in alliance with Her Majesty.

The duties of the Council of State are, under the direction of the Secretary of State, to conduct the business transacted in the United Kingdom in relation to the government of and the correspondence with India. The government in India is exercised by the Council of the Governor-general, consisting of five ordinary members, and one extraordinary member, the latter the commander-in-chief.

The total revenue and expenditure, during the year ending March, 1874, were:

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>In India</td>
<td>£49,360,142</td>
</tr>
<tr>
<td>In Great Britain</td>
<td>238,111</td>
</tr>
<tr>
<td>Total</td>
<td>£49,598,253</td>
</tr>
<tr>
<td></td>
<td>£44,637,637</td>
</tr>
<tr>
<td></td>
<td>10,321,591</td>
</tr>
<tr>
<td></td>
<td>£54,959,228</td>
</tr>
</tbody>
</table>

In the army estimates for the British forces in India, in the year 1875-76, their strength was stated as follows:

<table>
<thead>
<tr>
<th>Branch</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Royal horse artillery</td>
<td>2,497</td>
</tr>
<tr>
<td>Cavalry of the line</td>
<td>4,330</td>
</tr>
<tr>
<td>Royal artillery and engineers</td>
<td>10,171</td>
</tr>
<tr>
<td>Infantry of the line</td>
<td>45,852</td>
</tr>
<tr>
<td>Total</td>
<td>62,850</td>
</tr>
</tbody>
</table>

Returns of the year 1874 state that the combined armies of the native chiefs of India number 315,000 men, with an artillery of 5300 large guns.

On December 31, 1874, there were 6273 miles of railway, built at an expense of £97,000,000, open for traffic. A further extent of 2518 miles was in course of construction at the commencement of 1875.

In the fiscal year ending March 31, 1874, the number of letters which passed through the post office of British India was 98,531,628, of newspapers, 8,762,200, of parcels, 605,312, and of books and patterns, 1,336,363, being a total of 109,235,303. The mail traveled over 54,617 miles, of which total 41,857 miles were done by boats.
and runners, 4003 miles by carts and on horseback, and 5739 miles by railways. Number of post offices and letter boxes, 6805.

There were at the same time 16,436 miles of telegraph lines, 32,148 miles of wires, and 225 telegraph offices. The total number of messages during the year was 788,048.

Efforts for spreading education among the population of India have been made since 1848, in which year the Lieutenant-governor of Agra brought forward a scheme for giving a schoolmaster to every village of at least a hundred families. After three years' discussion, the Court of Directors of the East India Company accepted the groundwork of the plan, and orders were issued directing that a good vernacular school should be established for every cercle of villages, called Hulkabundee, and that the teacher should be paid from a cess of 2 per cent. on the land revenue.

In the year 1871 the number of educational institutions belonging to, aided, or maintained by the government in British India, was 25,147; average attendance of pupils, 799,622; amount expended by government, £749,724; total expenditure from all sources, £1,019,418.

In the northwestern provinces and Madras the foundation has been laid of a national system of education; while the general position for India is that the government has succeeded in establishing a system of public instruction for the upper and middle classes, but has as yet made little or no impression on the middle classes.
CANADA.

The Dominion of Canada consists of the provinces of Ontario, Quebec—formerly Upper and Lower Canada—Nova Scotia, New Brunswick, Manitoba, British Columbia, and Prince Edward’s Island. The two principal provinces, Quebec and Ontario, are almost entirely embraced within the basin of the river St. Lawrence, but occupy only those portions north of the great lakes, and of the river as far as the town of Cornwall (45° north latitude and 74° 45’ west longitude), whence eastward they occupy both banks, and are bounded on the south by the United States. The most westerly limit is the heads of the Pigeon and Arrow rivers, which debouch in Lake Superior. The eastern or maritime provinces embrace no portion of the basin of the great river.

The following table shows the area and population of the various provinces:

<table>
<thead>
<tr>
<th>Province</th>
<th>Area (Eng. sq. miles)</th>
<th>Population (1871)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontario</td>
<td>121,260</td>
<td>1,620,851</td>
</tr>
<tr>
<td>Quebec</td>
<td>210,020</td>
<td>1,191,516</td>
</tr>
<tr>
<td>Nova Scotia</td>
<td>18,660</td>
<td>387,800</td>
</tr>
<tr>
<td>New Brunswick</td>
<td>27,105</td>
<td>285,594</td>
</tr>
<tr>
<td>Manitoba</td>
<td>2,891,734</td>
<td>11,933</td>
</tr>
<tr>
<td>British Columbia</td>
<td>213,000</td>
<td>10,586</td>
</tr>
<tr>
<td>Prince Edward’s Island</td>
<td>2,173</td>
<td>94,021</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,483,922</strong></td>
<td><strong>3,602,321</strong></td>
</tr>
</tbody>
</table>

The principal river of Canada is the St. Lawrence. Its most important tributaries are all from the left. The St. Lawrence drains an area of 356,000 miles. The Ottawa, 450 miles long, forms the boundary between Ontario and Quebec. The St. Maurice is nearly 400 miles in length, and the Saguenay, noted for its fine scenery, is 225 miles long. The only affluents from the right worth naming are the Richelieu, the St. Francis, and the Chaudiere.

A great part of Canada, more especially the shores of Lake Superior, is valuable only for mineral resources, such as iron, zinc, lead, copper, silver, gold, cobalt, manganese, gypsum, marl, granite, sandstone, limestone, slate, and marbles of nearly every imaginable color. Considerable portions, also, though heavily timbered, chiefly with pine, are yet but little adapted to settlement and cultivation. Towards the Gulf of the St. Lawrence, again, a considerable section derives importance mainly from the fisheries, being, with partial exceptions in Gaspe, comparatively worthless for every other object. Thus the area for the profitable production of ordinary cereals cannot materially exceed 40,000 square miles, containing, however, within this space a singularly small portion of irreclaimable surface. This cultivable block increases regularly in width and fertility, from its commencement on the lower St. Lawrence to the shores of Lake Huron. Below Quebec—to say nothing of the precarious nature of the crops—there may always be seen, on one or on both sides, the primeval forest. Between that city, again, and the basin of the Ottawa, a gradual improvement shows itself, even on the north side; and towards the south there stretches away to the frontier of the United States a broad belt of generally undulating character, probably the best field in the country for the blending of pasture and agriculture. From the basin of the Ottawa inclusive, the parallel of the south end of Lake Nipissing may be said to cut off, towards the southwest, the entire residue of the practicable soil, in the shape of a roughly defined triangle, which, as a whole, is at least equal, in the growth of grain in general and of wheat in particular, to any region of the same extent in North America.

The climate of Canada is subject to great extremes of heat and cold, the thermometer ranging between 102° above and 36° below the zero of Fahrenheit.

As Canada slants southwards eight or nine degrees from the mouth of the St. Lawrence to that of the Detroit, which communicates between Lakes St. Clair and Erie,
the climate of the west must be warmer than that of the east. Besides, the lakes of Upper Canada appear, in a good measure, to neutralize and mitigate the extremes of a Canadian climate. While Quebec in winter ordinarily enjoys five or six months of sleighing; the corresponding season in Toronto ranges from five or six days to five or six weeks. As in summers, the difference in favor of Toronto is rather in point of duration than of intensity. As indications of the climate of Canada, it may be stated that the isle of Orleans, immediately below Quebec, is famous for its plums, and the island of Montreal for its apples; and from the neighborhood of Toronto to the head of Lake Erie, grapes and peaches ripen without any aid whatever. Melons, again, of large size, come to maturity, through the settled parts of the province, in the open air; and pumpkins and squashes attain enormous size, some of them near Toronto having weighed 900 pounds.

The following statistics of the mining, agricultural, and manufacturing industries are taken from the Official Report of the Canadian Census of 1871. They refer only to the provinces of Ontario, Quebec, New Brunswick, and Nova Scotia.

**RAW MINERAL PRODUCTS.**

<table>
<thead>
<tr>
<th>Coal</th>
<th>671,008 tons.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron ore</td>
<td>129,363 &quot;</td>
</tr>
<tr>
<td>Copper ore</td>
<td>13,310 &quot;</td>
</tr>
<tr>
<td>Pyrites</td>
<td>2,800 &quot;</td>
</tr>
<tr>
<td>Manganese</td>
<td>635 &quot;</td>
</tr>
<tr>
<td>Other ores</td>
<td>14,063 &quot;</td>
</tr>
<tr>
<td>Peat</td>
<td>14,772 &quot;</td>
</tr>
<tr>
<td>Plumbago</td>
<td>270 &quot;</td>
</tr>
<tr>
<td>Lump gypsum</td>
<td>114,433 &quot;</td>
</tr>
<tr>
<td>Gold</td>
<td>22,941 oz.</td>
</tr>
<tr>
<td>Silver</td>
<td>69,107 &quot;</td>
</tr>
<tr>
<td>Phosphate of lime</td>
<td>1,980 tons.</td>
</tr>
<tr>
<td>Mica</td>
<td>4,010 lbs.</td>
</tr>
<tr>
<td>Crude petroleum</td>
<td>12,694,435 gallons.</td>
</tr>
<tr>
<td>Grained marble</td>
<td>8,870 cwt.</td>
</tr>
<tr>
<td>Roofing slate</td>
<td>6,013 sqs.</td>
</tr>
</tbody>
</table>

The statistics of agriculture are as follows:

- Spring wheat | 10,355,912 bushels.
- Winter wheat | 6,367,961 " |
- Barley | 11,496,068 " |
- Oats | 42,489,468 " |
- Rye | 1,064,354 " |
- Peas | 9,965,720 " |
- Hay | 3,818,641 tons. |
- Beans | 229,644 bushels. |
- Buckwheat | 3,726,484 " |
- Corn | 3,892,839 " |
- Potatoes | 47,390,187 " |
- Turnips | 24,339,479 " |
- Grass and clover seed | 348,095 " |

The principal items of furs are 488,182 muskrats, 49,799 minks, 48,151 beavers, 19,271 moose, caribou and deer, 17,582 martens, 37,402 seals, 12,861 foxes, 6,132 otters, and 2,553 bears.

The following are the statistics of manufactures:

- Capital invested | $77,964,020 |
- Number of hands employed | 187,942 |
- Amount of yearly wages | 40,854,009 |
- Value of raw material | 124,607,846 |
- Total value of products | 221,017,773 |

The statistics of the fisheries are as follows: Vessels, 991, men, 698; boats, 16,876, men, 25,876; shoremen, 464; fathoms of nets, 1,879,435.

The leading items of the product of the fisheries were 682,631 quintals of cod, 129,213 quintals of haddock, 417,300 barrels of herring, 77,925 barrels of mackerel, 2,491 gallons of cod-liver oil, and 676,493 gallons of other fish oils.

The foreign trade, during 1874, was, including bullion and specie, as follows:

- Imports, $128,213,582; exports, $39,831,928. The trade of the Dominion of Canada is chiefly with the United States and Great Britain.

The "British North American Act, 1867," orders that the constitution of the Dominion shall be "similar in principle to that of the United Kingdom;" that the executive authority shall be vested in the sovereign of Great Britain and Ireland, and carried on in her name by a Governor-general and Privy Council; and that the legislative power shall be exercised by a Parliament of two Houses, called the Senate and the House of Commons. Provision is made in the act for the admission of Newfoundland, still an independent province of British North America, into the Dominion of Canada. The seven provinces forming the Dominion have each a separate parliament and administration, with a Lieutenant-governor at the head of
the executive. They have full power to regulate their own local affairs, dispose of their revenues, and enact such laws as they may deem best for their own internal welfare, provided only they do not interfere with, and are not adverse to, the action and policy of the central administration under the Governor-general.

The public debt of the Dominion, incurred chiefly on account of public works, and the interest on which forms the largest branch of the expenditure, was $116,682,917 on the 1st of July, 1875. The total revenue during the year ending June 30th, 1874, was $39,930,791; the total expenditure during the same period, $36,524,876.

The strength of the troops maintained by the imperial government, and forming the garrison of Halifax, was reduced, in 1871, to 2000 men. Besides these, Canada has a large volunteer force, and a newly organized militia. By the terms of the act passed in March, 1868, "to provide for the defence of the Dominion," the militia consists of all British subjects between the ages of 18 and 60, who are called out to serve in four classes, namely: 1st class, 18 to 30, unmarried; 2d, from 30 to 45 unmarried; 3d, 18 to 45, married; 4th, 45 to 60. A general order from the Militia Department, issued in 1874, reduced the active militia force, for the purposes of drill and pay, for the years 1874 and 1875, to 30,000 officers and men. Two schools of military instruction for infantry are established in each of the provinces of Ontario and Quebec, and one in each of the provinces of New Brunswick and Nova Scotia.

The naval forces of Canada consisted, in 1875, of 8 screw steamers, carrying 18 guns. Besides these, the government owned two fast steamers, employed on coast service, not fitted with guns, but available as gunboats.

The total shipping registered on the 31st of December, 1874, was 6930 vessels of a burthen of 1,158,363 tons. Included in this were 634 steamers, of 76,487 tons.

At the end of October, 1874, Canada had a network of railways of a total length of 4022 miles. There were, at the same period, lines of a total length of 1120 miles in course of construction, and 3000 miles more had been surveyed and concessions granted by the government.

On June 30th, 1875, there were in the Dominion, 3943 post offices. The number of letters and post-cards sent through the mails, during the year, was 34,750,000; of newspapers, 25,480,000.

The provinces of Quebec and Ontario have separate school laws, adapted to the religious element prevailing in either. Each township in Ontario is divided into several school sections, according to the requirements of inhabitants. The common schools are supported partly by the government and partly by local self-imposed taxation, and occasionally by the payment of a small fee for each scholar. All teachers must pass an examination before a county board of educators, or receive a license from the provincial normal school, empowering them to teach, before they can claim the government allowance.

Commission from Canada to the International Exhibition:

Senator Luc Letellier de St. Just, Minister of Agriculture, President.

Honorary Commissioners.

Hon. S. C. Wood, Provincial Treasurer.
Hon. P. A. Garneau, Minister of Agriculture.
Hon. P. Carteret Hill, Provincial Secretary.

Hon. J. J. Frazer, Provincial Sect'y.
Hon. L. C. Owen, Attorney-General.
Hon. W. J. Armstrong, Minister of Agriculture.
Hon. M. R. Nolin, Minister of Agriculture.

Executive Commissioners.

Hon. E. G. Penny, Senator Montreal.
Hon. R. D. Wilmot, Senator Sanbury.

D. Macdougall, Esq., Berlin.
J. Perrault, Esq., Secretary.
FRANCE.

FRANCE is the most westerly state of Central Europe, extending from 42° 20' to 51° 5' north latitude, and from 7° 45' east to 4° 45' west longitude. It is bounded on the north by the Channel and the Straits of Dover, which separate it from England, by Belgium, the grand duchy of Luxembourg; on the east by Germany, Switzerland, and Italy, on the south by the Mediterranean and Spain, from which it is separated by the Pyrenees, and on the west by the Atlantic Ocean (the Bay of Biscay). The greatest length of France, from Dunkirk, in the north, to the Col de Falguere, in the south, is about 620 miles; its greatest breadth from east to west, from the boundary line in the Vosges to Cape St. Matthieu, in Finistere, is about 550 miles. The superficial area of France, including the two Savoy provinces and Corsica, is reckoned at about 201,600 square miles. The possessions of France, which are situated in the non-European parts of the world, have a total superficial area of 463,827 square miles, and the largest is Algeria, with an area of 253,310 square miles. France is divided into 86 departments. The total population, exclusive of Algeria and the colonies, was given (in 1872) at 36,102,921.

The colonies and foreign possessions of France in Africa are Algeria, Senegambia, the islands of Bourbon (Reunion), St. Marie, Mayotte, and Nussi-be, in the Indian Ocean, and Gaboon, on the coast of Guinea. The total possessions in Africa cover an area of about 270,000 square miles, with a population of 2,849,000 souls. In America are the islands of Martinique and Guadaloupe in the West Indies, French Guiana, or Cayenne, with St. Pierre and Miquelon, near Newfoundland; forming together an area of 45,000 square miles, with a population of 345,000. In Asia, the Indian settlements of Pondicherry, Mahe, Karikal, Vanaon, and Chauvandnagore, comprise 19,600 square miles, with a population of 265,000. A settlement has also been made in Cochin China, embracing 21,700 square miles and 1,336,000 inhabitants, and a protectorate declared over the Empire of Anam. In the Pacific Ocean are two groups, the Marquesas and Tahiti, and New Caledonia, with the Loyalty Isles, the whole forming an area of 1,182 square miles, with 87,000 inhabitants.

The following table gives the population, in 1872, of some of the largest cities in France:

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paris</td>
<td>1,650,000</td>
</tr>
<tr>
<td>Lyons</td>
<td>323,000</td>
</tr>
<tr>
<td>Marseilles</td>
<td>313,000</td>
</tr>
<tr>
<td>Bordeaux</td>
<td>194,000</td>
</tr>
<tr>
<td>Lille</td>
<td>158,000</td>
</tr>
<tr>
<td>Toulouse</td>
<td>125,000</td>
</tr>
<tr>
<td>Nantes</td>
<td>119,000</td>
</tr>
<tr>
<td>St. Etienne</td>
<td>111,000</td>
</tr>
<tr>
<td>Rouen</td>
<td>102,000</td>
</tr>
</tbody>
</table>

There are four great mountain chains belonging to France—the Pyrenees which separate the French territory from Spain; the Cevenne-Vosgian range, running north and south between the Moselle and the new boundary line; the Alps, which separate the Swiss territory from the provinces of Savoy and Nice; and the Sardo-Corsican range which belongs, as the name implies, to the islands of Sardinia and Corsica. The highest peaks in the Pyrenees are the Maladetta and Mont Perdu (10,886 feet and 10,994 feet); in the Cevenno-Vosgian range, the greatest height
(the Widderkalm) does not greatly exceed 7000 feet. The French portion of the Alps now includes several of the highest mountains and most elevated passes of the ranges, as Mont Blanc, 15,744 feet; Mont Iseran, 13,272 feet; Mont Cenis, 11,457 feet; and the pass of Little St. Bernard, 7190 feet, etc. In Corsica, the highest peak rises to an elevation of 9000 feet. The grand water-shed of France is the Cevenno-Vosges chain, which determines the direction of the four great rivers, the Seine, the Loire, the Garonne, and the Rhone; the first three of which flow north-west into the Bay of Biscay and the English Channel, and the fourth into the Gulf of Lyons.

The entire extent of river navigation in France amounts to 5500 miles, or 8,900,000 metres, while the 99 larger canals, which have been constructed either to connect the various river courses or to supply entirely new channels of water communication, extend over a length of 2900 miles, or 4,700,000 metres. The most important of these works are the canals connecting Nantes and Brest, and the Rhone with the Rhine, and those of Berry, Nivernais, and Bourgogne.

France is peculiarly rich in mineral springs, of which there are said to be nearly 1000 in use. Of these, more than 400 are situated in the group of the Pyrenees, where there are 93 establishments for their systematic use. It is estimated that there are, moreover, fully 4000 springs not hitherto employed.

According to M. Maurice Block's estimate, the physical and agricultural character of the soil of France may be comprised under the following heads:

**HECTARES.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mountainous districts, heaths, and commons</td>
<td>9,944,839</td>
</tr>
<tr>
<td>Rich land</td>
<td>7,276,399</td>
</tr>
<tr>
<td>Chalk, or lime districts,</td>
<td>9,788,197</td>
</tr>
<tr>
<td>Gravel, stony and sandy,</td>
<td>15,951,618</td>
</tr>
<tr>
<td>Clay, marshy, miscellaneous,</td>
<td>9,897,577</td>
</tr>
<tr>
<td></td>
<td><strong>52,768,600</strong></td>
</tr>
</tbody>
</table>

The same writer further subdivides the soil of France, according to its actual employment, under the following heads:

**PER CENT. OF THE WHOLE ACRE.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arable lands</td>
<td>48.3</td>
</tr>
<tr>
<td>Meadow lands</td>
<td>9.7</td>
</tr>
<tr>
<td>Vineyards</td>
<td>3.7</td>
</tr>
<tr>
<td>Cultivated lands</td>
<td>17.8</td>
</tr>
<tr>
<td>Roads, streets, public walks, etc.</td>
<td>3.7</td>
</tr>
<tr>
<td>Forest and unproductive lands</td>
<td>16.8</td>
</tr>
</tbody>
</table>

France possesses one of the finest climates in Europe, although, owing to its great extent of area, very considerable diversities of temperature are to be met with. The mean annual temperature of different parts of France has been estimated as follows, by Humboldt: Toulon, 62° E.; Marseilles, 59.5°; Bordeaux, 56°; Nantes, 55.2°; Paris, 51.2°; Dunkirk, 50.5°.

The following are the statistics of agricultural productions for the year 1869:

**HECTOLITRES.**†

<table>
<thead>
<tr>
<th>Crop</th>
<th>Hectolitres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wheat</td>
<td>108,000,000</td>
</tr>
<tr>
<td>Rye</td>
<td>24,000,000</td>
</tr>
<tr>
<td>Barley and oats</td>
<td>90,000,000</td>
</tr>
<tr>
<td>Maize</td>
<td>10,000,000</td>
</tr>
<tr>
<td>Potatoes</td>
<td>100,000,000</td>
</tr>
</tbody>
</table>

The production of beet-root sugar in 1872-73 amounted to 418,000 tons. The average yearly produce of the vineyards of France is estimated at about 50,000,000

* The hectare is equal to about 2.47 English acres.
† The hectolitre equals 2.75 bushels.
of hectolitres (about 1,000,000,000 of gallons). Of this about one-seventh is made into brandy.

The principal forest trees are the chestnut and beech on the central mountains, the oak and cork tree in the Pyrenees, and the fir in the Landes. The destruction of the national forests has been enormous within the last two centuries, but measures have been taken in recent years to plant wood, in order to protect those mountain slopes which are exposed to inundations from mountain torrents, and to provide a supply for the ever-increasing demand for fuel. About one-seventh of the entire territory of France is still covered with wood. Turf taken from the marshy lands is extensively used, more especially in the rural districts, for fuel.

According to the census of 1866—the most recent in regard to animals—there were in France 3,112,637 horses, 518,000 asses, 350,000 mules; 12,733,000 horned cattle, 30,386,000 sheep, 5,500,000 swine, and 1,680,000 goats. There were, according to the Statistique Agricole for 1858, about 3,000,000 of beehives, valued at rather more than 24,000,000 of francs; the mean annual returns are, for honey, 6,670,000, and for wax, 1,620,000 kilogrammes.* Poultry constitutes an important item of farm produce in France, estimated at 45,500,000 of francs, while the eggs and feathers yield 35,250,000 of francs.

The following figures show the condition of the merchant navy of France on the 31st of December, 1873:

<table>
<thead>
<tr>
<th></th>
<th>Tonnage</th>
<th>M.E.N.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sailing vessels</td>
<td>15,043</td>
<td>882,855</td>
</tr>
<tr>
<td>Steam vessels</td>
<td>516</td>
<td>185,165</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,559</strong></td>
<td><strong>1,068,031</strong></td>
</tr>
</tbody>
</table>

The cabotage, or internal coastal traffic, is a great source of financial wealth to the State, to which all rivers and canals belong. In 1873, it employed 2,776 vessels, with a tonnage of 122,850 and an equipment of 10,871.

The chief mineral products of France are coal and iron, in the excavation of which nearly 250,000 men were employed in 1868. The production of coal in 1868 was 132,-

000,000 of quintals, the quintal being equal to 1.07 hundredweight. During the same year, there were 150 iron mines in operation, yielding 34,500,000 of quintals, more than half of this quantity being obtained from the five departments of Haute-Marne, Haute-Saone, Cher, Moselle, and Nord. Argentiferous galena, a little silver and gold, copper, lead, manganese, antimony, and tin occur, but hitherto their working has not proved very productive. The department of Charento-Inferieure yields the largest amount of salt, the mean annual produce being 1,500,000 of quintals (2,500,-

000 of francs), which is fully one-third of the entire annual produce of the whole country. France derives about 41,000,000 of francs from its quarries of granite and freestone, its kaolin, marbles, sands, lithographic stones, millstones, etc. Granite and syenite are found in the Alps, Vosges, Corsica, Normandy, and Burgundy; porphyry in the Vosges; and basalt and lava, for pavements, in the mountains of Auvergne. Marble is met with in more than 40 departments; alabaster occurs in the Pyrenees; the largest State quarries are near Cherbourg and St. Lo.

The following list gives an approximate estimate of the value of the chief products of French industry:

<table>
<thead>
<tr>
<th>Product</th>
<th>Value (Millions of Francs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linen fabrics</td>
<td>250</td>
</tr>
<tr>
<td>Cotton fabrics</td>
<td>650</td>
</tr>
<tr>
<td>Woolen fabrics</td>
<td>950</td>
</tr>
<tr>
<td>Silk fabrics</td>
<td>1,000</td>
</tr>
<tr>
<td>Mixed fabrics</td>
<td>330</td>
</tr>
<tr>
<td>Jewelry, watchmaking</td>
<td>35</td>
</tr>
<tr>
<td>Gift wares</td>
<td>12</td>
</tr>
</tbody>
</table>

* The kilogramme equals 2.2 pounds avoirdupois.
Minerals, mines, salt, etc., 600
Articles of food, as sugar, wines, etc., 364
Skins, leather, oils, tobacco, 556
Bone, ivory, isinglass, etc., 30
Chemical products, 80
Ceramic arts, 86
Paper, printing, 60
Forests, fisheries, 98

The total imports, for 1873, were 4,576,000,000, and the total exports, for the same year, 4,822,000,000 of francs.

France was proclaimed a republic on the 4th of September, 1870. According to the law of February 25th, 1875, the legislative power is vested in the two Houses, the Chamber of Deputies and the Senate. The Chamber of Deputies is elected by universal suffrage. The Senate is composed of 300 members, 225 of whom are elected by the departments and the colonies, and 75 by the National Assembly. The President of the republic is elected by a majority of the votes of the Senate and Chamber of Deputies, united as the National Assembly. His term of office is for seven years, and he is eligible for re-election.

According to the budget for 1876, the estimated receipts for the year are put down at 2,575,028,382 francs, and the expenditures at 2,570,505,513. The public debt is 23,493,000,000 francs.

The nominal strength of the army, on a peace footing, is given in the latest government returns as 490,332 men; on a war footing, 1,750,000.

The navy of France was composed, at the end of 1873, of 62 ironclads, 264 unarmored screw steamers, 62 paddle steamers, and 113 sailing vessels.

According to the official report for December, 1874, the railways in operation measure 20,711 kilometres, or about 12,866 miles. With the exception of less than 500 miles, the railways of France are held by six companies, which are under the superintendence of the State.

The number of letters forwarded by the post office, in 1874, was 341,688,000; newspapers, postal cards, and parcels, 331,786,000.

At the end of 1873, there were 45,942 kilometres of lines of telegraphs, comprising 123,669 kilometres of wire. The number of messages sent, in 1873, was 6,225,000, of which nearly one-fourth were international messages. There were annual deficits since the establishment of the public telegraph department, in March, 1851. There were 2206 telegraph offices at the end of 1873.

Public instruction is preserved over in France by a special ministry. Nearly half the expenses connected with it are defrayed by the State, and the remainder by the departments. There are 15 academies, located in the following towns: Aix, Besancon, Bordeaux, Caen, Clermont, Dijon, Doulai, Grenoble, Lyon, Montpellier, Nancy, Paris, Poitiers, Rennes, Toulon. These academies are divided into the five faculties of theology, law, medicine, sciences, and literature, and supplemented by various superior and preparatory schools. The professors are paid partly by the State and partly by fees. Secondary instruction has received an immense impetus during the present century. The different departments share very unequally in the diffusion of education, and it may be generally observed that the proportion of the educated is highest in the northern and eastern districts of France. France supports numerous colleges and schools for instruction in special branches of knowledge. There are also numerous agricultural, forest, farming, and veterinary schools, besides the Ecole Polytechnique, specially designed to prepare youths for the public services; and military and naval colleges at St. Cyr, Saumur, Paris, Vincennes, Brest, Toulon, and St. Denis.

Paris possesses several libraries belonging to, and supported by, the State, but freely opened to the public. There are 338 public libraries in the provinces, to all of which access is afforded in the most liberal spirit. France is rich in public galleries of painting, statuary, and articles of vertu. The expenses of secondary and
primary education, literary and scientific institutions, etc., are charged in the budget for 1876 at 44,912,545 francs.

(Detailed information as to the colonial dependencies of France will be found under the appropriate headings in other portions of the catalogue.)

Commission from FRANCE to the International Exhibition:

M. M. OZENNE, Counsellor of State, Secretary-General of the Ministry of Agriculture and Commerce, Commissioner-General of International Exhibitions.

DU SOMMERARD, Director of the Museums of Thermes and Cluny, Commissioner-General of International Exhibitions.

Committee.

Organized under the Presidency of the Minister of Agriculture and Commerce.

M. DUCLERC, Vice-President of the National Assembly, Member of the Committee on International Exhibitions.

MARQUIS DE TALHOUET, Deputy.

BARON DE SOUBEYRAN, Deputy.

MR. WOLOWSKI, Deputy.

MARQUIS DE LAFAYETTE, Deputy.

M. BOXNET, Deputy.

M. FLOTARD, Deputy.

M. LABOUAYE, Deputy.

M. DIETZ-MONIN, Deputy.

M. COUNT DE BOUILLE, Deputy.

VISCOUNT D’HAUSSONVILLE, Deputy.

M. DE CHABROL, Deputy.

M. JULLIEN, Deputy.

The Secretary-General of the Ministry of Agriculture and Commerce.

The Director-General of Customs.

The Director of the Academy of Fine Arts.

The Director of Consulates and Commercial Affairs, at the Ministry of Foreign Affairs.

M. OUTREY, Minister Plenipotentiary.

M. DU SUMMERARD, Director of the Museum of Thermes and Cluny.

The Assistant Director of Foreign Commerce.

The President of the Paris Chamber of Commerce.

M. GUILLAUME, Member of the Institute.

MARQUIS DE ROCHAMBEAU.

BARON ALPHONSE DE ROTHCHILD.

M. SIEBER.

M. ALFRED MAME.

M. JULES LAVESSIÈRE, Dealer in Metals.

M. ROULLEAUX DUGAGE, Secretary.

M. DE FALLOIS, late Chief of Bureau, Ministry of Public Works, Assistant Secretary.

Resident Commissioners.

M. DE LAFOREST, Consul-General of France, Commissioner-General.

MR. RAVIN D’ELPEUX, Vice-Consul.

CAPT. ANFRYE, Military Attache, French Legation.

MR. BAZERGNE, Attaché.

MR. A. IMBERT GOUBEYRE, Secretary.
GERMANY.

The German Empire occupies the central portion of Europe, and extends from 6° to 23° 40' east longitude and 49° 7' to 55° 50' north latitude. It is bounded on the north by the German Ocean, the Danish Peninsula, and the Baltic; on the east by Russia and Austria; on the south by Russia, Austria, and Switzerland, and on the west by France, Belgium, and the Netherlands. The population (1871) is about 41,000,000. Its area is estimated at 208,000 square miles, or about one-sixteenth of that of all Europe. The coast line measures about 950 miles.

Germany is composed of an aggregation of 26 different States. The following list gives the names of these States, their population, area, and the number of members representing each in the Bundesrath, or Federal Council, and the Reichstag, or Imperial Diet:

<table>
<thead>
<tr>
<th>States</th>
<th>Population in 1871</th>
<th>Area in square miles</th>
<th>No. of Members in Bundesrath</th>
<th>No. of Deputies in Reichstag</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kingdoms:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Prussia</td>
<td>24,691,307</td>
<td>139,751</td>
<td>17</td>
<td>236</td>
</tr>
<tr>
<td>2. Bavaria</td>
<td>4,660,450</td>
<td>29,280</td>
<td>6</td>
<td>48</td>
</tr>
<tr>
<td>3. Saxony</td>
<td>2,559,244</td>
<td>5,780</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>4. Wurttemburg</td>
<td>1,616,539</td>
<td>7,532</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td><strong>Grand Duchies:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Baden</td>
<td>1,461,562</td>
<td>5,850</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>6. Hesse</td>
<td>852,894</td>
<td>2,962</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>7. Mecklenburg-Schwerin</td>
<td>557,887</td>
<td>5,136</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>8. Saxe-Weimar</td>
<td>286,183</td>
<td>1,403</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>9. Mecklenburg-Strelitz</td>
<td>96,982</td>
<td>1,130</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10. Oldenburg</td>
<td>314,777</td>
<td>2,470</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Duchies:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Brunswick</td>
<td>317,764</td>
<td>1,425</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>12. Saxe-Meiningen</td>
<td>187,884</td>
<td>955</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13. Saxe-Altenburg</td>
<td>142,122</td>
<td>510</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14. Saxe-Coburg-Gotha</td>
<td>174,339</td>
<td>760</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15. Anhalt</td>
<td>203,437</td>
<td>896</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Principalities:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Schwarzburg-Rudolstadt</td>
<td>75,533</td>
<td>367</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>17. Schwarzburg-Sondershausen</td>
<td>67,161</td>
<td>332</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>18. Waldeck</td>
<td>50,284</td>
<td>438</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>19. Reuss (altere Linie)</td>
<td>45,094</td>
<td>123</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20. Reuss (jungere Linie)</td>
<td>89,032</td>
<td>320</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>21. Schaumburg-Lippe</td>
<td>32,059</td>
<td>170</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>22. Lippe-Detmold</td>
<td>111,335</td>
<td>438</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Free Towns:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. Lubeck</td>
<td>52,138</td>
<td>110</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24. Bremen</td>
<td>122,402</td>
<td>97</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>25. Hamburg</td>
<td>338,974</td>
<td>158</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>26. Alsace-Lorraine</td>
<td>1,549,439</td>
<td>5,590</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

41,058,632  208,613  58  382
The Almanac de Gotha, for 1876, divides the population of the German Empire, in regard to nationality, as follows: Germans, 37,820,000; Poles, 2,450,000; Wends, 140,000; Czechs, 50,000; Lithuanians and Courlanders, 150,000; Danes, 150,000; French and Walloons, 210,000. The Germans admit of being divided into high and low Germans; the phraseology of the former is the cultivated language of all the German States; that of the latter, known as Platt-Deutsch, is spoken in the north and northwest. The Poles are found exclusively in the east and northeast of Prussia; the Czechs in Silesia, about Appeln and Breslau; the Wends, in Silesia, Brandenburg, and Prussian Lusatia; the Lithuanians and Courlanders in east Prussia; the Danes, in Schleswig; the Walloons, about Aix-la-Chapelle, in Rhenish Prussia, and the French, partly in the same region, and in Alsace and Lorraine.

Germany presents two very distinct physical formations. First, a range of high table land, occupying the centre and southern parts of the country, interspersed with numerous ranges and groups of mountains, the most important of which are the Harz and Teutoburger in the north, the Taunus and Thuringerwald in the middle, and the Schwarzwald and Raube Alps in the south, and containing an area, including Alsace and Lorraine, of 110,000 square miles. Second, a vast sandy plain, which extends from the centre of the empire north to the German Ocean, and including Schleswig-Holstein, contains an area of about 98,000 square miles. This great plain, stretching from the Russian frontier on the east to the Netherlands on the west, is varied by two terrace-like elevations. The one stretches from the Vistula into Mecklenburg, at no great distance from the coast of the Baltic, and has a mean elevation of 500 to 600 feet, rising in one point near Danzig to 1020 feet; the other line of elevations begins in Silesia, and terminates in the moorlands of Luneberg, in Hanover, its course being marked by several summits from 500 to 800 feet in height. A large portion of the plain is occupied by sandy tracts, interspersed with deposits of peat; but other parts are moderately fertile, and admit of successful cultivation.

In respect of drainage the surface of Germany belongs to three different basins. The Danube, from its source in the Schwarzwald to the borders of Austria, belongs to Germany, and through this channel the waters of the greater part of Bavaria are poured into the Black Sea, thus opening up communication with the east. The greater part of the surface, however (about 185,000 square miles), has a northern slope, and belongs partly to the basin of the North Sea, and partly to the basin of the Baltic. The chief German streams flowing into the North Sea are the Rhine, the Weser, and the Elbe; into the Baltic, the Oder and the Vistula.

The most important of the numerous canals of Germany are the Ludwig's canal, in Bavaria, connecting the Danube and Main, and thus opening a communication between the Black Sea and the German Ocean; the Finow and Friedrich Wilhelm's canals, in Brandenburg; the Plau canal, connecting the Elbe and the Havel; and the Kiel and Eyder canal, uniting the Baltic and the German Ocean. Numerous lakes occur both in the table-land of southern Germany, and in the lowlands of the northern district, but few of them are of any great size. Mineral springs occur principally in Nassau, Wurtemburg, Baden, Bavaria, and Rhenish Prussia. Many of these springs have retained their high reputation from the earliest ages.

The climate of Germany presents less diversity than a first glance at the map might lead one to infer, for the greater heats of the more southern latitudes are considerably modified by the alpine character of the country in those parallels, while the cold of the northern plains is mitigated by their vicinity to the ocean. The average decrease in the mean temperature is in going from south to north, about 1° F. for every 52 miles; and in going from west to east, about 1° F. for every 72 miles. The line of perpetual snow varies from 7200 to 8000 feet above the level of the sea. The mean annual fall of rain is 20 inches.
The following table shows the mean temperature at different points:

<table>
<thead>
<tr>
<th>City</th>
<th>Mean Annual Temperature</th>
<th>Summer</th>
<th>Winter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamburg</td>
<td>47</td>
<td>64</td>
<td>30</td>
</tr>
<tr>
<td>Dresden</td>
<td>48</td>
<td>67</td>
<td>29</td>
</tr>
<tr>
<td>Frankfort-on-the-Main</td>
<td>48.5</td>
<td>66</td>
<td>31</td>
</tr>
<tr>
<td>Berlin</td>
<td>46.5</td>
<td>66</td>
<td>27</td>
</tr>
<tr>
<td>Hanover</td>
<td>48.2</td>
<td>63</td>
<td>33</td>
</tr>
<tr>
<td>Königsberg</td>
<td>43.5</td>
<td>62</td>
<td>24</td>
</tr>
</tbody>
</table>

Germany is rich in mineral products, among which the most important are silver, found in the Hartz mountains; iron in numerous mountain ranges; salt in many parts of the country; coal in Rhenish Prussia, Silesia. Cobalt, arsenic, sulphur, saltpetre, alum, gypsum, bismuth, pumice-stone, tripoli-slate, kaolin, emery, ochre, and vitriol, are all among the exports of Germany.

The following figures show the product of the principal mining industries of Germany (exclusive of Alsace and Lorraine) for the year 1870:

<table>
<thead>
<tr>
<th></th>
<th>No. of Works</th>
<th>Persons Employed</th>
<th>Product in Cwt.</th>
<th>Value in Thalers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coal (including brown coal)</td>
<td>1,362</td>
<td>145,782</td>
<td>6,800,060,074</td>
<td>61,863,399</td>
</tr>
<tr>
<td>Iron ore</td>
<td>1,258</td>
<td>24,793</td>
<td>5,580,590,359</td>
<td>7,116,828</td>
</tr>
<tr>
<td>Zine ore</td>
<td>72</td>
<td>9,797</td>
<td>7,335,603</td>
<td>2,315,429</td>
</tr>
<tr>
<td>Lead ore</td>
<td>77</td>
<td>18,657</td>
<td>2,111,810</td>
<td>5,911,235</td>
</tr>
<tr>
<td>Copper ore</td>
<td>17</td>
<td>6,159</td>
<td>4,147,627</td>
<td>1,019,938</td>
</tr>
</tbody>
</table>

The yield of salt, for the same year, was 14,658,990 hundredweight, from 69 works, employing 4,010 persons, and valued at 3,926,650 thalers.

The leading products of the metallurgical industries are given as follows:

<table>
<thead>
<tr>
<th></th>
<th>Works</th>
<th>Persons Employed</th>
<th>Amount Produced in Cwt.</th>
<th>Value in Thalers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cast iron</td>
<td>631</td>
<td>39,525</td>
<td>29,942,264</td>
<td>49,251,650</td>
</tr>
<tr>
<td>Wrought iron (including wire, bars, and manufactured iron of various kinds)</td>
<td>354</td>
<td>43,849</td>
<td>17,437,766</td>
<td>57,490,284</td>
</tr>
<tr>
<td>Steel</td>
<td>211</td>
<td>12,892</td>
<td>3,399,027</td>
<td>22,747,626</td>
</tr>
<tr>
<td>Zinc</td>
<td>53</td>
<td>6,256</td>
<td>1,727,570</td>
<td>10,212,259</td>
</tr>
<tr>
<td>Silver</td>
<td>10</td>
<td>1,601</td>
<td>(lbs.) 185,847</td>
<td>5,549,943</td>
</tr>
<tr>
<td>Lead (products of)</td>
<td>17</td>
<td>1,513</td>
<td>1,195,753</td>
<td>6,951,104</td>
</tr>
<tr>
<td>Copper</td>
<td>28</td>
<td>1,971</td>
<td>174,687</td>
<td>4,067,535</td>
</tr>
</tbody>
</table>

The entire production of mines, furnaces, salt works, etc., is given as 824,965,732 hundredweight, valued (including 186,370 pounds of gold and silver) at 246,482,099 thalers.

The vegetable products comprise a very large proportion of the European flora. All the ordinary cereals are extensively cultivated in the north, and largely exported, chiefly from Wurtemberg and Bavaria; hemp and flax, madder, woad, and saffron grow well in the central districts, where the vine, the cultivation of which extends in suitable localities as far north as 51°, is brought to greater cultivation—the best wine-producing districts being the valleys of the Danube, Rhine, Main, Neckar, and Moselle, which are, moreover, generally noted for the excellence of their fruits and vegetables. Tobacco is grown in sufficient quantities for extensive exportation on the Upper Rhine, the Werra, and Oder. The hops of Bavaria have a high reputation, and the chicory grown in that country and in the district between the Elbe and
the Weser finds its way all over Europe as a substitute for coffee. The average annual product of cereals is approximately as follows:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rye</td>
<td>89,000,000 hectolitres.</td>
</tr>
<tr>
<td>Oats</td>
<td>87,000,000</td>
</tr>
<tr>
<td>Wheat</td>
<td>34,000,000</td>
</tr>
<tr>
<td>Barley</td>
<td>30,000,000</td>
</tr>
</tbody>
</table>

The average annual potato crop amounts to 272,000,000 hectolitres. The production of beets, in 1872, was over 61,000,000 hundredweight. A fair yield of wine is about 4,500,000 hectolitres, and of tobacco, about 700,000 hundredweight.

The most extensive forests are found in central Germany, and in some parts of Prussia, while the northwestern parts of the great plain are deficient in wood, the place of which is in some degree supplied by the abundance of turf yielded by the marshy lands. Germany has long been noted for the good breed of horses raised in the northern parts of the continent, while Saxony, Silesia, and Brandenburg have an equal reputation for their sheep-flocks, and the fine quality of the wool which they yield. The rich alluvial flats of Mecklenburg and Hanover are celebrated for their cattle; the forests of northern and central Germany abound in swine, and in small game of various kinds; while the Bavarian Alps afford shelter to the larger animals, as the chamois, the red deer and wild goat, the fox, marten, and wolf.

According to the last enumeration of live stock, there were in Germany 3,500,000 horses, 15,000,000 cattle, 30,000,000 sheep, 8,000,000 swine, and 2,000,000 goats. The wool crop for 1866 amounted to 750,000 hundredweight.

Among the fishes of Germany, the most generally distributed are carp, salmon, trout, and eels; the rivers contain also crayfish, pearl-bearing mussels, and leeches. The oyster, herring, and cod fisheries constitute important branches of industry on the German shores of the Baltic and North Seas.

The preservation and cultivation of woods receive almost as much attention in Germany as agriculture, and, like the latter, are elevated to the rank of a science. The larger woods and forests in most of the states belong to the government, and are under the care of special boards of management, which exercise the right of supervision and control over all forest lands, whether public or private. The value of the forests of Germany was, in 1873, estimated at 666,000 thalers.

The oldest and most important of the German industrial arts are the manufactures of linen and woolen goods. The chief localities for the cultivation and preparation of flax, and the weaving of linen fabrics, are the mountain valleys of Silesia, Lusatia, Westphalia, the Harz, and Saxony (for thread laces); while cotton fabrics are principally made in Rhenish Prussia and Saxony. The same districts, together with Pomerania and Bavaria, manufacture the choicest woolen fabrics, including damasks and carpets. Toys, wooden clocks, and wood-carvings, which may be regarded as almost a specialty of Germany industry, are carried to the greatest perfection in the lilly districts of Saxony, Bavaria, and the Black Forest. The best iron and steel manufactures belong to Silesia, Hanover, and Saxony. Silesia probably possesses the finest glass manufactories; while Saxony and Prussia stand pre-eminent for the excellence of their china and earthen wares. Augsburg and Nuremberg dispute with Munich and Berlin the title to pre-eminence in silver, gold, and jewelry work, and in the manufacture of philosophical and musical instruments; while Leipzig and Munich claim the first rank for type foundries, printing, and lithography. The trading cities of northern Germany nearly monopolize the entire business connected with the preparation of tobacco, snuff, etc., the distillation of brandies, and the manufacture of sugar from the beet, potato, and other roots; while vinegar and oils are prepared almost exclusively in central and southern Germany.

The constitution of the empire is confederate, under the presidencyhip of the King of Prussia, who bears the hereditary title of German Emperor. He has the right

* The hectolitre equals 2.75 bushels.
and duty of representing the empire in all respects or international law, of declaring war in the name of the empire, making peace and treaties, etc. For a declaration of war the consent of the Bundesrat is necessary. He is the commander-in-chief of the whole army and navy, in peace as well as in war, except the military powers of Wurtemberg and Bavaria, which—in times of peace only—form separate corps under the command of their respective kings. He names and dismisses the officers and functionaries of the empire. His orders, issued in the name of the empire, must be countersigned by the Chancellor, who, as the first minister of the empire, is by his signature responsible for them.

The legislative powers lie in the Bundesrat and the Reichstag. The former consists of the delegates of the confederate governments, representing in all fifty-eight votes. The Reichstag has 382 members directly elected by the secret ballot of the people. The bills promulgated by these two assemblies in accordance are compulsory on all governments of the empire, and annul eo tempore all possible institutions contradictory to them in the several States.

The empire has no debt. The debts of the separate States amounted, in 1873, to 1,093,800,000 thalers, 589,300,000 of which sum was for railways.

The army consists, on a peace footing, of about 400,000 men; on a war footing, of about 1,300,000. The navy comprises 51 vessels, of which number 47 are steamers, of 77,130 horse-power, 64,198 tons burthen, and carrying 321 guns; and 4 sailing vessels (1 frigate and 3 brigs) mounting 36 guns.

The multiplicity of small States into which Germany was long broken up, opposed great obstacles to the development of commerce; but the difficulty has to some extent been obviated by the establishment of the Zollverein, or "Customs confederation." The Hanse Towns, Hamburg and Bremen, do not belong to it, being free ports; but it comprises all the other states of the empire and the grand duchy of Luxembourg.

The estimated value of goods exported, imported, and in transit (by the customs lines) for 1873 was as follows:

Imports, .................................................. 4,257,300,000 marks.
Exports, ................................................ 2,489,000,000 "
In transit, ................................................ 1,233,000,000 "

The merchant navy comprised, in 1873, 4748 vessels, including 253 steamers, with a total of 1,201,358 tonnage.

The railways measured, in 1871, about 13,310 English miles; but these figures represent the length, not of the lines within the limits of the German Empire, but of those which are under German administration, though extending some way into neighboring States.

The various telegraphic lines of the empire (excluding those of Bavaria and Wurtemburg) are now under a central administration, and, in 1874, the whole measured 42,571 kilometres; length of wires, 149,410 kilometres· number of messages, 13,422,511; number of offices, 4992.

The post office forwarded in 1874:

Private letters, .............................................. 521,900,000
Postal cards, ................................................. 47,900,000
Official letters, .......................................... 37,700,000
Parcels, etc., ................................................ 89,700,000

697,200,000

Newspapers, .................................................. 349,600,000
Number of offices, ........................................ 7,900

Education is more generally diffused in Germany than in any other part of Europe, and is cultivated with an earnest and systematic devotion not met with, to an equal extent, among other nations. The attendance of children at school, for at
least four or five years, is made compulsory in nearly all the German States, and hence the proportion of persons who cannot read and write is exceedingly small in Germany.

The elementary schools are 60,000 in number, and are attended by 6,000,000 pupils between the ages of six and fourteen. Of the middle schools, including 330 gymnasia and 214 pro-gymnasia and Latin schools, there were in 1873 over 1000, attended by 177,379 pupils. There are 21 universities, with (in 1873) 1620 instructors and 17,858 students. Of polytechnic schools there are ten, with 360 instructors and 4500 students. Besides these there are numerous special schools of technology, agriculture, commerce, mining, metallurgy, military science, navigation, trades, etc. The German academies of art and sciences and conservatories of music enjoy a world-wide reputation. Public libraries—of which there are more than one hundred and fifty—museums, botanical gardens, art collections, and picture galleries are to be met with in most of the capitals and many of the country towns.

Commission from the GERMAN EMPIRE to the International Exhibition:

DR. JACobi, Royal Prussian Actual Privy Superior Government Counsellor and Ministerial Director, President.

DR. STUVE, Royal Prussian Privy Government Counsellor and Counsellor in the Ministry of Commerce.

DR. WEdding, Royal Prussian Counsellor of Mines.

MR. REITHER, Royal Bavarian Counsellor of Legation.

MR. VON NOSTITZ WALWITZ, Royal Saxon Envoy Extraordinary and Minister Plenipotentiary.

BARON VON Spitzemberg, Royal Wurtemberg Envoy Extraordinary and Minister Plenipotentiary.

DR. NEIDHARDT, Grand Ducal Hessian Ministerial Counsellor.

MR. KAUFMANN, Royal Prussian Counsellor of Commerce.

DR. KRUGER, Hanseatic Minister, Resident.

MR. VON HOLLOBEN, Royal Prussian Superior Tribunal Counsellor.

MR. NIEBERDING, Counsellor in the Office of the Chancellor of the Empire.

BARON VON ZEDLITZ, Royal Prussian Provincial Counsellor.

MR. F. REULEAUX, Commissioner General.

MR. KNIFFLER, Assistant Engineer.

G. A. RADTKE, Secretary.

Resident Commissioners,

JOHN D. LANKENAU, Esq. | GUSTAVUS REMAK, Esq.
CHARLES H. MEYER, Esq., Consul | DR. FRED. VOLCK.

MR. BARTELS, Engineer and Architect.
### Austria

The Austrian Empire forms, on the whole, a compact territory with a circumference of about 5349 miles. It is included between 42° to 51° north latitude, and between 8° 20' to 26° 20' east longitude. The body of the empire lies in the interior of the European continent, though, by means of the southern projection of Dalmatia, it has about 1200 miles of sea-coast on the Adriatic. With the rest of its circumference, it borders on the States of the Church, Modena, Parma, Italy, Switzerland, Bavaria, Saxony, Prussia, Russia, Moldavia, Wallachia, Servia, Turkey, and Montenegro. Its present provinces embrace an area of 241,123 square miles, and a population which, in 1869, amounted to 35,904,435.

The following table gives the area, number of civil inhabitants, and total population, civil and military, of the various provinces of the empire—distinguishing its two great political divisions, the German monarchy, or Cisleithan Austria, and the Hungarian kingdom, or Transleithan Austria, together with the so-called military frontier, placed under the administration of the ministry of war for the whole empire—according to the official returns for 1869:

<table>
<thead>
<tr>
<th>PROVINCES</th>
<th>AREA IN ENGLISH SQ. MILES</th>
<th>CIVIL POPULATION</th>
<th>TOTAL POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>German Monarchy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Austria,</td>
<td>7,653</td>
<td>1,954,251</td>
<td>1,990,708</td>
</tr>
<tr>
<td>Upper Austria,</td>
<td>4,634</td>
<td>731,579</td>
<td>736,557</td>
</tr>
<tr>
<td>Salzburg,</td>
<td>2,768</td>
<td>151,410</td>
<td>153,159</td>
</tr>
<tr>
<td>Styria,</td>
<td>8,674</td>
<td>1,131,309</td>
<td>1,137,990</td>
</tr>
<tr>
<td>Carinthia,</td>
<td>4,007</td>
<td>335,400</td>
<td>337,894</td>
</tr>
<tr>
<td>Carniola,</td>
<td>3,858</td>
<td>463,273</td>
<td>469,334</td>
</tr>
<tr>
<td>Coast Land,</td>
<td>3,065</td>
<td>582,079</td>
<td>590,525</td>
</tr>
<tr>
<td>Tyrol and Vorarlberg,</td>
<td>11,321</td>
<td>878,907</td>
<td>885,789</td>
</tr>
<tr>
<td>Bohemia,</td>
<td>20,793</td>
<td>5,106,069</td>
<td>5,140,544</td>
</tr>
<tr>
<td>Moravia,</td>
<td>8,579</td>
<td>1,997,897</td>
<td>2,017,274</td>
</tr>
<tr>
<td>Silesia,</td>
<td>1,988</td>
<td>511,581</td>
<td>513,352</td>
</tr>
<tr>
<td>Galicia,</td>
<td>30,320</td>
<td>5,418,016</td>
<td>5,444,683</td>
</tr>
<tr>
<td>Bukowena,</td>
<td>4,037</td>
<td>511,964</td>
<td>513,494</td>
</tr>
<tr>
<td>Dalmatia,</td>
<td>4,942</td>
<td>442,796</td>
<td>456,961</td>
</tr>
<tr>
<td><strong>Total German Monarchy</strong></td>
<td>116,634</td>
<td>20,217,531</td>
<td>20,934,980</td>
</tr>
</tbody>
</table>

| **Kingdom of Hungary** | | | |
| Hungary, | 82,867 | 11,177,623 | 11,118,502 |
| Croatia and Slavonia, | 7,445 | 1,160,085 | 1,164,806 |
| Transylvania, | 21,222 | 2,101,727 | 2,115,024 |
| Military Frontier, | 12,956 | 1,037,892 | 1,041,123 |
| **Total Hungary** | 124,490 | 15,417,327 | 15,509,455 |
| **Total Austro-Hungary** | 35,634,858 | 35,904,435 |

Three-fourths of Austria is mountainous or hilly, being traversed by three great mountain chains—the Alps, Carpathians, and Sudetes, whose chief ridges are of primitive rock. The Alps are accompanied, north and south, by parallel ranges of calcareous mountains, covering whole provinces with their ramifications. The Carpathians are lapped on their northern side by sandstone formations; mountains of the
same character also occupy Transylvania. Springing from the northwest bend of the Carpathians, the Sudentes run through the northeast of Moravia and Bohemia, in which last the range is known as the Riesengebirge, or Giant mountains. Continuous with this range, and beginning on the left bank of the Elbe, are the Erzgebirge, or Ore mountains, on the confines of Saxony; and veering round to nearly southeast, the range is further prolonged in the Bohemian Forest mountains, between Bohemia and Bavaria. The chief plains of the Austrian empire are: the great plains of Hungary (the smaller of these is in the west, between the offsets of the Alps and Carpathians, and is about 4200 square miles in extent; the other, which is in the east, and traversed by the Danube and the Theiss, has an area of 21,000 square miles), and the plains of Galicia.

From the south point of Dalmatia to the boundary of Italy, Austria has a sea-line of about 1000 miles, not counting the coasts of the numerous islands, the largest of which is Veglia, 23 miles by 12. The chief lakes are: the Platten See, and the Neusiedler See, both in Hungary. The first is navigable by steamers, and both are rich in fish, and have fruitful vineyards around them. The Alps and Carpathians include numerous mountain lakes, which are surrounded with wood and rock, and all the other attributes of picturesque scenery. The Long lake in the Tatra mountains lies at an elevation of 6000 feet. The most remarkable of all is the Zirknitz lake, in Illyria. There are extensive swamps or morasses in Hungary. One connected with the Neusiedler See covers some 80 square miles. A good deal has been done in the way of reclaiming lands by draining morasses.

The leading rivers that have navigable tributaries are: the Danube, which has a course of 849 miles within the Austrian dominions, the Vistula, the Elbe, and the Dniester. The Rhine bounds Austria for about fourteen miles above Lake Constance.

The climate of Austria is on the whole very favorable; but from the extent and diversity of surface, it presents great varieties. In the warmest southern region, between 42° to 46° latitude, rice, olives, oranges, and lemons ripen in the better localities; and wine and maize are produced everywhere. In the middle temperate region from 46° to 49°, which has the greatest extent and diversity of surface, the vine and maize still thrive in perfection. In the northern region, beyond 49°, except in favored spots, neither the vine nor maize succeeds; but grain, fruit, flax, and hemp, thrive excellently. The mean temperature of the year is, at Trieste, 58° F.; at Vienna, 51°; at Lemberg, in Galicia, 44°.

The raw products of Austria are abundant and various; and in this respect it is one of the most favored countries in Europe. Its mineral wealth is not surpassed in any European country; it is only lately that Russia has exceeded it in the production of gold and silver. Mining has been a favorite pursuit in Austria for centuries, and has been encouraged and promoted by the government. Bohemia, Hungary, Styria, Carinthia, Salzburg, and Tyrol, take the first place in respect of mineral produce. Except platin, none of the useful metals is wanting. The mines are partly State property, and partly owned by private individuals. Gold is found chiefly in Hungary and Transylvania, and in smaller quantity in Salzburg and Tyrol. The same countries, along with Bohemia, yield silver. The discovery of quicksilver at Idria first brought this branch of mining industry into importance. This metal is now also found in Hungary, Transylvania, Styria, and Carinthia. Copper is found in many districts—tin, in Bohemia alone. Zinc is got chiefly in Cracow and Carinthia. The most productive lead mines are in Carinthia. Iron is found in almost every province of the monarchy, though Styria, Carinthia, and Carniola are chief seats. The production, though great, is not yet equal to the consumption. Antimony is confined to Hungary; arsenic is found in Salzburg and Bohemia; coal-bait in Hungary, Styria, and Bohemia; sulphur in Galicia, Bohemia, Hungary, Venice, Salzburg, etc., though not enough to supply home consumption. Graphite is found abundantly in Bohemia, Moravia, Carinthia, etc.
The useful earths and building-stones are to be had in great profusion; all sorts of clay up to the finest porcelain earth (in Moravia, Bohemia, Hungary, Venice), and likewise marble, gypsum, chalk, etc. Of precious and semi-precious stones are the Hungarian opal, which passes in commerce as oriental, Bohemian garnets—the finest in Europe—corundums, agates, beryl, amethyst, jasper, ruby, sapphire, topaz, etc.

The following table shows the principal metals and minerals produced in Austria in 1867, and their average value in florins at the place of production:

<table>
<thead>
<tr>
<th>Metal/Mineral Type</th>
<th>Weight</th>
<th>Value in Florins</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold (Austrian pound)</td>
<td>3,562</td>
<td>2,406,941</td>
</tr>
<tr>
<td>Silver</td>
<td>81,378</td>
<td>3,955,643</td>
</tr>
<tr>
<td>Quicksilver (Austrian hundredweight)</td>
<td>5,944</td>
<td>723,958</td>
</tr>
<tr>
<td>Tin</td>
<td>591</td>
<td>33,812</td>
</tr>
<tr>
<td>Zinc</td>
<td>40,266</td>
<td>495,656</td>
</tr>
<tr>
<td>Copper</td>
<td>47,939</td>
<td>4,377,849</td>
</tr>
<tr>
<td>Lead and litharge</td>
<td>139,668</td>
<td>1,779,884</td>
</tr>
<tr>
<td>Iron, raw and cast</td>
<td>5,705,761</td>
<td>16,709,039</td>
</tr>
<tr>
<td>Graphite</td>
<td>279,355</td>
<td>271,123</td>
</tr>
<tr>
<td>Mineral coal</td>
<td>108,488,390</td>
<td>17,322,283</td>
</tr>
</tbody>
</table>

Austria is peculiarly rich in salt. Rocksalt exists in immense beds on both sides of the Carpathians, chiefly at Wieliczka and Bochnia, in Galicia, and in the country of Marmaros in Hungary, and in Transylvania. The annual produce of rocksalt is greatly above three million hundredweight. Salt is also made at State salt-works by evaporating the water of salt-springs. The chief works are those at Hallstadt, Ischl, Hallein, and Hall in Tyrol. From two to three millions hundredweight are thus produced annually. A considerable quantity is also made from sea-water on the coast of the Adriatic. Of other salts, alum, sulphate of iron, and sulphate of copper are the chief. Austria has abundance of mineral springs, frequented for their salubrity; 1600 are enumerated, some of them of European reputation, as the sulphurous baths of Baden, in lower Austria, the saline waters of Karlsbad, Marienbad, and Ofen, etc.

The vegetable productions, as might be expected from the vast diversity in the soil and position of the different provinces, are extremely various. Although three-fourths of the surface is mountainous, more than five-sixths is productive, being used either for tillage, meadows, pasture, or forest. Grain of all kinds is cultivated most abundantly in Hungary and the districts south of it on the Danube, in Bohemia, Moravia, Silesia, and Galicia. Agriculture is not yet far advanced; the prevailing system is still what is called the three-field system, introduced into Germany by Charlemagne, in which a crop of winter wheat is followed by one of summer grain, and that by fallow.

In Hungary, the Magyar adheres to his primitive husbandry; the German and Slave are adopting improved methods. Rice is cultivated in the Banat, but not enough for the consumption. Potatoes are raised everywhere; and in elevated districts, are often the sole subsistence of the inhabitants. Horticulture is carried to great perfection; and the orchards of Bohemia, Austria proper, Tyrol, and many parts of Hungary, produce a profusion of fruit. Great quantities of cider are made in upper Austria and Carinthia, and of plum brandy in Slavonia. In Dalmatia, oranges and lemons are produced, but not sufficient for the requirements of the country; twice as much olive oil is imported as is raised in the monarchy.

In the production of wine, Austria is second only to France. With the exception of Galicia, Silesia, and upper Austria, the vine is cultivated in all the provinces; but Hungary stands first, yielding not only the finest quality of wine, but four-fifths the amount of the whole produce of the empire. The average produce of the whole empire is estimated at about 680 millions of gallons.

Of plants used in manufactures and commerce, the first place is held by flax and
hemp. Flax is cultivated almost universally; white hemp in Galicia, Moravia, Hungary, etc. Tobacco is raised in great quantities, especially in Hungary, which also is first in the cultivation of rapeseed. Bohemia raises hops of the first quality, which are partly exported, though other provinces import from abroad. The indigo plant has lately been successfully acclimatized in Dalmatia. More than a third of the productive surface is covered with wood (75,000 square miles), which, besides timber, yields a number of secondary products, as tar, potash, charcoal, bark, cork, etc.

As to animals, bears are found in the Carpathians, Alps, and Dalmatia; wolves, jackals, and lynxes in these same districts, and also in the Banat, Croatia, Slavonia, and the military frontiers. The marmot, otter, and beaver are also found in Dalmatia. Game has of late sensibly diminished. The wild goat lives in the highest, the chamois and white Alpine hare in the middle regions of the Alps and Carpathians. More productive than the chase are the fisheries of the Danube, Theiss, and numerous streams, lakes, and ponds. The chief sea-fishing is in Dalmatia. Leeches, procured chiefly in Hungary and Moravia, form an article of considerable trade.

For foreign commerce, the most important branch of rural industry is the rearing of silk.

Austria produces about a quarter a million of silk cocoons annually. The silk trade is very extensive on the Tyrol—the yearly supply of cocoons in that country being about 32,000.

In 1851, the number of horses in the monarchy was stated at 3,229,884 (not including 75,000 belonging to the army); cattle, 10,410,484; sheep, 16,801,545; goats, 2,275,900; and swine, 7,401,300. Nearly three-fourths of the population are engaged in husbandry, so that Austria is decidedly an agricultural State, though its capabilities in this respect have by no means been fully developed.

The annual value of its manufactures—not including small trades—is estimated at 1000 to 1200 millions of florins, while that of its husbandry may reach 3000 millions. Bohemia takes the lead in this industry; then follow Austria proper, Moravia and Silesia, Hungary. Vienna is the chief seat of manufacture for articles of luxury; Moravia, Silesia, and Bohemia for linen, woolen, and glass wares; Styria and Carinthia for iron and steel wares. The chief manufactured articles of export are silk and woolen; the only others of consequence are linen, twist, glasswares, and cotton goods. The yearly value of manufactured iron is about fifty-four millions of florins. The glasswares of Bohemia are of special excellence. The hemp and flax industry is one of the oldest and still most important.

No branch of industry has risen more rapidly than that of cotton. The annual value of the silk industry is estimated at about sixty millions of florins. The manufacture of tobacco is a State monopoly, and produced a revenue in 1873 of 58,126,000 florins. The salt monopoly secured 18,720,000 florins.

The imports for the year 1874 were 565,600,000 florins; the exports were 452,200,000 florins. This is exclusive of Dalmatia—not within the imperial line of customs. The figures for Dalmatia were, during the same year: 9,600,000 florins imports, and 6,600,000 florins exports.

The merchant navy, at the beginning of 1875, comprised 7203 vessels, with a tonnage of 332,005, and an equipment of 27,381 seamen. Of great importance for the commerce of the empire is the Austrian Lloyds. This company owned, on the 1st of January, 1874, a fleet of seventy-six steamers, of 15,800 horse-power.

Since the year 1867 Austria has been a twofold empire, consisting of a German or "Cisleithan" monarchy—Austria proper; and a Magyar or Transleithan kingdom—Hungary. Each of the two countries has its own laws, parliament, ministers, and government; and the formal tie between them is a body known as the Delegations. These form a parliament of 120 members; one-half is chosen by the legislature of Austria, and the other by that of Hungary, the upper house of each returning twenty, the lower house forty delegates. The delegations have jurisdiction over all
matters affecting the common interests of the two countries, especially foreign affairs, war, and finance. The acts of the delegations require to be confirmed by the representative assemblies of their respective countries.

The administration of Austria proper is divided among nine ministries—Foreign Affairs, Police, Public Education, Agriculture and Public Works, Finance, Interior, War and Navy, Commerce, and Justice. The Reichsrath consists of an upper and a lower house. The upper house is constituted by princes, nobles, archbishops, bishops, and life members nominated by the emperor. To give validity to bills passed by the Reichsrath, the consent of both chambers is required, as well as the sanction of the emperor.

The executive of Hungary is carried on in the name of the king by a responsible ministry.

The following figures are extracted from the budget for 1875:

<table>
<thead>
<tr>
<th>EXPENDITURES.</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria,</td>
<td>319,916,323 florins.</td>
<td></td>
</tr>
<tr>
<td>Hungary,</td>
<td>218,558,301 &quot;</td>
<td></td>
</tr>
<tr>
<td>General,</td>
<td>116,364,502 &quot;</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>654,839,126 &quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECEIPTS.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria,</td>
<td>283,208,975 florins.</td>
</tr>
<tr>
<td>Hungary,</td>
<td>209,633,909 &quot;</td>
</tr>
<tr>
<td>From duties and other sources,</td>
<td>123,315,125 &quot;</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>616,248,009 &quot;</td>
</tr>
</tbody>
</table>

The public debt of Austria, on the 1st of January, 1875, was 2,649,484,475 florins; that of Hungary, January 1st, 1873, was 488,717,380 florins.

According to official returns, Austria possessed, in 1875, a standing army numbering 284,435 men on the peace footing, and 785,649 on the war footing.

The naval forces consisted of seventy-one vessels, of a tonnage of 115,380, carrying 308 heavy and 87 light guns. Of this fleet, 47 vessels were steamers, of 100,260 tons burthen.

The length of railways, at the close of 1875, was

- In Austria, 9,823 kilometres.
- Hungary, 6,415 "
- **Total**, 16,238 "

The work of the post office in Austria-Hungary for 1874 was as follows:

- Letters, 253,009,000
- Postal cards, 28,741,000
- Parcels, 31,959,000
- Newspapers, 82,083,000
- Number of post offices, 6,296

The statistics of telegraphs for the year 1874 are as follows:

- Length of lines (Austria-Hungary), 45,441 kilometres.
- " wires, 129,171 "
- Number of offices, 2,923 "
- of dispatches, 5,797,492 "

Education, since 1849, is under the care of a Minister of Public Worship and Instruction. In the major part of German Austria the law enforces the compulsory attendance in the "Volksschulen," or National Schools, of all children between the ages of six and twelve, and parents are liable to punishment for neglect. It is rarely, however, that cases occur in which penalties for non-attendance at school have to be enforced. The cost of public education mainly falls on the communes, but of late
years the State has come forward to assist in the establishment of schools for primary education.

There are seven universities in the empire. Four of these, the high schools at Vienna, Prague, Graz, and Innsbruck, are called German universities, and were attended as follows, in 1872:

<table>
<thead>
<tr>
<th></th>
<th>Professors and Teachers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vienna</td>
<td>200</td>
<td>3881</td>
</tr>
<tr>
<td>Prague</td>
<td>97</td>
<td>1709</td>
</tr>
<tr>
<td>Graz</td>
<td>70</td>
<td>926</td>
</tr>
<tr>
<td>Innsbruck</td>
<td>58</td>
<td>612</td>
</tr>
</tbody>
</table>

Of the other universities, Pesth, the high school of Hungary, had 2500 students at the end of 1873, and Cracow and Lemberg, the high schools for Galicia and the other Slavonian provinces, had, at the same date, together, 1900 students.

Commission from Austria to the International Exhibition:

**Rudolf Isbary**, Vice-President of the Chamber of Commerce, President.

**Franz Ritter von Liebig**, Member of the Chamber of Commerce, First Vice-President.

**Michael Matscheko**, Manufacturer, Second Vice-President.

**Dr. F. Migerya**, Counsellor to the I. R. Austrian Ministry of Commerce, Commissioner General, and Resident Commissioner.

**Eugene Felix**, President of the Society of Arts.

**Edward Kanitz**, Member of the Chamber of Commerce.

**Karl von Oberleitner**, Member of the Chamber of Commerce.

**Otto von Bauer**, Member of the Chamber of Commerce.

**Ernst von Pontzen**, Engineer.

**Dr. Emil Hornig**, Counsellor.

SWITZERLAND.

SWITZERLAND is an inland country of Europe, situated between 45° 48' and 47° 49' north latitude, and 5° 55' and 10° 30' east longitude. Its greatest length from east to west is 180 miles, and its greatest width from north to south, 130 miles.

The following table gives the area and population of each of the 22 cantons, according to the census returns of 1870:

<table>
<thead>
<tr>
<th>ENGLISH SQUARE MILES</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graubünden</td>
<td>2,968</td>
</tr>
<tr>
<td>Bern</td>
<td>2,561.5</td>
</tr>
<tr>
<td>Wallis (Valais)</td>
<td>1,661.6</td>
</tr>
<tr>
<td>Vaud (Waadt)</td>
<td>1,181.9</td>
</tr>
<tr>
<td>Ticino (Tessin)</td>
<td>1,034.7</td>
</tr>
<tr>
<td>St. Gallen</td>
<td>747.7</td>
</tr>
<tr>
<td>Zurich</td>
<td>685.3</td>
</tr>
<tr>
<td>Luzern</td>
<td>587.4</td>
</tr>
<tr>
<td>Fribourg (Freeburg)</td>
<td>502.4</td>
</tr>
<tr>
<td>Aargau</td>
<td>502.4</td>
</tr>
<tr>
<td>Uri</td>
<td>420.8</td>
</tr>
<tr>
<td>Schwyz</td>
<td>338.3</td>
</tr>
<tr>
<td>Neuchatell (Neuenburg)</td>
<td>280.2</td>
</tr>
<tr>
<td>Glarus</td>
<td>279.8</td>
</tr>
<tr>
<td>Thurgau</td>
<td>268.3</td>
</tr>
<tr>
<td>Unterwalden</td>
<td>262.8</td>
</tr>
<tr>
<td>Solothurn</td>
<td>254.6</td>
</tr>
<tr>
<td>Basle</td>
<td>184.6</td>
</tr>
<tr>
<td>Appenzell</td>
<td>152.8</td>
</tr>
<tr>
<td>Schaffhausen</td>
<td>119.7</td>
</tr>
<tr>
<td>Genève (Genf)</td>
<td>91.3</td>
</tr>
<tr>
<td>Zug</td>
<td>85.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15,233.0</strong></td>
</tr>
</tbody>
</table>

Switzerland is the most mountainous country of Europe. Its principal chains are the Alps and the Jura. The former run from east to west along its southern or Italian frontier. Their ramifications fill more than one-half the country, and terminate along a line which may be traced from Vevey, on the lake of Geneva, to Mount Moleson and Mount Napf, across Lake Zug, to the southern shores of the lakes of Zurich and Wallenstadt, and Sargans on the Rhine. The mean elevation of the highest chain is from 8000 to 9000 feet. The Jura run northeast from the western corner of Switzerland. They consist of a series of parallel ridges inclosing long and narrow valleys, and their mean elevation does not exceed 4000 feet. In the angle formed between them and the Alps lies the plain of Switzerland, a table-land 100 miles in length, and from 20 to 30 miles in width, with a mean elevation of about 1400 feet above the sea. It is not absolutely level, but covered with elevations which seem very unimportant when contrasted with the huge masses of the Alps and Jura. The communication between the plain of Switzerland and the German valleys of the Danube and Rhine is not continuous. The plain terminates in the east in a third hilly tract, the Thur hill country, which lies between the lakes of Zurich and Constance, and, to some extent, forms a barrier between the plain of Switzerland and Germany. The Jura, the plain, and the hill country, are the three great divisions of northern Switzerland. The divisions in the Alpine region are more strongly marked
in nature. They isolate and inclose (1) the valleys drained by the Rhone which connect Switzerland with southern France; (2) Ticino, drained by streams which descend to the Po, and bring this section into communication with Italy; (3) the Grisons, the most sequestered valleys of Switzerland, drained by the tributaries of the Rhine and Danube, and shut out by mountains from the lower basins of these rivers; (4) Bernese Oberland, which slopes towards the western extremity of the Swiss plain; (5) the district of the Forest Cantons, Schwyz, Uri, and Unterwalden, surrounding the Lake of Lucerne.

In Switzerland the climate chiefly varies with the elevation above the sea level. At a height exceeding 9500 feet the mountains are covered with perpetual snow, which descends along the glaciers to a much lower level, and thus covers the elevated part of the country with a vast sea of ice. Below the level of perpetual snow the surface of Switzerland has been divided into a series of belts, characterized by different climates and productions. The highest of these, lying between the snow and the level of 6900 feet, has been called the Upper Alpine region. In it the glaciers fill the valleys, but plants clothe the scanty soil of the ridges. The second or Lower Alpine belt descends to 4800 feet, and is a country of pastures in which shrubs, but no trees, are seen. In the third belt, which descends to 4350 feet, meadows still abound, but forests of firs and maples, in many parts, replace them. The fourth belt sinks to 3000 feet. Here forests still abound, the beech being the prevailing tree; the meadows are excellent, and rye and barley are successfully cultivated. The fifth belt descends to 1800 feet. In it the oak and walnut are the characteristic forest trees. Speit and the best wheat are cultivated. The last belt sinks to 750 feet. In it the chestnut is the characteristic tree; the mulberry and vine are extensively cultivated, and wheat is the grain chiefly grown. This belt includes the greater part of the Swiss plain, and sinks to its lowest level in the valley of the Rhine, between Constance and Basle, and the banks of Lake Zurich and Lago Maggiore. In the last district the vegetation is that of northern Italy. The most populous part of Switzerland lies between 1250 and 2150 feet. The temperature of this region is fairly represented by that of Zurich, which averages, for the year, 47°.95.

The German language is spoken by the majority of the inhabitants in sixteen cantons, the French in four, and the Italian in two. It is reported in the census returns of 1870 that 384,561 families speak German, 134,183 French, and 30,263 Italian. According to the same returns there were but five towns in Switzerland with more than 20,000 inhabitants, namely, Geneva, seat of the watch and jewelry industry, with 46,783; Basle, centre of the silk industry, with 44,834; Bern, political capital, with 36,001; Lausanne, with 26,520; and Zurich, with 21,199 inhabitants. The soil is pretty equally divided among the population, it being estimated that four-fifths of the inhabitants are land owners. Of every 100 square miles of land 20 are pasture, 17 forest, 11 arable, 20 meadow, 1 vineyard, and 30 uncultivated, or occupied by lakes, rivers, and mountains.

According to the census of 1870 there are 1,695,447 individuals supported, either wholly or in part, by agriculture. At the same date, the manufactories employed 216,468 persons, the handicrafts 241,425. In the canton of Basle the manufacture of silk ribbons employs 6000 persons, with a total annual production valued at $7,000,000. In the canton of Zurich silk stuffs, to the value of about $8,000,000, are made by 12,000 operatives. The manufacture of watches and jewelry in the cantons of Neuchatel, Geneva, Vaud, Bern, and Solothurn, employ 35,000 workmen, who produce annually 500,000 watches—three-sevenths gold, four-sevenths silver—valued at $7,000,000. In the cantons of St. Gall and Appenzell, 6000 workers make $2,000,000 worth of embroidery annually. The printing and dyeing factories of Glarus turn out goods to the value of $3,000,000, per annum. The manufacture of cotton goods occupies upwards of 1,000,000 spindles, 4000 looms, and 22,000 operatives, besides 38,000 hand-loom weavers.
The Federal custom house returns classify all imports and exports under three chief headings, namely, live stock, ad valorem goods, and goods taxed per quintal. No returns are published of the value of imports or exports: only the quantities are given. The following table shows the imports and exports during the year 1871:

**IMPORTS.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live stock</td>
<td>256,851 head.</td>
</tr>
<tr>
<td>Agricultural instruments, carts, and railway carriages</td>
<td>1,043,991 francs.</td>
</tr>
<tr>
<td>Goods taxed per quintal, including loads reduced to quintals</td>
<td>25,450,359 quintals.</td>
</tr>
</tbody>
</table>

**EXPORTS.**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live stock</td>
<td>127,490 head.</td>
</tr>
<tr>
<td>Wood and coal, ad valorem,</td>
<td>5,351,941 francs.</td>
</tr>
<tr>
<td>Goods, per load and quintal</td>
<td>4,086,646 quintals.</td>
</tr>
</tbody>
</table>

The present constitution vests the supreme legislative and executive authority in a parliament of two chambers, a Standerath, or State Council, and a Nationalrath, or National Council. The first is composed of 44 members, chosen by the 22 cantons—2 for each canton. The Nationalrath consists of 135 representatives, chosen by popular vote, at the rate of one deputy for every 20,000 souls. A general election for representatives takes place every three years. Both chambers united are called the Bundesversammlung, or Federal Assembly, and as such represent the supreme government of the republic. The chief executive authority is deputed to a Bundesrat, or Federal Council, consisting of seven members elected for three years by the Federal Assembly. The president and vice-president of the Federal Council are the first magistrates of the republic. Both are elected by the Federal Assembly for the term of one year, and are not re-eligible until after the expiration of another year. Independent of the Federal Assembly, though issuing from the same, is the Bundes-Gericht, or Federal Tribunal, consisting of eleven members, elected for three years. The Federal Tribunal decides, in the last instance, on all matters in dispute between the various cantons, or between the cantons and the Federal government, and acts in general as a high court of appeal. Each of the Swiss cantons and demi-cantons has its local government, different in organization in most instances, but all based on the absolute sovereignty of the people.

In the budget estimates for the year 1875, the total revenue is set down at 39,516,000 francs,* and total expenditure at 39,266,000 francs. The public debt of the republic amounted, at the commencement of 1875, to 30,635,552 francs, as a set-off against which there was a so-called Federal fortune, or property belonging to the State, valued at 31,783,303 francs.

The fundamental laws of the republic forbid the maintenance of a standing army within the limits of the confederation. The troops are divided into three classes: 1, the Bundes-Auszug, or Federal army, consisting of all men able to bear arms from the age of 20 to 30; 2, the army of reserve, consisting of all men who have served in the first class, from the age of 31 to 40; 3, the Landwehr, or militia, comprising all men from the 41st to the completed 44th year. The strength of the armed forces of Switzerland, at the end of 1874, was as follows:

<table>
<thead>
<tr>
<th>Class</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>841</td>
</tr>
<tr>
<td>Bundes-auszug</td>
<td>84,369</td>
</tr>
<tr>
<td>Reserve</td>
<td>50,069</td>
</tr>
<tr>
<td>Landwehr</td>
<td>65,081</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>201,260</td>
</tr>
</tbody>
</table>

* One franc = 19.3 cts. gold.
From official returns it appears that the railways open for public traffic in Switzerland had, at the end of 1874, a total length of 1024 English miles.

The post office of Switzerland forwarded, during the year 1874, 63,252,884 letters; 19,925,200 packets, and 45,651,344 newspapers.

At the end of September, 1875, there were 3736 miles of telegraph lines and 9538 miles of wires. The number of messages sent, in the year 1874, was 2,625,104; number of offices, 815. The entire telegraph system belongs to the State.

In no country is elementary instruction more widely diffused. Parents are compelled to send their children to school from five to twelve, but not above that age. There are universities on the German model at Basle, Bern, and Zurich, and academies on the French plan at Geneva and Lausanne. The number of clubs for scientific, literary, musical, and social purposes, is remarkable. There are few pursuits to which any class of men can devote themselves which are not represented in Switzerland by societies.

Commission from Switzerland to the International Exhibition:

DR. SCHENK, Member of Federal Council, Chief of the Department of Railways and Commerce, President.

JOHN HITZ, Consul-General of Switzerland.

R. KORADI, Consul, Resident-Commissioner.

W. ITSCHNER, Vice-Consul.

DR. ADOLPH HIRSCH, Director of the Observatory.

MR. SAUR-USTERI, Engineer.

MR. SALVISBERG, Architect.

DR. EMILE SCHUMACHER.

COLONEL SIEGFRIED, Chief of Bureau of the General Staff.

MR. STEINMANN BUCHER, Secretary of the Department of Commerce.

DR. FR. DE TSCIIUDI, Councillor of State.

DR. WILLI, Secretary of the Federal Department of Commerce, Secretary.

Resident Commission in Switzerland.

COLONEL H. RIETER, Commissioner-General.

Resident Commissioners in Philadelphia.

MR. EDWARD GUVER, Secretary-General.

MR. JOHN E. IECLEY, Engineer.

MR. JOSEPH BEELER, Secretary.
BELGIUM.

BELGIUM lies between latitude 49° 27' and 51° 30' north, and between longitude 2° 33' and 6° 5' east. It is bounded on the north by Holland; on the east by Dutch Limbourg, Luxembourg, and Rhenish Prussia; on the south and southwest by France; and on the northwest by the North Sea. Its greatest length, from northwest to southeast, is 173 English miles; and its greatest breadth, from north to south, 112 English miles. The whole area is 11,373 square miles. The following table gives a list of the provinces in Belgium, with the area, population, and chief town of each:

<table>
<thead>
<tr>
<th>PROVINCES</th>
<th>AREA IN SQ. MILES</th>
<th>POPULATION (1870)</th>
<th>CHIEF CITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antwerp</td>
<td>1,094</td>
<td>492,482</td>
<td>Antwerp</td>
</tr>
<tr>
<td>West Flanders</td>
<td>1,243</td>
<td>668,976</td>
<td>Bruges</td>
</tr>
<tr>
<td>East Flanders</td>
<td>1,154</td>
<td>837,726</td>
<td>Ghent</td>
</tr>
<tr>
<td>Hainault</td>
<td>1,150</td>
<td>896,285</td>
<td>Mons</td>
</tr>
<tr>
<td>Liege</td>
<td>1,111</td>
<td>592,177</td>
<td>Liege</td>
</tr>
<tr>
<td>Brabant</td>
<td>1,260</td>
<td>879,814</td>
<td>Brussels</td>
</tr>
<tr>
<td>Limbourg</td>
<td>929</td>
<td>200,336</td>
<td>Hasselt</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1,695</td>
<td>205,784</td>
<td>Arlon</td>
</tr>
<tr>
<td>Namur</td>
<td>1,397</td>
<td>313,525</td>
<td>Namur</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11,313</strong></td>
<td><strong>5,087,105</strong></td>
<td></td>
</tr>
</tbody>
</table>

Belgium is the most densely populated country in Europe, the population being about 404 to the square mile; and in the particular provinces of East Flanders, 675; Brabant, 594; Hainault, 537; and West Flanders, 502, respectively, to the square mile. The rural population bears to that of the towns a proportion of about 3 to 1. About 58 per cent. of the inhabitants are Flemish, the rest Walloon and French, with 39,000 Germans in Luxembourg. Belgium is, on the whole, a level and even low-lying country; diversified, however, by hilly districts. In the southeast, a western branch of the Ardennes highlands makes its appearance, separating the basin of the Maas from that of the Moselle, but attains only the moderate elevation of 2000 feet. In Flanders the land becomes so low that in parts where the natural protection afforded by the downs is deficient, dikes, etc., have been raised to check the encroachments of the sea. In the northeastern part of Antwerp, a naturally unfertile district named the Campine, and composed of marshes and barren heaths, extends in a line parallel with the coast. The once impassable morasses of the Morini and the Menapiti, which stayed the progress of Caesar's legions, are now drained, and converted into fertile fields, surrounded by dense plantations, which make the land at a distance look like a vast green forest—though, when more closely regarded, we see only numerous dwellings interspersed among fields, canals, and meadows.

The abundant water-system of Belgium is chiefly supplied by the rivers Scheldt and Maas, both of which rise in France, and have their embouchures in Holland. At Antwerp, the Scheldt, which, like the Maas, is navigable all through Belgium, is 32 feet deep, and about 480 yards wide. Its tributaries are the Lys, Dender, and Rupel. The Maas, or Meuse, receives in its course the waters of the Sambre, the Ourthe, and the Roer. These natural hydrographical advantages are increased by a system of canals which unite Brussels and Louvain with the Rupel, Brussels with Charleroi, Mons with Conde, Ostend with Bruges and Ghent, and this last place with Terneuse. The climate of Belgium, in the plains near the sea, is cool, humid, and somewhat unhealthy; but in the higher southeast districts, hot summers alternate with very cold winters. April and November are always rainy months. The geological formations
of Belgium are closely associated with France and Britain. The greater portion of the country is covered with tertiary deposits. A line drawn across the course of the Scheldt, by Mechlin, along the Demer and Maas, will have on its northern and northwestern aspect a tract of tertiary deposits, bounded northwards by the sea. In these tertiary strata the different geological periods are fully represented; but only the second, containing the Pleiocene deposits, is rich in fossils. The secondary deposits occupy an extensive tract in the centre of Belgium, between the Scheldt and the Demer. The most important district, economically, is the southwestern, consisting of paleozoic rocks—Silurian, Devonian, and Carboniferous. These beds have a very complicated structure, from the numerous and extensive flexures and folds they have undergone, and these are often accompanied with great upward shifts, by which beds of many different ages are brought to the same level. Belgium is rich in minerals, which, next to its abundant agriculture, constitute the chief source of its national prosperity. The four provinces in which they are found are Hainault, Namur, Liege, and Luxembourg. They include lead, copper, zinc, calamine, alum, peat, marble, limestone, slate, iron, and coal. Lead is wrought, but only to a small extent, in Liege; copper in Hainault and Liege; manganese in Liege and Namur; black marble at Dinant; slates at Herbemont; and calamine principally at Liege. But these products are insignificant compared to the superabundance of coal—from anthracite to the richest gas coal—and iron.

In the year 1871, the total coal production of Belgium amounted to 13,733,176 tons, of a total value of 153,803,000 francs. Number of hands employed in the coal mines of Belgium, 94,186. The average daily pay of the workmen, in 1871, was 2½ francs per day; average cost of production, 9½ francs per ton of coal. The Ardennes districts yield a large supply of wood; while the level provinces raise all kinds of grain—wheat, rye, barley, oats, etc., leguminous plants, hemp, flax, colza, tobacco, hops, dye-plants, and chicory. Belgium contains upwards of 7,000,000 acres, of which one-half is arable, rather more than one-fifth in meadow and pasture, the same in woods and forests, and not above 500,000 acres lying waste. Some hundreds of acres are devoted to vineyards, but the wine produced is of an inferior quality. The forests of Ardennes abound in game and other wild animals. Good pasturage is found on the slopes and in the valleys of the hilly districts, and in the rich meadows of the low provinces. Gardening occupies not less than 130,000 acres; indeed, it has been said that the agriculture of Belgium is just gardening on a large scale, so carefully and laboriously is every inch of soil cultivated. The spade is still the principal instrument used. In the Campine, the care of bees is very productive, and the cultivation of the silkworm is encouraged. There are valuable fisheries on the coast, which, in 1871, employed 253 boats, with a tonnage of 8963. Belgium is famous for its horses, and in one year contained 294,537 of these animals, 1,203,891 horned cattle, and 662,568 sheep.

Wool is the object of an immense industry, the woolen manufactures of Verviers and its environs alone employing a population of 50,000 operatives. Flannels, serges, camlets, carpets, flax fabrics, silks, velvets, fine laces, ribbons, hosiery, hats, paper, etc., are extensively and profitably manufactured. The working of metals, as iron, copper, and tin, is very important; the manufacture of cannon, firearms, and locomotive engines being an especial feature of the metallurgical industry of Belgium.

The foreign trade of Belgium is officially divided into "general commerce," including the sum total of all international mercantile intercourse, and "special commerce," comprising such imports as are consumed within and such exports as have been produced in the country. The following table gives the value of both the general and special exports for the year 1873:

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>General imports</td>
<td>2,424,800,000 francs.</td>
</tr>
<tr>
<td>Special imports</td>
<td>1,422,700,000 francs.</td>
</tr>
<tr>
<td>General exports</td>
<td>2,154,900,000 francs.</td>
</tr>
<tr>
<td>Special exports</td>
<td>1,158,600,000 francs.</td>
</tr>
</tbody>
</table>
The statistics of the Belgian merchant navy for 1873, are—

<table>
<thead>
<tr>
<th>Type</th>
<th>NO.</th>
<th>Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sailing vessels</td>
<td>41</td>
<td>15,434</td>
</tr>
<tr>
<td>Steam</td>
<td>28</td>
<td>30,005</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>69</td>
<td>46,439</td>
</tr>
</tbody>
</table>

Belgium is a constitutional, representative, and hereditary monarchy. The legislative power is vested in the King, the Chamber of Representatives, and the Senate. The Chamber of Representatives is composed of deputies chosen directly by all citizens paying a small amount of direct taxes. The number of deputies is fixed according to the population, and cannot exceed one for every 40,000 inhabitants. The Senate is composed of exactly one-half the number of members composing the other chamber, and are elected by the same citizens who appoint the deputies. The public expenditures of Belgium, for 1875, were 238,281,441 francs; receipts during the same year, 243,032,600 francs. The total public debt, in 1875, was 1,127,040,009 francs. The standing army is formed by conscription, to which every able-bodied man, who has completed his nineteenth year, is liable. Substitution is permitted. The actual number of soldiers under arms, on the 1st of January, 1875, was 103,893.

In Belgium the State is a great railway proprietor, and the State railway is one of the largest sources of national revenue. As each conceded railway lapses gratuitously to the State in 90 years from the period of its construction, the entire system will in time become national property. There were, at the end of 1875, 1953 kilometres of railways owned by the State, and 1479 worked by companies; in all 3432 kilometres. (The kilometre = 1093 yards.)

The work of the post office for 1874, was—

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of offices</td>
<td>479</td>
</tr>
<tr>
<td>Private letters</td>
<td>58,036,628</td>
</tr>
<tr>
<td>Official &quot;</td>
<td>6,035,861</td>
</tr>
<tr>
<td>Newspapers</td>
<td>58,825,598</td>
</tr>
<tr>
<td>Packets (printed matter, etc.)</td>
<td>30,094,027</td>
</tr>
</tbody>
</table>

There were, on the 1st of January, 1875, telegraph lines of a length of 4999 kilometres; length of telegraph wires, 20,512 kilometres; telegraph stations, 574.

Elementary education is not yet generally diffused among the people. The schools are supported by the communes, the provinces, and the State combined. Education is not compulsory. In the budget for the year 1874, the sum voted by the Chamber of Representatives for public education amounted to 9,701,628 francs.

Commission from BELGIUM to the International Exhibition:

His Royal Highness, THE COMTE DE FLANDRE, Honorary President.

Baron Gustave De Woelmont, Senator, President.

Alexander Robert, Historical Painter, Member of the Belgium Academy of Fine Arts, Letters, and Sciences, Vice-President.

Ch. De Smet-de Smet, Manufacturer, President of the Industrial and Commercial Society, Vice-President.


Alfred Ancion, Manufacturer of Arms.

Jean Beco, Mining Engineer.

A. J. Belpaire, Inspector-General of Railways and Telegraphs.

L. De Curte, Architect, Member of the Royal Commission of Monuments and Council for the Improvement of the Arts of Design.

Felix Duhyon, Lace Manufacturer, Judge of the Tribunal of Commerce.
BELGIUM.

E. DUIISBERG, Director of the Paper Manufactories of Messrs. Godin & Co., at Huy, Member of the Chamber of Commerce.

JOS. FAYN, Mining Engineer, Consul of the Netherlands.
P. F. GHYS-BRUNEEL, Lace Manufacturer.

JULES HAVENITH, Shipowner, Consul of Austria-Hungary.

J. KINDT, Inspector-General of Industry, Minister of the Interior.

EUGENE MEEUS, Manufacturer, Member of the Chamber of Representatives.

ALPH. MOREL, Director of the Glass Works, Lodelinsart.

HENRI MOREL, Flax Manufacturer.

REMY PAQUOT, Director of the Company of Bleyburg-es-Montzen.

EDM. PARMENTIER, Manufacturer.

FERDINAND PAUWELS, Historical Painter.

AUG. RONNBERG, Director-General of Agriculture and Manufactures, Ministry of the Interior.

E. SADOINE, Director-General of the Company “John Cockerill.”

JULES SAVUEUR, Director-General of Public Instruction, Ministry of the Interior.

E. E. A. SCHARR, Chief Engineer, Director of the Arsenal and Railways of the State.

ALFRED SIMONIS, Cloth Manufacturer, Member of the Chamber of Representatives.

Resident Commissioners in Philadelphia.

COUNT D'OUTREMONT, Director-General.

MR. J. BECO, Delegate of the Belgian Government.

MR. J. VAN BREE, Chief of Fine Art Department.

MR. J. GODY, State Architect, Chief of the Commissioner's Office.

MR. JULIAN DEBY.
NETHERLANDS.

THE Kingdom of the Netherlands lies between 50° 43' and 53° 36' north latitude and 3° 22' and 7° 16' east longitude, is bounded on the north by the North Sea, east by Hanover and the western part of Prussia, south by Belgium, west by the North Sea. Its greatest length, from north to south, is 195 English miles; its greatest breadth from the west, on the North Sea to the extremity of Overysell, on the east, 110 English miles. It contains 12,637 square miles, including the grand duchy of Luxembourg (which, although possessed of a separate administration, is connected with the kingdom in the person of the sovereign). The entire population, in 1872, was 3,835,111.

The following table gives the population (1872) and area of the provinces, including the reclaimed Haarlem Lake:

<table>
<thead>
<tr>
<th>Province</th>
<th>Area in Square Miles</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Brabant</td>
<td>1,983</td>
<td>435,262</td>
</tr>
<tr>
<td>Gelderland</td>
<td>1,972</td>
<td>436,029</td>
</tr>
<tr>
<td>South Holland</td>
<td>1,176</td>
<td>790,499</td>
</tr>
<tr>
<td>North Holland</td>
<td>906</td>
<td>591,338</td>
</tr>
<tr>
<td>Zeeland</td>
<td>642</td>
<td>181,532</td>
</tr>
<tr>
<td>Utrecht</td>
<td>531</td>
<td>175,037</td>
</tr>
<tr>
<td>Friesland</td>
<td>1,267</td>
<td>300,257</td>
</tr>
<tr>
<td>Overysell</td>
<td>1,308</td>
<td>256,681</td>
</tr>
<tr>
<td>Groningen</td>
<td>907</td>
<td>228,883</td>
</tr>
<tr>
<td>Drenthe</td>
<td>1,029</td>
<td>106,713</td>
</tr>
<tr>
<td>Limburg</td>
<td>854</td>
<td>225,352</td>
</tr>
<tr>
<td>Total</td>
<td>12,637</td>
<td>3,637,583</td>
</tr>
</tbody>
</table>

The land is generally low, much of it being under the level of the sea, rivers, and canals, especially in North and South Holland, Zeeland, the southern part of Gelderland, and Friesland. Along the west coast the low lands are protected from the sea by a line of sand-hills, or dunes, and where that natural defence is wanting strong dykes have been constructed to keep back the waters, and are maintained at great expense. The greatest of these dykes are those of the Heldor and of West Kapell, on the east coast of Walcheren. Engineers, called the officers of the Waterstaat, take special charge of the dykes and national hydraulic works. A hilly district stretches from Prussia through Drenthe, Overysell, the Veluwe, or Arnhem district of Gelderland, the eastern part of Utrecht, into the Betuwe or country between the Maas and the Waal. This tract has many pretty spots, is of a light sandy soil, well watered, and when not cultivated, is covered with heath or oak-coppice. The greater portion of the north is very fertile, the low lands and drained lakes, called Polders, being adapted for pasturing cattle, and the light soils for cereals and fruits; but in some districts there are sandy heath-clad plains, extensive peat-lands, and undrained morasses, which industry is rapidly bringing under cultivation.

The islands may be divided into two groups, of which the southern, formed by the mouths of the Schelde and Maas, contains Walcheren, South and North Beveland, Schouwen, Duiveland, Tholen, St. Philipsland, Goeree, Voorne, Putten, Beyeland, Ysselmonde Rozenburg, and the island of Dordrecht. The northern group
contains the islands at the entrance of the Zuyder Zee and along the coast of Groningen and Friesland, as Wieringen, Texel, Vlieland, Terschelling, Ameland, Schiermonnikoog, and Rottum. In the Zuyder Zee are Marken, Urk, and Schokland. The chief rivers are the Rhine, Maas, and Scheldt. Important branches of these are the Waal, Lek, Yssel, Roer, etc.

Water ways are more numerous than in any other European country, the immense tracts of meadow-land and the fertile polders being girtled by large canals, and cut in all directions by smaller ones for drainage and communication. Those of most importance to the national trade are, the North Holland canal, constructed 1819–1825, to connect the port of Amsterdam with the North Sea; the Voorne canal, from the north side of Voorne to Helvoetshuis, which shortens the outlet from Rotterdam; the South Willemsvaart, through North Brabant, Dutch and Belgian Limburg, from Hertogenbosch to Maastricht, being 7½ English miles in length, and having 24 locks. Besides these, there are numerous important canals, connecting rivers, and cutting the kingdom into a network of water-courses. To improve the entrances to the Maas, the Hock, of Holland, has lately been cut. The new canal through the Y will be nowhere less than 80 yards broad, with sluices nearly 400 feet in length, at a depth of nearly 23 feet. It will reduce the distance from Amsterdam to the sea to about 15 miles, and gives a safe way for large ships.

The climate of the Netherlands is variable, chilly colds often closely succeeding high temperatures, inducing various forms of fever and ague, and requiring peculiar care as to clothing, etc. In summer, the thermometer sometimes rises above 80°, and even to 90° F. in the shade, and a winter of great severity usually occurs every fifth year, when carriages and heavily laden wagons cross the rivers and the Y on the ice, and thousands enjoy the national pastime of skating.

The farms are generally small and well cultivated. The leading agricultural products of Zeeland are wheat and madder; in South Holland, madder, hemp, butter, and cheese; in North Holland, butter and cheese are extensively made, and cattle, sheep, and pigs reared and exported. The horses of Friesland, Zeeland, and Gelderland are of first-rate quality. The exportation of butter from Holland and Friesland, and of Edam, Leyden, Gonda, and Frisian cheese, is quite large. Fruit is abundant, and in several provinces, as Gelderland, Utrecht, and Drenthe, much attention is paid to bees. In Haarlem and neighborhood, tulips and hyacinths are much cultivated, realizing a large annual amount. Wild ducks, snipes, plovers, and hares are plentiful; and there are also conies, partridges, pheasants, and deer—game forming an article of export.

The Netherlands are of recent formation, and consist of an alluvial deposit, chiefly of a deep, rich clayey soil, superimposed on banks of sand, marine shells, and beds of peat and clay. It appears that at some distant period there has been a depression of the land below its former level, enabling the sea to burst through its sand-banks, submerge the land, and form new deposits. The higher districts are composed of sand-drift mingled with fertile earths, and resting on a bed of clay. Coal is worked in Limburg; and a soft sandstone, which becomes fit for building purposes after having been some time exposed to the atmosphere, is quarried in the southern part of that province, which has also pipe and other clays. Valuable clays for pottery, tile, and brick making, abound in the various provinces.

The chief manufactures are linen, wooden, cotton, and silk fabrics; paper, leather, glass, etc. Leyden and Tilburg are famed for woolen blankets, wool-dyed pilot, fine cloths, and friezes; Hertogenbosch for linens and rich damasks; calicoes, shiftings, drills, tablecloths, striped dimities are made at Almelo, Amersfort, and in the leading towns of Overysell. Good imitation Smyrna and Scotch carpets, and carpets of hair and wool, are manufactured at Deventer, Delft, Arnhem, Hilversum, Utrecht, and Breda; Turkey-red yarns, dyed silks, and silk stuffs at Roermond, Utrecht, Haarlem, etc.; leather, glass, firearms, at Maastricht and Delft; iron-founding, rolling and hammering of lead and copper, cannon-founding are carried
on at The Hague, etc.; and powder-mills at Muiden; Oudenkerk, Middelburg, Hertogenbosch, Amsterdam, Nymegen, etc., have important breweries. Waalwyk, Heusden, and surrounding districts, manufacture boots and shoes, of which Heusden sends to North and South Holland 1,000,000 pairs annually. Gin is distilled at Schiedam, Delft, Rotterdam, and Weesp. Amsterdam has the largest diamond-cutting trade in the world, 10,000 persons depending on that branch of industry. Sugar refining is largely carried on at Amsterdam, Rotterdam, and Dordrecht, from all of which sugar is exported to Russia, the Levant, and countries of Europe. Paper is chiefly made in Holland and Gelderland. The leading letter-type founders are at Amsterdam and Haarlem. Manufactures of every kind are being rapidly increased in number, and adding to the material prosperity of the Netherlands. The chief motive power is the windmill, which forms a never-failing element in the scenery; but of late years steam is becoming more general.

Fishing, not only in the inland waters, the coasts and bays of the North Sea, but also on the coast of Scotland, is vigorously pursued. In 1872 the total value of the herrings taken in the North Sea was about $450,000, 108 vessels having been employed; on the Netherlands coasts, to the value of about $250,000, and in the Zuyder Zee, additional, 18,052,000 herrings were taken. The anchovy take, almost exclusively in the Zuyder Zee, amounted to 9000 anker, valued at about $90,000. There are productive oyster beds, besides extensive fishings of cod, ling, turbot, flounders, soles, shrimps, haddock, etc.; and from the rivers, salmon, eels, perch, etc.

The foreign commerce of the Netherlands, during the year 1873, was as follows:

<table>
<thead>
<tr>
<th>IMPORTS</th>
<th>EXPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>533,390,000</td>
</tr>
<tr>
<td>America</td>
<td>39,838,000</td>
</tr>
<tr>
<td>Asia</td>
<td>23,207,000</td>
</tr>
<tr>
<td>Africa</td>
<td>2,747,000</td>
</tr>
<tr>
<td>Other countries</td>
<td>208,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>599,480,000</strong></td>
</tr>
</tbody>
</table>

**COLONIAL POSSESSIONS.**

| Java     | 82,485,000   | 45,083,000   |
| West Indies | 119,000 | 302,000     |
| **Total** | **682,534,000** | **514,633,000** |

The Guinea coast is not included in the above, the statistics for 1873 not being at command. During 1872, the imports 26,000, the exports 137,000 guilders. At the end of 1874 the merchant navy numbered 1827 vessels of 511,982 tons.

The constitution vests the whole legislative authority in a parliament composed of two chambers, called the States-General. The Upper House, or First Chamber, consists of 39 members, elected by the provincial states, from among the most highly assessed inhabitants of the various counties. The Second Chamber of the States-General, elected by ballot, at the rate of one deputy to every 45,000 souls, numbered 80 members in 1875. All citizens, natives of the Netherlands, not deprived of civil rights, and paying assessed taxes to the amount of not less than 20 guilders, are voters. Clergymen, judges of the High Court of Justice, and governors of provinces, are debarred from being elected. Every two years one-half the members of the Second Chamber, and every three years one-third of the members of the Upper House, retire by rotation. The Second Chamber has the initiative of new laws, and the functions of the Upper House are restricted to either approving or rejecting them, without the right of inserting amendments. The king has full veto power, but it is rarely, if ever, exercised. The executive authority is, under the

*The guilder equals 40 cents gold.*
sovereign, exercised by a responsible council of ministers. The budget estimates for the year 1874, were as follows: Total revenue, 93,742,144 guilders; total expenditure, 93,742,144; estimated deficit, 6,244,749 guilders. The financial estimates are always framed with great moderation, generally showing a deficit, which, in the final account, becomes a surplus. There is a separate budget for the great colonial possessions in the East Indies. The Netherlands East India estimates, for 1874, are thus summarized:

<table>
<thead>
<tr>
<th>Description</th>
<th>GUILDERS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue from receipts in the Netherlands</td>
<td>48,958,967</td>
</tr>
<tr>
<td>&quot; in India,</td>
<td>74,639,232</td>
</tr>
<tr>
<td></td>
<td>123,598,199</td>
</tr>
<tr>
<td>Expenditure in the Netherlands</td>
<td>17,956,922</td>
</tr>
<tr>
<td>&quot; India,</td>
<td>95,096,698</td>
</tr>
<tr>
<td></td>
<td>113,053,620</td>
</tr>
<tr>
<td>Contribution in aid of the Home Government, for 1874</td>
<td>10,544,579</td>
</tr>
<tr>
<td></td>
<td>123,598,199</td>
</tr>
</tbody>
</table>

At the commencement of the year 1874, the national debt was represented by a capital of 927,320,076 guilders. The regular army stationed in the Netherlands comprised, on the 1st of July, 1875, 1935 officers and 59,491 men. The colonial army, on the 1st of January, 1875, comprised 27,475 men, 12,310 of whom were Europeans, and 15,165 natives. The navy, on the 1st of July, 1875, consisted of 88 steamers, carrying 474 guns, and 27 sailing vessels, with 195 guns. At the beginning of the year 1875, there were 1668 kilomteres of railway opened for traffic. Of these, 853 belonged to private companies and 815 to the State. The number of post offices at the commencement of 1875 was 1241; the number of letters carried during the year, 44,396,330. The length of telegraph lines, January 1st, 1875, was 3431 kilometeres; the length of wires, 12,365 kilometeres; the number of offices, 328. During the year 1874, the number of telegrams carried was 2,084,121. Under the working of the primary instruction law, there were, in January, 1871, according to government returns, 2608 public schools, with 6538 schoolmasters and 477 schoolmistresses, and 1119 private schools with 2332 schoolmasters and 1565 schoolmistresses. At the same date the pupils in the public schools numbered 390,129, and the pupils in the private schools, 111,762. There were, also, in 1871, 81 schools of middle instruction, with 7047 pupils, and 55 Latin schools, with 1128 pupils. There are three universities, Leyden, Groningen, and Utrecht, with 1339 students in January, 1871, and a polytechnic institution, at Delft, with 171 pupils.

**Colonies.**

The colonial possessions of the Netherlands embrace an area of 666,756 English square miles. The total population, according to the last returns, was 24,386,901.

The East Indian island of Java, possessing, with the adjoining Madura, an area of 51,336 English square miles, and a population, at the end of 1872, of 17,298,200, is by far the most important of the colonial possessions of the Netherlands. The whole of the other Netherlands possessions in the East Indies are administered as dependencies of Java.

Almost the entire trade of Java and Madura is with the Netherlands, and there is comparatively little commercial intercourse with other countries. The total imports, including specie, for 1873, were 108,304,000 guilders; total exports, including specie, 153,881,000 guilders. The principal articles of export from Java are sugar, coffee, rice, indigo, and tobacco. The imports of the other East Indian possessions, during 1873, were 42,456,000 guilders; the exports, 41,869,000 guilders.
The Dutch West India Islands, of which Curacoa is the most important, have a total population of 36,160, and an area of about 400 square miles. Surinam, with an area of about 45,000 square miles has a population of 69,834.

Commission from the Netherlands to the International Exhibition:

DR. E. H. VON BOMHAUER, Honorary Professor, Secretary of the Dutch Society of Sciences, Director of the Society for the Advancement of Industry in the Netherlands, President.
F. DE CASEMBROOT, Rear Admiral, Aid-de-camp in Extraordinary Service to His Majesty the King of the Netherlands, and member of the States-General, 2d Chamber.
A. H. EIGEMAN, Industrial President of the Society of Dutch Industrials.
P. HARTSEN, Chairman of the Amsterdam Board of Commerce.
J. E. VAN HEEMSKERCK VAN BEEST, Artist.
DR. W. T. A. JONCKBOET, President of the Committee of Superintendence of the Academy of Imitative Arts.
D. VAN DER KELLEN, JR., Member of Administration Society Arti et Amicitiae.
L. C. VAN KERKWIJK, Pensioned Lieutenant-colonel, Corps of Engineering, Member of the Council of Administration of the Royal Institution of Engineers.
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BARON W. G. BRANTSEN VAN DE ZYP, LL.D., Lord in Waiting to His Majesty the King of the Netherlands.
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R. C. BURLAGE, Consul-general of the Netherlands.
L. WESTERGAARD, Consul of the Netherlands.
D. D. KRUSEMAN VAN ELTEN.
C. MUYSKEN, Civil Engineer, Secretary.
DENMARK.

DENMARK is situated between 54° 23' and 57° 54' 50" north latitude, and 8° 5' and 12° 45' east longitude, excepting the small island of Bornholm in the Baltic, about ninety miles east of Seeland, which lies in 15° east longitude. Denmark is bounded on the north by the Skager Rack, a gulf of the North Sea; on the east by the Cattegat, the Sound, and the Baltic; on the south by the German Empire; and on the west by the North Sea, which the Danes call the "Western Ocean."

The kingdom of Denmark has an area of 14,553 English square miles, and a population (in 1874) of about

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faroe Islands</td>
<td>1,360,000</td>
</tr>
<tr>
<td>Iceland</td>
<td>128,000</td>
</tr>
<tr>
<td>Greenland</td>
<td></td>
</tr>
<tr>
<td>Danish possessions in the West Indies</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1,988,000</td>
</tr>
</tbody>
</table>

The chief pursuits are agriculture, cattle-breeding, navigation, and fishing, about one-half of the population being engaged in these industries.

The annual yield of grain may be calculated at about 100,000,000 bushels, beside 200,000,000 barrels of potatoes, beans, etc. About three-fourths of the whole country is under cultivation. The raising of horses and cattle is quite an important interest; the statistics of live stock are, approximately, as follows: horses, 350,000; cattle, 1,250,000; sheep, 1,900,000; hogs, 450,000.

The exports consist mainly of grain, flour, horses, cattle, hogs, meat, pork, butter, wool, hides and skins, beer, brandy, train oil, etc. The principal imports are iron, coal, salt, sugar, coffee, tea, wood, cotton cloth, tobacco, rice, etc.

Of manufactures, the most important are china ware, terra cotta, tiles, crockery, glass, tobacco, linen, cloth, paper, and soap. There are large woolen mills, sugar refineries, iron foundries, machine shops, dockyards, distilleries, tanneries, etc.; flour mills can be found in all sections of the country. The commerce is not inconsiderable, and Danish joiners' work, gold and silver ware, watches, gloves, terra cotta, etc., find ready sale abroad.

The merchant navy consisted, in 1875, of 2766 sailing vessels of 183,740 registered tons; 114 steamships of 24,323 registered tons, making a total of 2880 vessels of 208,063 registered tons.

The national wealth of Denmark is estimated at 4500 millions of crowns, of which 3,400 millions is real estate and 1100 millions capital, or about 2200 crowns to each individual.

In the 359 savings banks of the country, there were deposited, at the end of 1874, 194,308,902 crowns.

The army numbers, in all, 52,000 men. The navy consists of three iron-clad frigates and eight iron-clad corvettes, carrying 79 guns; three frigates, three corvettes, and five schooners, carrying 136 guns; twelve iron gunboats, carrying 17 guns. Also, transports, etc.

The budget for 1876-77 estimated the revenue at 50,008,843 crowns against an expenditure of 49,885,045 crowns. The public debt, April 1st, 1876, was 181,117,700 crowns against 252,034,396 crowns in 1869. The debt has, in five years, been reduced by more than 80,000,000 crowns.

(The foregoing statistics are furnished by the Danish Commission.)

* The Danish crown = 26 4½ cents, gold.
The length of railways in the kingdom, at the end of 1874, was 1024.5 kilometres, of which 665 belonged to the State and 359.5 to companies.

The work of the post office for the year 1873-74 was 16,487,777 letters, and 15,134,812 newspapers.

The length of telegraph lines, 2545 kilometres; length of wires, 7049 kilometres; number of offices, 174; messages in 1874, 762,609.

Elementary education is widely diffused in Denmark, attendance at schools being obligatory from the age of seven to fourteen. Instruction is furnished gratuitously in the public schools to children whose parents cannot afford to pay for their teaching. Besides the university of Copenhagen, there are thirteen public gymnasia in the principal towns of the kingdom, which afford a classical education, and under them are a large number of middle schools, for the children of the trading and higher working classes. Instruction at the public expense is given in the parochial schools, of which there were, in August, 1869, 28 in Copenhagen, 132 in the towns, and 2780 in the rural districts.

Denmark is a constitutional monarchy. The people are efficiently represented, and have a voice in all public matters. The press is virtually free, and only answerable to law. The national assembly consists of the Folksting and Landsting, and is invested with very extensive powers; it meets annually for two months, but the deputies are elected triennially, and receive a fixed allowance during their sittings. The several colonies are governed by governors or high bailiffs, nominated by and alone responsible to the crown. The king has a privy council, in which there are associated with him the heir-apparent and eight members.

Commission from DENMARK to the International Exhibition:

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Olaf Hansen, United States Vice-Consul, Vice-President.
Joh Hansen, Austrian Consul-General, Treasurer.
Th. Green, Secretary.
C. C. Burmeister, Manufacturer.
V. Christesen, Manufacturer.
V. Fieldskov, Sculptor.
Chas. Hansen, Manufacturer.
Wm. Hammer, Artist.
Chr. Hetsch, Artist.
Thomas Schmidt, Commissioner.
SWEDEN.

Sweden and Norway (Sverige and Norge), two independent kingdoms, but under a common king, form the Scandinavian peninsula, whose shores are washed by the waters of the Gulf of Bothnia, the Baltic, the Sound, the Kattegat, the Skager-Rack, the North Sea, the Atlantic and Arctic Oceans, and is thus completely separated from the mainland, with the exception of its northeastern part. The length of its coast, which is indented with numerous bays and fiords, and protected from the brunt of the sea by innumerable islands and rocks, may be estimated at about 5,200 English miles, each kingdom possessing about one-half. The Scandinavian peninsula, of which Sweden forms the eastern and southern part (58 per cent.), while Norway makes up the rest (42 per cent.), embraces an area of 13,830 geographical square miles (294,000 English square miles). The united kingdoms have a population of rather more than six millions, of which 70 per cent. belong to Sweden, and 30 per cent. to Norway. The statistics of Norway are given elsewhere in this catalogue.

Although Sweden extends northward to latitude 69° 3' 21.1", thus passing beyond the Arctic circle, it reaches southward to latitude 55° 20' 18", coming within the latitude of its neighboring state, Denmark, and even further south than that part of Prussia which projects northward along the eastern shore of the Baltic. The total length of Sweden, from north to south, is about 950 English miles, and the width from 200 to 250 English miles. The observatory of Stockholm lies 18° 3' 29.85" east of Greenwich.

The län (governments or departments) are the largest administrative divisions of the country, and frequently have two names, one of which is derived from the seat of government, the other usually from the old division of the provinces. The geographic division of the kingdom into three parts stands in intimate relation with the old provincial division. The three geographical divisions are as follows: Svealand (the central), Götaland (the southern), and Norrland (the northern); and though the boundaries of the län and the provinces do not quite correspond, the following may on the whole be stated as correct:

Svealand has six provinces: Uppland, Södermanland, Westmanland, Nerike, Värmland, and Dalecarlia (or Dalarno).

Görland has nine provinces: Östergötland, Westergötland, Dalsland, Småland, Götland, Blekinge, Scania or Skåne, Halland, and Bohuslän.

Norrland comprises Gestrickland, Helsingland, Medelpad, Angermanland, Jemtland, Herjedalen, and Westerbotton, together with Lapland.

Lapland, the most northern part of Sweden, bordering on Norway, has an area of about 49,000 English square miles, and, together with Norrland, forms more than one-half the whole area. This vast territory is, of all the Swedish provinces, the least adapted to agriculture, and is but sparsely populated.

In 1874, the population of Sweden was divided among the different län, as follows:

<table>
<thead>
<tr>
<th>NAMES.</th>
<th>POPULATION.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The town of Stockholm,</td>
<td>130,446</td>
</tr>
<tr>
<td>Län of Stockholm,</td>
<td>134,020</td>
</tr>
<tr>
<td>&quot; Uppsala,</td>
<td>103,822</td>
</tr>
<tr>
<td>&quot; Södermanland,</td>
<td>139,216</td>
</tr>
<tr>
<td>&quot; Östergötland,</td>
<td>262,872</td>
</tr>
<tr>
<td>&quot; Jönköping,</td>
<td>186,841</td>
</tr>
<tr>
<td>&quot; Kronoberg,</td>
<td>188,293</td>
</tr>
<tr>
<td>&quot; Kalmar,</td>
<td>238,399</td>
</tr>
<tr>
<td>&quot; Gottland,</td>
<td>54,599</td>
</tr>
<tr>
<td>&quot; Blekinge,</td>
<td>130,921</td>
</tr>
<tr>
<td>&quot; Kristianstad,</td>
<td>228,398</td>
</tr>
<tr>
<td>&quot; Malmöhus,</td>
<td>330,115</td>
</tr>
<tr>
<td>&quot; Halland,</td>
<td>130,802</td>
</tr>
<tr>
<td>&quot; Göteborg, and Bohus,</td>
<td>241,936</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAMES.</th>
<th>POPULATION.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Län of Elsiborg,</td>
<td>285,217</td>
</tr>
<tr>
<td>&quot; Skaraborg,</td>
<td>230,257</td>
</tr>
<tr>
<td>&quot; Värmland,</td>
<td>256,502</td>
</tr>
<tr>
<td>&quot; Örebro,</td>
<td>177,684</td>
</tr>
<tr>
<td>&quot; Westmanland,</td>
<td>121,016</td>
</tr>
<tr>
<td>&quot; Köpperberg,</td>
<td>184,330</td>
</tr>
<tr>
<td>&quot; Gelleborg,</td>
<td>160,478</td>
</tr>
<tr>
<td>&quot; Westennorland,</td>
<td>147,212</td>
</tr>
<tr>
<td>&quot; Jemtland,</td>
<td>74,753</td>
</tr>
<tr>
<td>&quot; Westerbotton,</td>
<td>96,907</td>
</tr>
<tr>
<td>&quot; Norrbotton,</td>
<td>81,667</td>
</tr>
</tbody>
</table>

Total, | 4,341,559 |
The area is stated at 171,749 English square miles.

Sweden is generally less mountainous than Norway, and the highest mountains are found just on the border of that country. The boundary line itself is supposed to run along a mountain chain, which is called by geographers the Kölen, though in reality there is no mountain of that name. The highest mountain in Sweden, Suliteima (6315 Swedish feet above the level of the sea), lies in Lapland, and is the only alpine elevation in Sweden where, as far as is known, glaciers are found, but there are other mountains in these districts, and still further south along the frontier of the kingdom, in Jemtland and Herjedalen, with an elevation of from 4000 to 5000 feet, whose peaks are dotted with patches of snow the whole year round.

About eight per cent. of the area of Sweden is considered to lie upwards of 2000 feet above the level of the sea. Those parts which sometimes extend beyond the tree-line are exclusively in Norrland and Dalarne, and border upon Norway. The coast-line along the Gulf of Bothnia, and the whole of the central and southern parts of Sweden, lie, with few exceptions, lower than 800 feet above the level of the sea. Of the whole area of the kingdom, a third part does not lie 300 feet above the level of the sea, and it is within these lower lying districts that the most highly cultivated parts of the country are found, as well as the largest plains, such as the Uppland, the Ostgöta, the Westgöta, and the Skane plains. With the exception of these, the plains are neither numerous nor large, for, though there are extensive tracts of land which attain a height of only a few hundred feet above the level of the sea, these are generally intersected by numerous hills and valleys.

Sweden, next to Finland, is the best irrigated country in Europe, as her lakes and rivers cover an area of 14,428 English square miles, or 8.4 per cent. of her whole territory, while she has a sea coast of 1500 English miles. The water of the Swedish lakes, as well as that of the rivers, is generally clear and drinkable. Lake Wetter is especially known for its clear, but at the same time turbulent, body of water, as well as for its great depth—420 feet. Of the numerous rivers (or elves) which flow into the Gulf of Bothnia, the Angerman elf is the best known, not only for its volume, but for its natural beauty. The Dal elf, which is usually considered as the dividing line between Norrland and the southern part of Sweden, empties further to the south. On the west coast flows the Göta elf, the outlet of Lake Wener, famed for the Trollhätta waterfall.

Almost every river or stream forms a foaming current or roaring cataract, and there are thousands of them. Even the Trollhätta finds a rival in the Njommel-saska (Hare's Leap), in Lapland. One of the peculiarities of these lakes is that they are sometimes interrupted by an almost perpendicular fall—the water then spreading out, forming a second part of the lake. The nation possesses in these numerous falls an almost inexhaustible water power, which has not, as yet, been utilized to that extent which it might be. This character of the Swedish rivers carries with it, however, the disadvantage of rendering them innavigable, many of the rivers (the Dal elf, for instance) being barred at their very mouths by a fall; and, as a rule, they are navigable only for a mile or two, except for rafts and small boats, unless, as in the case of the Göta elf, they are provided with canals.

The climate of Sweden is mild in comparison to its high latitude, a fact which is attributed to the influence of the Gulf Stream. There are dense forests; and barley and rye mature in the province of Norrland, while its most southern part lies in the same latitude as the ice fields of Greenland, and its northern in that of barren Iceland. The country, extending through so many degrees of latitude, has a great variety of climate. The mean yearly temperature of the northern parts along the coast is 34° F., while that of the southern is 44° to 46° F. The mean yearly temperature of Stockholm is 47° F. The wells which serve as a measure of the earth's temperature, give about the same figures, the average temperature of a deep well in central Sweden being 43° F., while it is not unusual in Lapland to find a deep well covered with ice in midsummer, or a bog, 5 to 6 feet deep, frozen at its bottom; nevertheless,
the cereals and potatoes mature in these districts, for although the summer is short, it is very warm and clear. There can scarcely be said to be any night here during the summer, only a twilight, so that vegetation, even in this high latitude, receives the light and heat necessary for its ripening. The temperature of the southern parts is also subject to very great changes.

The farmers' worst enemy in Sweden is the frost, which in a single clear night, perhaps, after a warm summer day, will destroy his brightest prospects; but it is hoped that the increase of tillage, the draining of the bogs, and like causes, will at least mitigate its severity, if not altogether prevent it. Such severe frosts are very rare in the central and southern parts of Sweden.

(The greater portion of the foregoing was furnished by the Swedish commission.)

Mining is one of the most important departments of Swedish industry, and the working of the iron mines in particular is making constant progress by the introduction of new machinery. There were raised, in the year 1873, 19,458,339 hundredweight of iron ore from mines, besides 126,147 hundredweight from lake and bog. The pig iron produced amounted to 7,087,646 hundredweight, the cast goods to 501,350 hundredweight, the bar iron to 4,125,915 hundredweight, and the steel to 1,290,907 hundredweight. There were also raised, in the same year, 1,660 pounds of silver, 26,152 hundredweight of copper, and 645,631 hundredweight of zinc ore. There are large veins of coal in various parts of Sweden, but no systematic working of them has as yet taken place.

The principal articles of cultivation are, in addition to the various cereals, potatoes, hemp, flax, tobacco, and hops, which are generally grown in sufficient quantities for home consumption. The forests are of great extent, covering nearly one-fourth of the whole surface, and, in some spots, rising to an elevation of 3000 feet above the level of the sea. The birch, fir, pine, and beech are of great importance, not only for the timber, tar, and pitch which they yield, but also for their supplying charcoal and firewood. The common fruit trees, as cherries, apples, and pears, grow as far north as 60°, but the fruit seldom comes to great perfection except in the southern provinces; cranberries and other berries abound in all parts of the country.

In 1870, there were in Sweden, 428,446 horses, 1,965,800 horned cattle, 1,780,000 sheep and goats, and 354,303 swine.

In 1873, there were 25,49 factories, with a production valued at 1,45,869,000 crowns. Mines and mining establishments are not included in these figures. Ship building forms an extensive branch of industry.

According to the "Statesman's Year Book for 1876," the commercial navy of Sweden, at the end of 1873, numbered 1865 registered vessels for foreign trade, of a total burthen of 366,370 tons. The total imports, for the same year, were 271,440,000 riksdalers,† and the exports, 221,904,000.

Sweden is a constitutional monarchy, based on the fundamental law of 1809, by which it was decreed that the succession should be in the male line; that the sovereign should profess the Lutheran faith, and have sworn fidelity to the laws. The diet, which meets every year, and remains sitting for three or four months, is composed of two chambers, which are both elected by the people. The members of the first chamber serve for nine years, and those of the second for three. The diet exercises a strict control over the expenditure of the revenue, fixes the budget, and has power to take cognizance of the acts of the ministers and crown officers. The king's person is inviolable, and he can exercise a veto on the decrees of the diet. He is assisted by a Council of State, composed of ten members, who are responsible to the diet.

The budget estimates for 1875 place the receipts at 64,775,900, and the expenditures at 71,885,798 riksdalers. At the end of October, 1875, the public liabilities of the kingdom were 130,477,920 riksdalers.

* The Swedish crown equals 26.8 cents.  † One riksdaler equals one crown.
The total strength of the armed forces of Sweden, at the end of September, 1875, was 132,775. The navy consists of 131 vessels, of 3183 horse-power, carrying 394 guns, and with crews aggregating 4693.

At the end of September, 1875, the total length of railways opened for traffic was 2237 English miles, of which 938 miles belonged to the State. All the telegraphs, with the exception of those of private railway companies, belong to the State. The total length of telegraph lines, at the end of 1874, was 4951 English miles; the total length of wires, 10,980 English miles. The total number of dispatches sent, in the year 1874, was 986,397.

The Swedish post office carried 16,711,100 letters in the year 1873. The number of post offices, at the end of the year, was 641.

Education is well advanced in Sweden. Public instruction is gratuitous and compulsory, and children not attending schools under the supervision of the government must furnish proofs of having been privately educated. In the year 1871 nearly 97 per cent. of all the children between eight and fifteen years visited the public schools.

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F. L. VON DARDEL, Director-General Board of Public Buildings
CH. DICKSON, M.D.
BARON A. H. E. FOCK, Chief of Board of Controls.
F. W. SCHOLANDER, Professor, Academy of Fine Arts.
C. F. LUNDTROM, Manufacturer.
N. H. ELFVING, Consul-General.
S. STENBERG, Professor, Carolinian Medico-Chirurgical Institution.
A. R. AKERMAN, Professor School of Mines.
J. BOLINDER, Manufacturer.
J. LENNING, Manufacturer.
C. L. LUNDTROM, Manufacturer.
C. G. BREITHOLTZ, Colonel of Artillery.
K. PEYRON, Captain in the Navy, Chamberlain.
F. WIDMARK, Chief of the Board of Public Education.
H. WIDEGREN, Superintendent of Fisheries.
P. E. SIDENBLADH, Secretary of the Central Board of Statistics.
V. NORMAN, Captain of Engineers, Secretary.

Resident Commissioners in Philadelphia:

C. JUHLIN DANNFELT, Commissioner-General.
CHARLES BILD, Chamberlain, Assistant Commissioner.
L. WESTERGAARD, Consul, Assistant Commissioner.
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DR. WM. P. HEADDEN, Ph., Assistant Secretary.
W. HOFFSTEDT, Engineer, Secretary of the Judges.
M. ISAÆUS, Architect.
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E. BRUSEWITZ, Engineer, Metallurgical Department.
BARON O. HERMELIN, Fine Art Department.
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NORWAY.

NORWAY, the western portion of the Scandinavian peninsula, is situated between 57° 58' and 71° 10' north latitude, and between 5° and 28° east longitude. It is bounded to the east by Sweden and Russia, and on every other side is surrounded by water, having the Skagerrak to the south, the German Ocean to the west, and the Arctic Sea to the north. Its length is about 1,100 miles, and its greatest width about 250 miles; but between the latitudes of 67° and 68° it measures little more than 25 miles in breadth. The area is given as 121,779 square miles, and the population as 1,800,000. Only 1.6 per cent. of the whole area can be cultivated; natural pastures occupy about 1.5 per cent.; forests, about 20.2 per cent.; mountains, glaciers, lakes, rivers, and land, etc., about 76.7 per cent. The whole of the Scandinavian peninsula consists of a connected mountain mass, which, in the southern and western parts of Norway, constitutes one continuous tract of rocky highlands, with steep declivities dipping into the sea, and only here and there broken by narrow tracts of arable land. South of Trondjem (63° north latitude) the rocky ridge expands nearly the entire breadth of Norway. The northern portions of the range, known as the Kiöllen Fielle, occupy a space of about 25 miles in width, and form, as far north as 69°, the boundary line between Sweden and Norway. South of 63° north latitude the range of the Scandinavian mountains is known as the Norske, or Dovre Fielle, although the latter name belongs properly only to the part immediately in contact with the Kiöllen. This range, about 360 miles in length, attains its greatest elevation at the Sogne Fjord, where it is known as the Hurungerne. Here the highest summits are 8,000 and 8,400 feet above the sea, while the contiguous snowfields of Justedal, the largest in Europe, and covering an area of 600 square miles, have probably an elevation of nearly 7,000 feet. From these and other vast snowfields, averaging more than 10 miles in width, vast glaciers descend to within 2,000 feet above the sea, where they often terminate in deep lakes, some of which are very extensive. The upper valleys of this range, although generally too high for cultivation, contain the best timber that is exported from Norway, and afford good pasturage in the height of the summer, when the flocks and herds are driven thither from the lowlands near the entrance of the fjords. The general elevation of the Norska Fielle does not rise above the line of perpetual snow, whose average height in these latitudes is 5,000 feet, but it ranges above that of the growth of trees, which may be stated to lie 1,000 feet lower. The most northern part of the Norska Fielle, which is known as the Dovrefiel, and includes Sneehällen, nearly 7,500 feet above the sea, presents a broken surface, rent with ravines and narrow valleys, which admit of cultivation, but are difficult of access from the configuration of the land around them.

The Scandinavian range consists principally of primitive and transition rock, and exhibits almost everywhere the effect of glacial action, the glaciers and moraines presenting the same appearances as in the Swiss alpine district. The numerous islands which skirt the coast of Norway, and must be regarded as portions of the range, present the same characters as the continental mass. Some of these, as the islands of Alsten and Dunloe, rise perpendicularly from the sea with peaks penetrating beyond the snowline, which lies here at an elevation of 4,000 feet. Norway abounds in lakes and streams; according to some topographers, there are upwards of 30,000 of the
former, of which the majority are small, while none have an area exceeding 400 square miles. The chief rivers of Norway are the Glommen, Lougen, Louven, Drammen, Otter, and Wormen. The first of these has a course of 400 miles, but the majority of the Norwegian streams, all of which rise at great elevations, have a comparatively short course, and are unfit for navigation, although they are extensively used to float down timber to the fjords, whence the wood is exported in native ships to foreign ports. These fjords, or inlets of the sea, which form so characteristic a feature of Norwegian scenery, and give with their various sinuosities a coast-line of upwards of 8000 miles, form the outlet to numerous rapid streams and waterfalls, which leap or trickle down the edges of the treeless fields or mountain flats above.

The peculiar physical character of Norway necessarily gives rise to great varieties of climate in different parts of the country. The influence of the sea and of the Gulf Stream, and the penetration into the interior of deep inlets, greatly modify the severity of the climate on the western shores, and render it far superior to that of the other Scandinavian countries in the same latitude. In Norway proper, the winters, as a rule, are long and cold, and the summers, which rapidly follow the melting of the snows in April and May, are warm and pleasant. On the islands, however, the heats of summer are often insufficient to ripen corn.

Norway had, in 1875, 150,000 horses, 950,000 oxen and cows, 1,710,000 sheep and goats, 110,000 pigs, and 102,000 reindeer. The value of the annual product is about $25,000,000.

The principal cereals cultivated in Norway are oats, barley, corn, rye, and wheat; the yearly produce is about 11,150,000 bushels, besides 14,100,000 bushels of potatoes. The value of the harvest amounts to about $16,000,000 per annum.

The products of agriculture and cattle-breeding being insufficient to supply the wants of the country, considerable quantities are imported.

Forestry is of great importance. As stated above, the forests of Norway cover more than one-fifth of its entire area. They supply considerable quantities of timber, both for home consumption and exportation. The average annual exports of timber amount to about $16,000,000.

The fisheries of Norway employ about 27,000 men, and yield about $16,000,000 per annum. They are of great importance, and not only yield one of the most important articles of home consumption, but at the same time constitute one of the most profitable sources of foreign export. Fish are caught in almost every stream and lake of the interior, as well as in the fjords of the coast, and in the bays and channels which encircle the numerous islands skirting the long sea-line of Norway. These fish are principally cod and herring. Cod, prepared as stock-fish or dried salt fish, is exported to Spain and Italy; herring to the Baltic ports.

The merchant marine of Norway had, in 1875, a tonnage of 1,220,000, and was manned by 53,000 seamen.

The following statistics apply to the exports and imports of Norway in 1873:

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of goods exported</td>
<td>$33,000,000</td>
</tr>
<tr>
<td>Gross freight of goods carried in Norwegian vessels</td>
<td>28,400,000</td>
</tr>
</tbody>
</table>
| Receipts from various sources           | 800,000       | $62,200,000
| Value of goods imported                 | $45,800,000   |
| Expenses of Norwegian vessels in foreign countries | 11,400,000   |
| Other expenses                          | 2,400,000     | 59,600,000
| Balance                                 | $2,600,000    |

The principal articles of export were, in 1873: Products of the fisheries, $11,600,000; of forestry, $15,500,000; of agriculture and cattle-breeding, $1,300,000; metals and minerals, $1,800,000; textile fabrics, $660,000.
The imports were principally: Articles of food, $13,500,000; coffee, $3,500,000; liquors, $1,000,000; textile fabrics and dry goods, $8,300,000; hardware, $3,300,000; hides, $1,200,000; coal, $1,700,000; vessels, $4,400,000.

Manufactures have made some progress during the last few years, but are, as yet, inconsiderable. About 32,000 persons are employed, mainly in sawmills, planing mills, brick factories, shipbuilding, and metallurgical and textile industries.

The mineral products comprise silver, copper, cobalt, iron, chrome, ironstone, etc., and yield an annual income of nearly $1,000,000.

Education is compulsory, parents being bound to let their children, between the ages of seven and fourteen, receive public instruction; 241,000 children attend the common schools, and 16,500 receive a higher instruction. The expenses of the higher schools were, in 1873, $827,000.

The public revenue, in 1873, was $6,870,000, and the expenditures $7,277,000, of which amount $865,000 was for the construction of railways. The public debt amounts to $9,200,000.

Norway has 12,432 miles of highways and district roads, 304 miles of railways, and 147 miles of canals. There are 719 post offices, which distribute 7,500,000 letters per annum.

(The foregoing statistics are furnished by the Norwegian Commission.)

According to "Martin's Year Book," there were, at the end of 1873, telegraph lines of the length of 3745 miles, and wires of the length of 5845 miles.

The government of Norway is a constitutional monarchy. The executive is represented by the king, who exercises his authority through a Council of State, composed of one minister of state and nine councillors. The legislative power of the realm is the Storting, or Great Court, the representative of the sovereign people.

On the 1st of January, 1874, the troops of the land numbered 13,000 men. The reserve forces at the same time numbered 19,000, and the landwaern 11,000 men. The naval force comprised, at the same date, twenty vessels, all steamers, with an armament of 149 guns.

Commission from Norway to the International Exhibition:

Herman Baars.

Wm. C. Christophersen.

Gerhard Gade, U. S. Consul.
ITALY.

The geographical territory comprised under the name of Italy consists of a considerable stretch of peninsular mainland, besides several islands, situated in Southern Europe, between latitude 36° 35' and 47° north, and between longitude 6° 35' and 18° 35' east. From the southern extremity of Sicily to the Alps its maximum length is about 600 miles, its utmost breadth being 300 miles. Its boundaries on the north are Austria and Switzerland, on the south the Mediterranean, on the west France and the Mediterranean, and on the east the Ionian and Adriatic seas, while its natural limits are strongly defined by the Alps and the sea.

The first general census of the kingdom of Italy was taken by the government on the 31st of December, 1871, on which date the population numbered 26,795,073 souls, living on an area of 296,013 square chilos, or 112,677 English square miles. The density of population was 237 per English square mile.

The kingdom of Italy is administratively divided in 69 provinces, as follows:

### PIEDMONT AND LIGURIA.

1. Alessandria, .......... 683,361
2. Cuneo, ................ 617,232
3. Genoa, ............... 716,284
4. Novara, ............... 624,969
5. Porto Maurizio, ....... 127,042
6. Turin, ................. 972,988

---

7. Cagliari, .............. 392,981
8. Sassari, ............... 243,274

---

### ISLAND OF SARDINIA.

7. Cagliari, .............. 392,981
8. Sassari, ............... 243,274

---

### LOMBARDY.

9. Bergamo, .............. 368,152
10. Brescia, .............. 456,023
11. Como, ................ 477,642
12. Cremona, ............. 300,595
13. Milan, ............... 1,009,794
14. Pavia, ............... 448,357
15. Sondrio, ............. 111,240

---

### EMILIA.

17. Ferrara, .............. 216,545
18. Forli, ................. 234,090
19. Massa Carrare, ....... 161,944
20. Modena, ............... 273,231
21. Parma, ............... 264,509
22. Piacenza, ............. 225,775
23. Ravenna, ............. 220,801
24. Reggio, ............... 240,635

---

The total population is 3,741,876 for Piedmont and Liguria; 636,255 for Island of Sardinia; 3,171,803 for Lombardy; and 2,276,762 for Emilia.
THE MARCHES.
25. Ancona, 262,369
26. Ascoli Piceno, 203,008
27. Macerata, 236,994
28. Pesaro e Urbino, 213,072

UMBRIA.
29. Perugia, 549,833

TUSCANY.
31. Arezzo, 234,645
31. Florence, 766,611
32. Grosseto, 107,457
33. Leghorn, 118,851
34. Lucca, 280,399
35. Pisa, 265,959
36. Sienna, 206,446

NEAPOLITAN PROVINCES.
37. Aquila, 332,782
38. Avellino, 375,237
39. Bari, 604,540
40. Benevento, 232,012
41. Campobasso, 354,813
42. Caserta, 605,754
43. Catanzaro, 412,226
44. Chisti, 340,299
45. Cosenza, 449,272
46. Foggia, 322,754
47. Lecce, 493,574
48. Naples, 908,029
49. Potenza, 509,202
50. Reggio, 353,606
51. Salerno, 541,739
52. Teramo, 245,684

SICILY.
53. Caltanissetta, 230,666
54. Catania, 455,240
55. Girgenti, 280,018
56. Messina, 420,649
57. Palermo, 617,660
58. Siracusa, 294,915
59. Trapani, 236,388

VENETIA.
60. Belluno, 175,370
61. Mantua, 288,942
62. Padua, 364,355
63. Rovigo, 200,835
64. Treviso, 354,538
65. Udine, 481,787
66. Venezia, 337,539
67. Verona, 367,426
68. Vicenza, 363,161

69. ROME, 836,291
According to the old political division, the population is divided as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piedmont and Liguria</td>
<td>3,741,876</td>
</tr>
<tr>
<td>Island of Sardinia</td>
<td>636,255</td>
</tr>
<tr>
<td>Lombardy</td>
<td>3,171,803</td>
</tr>
<tr>
<td>Emilia</td>
<td>2,276,762</td>
</tr>
<tr>
<td>The Marches</td>
<td>915,443</td>
</tr>
<tr>
<td>Umbria</td>
<td>549,833</td>
</tr>
<tr>
<td>Tuscany</td>
<td>1,980,368</td>
</tr>
<tr>
<td>Neapolitan Provinces</td>
<td>7,177,553</td>
</tr>
<tr>
<td>Sicily</td>
<td>2,585,936</td>
</tr>
<tr>
<td>Venice</td>
<td>2,034,953</td>
</tr>
<tr>
<td>Rome (States of the Church)</td>
<td>836,291</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>26,796,073</strong></td>
</tr>
</tbody>
</table>

The physical aspect presented by the surface of Italy is diversified in the extreme. Northern Italy is, for the most part, composed of one great plain—the basin of the Po, comprising all Lombardy and a considerable portion of Piedmont and Venice, bounded on the northwest and partly on the south by different alpine ranges. Throughout Central Italy, the great Apennine chain gives a picturesque irregularity to the physical configuration of the country, which in the southern extremity of Italy assumes still wilder forms. In the highland districts of Naples in which the Apennine ridge reaches its maximum elevation (10,000 feet), the scenery exhibits a savage grandeur. Along the extensive coast plains, as well as in the sub-Apennine valleys, the rural charms of this portion of Italy are extreme, while the brilliant flora and vegetation impart to it a novel character of beauty. The chief mountain system of Italy is the frontier ridge of the Alps, and their noble continuation, the Apennines. Italy likewise comprises a considerable stretch of volcanic zone, which traverses the peninsula from the centre to the south in a line parallel with that of the Apennines, and of which the most remarkable active summits are Vesuvius, adjoining Naples, 

The great plains of Italy are those of Lombardy, which stretch from the Mincio to the Ticino and the Po; of Piedmont; the Venetian plains; the plain of the Roman legations; the plain of the Campo Felice, on which stands Vesuvius; the Apulian plain; the long, narrow Neapolitan plain of the Basilicata, 100 miles in length, and 24 miles in breadth, stretching along the Gulf of Tarento. The great majority of the rivers of Italy are only navigable for small coasting boats or barges. By far the most important is the Po, which rises on the borders of France, and flows into the Adriatic. It has numerous tributaries. Among the others may be mentioned the Adige, Brenta, Piave, Tagliamento, Aterno, Sangro, Metauro, Ofanto, Bradano, also belonging to the Adriatic basin; the Arno, the Tiber, the Ombrone, the Garigliano, and the Volturno, which belong to the Mediterranean basin.

The canal system of Italy is most extensive in the north. Nine principal canals in Lombardy administer to the irrigation of the plains and to the purposes of commercial communication, contributing in no small degree to the prosperity of the district. The Naviglio Grande or Ticinello is the finest hydraulic construction in Italy; it communicates between the Ticino and Milan, and has a course of 28 miles, navigable for vessels of large size. It was begun in 1179. The Naviglio Martesana, 38 miles long, unites Concesa on the Adea with Milan; the Naviglio di Pavia is 18 miles in length; the bifurcated Naviglio d'Ostiglia unites the Po with the Adige. 253 canals intersect Piedmont, extending over a length of 1932 kilometres. Venice comprises 203 navigable, and 40 minor canals. Numerous canals have been constructed for the drainage of the Pontine Marshes. This system of water communication was early carried to a high degree of efficiency in Italy, and is of incalculable service in the agricultural districts.
The mountain lakes of Italy are famed for their picturesque beauty. They are mostly in the northern provinces of Lombardy and Venetia. The principal are Maggiore, Lugano, Como, Iseo, and Garda. The Roman lakes of Perugia, Bolseno, and Bracciano, that of Castiglione in Tuscany, and Celano in Naples, also deserve mention.

The mineral and thermal springs of Italy are innumerable, and possess a great variety of curative and sanitary properties.

In the northern provinces, the climate is temperate, salubrious, and frequently severe in winter; in the centre, it assumes a more genial and sunny character: while the heat of the southern extremity is almost of a tropical intensity. The singular clearness of the atmosphere sets off the landscape and monumental beauties of Italy with brilliant effect. The drawbacks of Italy’s climate are the piercing tramontana or mountain winds; the deadly sirocco, which blights all nature at seasons along the western coast; and the malaria or noxious miasmata which issues from the Maremma of Tuscany, the Pontine Marshes, and the Venetian lagoons, generating pestilential fevers and aguish diseases in the summer season. The mean temperature of the leading divisions of the country throughout a whole year was as follows: Milan, 55° 4' of Fahrenheit’s scale; Rome, 59°; Palermo, 62° 5'; and in Sardinia, 60° 5'. The highest temperature at Rome rises to 95°, and in Sicily from 97° to 104°.

The staple products of Italy are corn, wine, oil, raw silk, rice, olives, and fruits. Hemp, flax, and cotton are also largely grown. The sugar-cane is successfully cultivated in the two Sicilies. Agriculture, except in the north, is in a very backward condition. It is calculated that only two-thirds of the area of the kingdom capable of production are cultivated, and that the rest lies waste. The superficial extent of the productive soil of Italy is 23,017,096 ellaras,\(^*\) divided thus:

<table>
<thead>
<tr>
<th>Ellaras</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Arable land,</td>
<td>11,003,061</td>
</tr>
<tr>
<td>Meadow land,</td>
<td>1,173,436</td>
</tr>
<tr>
<td>Rice ground,</td>
<td>1,444,903</td>
</tr>
<tr>
<td>Olive plantations,</td>
<td>554,767</td>
</tr>
<tr>
<td>Cheesnut plantations,</td>
<td>525,132</td>
</tr>
<tr>
<td>Woods and forests,</td>
<td>4,158,349</td>
</tr>
<tr>
<td>Pastures,</td>
<td>5,397,443</td>
</tr>
<tr>
<td>Total,</td>
<td>23,017,096</td>
</tr>
</tbody>
</table>

There are, besides, 3,997,059 ellaras of rock and marsh.\(^*\) Of the land capable of cultivation, more than half is devoted to the growth of cereals, mainly wheat. The average crop is insufficient for the supply of the country. The wines of Naples are esteemed the best, small quantities of the famous *Lachrima Christi* and the *Vind d’Asti* being exported, while the Sicilian wines of Marsala form a considerable item of export. The best oil and olives are furnished by Tuscany, Lucca, and Naples. Silk is chiefly manufactured in the northern provinces, the cultivation of the mulberry and the rearing of the silkworm forming, in Lombardy, a most important interest. The best manufactured silk comes from Piedmont, Tuscany, and the Roman provinces. The fruits of the two Sicilies are exquisite in flavor, and embrace several tropical species. Oranges, lemons, almonds, figs, dates, melons, and the pistachio nut, are common to all orchards, and are largely exported. A considerable cheese trade exists in the northern provinces.

The sea and fresh water fisheries of Italy are considerable, the Mediterranean furnishing immense quantities of tunny, anchovies, sardines, mullets, polchards, and mackerel. The export of anchovies and of sardines is of immense extent. The

\(^*\) One ellara equals 2.47 acres.
river fisheries yield salmon, trout, sturgeon, lampreys, tench, barbel, etc. The crustaceans and shell fish of the Italian seas are of great variety and delicate flavor, and are a favorite article of Italian consumption.

The total exports of the kingdom, during the year 1874, were 1,304,994,328 lire;* the imports, during the same year, 985,458,532 lire.

The number and tonnage of merchant vessels belonging to the kingdom, on January 1st, 1874, were as follows: 17,562 sailing vessels, aggregating 925,337 tons burden; and 103 steamers, of a total burthen of 24,476 tons. Of the sailing vessels, 9074 were under 6 tons each.

According to the present constitution of Italy, the executive power belongs exclusively to the sovereign, and is exercised by him through responsible ministers. The legislative authority vests jointly in the king and parliament, the latter consisting of two chambers, a Senate and a Chamber of Deputies. The Senate is composed of the princes of the royal house who are of age, and of an unlimited number of members, above forty years old, who are nominated by the king for life; a condition of the nomination being that the person should either fill a high office, or have acquired fame in science, literature, or any other pursuit tending to the benefit of the nation: or, finally, should pay taxes to the annual amount of 3000 lire. The members of the Chamber of Deputies are elected by a majority of all citizens who are twenty-five years of age and pay taxes to the amount of 40 lire. A deputy must be thirty years old, and must have the requisites demanded by the electoral law, among them a slight property qualification. Neither senators nor deputies receive any salary.

The following are the budget estimates for 1875:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated revenue</td>
<td>1,344,164,158 lire</td>
</tr>
<tr>
<td>Estimated expenditures</td>
<td>1,575,487,130</td>
</tr>
</tbody>
</table>

The entire public debt, at the end of 1873, was 9,757,613,267 lire.

The actual strength of the army, at the end of December, 1873, was:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of men under arms</td>
<td>199,557</td>
</tr>
<tr>
<td>Number of men on unlimited furlough</td>
<td>244,952</td>
</tr>
</tbody>
</table>

Total (war footing), 444,509

The navy, at the commencement of 1875, consisted of 95 ships of war, carrying 1256 guns. Of these, 9 were ironclads, carrying 346 guns, 46 were screw steamers, carrying 693 guns, and 32 paddle steamers, carrying 113 guns.

The total length of railways opened for traffic, at the end of 1874, was 4607 English miles.

The number of post offices at the commencement of 1874 was 2709. In the year 1873 the post office carried 504,402,431 letters and 94,402,596 printed parcels.

The length of telegraphic lines, on the 1st of January, 1874, was 12,622 English miles, nearly two-thirds of the whole belonging to the government. There were, at the same date, 1408 telegraphic offices. The number of private telegrams during 1873 was 4,670,090, and of official telegrams, 163,852.

Under the new Italian government, a great part of the property confiscated from the monastic establishments has been devoted to the cause of public education. In addition to this, the Parliament votes an annual credit of 15,000,000 lire for the same purpose. Since the commencement of the year 1860 there were opened throughout the kingdom thirty-three model schools. Notwithstanding these important aids to instruction, education still stands very low. According to the census of 1864, out of a total population of 21,703,710 souls, there were about 17,000,000 who could neither read nor write. Piedmont occupied the first place, Sicily the last, on the register of knowledge. In the Basilicata, Calabria, and Sicily, more than nine-tenths of the population could neither read nor write.

* One lire equals 19.3 cents gold.
There are twenty-two universities in Italy, many of them of ancient foundation. By a decree of the Minister of Public Instruction, issued in 1871, six high-schools—Naples, Pavia, Turin, Bologna, Florence, and Parma—were declared first-class universities of the kingdom. The number of students at all the universities was returned as 10,524 in 1871.

Commission from ITALY to the International Exhibition:

H. E. BARON BLANC, Minister Plenipotentiary.
COUNT B. LITTA, First Secretary of Legation.
CHEVALIER ALONZO M. VITI, Vice-Consul.
A. PADOVANI, President of the Central Committee.
JOSEPH DASSI.
N. CANTALAMESSA PAPOTTI.
PIO BACCARANI.
G. VIGNA DEL FERRO.
G. CONARI.
ANGELO GIANELLO, General Agent.
EGYPT.

The territories under the rule of the sovereign of Egypt, including those on
the Upper Nile and Central Africa, are vaguely estimated to embrace an area of
4,777,830 square kilometres, and to be inhabited by a population of 16,952,000, of
whom about one-third are in Egypt proper. The following tabular statement gives
the area and population of the various divisions of the kingdom, and its recent an-
nexation, according to government estimate, of the year 1875:

<table>
<thead>
<tr>
<th>DIVISIONS</th>
<th>AREA, SQ. KILOMETRES</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt proper.</td>
<td>539,630</td>
<td>5,252,000</td>
</tr>
<tr>
<td>Nubia.</td>
<td>864,500</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Former kingdom of Ethiopia.</td>
<td>2,918,000</td>
<td>5,000,000</td>
</tr>
</tbody>
</table>
| Darfur, and other annexed territo-
 ries.                          | 444,700              | 5,700,000      |
|                                 | 4,777,830            | 16,952,000     |

The great physical peculiarity of Egypt is the absence of rain, the land being only
irrigated by the annual overflow of the Nile. The climate is remarkably mild and
sound, especially south of the Delta; and in the desert, from Cairo to Alexandria,
the air contains more moisture than to the south. From the middle of August to
December, west winds prevail; east winds from that time till March; after that, un-
healthy south winds or Khamsin till June; and from June till August the north or
Etesian winds. Earthquakes are occasionally felt, and the temperature varies from
84° F. to 32°. The most remarkable phenomenon is, however, the regular increase
of the Nile, fed by the fall of the tropical rains, which commence in 11° north lati-
tude, in the spring; and falling first into the White, and then Blue Nile, reach
Egypt in the middle, and the Delta in the end of June. In the middle of July, the
red water appears, and the rise may be dated from that time; it attains its max-
imum at the end of September, and begins to decline visibly in the middle of Octo-
ber, and subsides to its minimum in April. At the end of November, the irrigated
land has dried, and is sown, and is covered with green crops, which last till the end
of February. In March is the harvest. The state of the Nile, in fact, marks the
season more accurately than the variation of temperature. Egypt is by no means
remarkably healthy, as, in addition to the visitations of plague and cholera, ophthal-
mia, diarrhoea, dysentery, and boils often prevail, and European, and even Negro
races cannot be acclimatized.

Many of the European trees and plants are found in Egypt; the date-palm, the
doom-palm, the sycamore, acacias, tamarisks, etc., are among its more peculiar
botanical productions. The extensive culture of papyrus has been, in modern
times, replaced by that of the sugar-cane, cotton, indigo, and tobacco, and the
plant has almost disappeared. Gourds and melons have always abounded. To
the wheat and barley of antiquity have been added maize and durra. Egypt is
very deficient in timber trees. The rocks of Egypt afforded the stones used in its
edifices and sculptures; granite, syenite, breccia (in the Cossier Rood), porphyry
(from the quarries of Gebel Dokhan, opened in the reign of the Emperor Claudius),
sandstone, and limestone. Alabaster (found at Middle Egypt) has been used from the earliest periods to the present day. Emeralds are produced by the mines of Gebel Zabara; salt, natron, and—since 1850—sulphur, are among the other mineral productions of Egypt.

Egypt proper is divided into three great districts, namely: Masr-el-Bahri, or Lower Egypt; El-Wustani, or Middle Egypt; and El-Said, or Upper Egypt—designations drawn from the course of the river Nile. These three geographical districts, subdivided into eleven administrative provinces, had, according to an enumeration made by the government in March, 1872, a rural population of 4,603,660, and an urban population of 648,340, dispersed over six towns, as follows:

<table>
<thead>
<tr>
<th>Town</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cairo</td>
<td>349,983</td>
</tr>
<tr>
<td>Alexandria</td>
<td>212,054</td>
</tr>
<tr>
<td>Damietta</td>
<td>29,383</td>
</tr>
<tr>
<td>Tanta</td>
<td>28,500</td>
</tr>
<tr>
<td>Rosetta</td>
<td>15,002</td>
</tr>
<tr>
<td>Suez</td>
<td>13,498</td>
</tr>
</tbody>
</table>

The Khedive is absolute sovereign or king. The administration is carried on by a Council of State of four military and four civil dignitaries.

The revenue of Egypt for the financial year ending September 10th, 1874, was calculated in the official budget at £1,982,394 purses;* the expenditures at £1,763,128 purses.

The public debt of Egypt consists chiefly of foreign loans. These are divided into two classes, namely, general loans, contracted by the State, and loans of the Khedive, as greatest of land-owners, raised on his individual responsibility.

The following table shows the actual state of the debt:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funded debt</td>
<td>£49,270,380</td>
</tr>
<tr>
<td>Floating debt</td>
<td>7,600,000</td>
</tr>
<tr>
<td>Personal debt of the Khedive</td>
<td>13,174,350</td>
</tr>
<tr>
<td>Total</td>
<td>£70,044,740</td>
</tr>
</tbody>
</table>

The army is raised by conscription. It consisted, in January, 1875, of four regiments of infantry, of 3000 men each; of a battalion of chasseurs, of 1000 men; of 3500 cavalry, 1500 artillery, and two battalions of engineers, of 1500 each. There are, besides, two regiments of black troops, of Sudan, numbering 5000 men.

The Egyptian navy comprised, in 1875, 7 ships of the line, 6 frigates, 9 corvettes, 7 brigs, 18 gunboats and smaller vessels, and 27 transports.

The commerce of Egypt is very large, but consists, to some extent, of goods carried in transit. The total exports for the year 1873 amounted to about 1,450,000,000 piastres; the imports to about 600,000,000 piastres. The merchant navy, in 1872, comprised 585 vessels of a total burden of 59,874 tons.

The commerce of the world has been greatly benefited by the Suez Canal, which connects the Mediterranean with the Red Sea. Starting from Port Said, forty miles east of the Damietta mouth of the Nile, it proceeds across the isthmus and through lakes Menzaleh, El Ballah, and Timsah, on the shores of which latter stands the new town of Ismailia, and through the Bitter lakes to Suez. Its total length is 92 miles. Its actual width over the greater part of its length, does not permit of two vessels passing or crossing each other in the canal itself; but there are numerous sidings, by which vessels are enabled to cross one another; vessels measuring 430 feet in length and drawing 25 feet 9 inches of water have passed safely through the canal. Its actual cost, according to the report for the year 1875, was £17,518,729, exclusive of £1,360,000 bonds issued to pay for coupons on shares in arrear during part of the period of construction.

* 1 purse = 500 piastres = £25 gold
The number and tonnage of vessels which passed through the canal in each of the five years, 1870 to 1874, were as follows:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>VESSELS</th>
<th>TONNAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1870</td>
<td>491</td>
<td>436,618</td>
</tr>
<tr>
<td>1871</td>
<td>761</td>
<td>761,875</td>
</tr>
<tr>
<td>1872</td>
<td>1082</td>
<td>1,439,169</td>
</tr>
<tr>
<td>1873</td>
<td>1171</td>
<td>2,085,270</td>
</tr>
<tr>
<td>1874</td>
<td>1264</td>
<td>2,423,672</td>
</tr>
</tbody>
</table>

Egypt had, on the 1st of January, 1875, a railway system of a total length of 955 English miles, open for traffic, with 502 miles under construction. With the exception of a short line of about 5 miles, all of the Egyptian railways are State property.

The telegraphs of Egypt were, at the commencement of 1875, of a total length of 4094 miles, the length of wires being 8690 miles. The whole of the telegraphs are State property.

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Commission from Egypt to the International Exhibition:

His Highness, Prince Mohammed Tawfic Pacha, President.
His Excellency, Raghib Pacha, Minister of Commerce, Vice-President.
H. Brugsch Bey, Commissioner-General.

Commissioners.

General Stone.
M. Mahmoud Bey, Astronomer.
M. Mariette Bey, Director of the Museums of Antiquities.
M. Gastinel Bey, Professor in the Medical School.
M. Rogers, Director in the Ministry of Public Instruction.
M. Acton, Chief of Division, Ministry of Commerce.
M. Baudry, Architect.
M. Delchevalerie, Attaché.

Resident Members in Philadelphia.

H. Brugsch Bey, Commissioner-General.
E. Brugsch, Chief of Transportation and Installation.
A. Behmersd, Attaché, Secretary.
Edward Elias, Secretary and Interpreter.
M. Daninos, Attaché for Special Mission.
TUNIS.

TUNIS, a country of Africa, and one of the Barbary States, is bounded on the north by the Mediterranean, on the west by Algeria, on the south by the Desert, and on the east by Tripoli and the Mediterranean. Its greatest length from north to south is about 440 miles; its average breadth, 160; area, upwards of 75,000 square miles; population, according to latest authorities, 1,200,000. Tunis is traversed by branches of the great Atlas range, which, in fact, has its proper termination here. The northern coast is rocky and steep, with numerous bays, of which the largest is the Gulf of Tunis; and two of its promontories, Capes Blanco (Ras-el-Abid) and Bon, are the most northern in Africa. The eastern coast, on the other hand, is flat, sandy, and infertile, like that of Tripoli, but has two large gulfs, Hammamet and Cabes. The southern part of Tunis belongs to the desert steppe known as Belud-el-Jerid. There is only one fresh water lake of any consequence, that of Biserta or Bensart, near the north coast. The brooks and torrents of Tunis either lose themselves in the sand, or find their way to the sea after a short course. None are navigable. The longest is the Mejerdah, which flows in a generally northeastern direction into the Gulf of Tunis. Other streams are the Ved-el-Milianah and the Ved-el-Kebir. There are several mineral springs in the country. The climate of Tunis is fine, and the soil exceedingly fertile, so that, in spite of a very poor knowledge of agriculture, wheat, barley, maize, dhurra, pulse, olives, oranges, figs, grapes, pomegranates, almonds, and dates are abundantly produced. The culture of oil is more attended to, and is very lucrative. Great herds of cattle are fed on the plains; the sheep are famous for their wool; and the horses and dromedaries are no less celebrated. The chief mineral products are sea-salt, saltpetre, lead ore, and quicksilver. In the vicinity of the sea-costs, considerable manufacturing and trading industry is manifested, more particularly in the cities of Tunis and Susa. Wool, olive oil, wax, honey, soap, hides, coral, sponges, dates, wheat, and barley are the principal exports. Cloth, leather, silks, muslins, spices, cochineal, and arms are transported by means of caravans to the interior of Africa, whence in exchange are brought for exportation to European and other countries, senna, gums, ostrich feathers, gold, and ivory. Total exports in 1874, valued at 28,315,358 francs; imports, 25,193,785 francs. During the same year the entries at the port of Tunis (Goulette) were 779 vessels, 116,927 tons burthen; deparries, 768, of 168,031 tons burthen.

The Bey of Tunis receives his investiture from Constantinople; without the Sultan's authority he can neither declare war, conclude peace, nor cede territory; the Sultan's name must appear on all the coinage; the army must be at the disposal of the Sublime Porte. In internal matters the power of the Bey remains absolute.

The Tunisian army comprises about 4000 regulars, 5000 Karouglis (descendants of the Turkish janissaries), 5000 Zouaves (infantry), and 1500 spahis (cavalry). In time of war the irregular cavalry can be increased to about 3000. The navy consists of two vessels, carrying 10 guns, and crews aggregating 250 men. The merchant navy comprises 300 vessels, ranging from 10 to 150 tons burthen.

There are about forty miles of railways in operation. There is at Tunis, a French, and also an Italian post office.

French telegraph lines connect the city of Tunis with various towns within the borders of the regency, as well as with Algiers and Europe.

Commission from TUNIS to the International Exhibition:

His Excellency Sidi Heussein, General of Division, Minister of Instruction and Public Works, President.

G. H. Heap, U. S. Consul, Resident Commissioner.
ORANGE FREE STATE.

The republic of the Orange Free State is situated on the northeast boundary of Cape Colony, and is bounded as follows: On the west and northwest by the territory claimed for the chief, Nicholas Waterboer, under the name of Griqualand West, and by Betschuanaland, respectively, on the north and northeast by the Transvaal republic, on the east by the colony of Natal, and on the south by British Basutoland, the Native Reserve Lands, and the Cape Colonial divisions of Albert and Colesberg.

Its area is roughly taken to be about 70,000 square miles, but no accurate computation has hitherto been made, and the probability is that the actual extent will be found considerably greater.

The country consists of extensive undulating plains, which slope from the great Watershed, northward and westward, respectively, to the Vaal and Orange rivers, and is intersected at varying intervals by the Wilge, Rhenoster, Valsch, Vet, and Riet rivers, all of which empty their waters into the Vaal river, and the Caledon river, which empties into the Orange river. The courses of the large rivers are extremely tortuous and hollow, their banks being for the greater part very precipitous, and generally lined with water-willow, mimosa, and other trees indigenous to this country. The streams are usually fordable; during the rainy season, however, they become swollen and impassable.

The Orange Free State is, for the greater part, a grazing country, and though agriculture is everywhere attended to on a larger or smaller scale, according to the natural capabilities of the farms, still it is chiefly in the southern and eastern districts that it is carried on as the principal source of production, and it is almost exclusively from the districts of Roussville, Lady Brand, Winburg, Bethlehem, and Harrismith, that grain is brought into the markets of the other districts.

Neither is it altogether without mineral wealth, as diamonds, rubies, and other precious stones have been discovered in various parts of the country. Coal also of a very good quality, and in paying quantities, has been found in the Winburg district, as well as on farms in the Lady Brand and Harrismith districts.

In the early days of this republic the distribution of animal life was a subject of great interest, from the fact of the immense variety of wild animals inhabiting the country. Even now the lion still frequents some sections of it. But, owing to the advance of civilization and human industry, all the larger animals, as the elephant, rhinoceros, hippopotamus, and giraffe, have retreated far away. Upon its vast undulating plains, however, a large and splendid variety of the antelope tribe roams in countless numbers. The country being favorable for the rearing of horses, cattle, and woolen sheep, the number of the latter contained therein may be estimated by millions.

Birds abound in great variety, particularly those of the larger kinds, among which might be enumerated the ostrich, eagle, vulture, pelican, hawk, and various species of crane.

The staple articles of export from the Orange Free State are wool and skins, and of late years diamonds and other precious stones, while owing to the mining population in the disputed territories along the Vaal river, a large trade in grain and other agricultural produce has been productive of great wealth to the country.

From the same cause, although more indirectly, trade in all articles of import, such as ironware implements, and manufactures in woolen, cotton, and silk goods, and articles for consumption, either as necessaries or luxuries, has received a great stimulus, and the commercial community is to all appearance in a healthy and prosperous condition.
The average height of the Orange Free State above the level of the sea is about 5000 feet, and the climate is generally salubrious. The winter here is cold but dry, the summer usually warm and moist, though droughts are sometimes experienced in the summer months. The air, however, is healthy and dry, as a rule, and this is particularly felt at Bloemfontein and its vicinity; consequently numbers of invalids suffering from pulmonary affections resort to Bloemfontein, and experience much benefit from a residence in this part of the country.

In other respects it has been noticed that the changes of the seasons are to a greater or less degree, according to their duration, accompanied by a greater liability to colds and fevers, generally of a typhoid type, and inflammatory affections, especially amongst children.

The government of the Orange Free State is republican, and its constitution vests the legislative powers in the Volksraad, the members of which are elected by their constituents for four consecutive years. The whole number of representatives (there being one for each chief town of a district, and one for each field cornetcy) is fifty-two. Of this number, the half retire by rotation every two years, and a new election takes place to fill up the vacancies.

The educational department of the country is only now receiving that vital attention which a subject of so vast importance to any country ought to have; and the legislature has only of late years been impressed with the absolute necessity of placing this department on the best possible footing. Accordingly, a fund is gradually being raised for educational purposes, which in 1876 will place at the disposal of the government an amount of £26,000.

Meantime, in accordance with an order made in 1872, an inspector of education has been appointed, who has already entered upon the task of remodeling the whole educational system. It is only right, nevertheless, to state that a government allowance of £90 a year has for years past been given to each district town, on condition of its subscribing at least one-half more, and attempts to establish good schools have everywhere been made by the district school committees, comprising the Landdrost, Dutch Reformed Church, and three elected members, with varying success in some places, but in others only to meet with failure, which is principally to be attributed to the defective system hitherto pursued.

The principal support hitherto afforded by the government consists in the liberal allowances made for the salaries of teachers in the Grey College; but owing to the short time that has elapsed since the arrival of one of them, and various other circumstances beyond the control of the government, the desired results are still to be looked for. Very praiseworthy efforts have also been made on behalf of education by the Anglican Church, in schools established at Bloemfontein and at Smithfield, and this latter has already shown very satisfactory results.

The revenue of the State, for the year 1874-75, was £190,958; the expenditure, during the same year, £98,242.

The government lands of the Orange Free State are still very considerable, though as nought compared with their original size, owing to the sales of farms which have been held from time to time. The value of fixed property of all kinds has increased greatly within the last few years. Even in the districts of Harrismith and Kroonstad, where land formerly was almost valueless, farms are now eagerly sought after, and change hands at very high rates. The average price of land throughout the whole State may now be fixed at 10s. per morgen. A rough estimate fixes the number of farms throughout the country as between 6000 and 7000. Fixed property changes ownership by registration. The population of the State is estimated at about 75,000 white, and 25,000 colored or native.

Commission from Orange Free State to the International Exhibition:

Charles W. Riley, Consul-General,
LUXEMBOURG.

The Grand Duchy of Luxembourg is connected with the Netherlands in the person of the sovereign, but has a constitution and administration of its own. The King of Holland, as Grand Duke, appoints a deputy-governor. Dutch Luxembourg was a part of the Germanic Confederation from its formation, in 1815, till its dissolution, in 1866. In 1867 its neutrality was guaranteed by the great powers. Its present constitution dates from 1868. The chamber of deputies consists of 40 members chosen for 6 years by direct vote in the electoral districts. Area, 990 Eng. sq. miles. Population (1871) 197,528, the most of whom are engaged in agriculture. The chief products are wine, corn, hops, hemp, and flax. In the eastern districts there are iron mines, and lime and slate quarries. The majority of the inhabitants are Walloons, the rest mainly Germans. The capital is Luxembourg. By the law of 1868, the army consists of 13 officers, 500 under-officers and privates, besides 110 gendarmes.

CHINA.

The following table gives the area and population of the various divisions comprising the Chinese empire:

<table>
<thead>
<tr>
<th></th>
<th>AREA IN ENGLISH SQ. MILES</th>
<th>POPULATION.</th>
</tr>
</thead>
<tbody>
<tr>
<td>China proper,</td>
<td>1,534,953</td>
<td>405,213,152</td>
</tr>
<tr>
<td>DEPENDENCIES.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mandchuria,</td>
<td>362,313</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Mongolia,</td>
<td>1,288,035</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Thibet,</td>
<td>643,734</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Corea,</td>
<td>90,300</td>
<td>8,000,000</td>
</tr>
<tr>
<td>Lieukhien Islands,</td>
<td>2,310</td>
<td></td>
</tr>
<tr>
<td>Liaotong,</td>
<td>2,982</td>
<td></td>
</tr>
<tr>
<td>Total,</td>
<td>3,924,727</td>
<td>425,213,152</td>
</tr>
</tbody>
</table>

China proper is included between 18° 15' and 43° 15' north latitude and 98° and 120° 40' east longitude. Its coast-line exceeds 2500 miles, and its land frontier 4400 miles. It is divided into eighteen provinces, and includes the two large islands of Formosa and Hainan. The administration of the empire is parceled out into separate governments, corresponding with the provincial divisions, each of which has a complete organization, exchequer, army, and naval force of its own. Besides providing for the cost of its own administration, each province is required to remit annually to Peking a certain portion of its revenue to meet the expenses of the court, central government, and garrison of Peking, as well as to provide for exigencies arising in other provinces, and for the requirements of the garrisons in Turkestan, Mongolia, and Mandchuria, which are administered by military governors.

According to the latest reports, the imperial army comprises a total of 850,000 men, including 678 companies of Tartar troops, 211 companies of Mongols, and native Chinese infantry, a kind of militia, numbering 120,000 men. The native soldiers do not live in barracks, but in their own houses, mostly pursuing some civil occupation.

The Chinese are pre-eminent for their indefatigable industry. Of the immense
CHINA.

territory peopled by them, there is scarcely a rood of arable ground that is not assiduously cultivated. Unfortunately, however, their husbandry is, to a great extent, nullified by the rude and ill-adapted implements employed. Therefore scientific agriculture is but slightly advanced in China, although the Chinese system of land irrigation is superior to that of any other people. As a manufacturing nation the Chinese are highly distinguished; porcelain originated entirely with them, and the art of spinning silk they also gave to the West. The lacquered ware produced in China, though very beautiful, must be considered inferior to that of Japan, but in the more minute arts of carving and inlaying, the Chinese have no superiors. Their ivory and mother of pearl industry is too well known to need description. Gunpowder, though a Chinese invention, is little manufactured, and that little of indifferent quality. Paper is ingeniously made of various materials; it is, in general, thin, silky, and highly absorbent of ink.

Chinese trade has the peculiarity of being, for the most part, internal, the country supplying most articles of subsistence or luxury, and is carried on by means of canal and river navigation. The principal exports are tea, porcelain, raw and spun silk, sugar, rhubarb, embroidery, lacquered wares, and carved articles of domestic ornament. The imports consist mainly of cotton and woolen goods, opium, raw cotton, furs, and edible birds’ nests, which form an expensive luxury, and are held in high esteem. The total value of commodities exported from China, in 1865, reached the figure of $173,699,085, as against imports of $238,504,520. Of the exports, tea is the chief, showing a total quantity of 223,679,182 pounds shipped. The export of raw silk for the same year aggregated 40,726 bales, and of cotton, 35,855,792 pounds.

The grand canal, about 700 miles in length, has greatly facilitated the internal trade of the country. China is traversed in all directions by 20,000 imperial roads, most of which are badly kept. There is a postal service, but of a very rude kind.

Education, as the high road to official employment, to rank, wealth, and influence, is eagerly sought by all classes. Literary proficiency commands everywhere respect and consideration, and primary instruction penetrates to the remotest villages. Self-supporting day-schools are universal throughout the country, and the office of teacher is followed by a great number of the literati. Government provides state examiners, but does not otherwise assist in the education of the people.

The Chinese executive system is based on those noteworthy competitive examinations which are intended to sift out from the millions of educated Chinese the best and ablest for the public service.

Commission for CHINA to the International Exhibition:
ROBERT HART, ESQ., Inspector General of Imperial Maritime Customs.
G. DETRING, ESQ., Commissioner of Customs.
E. B. DREW, ESQ., Commissioner of Customs.
W. SCOTT FITZ, ESQ.
H. SEYMOUR GEARY, ESQ.

Resident Commissioners in Philadelphia:
JAMES H. HART, ESQ., Commissioner of Customs.
ALFRED HUBER, ESQ., Commissioner of Customs.
J. L. HAMMOND, ESQ., Commissioner of Customs.
EDWARD CUNNINGHAM, ESQ.
W. W. PARKIN, ESQ.
F. P. KNIGHT, ESQ.
W. NOYES MOREHOUSE, ESQ., Imperial Maritime Customs, Secretary.
JAPAN.

JAPAN proper comprehends four large islands, viz.: Niphon (the Japanese mainland), Sikok or Skopf, Kiusiu, and Yesso, and extends from 31° to 45° 30' north latitude. The empire of Japan includes about 3800 small islands and islets besides the four larger ones, and is situated between 26° and 52° north latitude, and 128° and 151° east longitude. It is bounded on the north by the Sea of Okotsk, on the east by the north Pacific Ocean, on the south by the eastern Sea of China, and on the west by the Sea of Japan. The islands of Japan appear to be of volcanic origin, and that part of the Pacific on which they rest is still intensely affected by volcanic action. Earthquakes occur very frequently in Japan, although certain parts of the country are exempt. Japan has been called the land of mountains: but though these are very numerous, and many of them volcanic, they are of moderate elevation, and rarely attain the limits of perpetual snow. The country generally is of moderate elevation, with fertile valleys, picturesque landscapes, and a coast indented with magnificent harbors; the soil is productive, rich in mineral wealth, and teeming with every variety of agricultural produce. Springs, lakes, and rivers are numerous; but the last, being sand-choked, are valuable chiefly for the purposes of irrigation.

Our knowledge of the climate of Japan is yearly increasing. June, July, and August are the months of rain, which sometimes descends in unceasing torrents. The months of October and November are the pleasantest and most genial of the twelve, when fine weather is enjoyed without the scorching heat of summer. The summers are very hot, and the winters in the northern parts almost Siberian; the thermometer rising to 96° in the shade in the former, and sinking to 18° below zero in the latter season. Alcock says: "The thermometer in the shade (during the summer) ranges from 70° to 85°, and averages 80° between the morning and the evening, while it is sometimes below 70° at night." Hurricanes and waterspouts are frequent; dense fogs hide the sun, sometimes for four or five days together; and about the change of the monsoons, typhoons and equinoctial gales frequently sweep the Japanese seas.

The following figures are furnished by the Japanese commission:

<table>
<thead>
<tr>
<th>Area</th>
<th>23,740 ris (the ri equals 2 1/4 miles).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Male: 16,891,729; Female: 16,408,946</td>
</tr>
</tbody>
</table>

Total: 33,300,675

<table>
<thead>
<tr>
<th>Imports</th>
<th>22,841,166.93 yen. *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>18,367,259.29</td>
</tr>
<tr>
<td>Revenue</td>
<td>81,554,294.</td>
</tr>
<tr>
<td>Expenditure</td>
<td>79,881,320.</td>
</tr>
</tbody>
</table>

Army: 42,073 men

The navy consists of 20 vessels, manned by 3757 men.

The country is rich in minerals, gold, silver, iron, sulphur, and especially copper abound. There are also large quantities of coal. Amongst the most remarkable of its vegetable productions is the camphor tree, the varnish or lacquer tree, the paper mulberry tree, the vegetable wax tree, the tea shrub, the tobacco plant, and the rice plant. The principal manufactures are those of silk and cotton. The internal trade is very extensive, and rigid regulations are in force to protect and encourage home industry. In the mechanical arts the Japanese have attained great excellence, especially in metallurgy, and in the manufacture of porcelain, lacquer ware, and silk fabrics. In some of these departments works are produced so exquisite in design and execution, as to more than rival the best products of Europe.

* The yen equals 99.7 cents gold.
The Japanese government is organized on a basis which is partly European. The Mikado is supreme in temporal and spiritual matters, but the work of government is carried on by the Great Council, which is divided into three sections, denominated Centre, Right, and Left. The Centre is composed of the Prime Minister, Vice Prime Minister, and five advisers. The left is made up exclusively of the Council of State, the functions of which are analogous to those of the French Conseil d'Etat, so far as the preparation and discussion of laws is concerned. The Right includes all the ministers and vice-ministers of eight departments into which the administration is divided. The ministers, either individually or united in a Cabinet, decide all ordinary questions; but points of real importance are reserved for the Great Council, presided over by the Mikado. The local administration in the provinces is in the hands of prefects, one of them residing in each of the 75 districts into which Japan is divided.

Education is very general in Japan. In 1874 a Ministry of Instruction was created, and as a result of its efforts, public primary schools are increasing rapidly, especially in the towns; but the movement is far more marked in the western provinces and on the coast than in the interior. Private schools are more abundant still, and any person being at liberty to establish them,—subject to a permission, which is always given,—they spring up with facility wherever wanted. In order to facilitate the acquirement of foreign languages, the government has engaged European professors, and has also sent, at public expense, a large number of students to America and Europe. The first line of railway, from Yokahama to Yeddo, 17 miles long, was opened for traffic on the 12th of June 1875, and other lines were in progress at that date.

The post office carried 17,095,842 letters in 1874. The number of post offices at that date was 3244.

Commission from the JAPANESE EMPIRE to the International Exhibition:

HIS EXCELLENCY OKUBO TOSHIMICHI, Minister of the Interior and Privy Counsellor, President.
HIS EXCELLENCY LIEUTENANT-GENERAL SAIGO TSUKUMICHI, Imperial Army, Vice-President.
MR. KAWASE HIDEHARU, Vice-President Bureau of Agriculture and Industry, Commissioner-General.

MR. TANAKA YOSHIIO, Ministry of the Interior.
MR. SEKIZAWA AKEKIO, Bureau of Agriculture and Industry.
MR. YAMATAKA NOBUAKIRA, Bureau of Agriculture and Industry.
MR. SHIODA MASASHI, Bureau of Agriculture and Industry.
MR. SUZUKI TOSHINOBU, Bureau of Agriculture and Industry.
MR. SUGIYAMA KADZUNARI, Bureau of Agriculture and Industry.
MR. HIDAKA LIRO, Lieutenant Imperial Army.
MR. AMORI KORENKA, Bureau of Agriculture and Industry.
MR. ISIHARA TOYOYASU, Bureau of Agriculture and Industry.
MR. ISHIDA TAMETAKE, Bureau of Agriculture and Industry.
MR. YAMAO TSNETARO, Bureau of Agriculture and Industry.
MR. KUBO HIROMICHI, Bureau of Agriculture and Industry.
MR. FUKUI MAKOTO, Bureau of Agriculture and Industry.
MR. SHIBATA HIROSHI, Bureau of Agriculture and Industry.
MR. MAKIYAMA KOHEI, Bureau of Agriculture and Industry.
MR. ASMI TCHUGA, Bureau of Agriculture and Industry.
MR. ISHII YOSHITAKA, Bureau of Agriculture and Industry.
MR. ASAHI SUSUMU, Bureau of Agriculture and Industry.
MR. YOSHIO NAGAMASA, Bureau of Agriculture and Industry.
MR. SASASE MOTOAKIRA, Bureau of Agriculture and Industry.
MR. TSUCHIYA SHIGENAO, Attache.
MR. YOSHIFUSA NISUKI, Attache.
MR. AKUSAWA SUSUMU, Attache.
MR. SANDA TADASHI.
MR. TAWARA WAKICHIRO, Attache.
HAWAII.

The islands forming the kingdom of Hawaii are eight in number, exclusive of one or two small islets. The chain runs from southeast to northwest, and lies in the middle of the Pacific Ocean, in latitude 19°—22° north, and longitude 155°—160° west. Area 7400 square miles; population (1872), 56,897, of whom 2539 were Europeans. The names, with the areas, of the respective islands are: Hawaii (formerly Oghyhee), 4210 square miles; Maui, 760; Oahu, 600; Kau, 590; Molokai, 270; Lanai, 150; Nihau, 97; and Kahoolawe, 65 square miles.

Situated near the middle of the Pacific Ocean, about half the distance from San Francisco in North America that they are from Melbourne in Australia and Canton in China, the Sandwich Islands form an oasis in the middle of a wide ocean waste, and offer convenient stations for the refreshment and repair of the merchantmen and whalers that traverse the Pacific. They are of volcanic origin, and contain the largest volcanoes, both active and quiescent, in the world. The most prominent physical features of the group are the two lofty mountain peaks of Hawaii, Mauna Kea and Mauna Loa, each of which is 14,000 feet in height, or within 1860 feet of the loftiest of the Alps. Besides those two chief peaks, which stand apart from each other, and one of which is covered with perpetual snow, the island is traversed by other mountains, which give it a rugged and picturesque outline, and in some cases front the sea in bold, perpendicular precipices, from 1000 to 2000 feet in height. In general, the islands are lofty—the small islet of Lehua is 109 feet high, and the upland regions of Kau are, on an average, 4000 feet above sea level. Within the coral reefs, which, in single, and more rarely in double ridges, skirt portions of the coasts, sandy shores, leading up to rich pasture-lands, and occasionally to productive valleys, are frequently seen. Everywhere, however, the configuration of the surface betrays the volcanic origin of the islands. Extinct volcanoes occur in most of the islands. Kilauea, on the Mauna Loa mountain in Hawaii, the largest active volcano in the world, has an oval-shaped crater nine miles in circumference, and is 6000 feet above sea level. In the centre of this immense caldron is a red sea of lava, always in a state of fusion. At intervals, the lava is thrown to a great height, and rolls in rivers down the mountain sides. On Maui, the crater of Mauna Haleakala (House of the Sun), by far the largest known, is from 25 to 30 miles in circumference, from 2000 to 3000 feet deep, and stands 10,000 feet above sea level. Within this huge pit, about 16 basins of old volcanoes, whose ridges formed concentric circles, have been counted. Good harbors are few. The chief is that of Honolulu, in Oahu, with 22½ feet of water in its shallowest parts. On the same island is Puu-Loa, an immense basin, with 12 feet of water on the bar at low tides. During the prevalence of the trade wind, which blows southwest for about nine months of the year, the south shores of the islands afford safe anchorage almost everywhere.

At Honolulu, the extremes of temperature in the shade during the 12 months are 90° and 50°, and the diurnal range is 12°. Rains brought by the northeast trade-wind are frequent on the mountains; but on the leeward side of the islands little rain falls, and the sun is rarely obscured by the clouds. The soil, the constituent parts of which are mainly scoriae, decomposed lava, and sand, is generally thin and poor. This, however, is not universally the case. At the bases of the mountains and in the valleys, where abrasion, disintegration, and the accumulation of vegeta-
ble mould have gone on for ages, there are extensive tracts as fertile as they are beautiful. The islands produce fine pasturage in abundance, and large herds are bred and fattened to supply meat to the whalers and merchant ships. The upland slopes of the mountains are clothed with dense forests; and lower down are grassy plains and sugar and coffee plantations. Basalt, compact lava, coral rock, and sandstone are used for building purposes. No metals occur. Several of the islands, especially Hawaii and Kaui, are well supplied with rivers, which, from the size and conformation of the group, are necessarily small, but afford great facilities for irrigation. Vast numbers of semi-wild horses roam the islands, and while they consume the pasturage and break down the fences, are of little use. The indigenous fauna is small, and consists mainly of swine, dogs, rats, a bat that flies by day, birds of beautiful plumage, but for the most part songless. Among the indigenous trees and plants are the sugar-cane, banana, plantain, cocoanut, candle-nut, various palms, the taro, a succulent root which formed the staple of the food of the natives, and is still generally used, the cloth-plant, and the *ti*, the roots of which were baked and eaten, while the leaves were used for thatching huts. Cattle and other useful and foreign animals and plants were introduced by Vancouver and other navigators. In 1860 there were 30,000 mules and semi-wild horses in the kingdom.

The government of Hawaii is a constitutional monarchy.

The public revenue during the biennial period ending March 31, 1874, was $1,136,524 dollars; the public expenditure, $1,192,512 dollars. The public debt, at the same date, $355,050 dollars.

The principal exports during the year 1874 were: Sugar, 24,567,000 pounds; rice, 1,188,000 pounds; coffee, 75,000 pounds; pulu, 418,000 pounds; tallow, 126,000 pounds; wool, 400,000 pounds; hides, 94,575. Total value, $1,839,000 dollars. The imports during the same year amounted in value to $1,310,000 dollars.

Of 115 vessels that entered the port of Honolulu during 1874, 64 were American, 30 English, 15 Hawaiian, etc.

Commission from The Hawaiian Islands to the International Exhibition:

W. L. Moehonua, Minister of the Interior and President of the Commission.
Hon. S. G. Wilder, Privy Councillor of State.
Hon. J. U. Kawainui, Privy Councillor of State.
Elisha H. Allen, Jr., Hawaiian Consul General, New York.
Rev. Samuel C. Daman.
Mr. William Tufts Brigham.
BRAZIL.

BRAZIL is the most extensive state of South America. Towards the interior, it borders on all the other states of that continent except Chili and Buenos Ayres—on Uruguay, the Argentine Confederation, Paraguay, Bolivia, Peru, Ecuador, New Granada, Venezuela, and English, Dutch, and French Guiana; while its seaboard, beginning about 200 miles to the north of the Amazon, and reaching to within the same distance of the Plata, projects into the Atlantic fully 1000 miles to the east of the direct line between its two extremes. This immense country extends between latitude 5° 10' north and 46° 10' south, and between longitude 35° and 70° west, being, in round numbers, 2600 miles long and 2500 broad. The area, according to official accounts, is 3,100,000 square miles, with a population, in 1872, of 12,000,000, including 1,683,684 slaves, and consisting of aboriginals, Africans, and Europeans, the first being proportionately fewer than in most parts of America.

Brazil differs in many respects from most of the other divisions of the new continent. It knows nothing of the volcanoes and earthquakes of the Pacific coast; with winds blowing constantly from the Atlantic Ocean, it is exempted from those droughts which are always blighting one or other of the slopes of the Andes, the remoter slope in Peru and Chili, and the nearer in Buenos Ayres and Patagonia; its mines, again, are as famous for gold and diamonds as those of the western Cordilleras for silver. In its hydrography, Brazil contrasts unfavorably with the other divisions. While the Amazon and the Plata, the Mississippi and the St. Lawrence—not to mention countless rivers of inferior magnitude on both shores—are for the most part practicable almost to their sources, the streams of Brazil, with the exception of the Amazon, are mostly impeded throughout by cataracts and shallows, thus counterbalancing, as it were, its matchless seaward facilities by the deficiencies of its inland communications. Further, the most navigable of these streams, instead of entering the open sea, mingle their waters with those of the Plata or of the Amazon—the Para and the Uruguay joining the former, and the Madeira, the Tapojos, the Zingu, and the Tocantins, the latter; and even among those that do send their tribute at once to the ocean, a similar direction is sometimes impressed by the dividing ridges—the San Francisco, for instance, by far the largest of them, running to the northward parallel with the southeast coast through 11° of latitude, and leaving only 4° of longitude for its remaining course to the Atlantic. These hydrographic peculiarities must be the more strongly felt, inasmuch as a humid surface and a luxuriant vegetation conspire to render ordinary roads all but impossible.

Among the mineral treasures, besides gold and diamonds, already mentioned, iron of superior quality is abundant; and salt, also, is extensively produced in saline marshes by the alternate processes, according to the season, of inundation and evaporation. The productions of the soil are, of course, equally various and rich. The cotton is naturally excellent, and the tea-plant of China has been introduced, though hitherto with indifferent success. The exports necessarily vary in different sections of the country. From the north, they are coffee, cotton, cocoa, sugar, and tobacco; from the south, hides, tallow, horns, etc.; and from the middle, drugs, diamonds, gold dust, dyes, rice, manioc, tapioca, spirits, and rosewood.

The total value of the imports into Brazil, including bullion and specie, averaged about $91,000,000 in the five years 1869—1873, and that of the exports, during the same period, likewise including bullion and specie, about $110,000,000.
BRAZIL.

263

The executive authority is vested in the Emperor, who, besides being aided by a council of state, must act through responsible ministers. The legislature consists of two chambers, which sit four months every year. Both the deputies and the senators, who must have annual incomes respectively of 800 milrees and 1600, are indirectly elected by voters who must possess 200 milrees per annum—the former for four years, and the latter for life. The senate, however, appears to represent the crown as well as the people, inasmuch as each constituency merely nominates three individuals for his majesty's choice of one. Justices of the peace, also, are appointed by the respective communities; and in the courts generally, whether civil or criminal, there prevails trial by jury.

The budget for the year ending June 30th, 1876, calculates the receipts at 107,-133,070 milrees, and the expenditures at 102,634,053 milrees.* The public debt, on the 1st of April, 1875, was, including paper money, 664,739,395 milrees.

In a vote passed by the House of Congress, June, 1869, the strength of the standing army was fixed at 30,000 on the peace footing, and at 60,000 on the war footing. There were actually under arms, according to official reports, at the end of April, 1874, 28,933 troops, of which number 2397 were in garrison in Paraguay.

The imperial navy consisted, in 1875, of 61 men-of-war, carrying 230 guns, and crews aggregating 4156.

The empire possessed, at the end of 1873, railways of a total length of 714 English miles, open for traffic. There were railways of an aggregate length of 397 miles in course of construction at the end of June, 1874. There were, at the beginning of the year 1874, telegraph lines to the extent of 3375 miles. The number of offices was 74 at the same date. The post office carried 12,251,000 letters in the year 1873, of which number 6,548,000 came from or to Rio de Janeiro, the capital.

Commission from BRAZIL to the International Exhibition:

His Highness, Gaston d'Orleans, Conde d' Eu, Marshal of the Army, President.
Viscount de Jaguary, 1st Vice-President.
Viscount de Bonn-Retiro, 2d Vice-President.
Viscount de Souza Franco.
Joaquin Antonio de Azevedo.
His Excellency, A. P. de Carvalho Borges, Envoy Extraordinary and Minister Plenipotentiary of His Majesty the Emperor of Brazil.
Fellipe Lopes Netto, Vice-President.
Dr. Jose de Saldanha.
Dr. Nicolas Joaquim Moreiro.
Pedro Paes Leme.
Capt. Luiz de Saldanha, Naval Attaché.
Dr. J. M. de Silva Coutinha.
Mr. B. F. Torreas de Banos, Secretary of Legation.

* The milreis = 1000 reis, 54½ cents.
ARGENTINE REPUBLIC.

The Argentine Republic—the confederation of the Rio de la Plata, or River of Silver, South America—is a federal union of fourteen provinces and three large territories, covering an almost unbroken plain of 1,200,000 square miles, with a population of about 2,000,000 inhabitants. It extends from 22° south latitude to the straits of Magellan, and from 59° west longitude to the Andes.

Each province has its own legislature, courts of justice, and political government; but civil, penal, and commercial laws are common to all the provinces, codes of such laws having been issued by the congress of the confederation.

The President of the republic is elected for a term of six years by the representatives of the provinces, and is not eligible for re-election. The Vice-president, elected in the same manner, fills the office of chairman of the Senate, but has otherwise no political power. The President is commander-in-chief of the troops, and appoints to all civil, military, and judicial offices; but he and his ministers are responsible for their acts, and liable to impeachment before the Senate by accusation of the House of Representatives. Legislative power is vested in a Senate, of members elected by the provincial legislatures, two from each province, and a House of Representatives, elected by the people, and apportioned to each province according to population. The senators hold their office for nine years, and the representatives for three.

The chief exports of the country are wool, hides, salt beef, and tallow; but its resources embrace all the products of the tropical and temperate zones, as may be seen by the catalogue of its exhibits.

The farming stock of the republic is estimated at 15,000,000 horned cattle, 4,000,000 horses, and 80,000,000 sheep, whose aggregate value cannot fall short of $200,000,000, gold, yielding about $50,000,000 of export produce per annum.

The total trade may be estimated at $100,000,000 per annum. In 1874 the imports amounted to $55,961,117, against over $71,000,000 in the previous year. The exports amounted to $43,104,712, against $15,869,314 in 1873. The decrease in imports and exports was caused by a severe commercial crisis, from which the country is just recovering.

The annual revenue amounted to $20,217,231 in 1873, but the crisis reduced it in 1874 to $16,090,661, or over $2,000,000 less than in 1872, and nearly $4,500,000 less than in 1873. The general expenditures in 1874 reached the sum of $28,596,006. The total debt in January, 1875, was $68,416,043.

The regular army numbers 10,607 men, divided as follows: cavalry 4800, infantry 4400, artillery 400, and 1173 special troops. The navy is composed of 26 vessels, among them 2 ironclads and 6 gunboats, with crews amounting in all to 900.

The capital of the republic is provisionally situated at the city of Buenos Ayres, capital of the province of the same name.

(The statistics given above have been furnished by the commission of the Argentine Republic.)

A network of railways, constructed mainly at the expense of the State, has been in progress for several years. At the end of the year 1873 there were 664 miles open for traffic, and 642 miles of State railways in course of construction. There were
besides, at the end of 1873, railways of a total length of 1997 miles, sanctioned by the government, including an international line from Buenos Ayres to Chili, of 894 miles.

At the end of September, 1873, there were 4170 miles of telegraph lines in operation. The total length of telegraph wires at the same date was 8267 miles. The number of telegraphic dispatches during the same year was 170,079.

The post office, in the year 1873, carried 1,493,700 parcels and packets, and 4,574,188 letters. The number of letters carried doubled in the five years from 1869 to 1873.

Commission from the ARGENTINE REPUBLIC to the International Exhibition:

CARLOS CARRANZA, President.
EDWARD SHIFFEN, Vice-President.
EDW. T. DAVISON, Treasurer, Consul-General.
DIEGO DE CASTRO, Secretary.
E. MARA DAVISON, Deputy Member.

Central Committee.

ERNESTO OLLENDORF, President.
JULIO VICTORIA, Secretary.

EDUARDO OLIVERA, RICARDO NEWTON,
ONESIMO LEGUIZAMON, LEONARDO PEREYRA,
DIEGO DE LA FUENTE, JOSE M. JURAFDO,
LINO PALCOIS, EMILIO DUPORTAL.
CHILI.

CHILI lies wholly between the water-shed of the Andes and the shores of the Pacific, stretching coastwise from Bolivia to Patagonia, in latitude 25° 30' to 43° 20' south, and longitude 69° to 74° west, having an extreme length of about 1240 miles and an average breadth of fully 120. Within these limits, however, lies the virtually independent Araucania, comprising most of the mainland to the left of the Biobio, while the southern portion is confined chiefly to Chiloe and its archipelago. Chili is divided into thirteen provinces, of which, including certain outlying dependencies in Patagonia, the aggregate area has been officially stated at nearly 140,000 square miles, and the population in 1874 at 2,068,447. Chiloe, the insular province of Chili, is separated from the rest of the republic, or rather from Patagonia, by the Gulf of Ancud, extending in south latitude from 41° 40' to 43° 20', and in west longitude from 73° to 74°. The province, which, in 1874, numbered 64,536 inhabitants, contains, in addition to Chiloe proper, about 60 islets, of which some 30 are uninhabited. The predominant rocks of Chili are crystalline and metamorphic. They form the range of the Andes, except in those districts in which active volcanoes exist, where they are covered with recent volcanic rocks. They occupy also the whole of the level ground between the mountain range and the shores of the Pacific, with the exception of a narrow stretch of palaeozoic fossiliferous strata which run along the coast south from Santiago for a distance of 300 miles. The coast-line of Chili is being continually altered from the elevation of the whole country to an extent of at least 1200 miles along the Pacific shores, produced by volcanic agency.

Physically, the continental portion of the republic presents many singularities. Of all the maritime regions on the globe, it is perhaps the most isolated. On every side but the sea, and that sea very remote from the main thoroughfares of commerce, it is beset by difficulties of communication. With the, lonely wilderness of Patagonia to the south, and the dreary desert of Atacama on the north, it is bounded on the east by a mountain chain which, altogether impracticable in winter, can be crossed, even in summer, only by a few passes ranging between 12,450 feet and 14,370 feet in elevation. Moreover, this strip between the Andes and the Pacific is broken into plateaus in the interior, and valleys on the coast, by two longitudinal ranges, with numerous lateral spurs; while, throughout the length and breadth, the general level gradually descends, as well to the south as to the west. In point of mere temperature, so rugged a surface, covering fully 15° of latitude, and attaining an altitude of more than four miles within about 2° of longitude, must present nearly every possible variety. Through the reciprocal action of the Andes and the prevailing winds, the rain-fall graduates itself, with something of mathematical regularity, from the parching skies of the north to the drenching clouds of the south, a graduation which, disturbed merely by the melting of the mountain snows, is, in a great measure, necessarily reflected in the condition and magnitude of the countless water-courses. Hence the rivers to the north of the Maypo, which enters the Pacific near latitude 34°, are but inconsiderable streams; while, further to the south, the Maule, the Biobio, and the Calacalla are all to some extent navigable.

From the cause last mentioned, different districts vary remarkably in their productions. To the north of the Coquimbo, about latitude 30°, is chiefly an arid
waste, redeemed, however, from being valueless by its mines; and to the south of the Biobio, about latitude 37°, timber and pasturage divide the soil between them. The intermediate centre alone is fitted for agriculture, yielding, besides maize and hemp, European grains and fruits in abundance. Notwithstanding all the varieties and vicissitudes of climate, the country may claim to be, on the whole, extremely healthy. The manufactures are earthenwares, copperwares, linens, cordage, soap, leather, and brandy; and, in addition to the wheat and metals already specified, the exports, especially from the south, embrace tallow, hides, jerked beef, and live stock.

The public debt of Chili, at the beginning of 1874, was 48,149,850 pesos (or dollars). The budget for 1875 stated the expenditures at 16,474,890, and the receipts at 16,440,000 pesos.

The army consisted, in 1874, of 3516 men, the force comprising 2000 infantry, 712 cavalry, and 804 artillery. The navy numbered 10 vessels, carrying 34 guns.

The imports, for 1874, were 38,810,000 pesos, and the exports, during the same year, were 36,510,000 pesos. The commercial navy of Chili consisted, in 1872, of 250 vessels of 58,230 tons burthen, with 2900 sailors.

In 1875 there were 991 kilometres of railway in operation; of these, 628.6 belonged to the State and 362.4 to companies.

The work of the post office, for 1873, was 5,116,797 letters and 6,233,916 newspapers, etc.

There were, at the same time, 55 telegraph offices. The length of lines was 3729 kilometres; of wires, 4909 kilometres. Number of despatches, in 1873, 265,318.

Commission from CHILI to the International Exhibition:

**Resident Commissioners.**

**Sr. Don Adolfo Ybanez,** Envoy Extraordinary and Minister Plenipotentiary of Chili.

**Edward Shippen,** Esq., Consul and President.

**Dr. J. Patterson Burd,** Secretary and Treasurer.

**Sr. Francisco Gonzalez Errazuriz,** Secretary of Chilian Legation.

**Special Commissioners.**

**Sr. Don Eduardo Seve,**

**Sr. Rafael Maseulli,**

**Sr. E. Gerra,**

**Sr. Louis Buffe.**

**Home Commission.**

**Sr. Rafael Larraín,** President.

**Sr. Maximiano Errazuriz.**

**Sr. Ignacio Domeyko.**

**Sr. Armando Phillippi,**

**Francisco Solano Asta Buruago.**

**Sr. Ramon Barros.**

**Sr. Eugenio Figueora.**
PERU.

Peru is an important maritime republic in South America, bounded on the N. by Ecuador, on the W. by the Pacific, on the S. and S.E. by Bolivia, and on the E. by Brazil. It lies in lat. 3° 25' to 21° 30' S., and in long. 68° to 81° 20' W. The general outline resembles a triangle, the base of which is formed by the boundary-line between Peru and Ecuador on the north. Its area is estimated at upward of 500,000 square miles, and its population at 2,500,000. The area of Peru, however, can only be given approximately, as, on the east side of the Andes and between the Amazon and the Purus, there is a wide and unexplored expanse of country, upon which both Peru and Brazil have claims which have not yet been determined. The country is 1,100 miles in length, 780 miles in extreme breadth along the northern boundary, but is little more than 50 miles wide in the extreme south. Following the general direction, and not including windings, the coast-line is 1,660 miles in length. The shores are in general rocky and steep; in the south lofty cliffs rise from the sea, and in some places the water close inshore has a depth of from 70 to 80 fathoms. Farther north, however, sandy beaches occur, and in the extreme north the shores are often low and sandy and covered with brushwood. Owing to the comparative infrequency of bays and inlets along the coast, the harbors are few and unimportant. Those of Callao (the port of Lima) and Payta afford the most secure anchorage, and the others are Trujillo, Cañete, Pisco, Campaná, Islay, Ilo, Arica and Iniquique.

The islands on the Peruvian coast, although valuable, are extremely few in number and small in extent. In the north are the Lobos Islands; on their eastern and more sheltered sides they are covered with guano. The Chinchas Islands, famous as a source of supply for guano, also form a group of three, and are situated in the Bay of Pisco, about twelve miles from the mainland, and in lat. 13° to 14° S., long. 76° and 77° W. They lie in a line running north and south, and are called the North, Middle, and South Islands, respectively. Each island presents, on the eastern side, a wall of precipitous rock, with rocky pinnacles in the centre, and with a general slope toward the western shore. The cavities and inequalities of the surface are filled with guano, and this material covers the western slopes of the islands to within a few feet of the water's edge. There is no vegetation.

The surface of Peru is divided into three distinct and well-defined tracts or belts, the climates of which are of every variety from torrid heat to arctic cold, and the productions of which range from the stunted herbage of the high mountain-slopes to the oranges and citrons, the sugar-canes and cottons, of the luxuriant tropical valleys. These three regions are the Coasts, the Sierra, and the Montaña. The Coast is a narrow strip of sandy desert between the base of the Western Cordillera and the sea, and extending along the whole length of the country. This tract, varying in breadth from thirty to sixty miles, slopes to the shore with an uneven surface, marked by arid ridges from the Cordillera, and with a rapid descent.

It is, for the most part, a barren waste of sand, traversed, however, by numerous valleys of astonishing fertility, most of which are watered by streams that have their sources high on the slopes of the Cordillera. In the coast-region, properly so called, rain is unknown. This is caused by the coast of Peru being within the region of perpetual south-east trade-winds. The want of rain is compensated for, to some extent, by abundant and refreshing dews which fall during the night. The climate of the coast is modified by the cool winds. In the valleys the heat, though considerable, is not oppressive. The highest temperature observed at Lima in summer is 85°, the lowest in winter is 61° Fahr.
The Sierra embraces all the mountainous region between the western base of the maritime Cordillera and the eastern base of the Andes, or the Eastern Cordillera. The principal physical features of the Sierra are: 1. The plain of Titicaca, partly in Peru and partly in Bolivia. It is enclosed between the two main ridges of the Andes, and is said to have an area of 30,000 miles. In its centre is the great Lake Titicaca, 12,846 feet above sea-level, or 1600 feet above the loftiest mountain pass (the Col of Mont Cervin) of Europe. The lake is 115 miles long, from 30 to 60 miles broad, from 70 to 180 feet deep, and 400 miles in circumference. Its shape is irregular; it contains many islands, and several peninsulas abut upon its waters. 2. The Knot of Cuzco. The mountain-chains which girdle the plain of Titicaca trend toward the north-west, and form what is called the Knot of Cuzco. The Knot comprises six minor mountain chains, and has an area thrice larger than that of Switzerland. Here the valleys enjoy an Indian climate and are rich in tropical productions; to the north and east of the Knot extend luxuriant tropical forests, while the numberless mountain slopes are covered with waving crops of wheat, barley, and other cereals, and with potatoes, and higher up extend pasture-lands, where the vicuña and alpaca feed.

The Montaña or central region has an elevation of 12,000 feet above the sea-level, and forms a portion of the great central plain of South America. The virgin soil of the Montaña is of amazing fertility, while its climate, though not oppressively hot, is healthy. The forests consist of huge trees, of which some are remarkable for the beauty of their wood, others for their valuable gums and resins, and others as timber trees. A rank undergrowth of vegetation covers the country, and the trees are often chained together and festooned with parasites and closely-matted creepers. In this region, for the most part undisturbed by the voice of man, civilized or savage, animal life flourishes in endless variety, and birds of the brightest plumage flit among the foliage. Among the products which are yielded here in spontaneous abundance are the inestimable Peruvian bark, India-rubber, gum-copal, vanilla, indigo, copaiba, balsam, cinnamon, sarsaparilla, ipecacuanha, vegetable wax, etc. On the western fringe of the Montana, where there are still a few settlements, tobacco, sugar, coffee, cotton, and chocolate are cultivated with complete success.

The hydrography of Peru may be said to be divided into three systems—those of Lake Titicaca, the Pacific, and the Amazon. The streams that flow into Lake Titicaca are few and inconceivable. The rivers, which, having their sources in the Western Cordillera, flow west into the Pacific, are about sixty in number; but many of them are dry in summer, and even the more important are rapid and shallow, have a short course, are not navigable even for canoes, and are mainly used for the purpose of irrigation. All the great rivers of Peru are tributaries of the Amazon. The Marañón, rising between the Eastern and Western Cordilleras, and flowing tortuously to the north-north-west, is generally considered to be the headwater of the Amazon. The Huallaga rises near the town of Huanuco, and flows northward to the Amazon. It is navigable for 600 miles, the head of its navigation (for canoes) being at Tingo Maria, within 100 miles of its source. The Yucayali, or Ucayali, an immense river, enters the Amazon 210 miles below the Huallaga. Its tributaries and upper waters, among which are the Pampas and the Apurímac, drain the greater portion of the Peruvian Sierra. The Purus, which reaches to the valleys of Pucartambo, within sixty miles of Cuzco, has not yet been explored. The Andes abound in mines of gold, silver, copper, lead, bismuth, etc.; and in the Montaña gold is said to exist in abundance in veins, and in pools on the margins of rivers.

But besides the precious metals, Peru possesses other most important mineral resources. In addition to the guano, to which allusion has already been made, another important article of national wealth is nitrate of soda, which is found in immense quantities in the province of Tarapaca. This substance, which is a powerful fertilizer, is calculated to cover, in this province alone, an area of fifty square
leagues. Here, also, great quantities of borax are found. The trade in guano, nitre, and borax is entirely in the hands of the government.

The vegetable productions of Peru are of every variety, embracing all the products both of temperate and tropical climes. The European cereals and vegetables are grown with perfect success, together with maize, rice, pumpkins, tobacco, coffee, sugar-cane, cotton, etc. Fruits of the most delicious flavor are grown in endless variety. Cotton, for which the soil and climate of Peru are admirably adapted, is now produced here in gradually increasing quantity. The land suited to the cultivation of this plant is of immense extent, and the quality of the cotton grown is excellent. The animals comprise those of Europe, together with the lama and its allied species.

The principal items of export in 1870 were: Guano, 482,299 tons; nitrate of soda, 147,200 quintals, valued at 6,624,000 soles;* quinine, 11,921 quintals, valued at 810,641 soles; silver, 1,120,118 soles; hides and skins valued at 530,493 soles; wool valued at 396,610 soles.

The merchant navy in 1869 comprised 95 vessels, aggregating 9506 tons burden; included in this were 11 steamers of a total burden of 433 tons.

The constitution of Peru is modeled on that of the United States, the legislative power being vested in a Senate and House of Representatives, the former composed of deputies of the provinces, two for each, and the latter of representatives nominated by the electoral colleges of provinces and parishes, at the rate of one member for every 20,000 inhabitants. The parochial electoral colleges choose deputies to the provincial colleges, who in turn send representatives to Congress. In the session of 1875 the Senate was composed of 44 and the House of Representatives of 110 members.

The executive power is entrusted to a president, assisted by a vice-president, both elected by popular vote and serving for a term of four years.

By the terms of the constitution of 1867 there exists absolute political but not religious freedom, the charter prohibiting the public exercise of any other religion than the Roman Catholic, which is declared the religion of the State.

The public debt is divided into an internal debt, which in 1872 was about £2,500,000, and the foreign debt, which in 1875 amounted to £3,713,980. The public income during 1872 was 58,982,851 soles; the public expenditures during the same year 57,913,764 soles.

The army comprises: Infantry, 5600; cavalry, 1200; artillery, 2000; total, 8800 men. The navy consists of 6 iron-clads, one of which is a 14-gun frigate, 2 monitors of 3 guns each, and 3 other vessels of 2, 2, and 14 guns respectively; besides which there are 6 steamships of 2, 4, 4, 14, and 30 guns.

A system of railways designed mainly to develop the exploitation of the mineral wealth of the country, including important mines of nitrate of soda, has been in course of construction for several years. At the end of June, 1875, there were open for traffic or in course of construction lines of State railways of a total length of 1007 English miles. There were also in course of construction at the end of June, 1875, railways of a total length of 600 English miles, to be completed in 1877-80. The most important of these are a line from Lima to Oroya, 222 miles in length, and another, offering vast engineering difficulties, 187 miles long, from Arequipa to Puno, across the summit of the Cordillera de los Andes.

There were in 1874 telegraph lines of a total length of 608 miles.

Commission from PERU to the International Exhibition:

JOSE CARLOS TRACY, President.
JUAN JOSE BARRIL.
WILLIAM RUSSELL GRACE.

ANTONIO HERNANDEZ, Chief of Instalation.
ENRIQUE VALIENTE, Secretary.

* One sol = 96⅔ cents, gold.
MEXICO.

The Mexican Republic extends between latitude 15° to 32° 42' north, and from 88° 54' 30" to 119° 25' 30" west longitude (meridian of Paris), or from 12° 21' on the east to 15° on the west of the City of Mexico, and is bounded on the north by the United States, on the south by Guatemala, on the east by the Gulf of Mexico, and on the west by the Pacific Ocean.

The country measures in its greatest length, from the conflux of the Gila and Colorado Rivers to the bar of Ocos, which is the lower end of the State of Chiapas, 2933 kilometres, by 1733.2 kilometres in width, from the mouth of the Rio Grande to that of the Rio del Fuerte. Its coast-line embraces 8272.47 kilometres. The area of the Mexican territory amounts to 1,972,648 square kilometres.

Mexico is a mountainous country. The Cordillera, which can be considered as a development of the Andes, that start in Patagonia, South America, occupies all the country, forming, in its gradual descent toward the coasts, large table-lands and fertile valleys. At the point where this Cordillera reaches the territory of New Mexico it is divided into two ramifications, the eastern one parallel to that of Lower California, its principal summits being the Pico de Orizava and Cofre de Perote, and the western one, which becomes entangled with the other chains running toward the Nevado de Toluca. This point of intersection is marked by the volcano of Colima. The eastern chain has its nucleus in the Zempoaltepec, whose several ramifications extend over the State of Oaxaca, with the exception of the principal branch, which stretches over the State of Guerrero. Between these two mountainous chains there is another of no less importance, which includes the beautiful mountains Popocatepetl and Ixtaccihuatl. The latter, the Cofre de Perote, and the White Pick of Toluca are the highest peaks of the Mexican Andes.

The northern part of the republic, between latitude 23° 30' and 32° 42' north, belongs to the temperate zone, and the southern portion, included between 15° and 32° 30', to the torrid zone. Owing partially to this division and to the difference in the level of the soil, there is in Mexico a great variety of climate. The warm temperature is observed in the region extending from the coast to the height of 3000 feet; the temperate, from the height of 3000 feet to 5000 feet; and the cold climate, from 5000 feet to the highest summits.

The population of Mexico amounts to 8,743,000, in the following proportions:

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>European</td>
<td>2,331,000</td>
</tr>
<tr>
<td>Indigenous</td>
<td>1,750,000</td>
</tr>
<tr>
<td>Of a mixed origin</td>
<td>4,662,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,743,000</strong></td>
</tr>
</tbody>
</table>

The following list shows which are the principal centres of population:

<table>
<thead>
<tr>
<th>CITIES</th>
<th>STATES</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico,</td>
<td>District of Mexico,</td>
<td>200,000</td>
</tr>
<tr>
<td>Leon,</td>
<td>Guanajuato,</td>
<td>90,000</td>
</tr>
<tr>
<td>Guadalajara,</td>
<td>Jalisco,</td>
<td>75,000</td>
</tr>
<tr>
<td>Puebla,</td>
<td>Puebla,</td>
<td>65,000</td>
</tr>
<tr>
<td>Guanajuato,</td>
<td>Guanajuato,</td>
<td>63,000</td>
</tr>
<tr>
<td>Queretaro,</td>
<td>Queretaro,</td>
<td>48,000</td>
</tr>
<tr>
<td>Celaya,</td>
<td>Guanajuato,</td>
<td>37,000</td>
</tr>
<tr>
<td>Orizaba,</td>
<td>Vera Cruz,</td>
<td>37,000</td>
</tr>
<tr>
<td>San Miguel Allende,</td>
<td>Guanajuato,</td>
<td>35,000</td>
</tr>
</tbody>
</table>
A more complete idea of the manner in which the population is distributed can be arrived at by the following statistical table:

<table>
<thead>
<tr>
<th>NAME OF STATES IN THEIR GEOGRAPHICAL ORDER.</th>
<th>SQUARE LEAGUES.</th>
<th>POPULATION.</th>
<th>INHABITANTS PER SQUARE LEAGUE.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Souvra,</td>
<td>11,953</td>
<td>147,133</td>
<td>12</td>
</tr>
<tr>
<td>Chihuahua,</td>
<td>15,534</td>
<td>179,971</td>
<td>11</td>
</tr>
<tr>
<td>Coahuila,</td>
<td>8,692</td>
<td>67,601</td>
<td>8</td>
</tr>
<tr>
<td>Nuevo Leon,</td>
<td>2,119</td>
<td>171,000</td>
<td>81</td>
</tr>
<tr>
<td>Tamaulipas,</td>
<td>4,228</td>
<td>108,514</td>
<td>26</td>
</tr>
<tr>
<td>San Luis Potosi,</td>
<td>4,262</td>
<td>397,735</td>
<td>93</td>
</tr>
<tr>
<td>Zacatecas,</td>
<td>3,922</td>
<td>398,977</td>
<td>101</td>
</tr>
<tr>
<td>Aguas Calientes,</td>
<td>327</td>
<td>86,576</td>
<td>264</td>
</tr>
<tr>
<td>Durango,</td>
<td>6,921</td>
<td>173,942</td>
<td>27</td>
</tr>
<tr>
<td>Sinaloa,</td>
<td>3,825</td>
<td>161,157</td>
<td>42</td>
</tr>
<tr>
<td>Jalisco,</td>
<td>7,224</td>
<td>921,580</td>
<td>128</td>
</tr>
<tr>
<td>Colima,</td>
<td>353</td>
<td>46,649</td>
<td>137</td>
</tr>
<tr>
<td>Michoacan,</td>
<td>3,188</td>
<td>618,072</td>
<td>193</td>
</tr>
<tr>
<td>Guanajuato,</td>
<td>1,642</td>
<td>874,000</td>
<td>532</td>
</tr>
<tr>
<td>Queretaro,</td>
<td>506</td>
<td>166,643</td>
<td>329</td>
</tr>
<tr>
<td>Mexico,</td>
<td>1,146</td>
<td>599,810</td>
<td>323</td>
</tr>
<tr>
<td>Hidalgo,</td>
<td>1,251</td>
<td>404,207</td>
<td>323</td>
</tr>
<tr>
<td>Morelos,</td>
<td>280</td>
<td>121,409</td>
<td>423</td>
</tr>
<tr>
<td>Guerrero,</td>
<td>3,574</td>
<td>270,000</td>
<td>76</td>
</tr>
<tr>
<td>Puebla,</td>
<td>1,735</td>
<td>830,000</td>
<td>478</td>
</tr>
<tr>
<td>Taxacala,</td>
<td>221</td>
<td>117,941</td>
<td>533</td>
</tr>
<tr>
<td>Vera Cruz,</td>
<td>4,047</td>
<td>380,976</td>
<td>94</td>
</tr>
<tr>
<td>Oaxaca,</td>
<td>4,035</td>
<td>601,850</td>
<td>149</td>
</tr>
<tr>
<td>Tabasco,</td>
<td>1,876</td>
<td>83,707</td>
<td>44</td>
</tr>
<tr>
<td>Chiapas,</td>
<td>2,474</td>
<td>193,987</td>
<td>78</td>
</tr>
<tr>
<td>Campeche,</td>
<td>3,848</td>
<td>86,453</td>
<td>22</td>
</tr>
<tr>
<td>Yucatan,</td>
<td>4,818</td>
<td>282,634</td>
<td>59</td>
</tr>
<tr>
<td>Federal District,</td>
<td>12.56</td>
<td>225,000</td>
<td>18</td>
</tr>
<tr>
<td>Lower California Territory,</td>
<td>8,709</td>
<td>21,000</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>112,362.56</strong></td>
<td><strong>8,743,614</strong></td>
<td></td>
</tr>
</tbody>
</table>

The sugar and coffee culture, and the industries of which the agave plant is a basis, deserve particular mention. Numerous metalliferous veins are found in the mountains of the Sierra Madre and its different ramifications. These mineral districts contain not only the precious ores for which Mexico has been particularly noted, but also iron, tin, copper, and some other metals of great industrial value. Bismuth, having become scarce in former years, was found at last in the States of San Luis Potosi, Sinaloa, Queretaro, and Zacatecas. Discoveries of coal, precious opals, and quicksilver ores have also been made, the former in the States of Puebla and Vera Cruz, the latter in the States of Queretaro and Guerrero. The district of Huitzuco has proved the most abundant in mercury, and during the last year has supplied the Mexican market with large quantities of this useful metal.

The geological formations which are found in the mineral veins of Mexico consist chiefly of the three following classes of rocks:

1. Compact mesozoic limestone.
2. Slate and sandstone.
3. Metalliferous porphyry, which probably corresponds to the Tertiary period.

As types of these three formations should be mentioned those found respectively in the States of Queretaro, Guanajuato, and Hidalgo. Many mountains of the above-mentioned types, and containing metalliferous veins, can be seen in almost all the States of the Republic. The argentiferous galenite and tetrahedrite prevail in the first of the aforesaid formations; the polybasite and the pyrargirite in the second; and sulphuret of silver, argentiferous galenite, and blende in the third. The collections exhibited in the Mexican Department of the Main Building include some
samples of these mineral compounds, and of rocks useful as building and ornamental materials, among which the beautiful calcareous slates from the District of Tecali (State of Puebla) are worthy of especial mention.

Among the advantages which industry and trade have secured in Mexico, the double line of railroad from the principal port to the capital, and the exceptional and liberal tariffs established for goods intended for exportation, ought to be considered as the most beneficial. One of the aforesaid lines (via Orizaba) is complete, and has been in operation for several years; the other, which connects Vera Cruz with the town of Jalapa and with some of the agricultural districts of the State of Puebla, will soon be completed. The Mexican Congress has made very liberal grants for the construction of three railways intended to connect the city of Mexico with the northern frontier, and the districts more abundant in tropical products with the city of Puebla. Between this city and the trunk line of the Vera Cruz Railroad there is a branch line in operation. Another railroad connecting the capital with the city of Toluca is under construction, and in operation as far as the town of Tlalnepantla. Another line connects the port of Vera Cruz with the town of Medellin. The capital is connected by electric wires with the principal cities and with the ports and coasts of the republic.

The United States of Mexico maintain an active trade with the following nations, viz.: England, France, United States, Germany, Spain and Cuba, New Granada, Guatemala, Nicaragua, and on smaller scale with Belgium, Ecuador, and Italy.

The imports of foreign goods during the fiscal year ending June, 1873, amounted to $29,062,406.94, taking as a basis the market value of the articles. All the articles are registered in the custom-house tariff of duties under eleven heads, viz.:

<table>
<thead>
<tr>
<th>INVOICE VALUE.</th>
<th>MARKET VALUE.</th>
<th>DUTIES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$7,311,646.03</td>
<td>$10,531,970.15</td>
<td>$4,734,340.87</td>
</tr>
<tr>
<td>3,437,525.43</td>
<td>5,191,786.62</td>
<td>2,012,599.30</td>
</tr>
<tr>
<td>2,411,593.73</td>
<td>3,354,259.77</td>
<td>763,908.87</td>
</tr>
<tr>
<td>1,356,600.31</td>
<td>2,184,014.56</td>
<td>1,055,828.05</td>
</tr>
<tr>
<td>1,434,216.56</td>
<td>2,035,609.63</td>
<td>564,125.89</td>
</tr>
<tr>
<td>993,362.76</td>
<td>1,452,978.28</td>
<td>644,496.77</td>
</tr>
<tr>
<td>1,038,044.31</td>
<td>1,427,367.58</td>
<td>605,146.49</td>
</tr>
<tr>
<td>998,831.81</td>
<td>1,417,427.61</td>
<td>267,404.71</td>
</tr>
<tr>
<td>419,017.10</td>
<td>588,911.32</td>
<td>206,547.31</td>
</tr>
<tr>
<td>344,936.45</td>
<td>577,510.82</td>
<td>131,011.33</td>
</tr>
<tr>
<td>173,852.32</td>
<td>300,669.95</td>
<td></td>
</tr>
<tr>
<td>$19,919,632.81</td>
<td>$29,062,406.94</td>
<td>$10,989,319.64</td>
</tr>
</tbody>
</table>

The value of goods exported amounts to $31,473,607.24. The exports are arranged under two heads:

- Minerals and metals, $25,373,673.78
- Agricultural and industrial products, 6,317,477.66

Total, $31,473,607.24

Under the first heading are:

- Silver coin, $22,602,493.33
- Solid silver, 1,512,616.94
- Gold coin, 640,270.97
- Solid gold, 288,578.21
- Ores and mineral earths, 222,854.00
- Silver amalgam, 39,251.78
- Lead, 30,831.00
- Copper, 17,127.94
Under the second heading:

Skins, .................................................. $1,546,869.43
Henequen, ............................................. 1,049,202.58
Building and color woods, .......................... 1,042,586.31
Coffee, .................................................. 532,912.86
Vanilla, ............................................... 414,038.40
Cochineal, ............................................ 276,699.30
Cattle, .................................................. 209,960.00
Tobacco, ............................................... 132,984.75
Orchilla (Rocsella tintorea), ......................... 128,450.09
Precious pearls, ...................................... 109,300.00
Caoutchouc, .......................................... 93,052.88
Sarsaparilla, .......................................... 90,862.18
Wool, ................................................... 88,635.72
Indigo, .................................................. 80,229.87
Jalap, ................................................... 77,517.40
Cocoanuts, ............................................. 46,000.00

The revenue of the General Government and the expenses of the Federal Administration amount to a yearly average of 20,000,000 dollars.

There have been 8103 schools established by the Government for the primary instruction of the people. In eighteen of the States attendance has been made compulsory.

The official data in regard to secondary and higher instruction are condensed in the following figures relating to the institutions of these two degrees, maintained by the Mexican government:

26 Preparatory Schools.
18 Colleges of Jurisprudence.
12 " " Engineering.
11 " " Medicine.
9 " " Pharmacy.
2 " " Navigation.
2 " " Agriculture.
2 " " Mining.
2 Conservatories of Art.
3 " " Music.
15 Ladies' Colleges.

The above list does not include a large number of establishments conducted by the clergy, benevolent societies, or private teachers.

Commission from MEXICO to the International Exhibition:

Commissioners.

MANUEL M. DE ZAMAcona.
MARIANO BARCENA.
ELENTERIO AVILA.
MANUEL CORELLA, Attache.
AURTRO Ybanez, Engineer.

EDITH BORZELL, Engineer.
LLUTARCO ORNELAS, Acting Sect'y.
FERNANDO CAMACHO, Employe.
J. LEON CALDERON, Employe.
LIBERIA.

The Republic of Liberia is situated on the West Coast of Africa, between the fourth and eighth degrees of north latitude, and extends along five hundred and twenty miles of the coast, from the English colony of Sierra Leone to the mouth of the San Pedro River. Its most interior settlement is some thirty miles from the sea-board. The land has been purchased in an open and honorable manner from the aboriginal owners, and there is no obstacle to the acquisition of additional territory inland until the heart of the great continent is reached.

Immediately on the sea-shore the land is generally low, but very soon becomes elevated, rising in gentle undulations or swells. The whole country is well wooded and watered. Timber suitable for building purposes, cabinet-work, and shipbuilding is abundant, as is also good water.

All tropical productions are readily raised in Liberia, many of them the entire year, and dug from the earth every month for use. The Lima bean, tomato, and egg-plant are indigenous and of several varieties, and yield abundantly. Fruits grow in a wild state and under cultivation. Oranges are especially fine. Nowhere is a better quality of sugar-cane produced. Liberia coffee is the richest known, always commanding the highest market price. Cotton, ginger, ground-nuts, arrow-root, pepper, and indigo are mainly raised by the American settlers. Palm-oil, made by the natives, ivory, camwood, gums, and hides are valuable articles of commerce exported from Liberia. Horses are little used on the coast, but are plentiful in the interior. Cows, goats, hogs, ducks, turkeys, and fowls are abundant. The rivers abound in shell and other fish.

The climate is uniformly sultry and moist, but the heat is not excessive; the thermometer in the wet season stands at about 71°, and in the dry at about 82°.

A very great impulse is perceptible in Liberian industry during the last thirteen years. The greatest success has, however, resulted from a natural capacity for agriculture, which is growing rapidly and promises at an early day to make the whole territory a vast coffee grove. A very superior quality of iron ore is found in all parts of the country and worked by the natives, and will be of great use in manufacture and trade. Three years ago a volcanic eruption disclosed many valuable minerals.

The American Colonization Society, to which Liberia owes its origin, was founded in Washington, D.C., December 21st, 1816. It has given passage more or less every year for the last fifty-five years to 15,098 persons of color, and it induced the government of the United States to settle in Liberia 5722 recaptured Africans, making a grand total of 20,820 persons to whom the society has given homes in that republic. Monrovia, at the mouth of the river Mesurado, is the capital, and has about 7000 inhabitants.

Some 600,000 natives residing on the territory of Liberia live mostly in their own towns, subject to their own headmen and their own laws, yet amenable to Liberian authority and having all the protection and privileges of citizens. Not a few have become such and creditably fill various public offices, while all are gradually acquiring the arts, comforts, and conveniences of civilized life.

The last tabular statement issued shows the previous year's imports of Liberia to have reached $209,423.88, and the exports $171,351.47. Since then Edward S.
Morris & Co., of Philadelphia, Pa., have introduced improved and patented coffee-hulling machinery and a steamer, the first on the St. Paul's River, thus greatly stimulating not only the production and transportation of coffee, but other valuable articles, for export. They have also there begun the manufacture of palm-oil soap and indigo. The commercial statistics of Liberia would therefore, if presented now, appear far more advantageously.

There are two Liberia newspapers, the "Liberia Advocate" and the "Interior." The former aims to discuss principles and point facts that will be useful to the country in every particular; the other is especially devoted to assisting intercourse and amity with the strange interior tribes, most of whom can read, while all are anxious for an English education. By a law of Liberia all parents are required to send their children to school. In some of the settlements the schools are good. A college, the materials and erection of which cost $20,000, is in operation at Monrovia. All the professors are colored men.

The State has good patent laws, hospitals, and saw-mills and lighthouses. All religious denominations are allowed, and there are several in each of the settlements. Quite a number of vessels have been built in the country and are owned, manned, and managed wholly by Liberians. Some of these have appeared in American and European ports loaded with Liberian and other African products.

The Constitution of Liberia very closely resembles that of the United States, and was adopted in convention on the 26th of July, 1847. The powers of government are vested in three departments, legislative, executive, and judicial. The legislative authority consists of a House of Representatives and a Senate, each of which has a negative on the other. The election of representatives is for two years. Two members from each county constitute the Senate, and are elected for four years. The executive power is vested in a President, chosen every two years. He is commander-in-chief of the army and navy, and makes treaties, two-thirds of the Senate concurring. With the advice and control of the Senate he appoints all public officers for whose appointment special provision is not made by law. There is also a Vice-president elected in the same manner, who is president of the Senate. The judicial power is placed in a Supreme Court and such subordinate courts as the legislature may from time to time establish.

Among the miscellaneous provisions of this Constitution is the following: "Section 13. The great object of founding these colonies being to provide a home for the despised and oppressed children of Africa, and to regenerate and enlighten that benighted continent, none but persons of color shall be admitted to citizenship in this republic."

Liberia has an earnest hope that this exhibition of her products will attract the attention of colored Americans and draw the large immigration needed. The country needs this more than anything else, and with it could be powerful and rich in ten years.
SPAIN.

SPAIN occupies the larger portion of the great peninsula which forms the southwest corner of the European continent, reaching farther south than any other European country, and farther west than any except Portugal. It is bounded on the north by the Bay of Biscay and by France, from which it is separated by the mountain ridge of the Pyrenees, on the east and south by the Mediterranean and Atlantic, and on the west by the Atlantic and Portugal. Greatest length, from Fuenterrabia on the north to Tarifa on the south, 560 miles; greatest breadth, from Cape Finisterre (Land's End), the extreme point on the west, to Cape Creuze, the extreme point on the east, about 650 miles; average breadth about 380 miles. Area, including the Balearic and Canary Isles, 196,031 English square miles; population (1870), 16,835,506. The country, including the Balearic and Canary Isles, was divided, in 1834, into 49 modern provinces, though the former division, into 14 kingdoms, states, or provinces, is still sometimes used.

The entire perimeter of the country is 2080 English miles, and the coast line, exclusive of windings, is 1317 miles long, of which 712 miles are formed by the Mediterranean, and 605 miles by the Atlantic. The north coast, from Fuenterrabia west to Cape Ortegal, is unbroken by any considerable indentation. A wall of rocks, varying in height from 30 to 300 feet, runs along this shore; but the water, which retains considerable depth close to the beach, is not interrupted to any unusual extent by islands or rocks. The northwest coast, from Cape Ortegal south to the mouth of the river Minho—which separates the Spanish province of Galicia from Portugal—though rock-bound, is less elevated, and is much more broken than the shores washed by the Bay of Biscay; and the indentations, the chief of which are Noya Arosa and Vigo Bays, form secure and spacious harbors. From the mouth of the Guadiana, on the south, to the Strait of Gibraltar, the coast line, though well defined, is low, sandy, and occasionally swampy. From Gibraltar to Cape Palos the shores, which are backed in part by the mountain range of the Sierra Nevada, are rocky and high (though flats occur at intervals), are unbroken by indentations, and comprise only two harbors, those of Cartagena and Malaga. A low, and for the most part sandy, coast extends north from Cape Palos, rising into rocky cliffs and bluffs in the vicinity of Denia, but extending in sandy flats from Denia to the mouth of the Ebro. From the mouth of this river north to the frontier of France the coast is alternately high and low, and its principal harbors are Barcelona and Rosas. The compactness and the isolation of this country, and its position between two seas, the most famous and commercially the most important in the world, are not more in its favor than the character of its surface, which is more diversified than that of any other country in Europe of equal extent. An immense plateau, the loftiest in the continent, occupies the central regions of Spain, and is bounded on the north and west by mountainous tracts, and on the northeast by the valley of the Ebro; on the east by tracts of land frequently low, but in some parts traversed by hill ranges; and on the south by the valley of the Guadalquivir, which intervenes between it and the Sierra Nevada. This great plateau rises to the height of from 2000 to 3000 feet, and occupies upward of 90,000 square miles, or about half of the entire area of the country. The whole of the Pyrenean peninsula is divided by Spanish geographers into seven mountain ranges, of which the chief are: 1. The Cantabrian mountains and the Pyrenees, forming the most northern range; 2. The
Sierra de Guadarrama, separating Leon and Old Castile from Estremadura and New Castile, and rising in the peak of Penalara 7764 feet above sea level; 3. The Montes de Toledo, forming a part of the water-shed between the Tagus and the Guadiana; 4. The Sierra Morena, between the upper waters of the Guadiana and Guadalquivir; 5. The Sierra Nevada, running parallel with the shores of the Mediterranean, through Southern Murcia and Andalusia, and rising in its chief summits to loftier elevations than are found in any mountain system of Europe except that of the Alps. The several mountain ridges, or as they are called Cordilleras, of Spain, have a general east and west direction, and between them run, in the same direction, the nearly parallel valleys or basins of the great rivers of the country, the Douro, Tagus, Guadiana, and Guadalquivir, each of which is described in its proper place.

The climate of Spain, owing to extent and configuration of the country, is exceedingly various. In the northwest (maritime) provinces it is damp and rainy during the greater part of the year; at Madrid, which is situated about 11° south of London, and only 5° north of the shores of Africa, winters have occurred of such severity that sentinels while on duty have been frozen to death, while the south and east provinces are warm in winter, and are exposed to burning winds from the south, and to an almost tropical heat, in summer. Both ancient and modern geographers have adopted difference of climate as the rule for dividing the peninsula into tracts distinct as well in soil and vegetation as in temperature. Of these tracts or zones the first and most northern may be considered as embracing Galicia, Asturias, the Basque Provinces, Navarre, Catalonia, and the northern districts of Old Castile and Aragon. In this tract the winters are long and the springs and autumns rainy, while north and northeast winds blow cold from the snow-covered Pyrenees. The middle zone is formed mainly by the great central plateau, and embraces Northern Valencia, New Castile, Leon, and Estremadura, with the south parts of Old Castile and Aragon. The climate of the great part of this region is pleasant only in spring and autumn. The soil is generally fertile, and corn and wine are most abundantly produced. The southern or Betican zone, comprising the rich country that extends between the southern wall of the central plateau and the Mediterranean shores, includes Andalusia, Murcia, and Southern Valencia. The stony rampart on the north protects it from the chilly winds of the central zone; but it is unprotected against the hot winds which in summer blow north from Africa and render this season intolerable to northern Europeans. Here the winter is temperate, and the spring and autumn delightful beyond description. The soil, which is artificially irrigated, is well adapted to agriculture and the cultivation of heat-loving fruits. The products comprise sugar, cotton, and rice, and the orange, lemon, and date.

The vast mountains of the country, affording, for the most part, only scanty crops of herbage, are utilized as pasture-grounds and are divided into large farms. But in the warm and fertile plains, especially where water is abundant, the farms are small. In 1860 there were 3,426,083 farms of all sizes, of which 750,000 were occupied by tenants, and the others by proprietors.

The cotton manufactures of Spain have been making considerable progress, and silk stuffs are largely fabricated. The principal cotton factories are at Barcelona. Excellent paper is made at Tolosa and Valladolid, and in the last-named town there are a few minor manufactures. The manufactures of tobacco, arms, and gunpowder are carried on by the government exclusively. Though neither the agricultural nor mineral resources of Spain are properly developed, a great advance has been evident within the last ten years, chiefly in mining, and more especially so in the working of lead and copper mines. Lead, copper, and tin are abundant, and there are large deposits of good coal and iron ore. The quicksilver mines of Almaden have been long celebrated and are still worked.

The merchant navy consisted in 1873 of 3069 vessels, of a total burden of 678,886 tons. Of these 252 were steam-vessels, 138,670 tons burden. The imports during
the year 1874 amounted to 382,000,000 pesetas, the exports to 403,000,000 pesetas. The principal imports are sugar, yarn, woolen fabrics, raw cotton, iron, machinery, coals, and dried fish; the principal exports are wine, metals, dried fruit, flour, bullion, green fruits, olive-oil, minerals, wool, grain, vegetation, and seeds, cork, and salt.

At the end of 1875 Spain had no constitution, but it was resolved by the government of King Alfonso XII, that a charter should be drawn up by a Cortes Constituyentes, to be called together in the spring of 1876. As a preliminary measure a committee of senators and deputies of the last Cortes, dissolved in 1874, had been called together July, 1875, at Madrid, which meeting resulted in the production of a constitutional scheme which was adopted by the government, and from which are to spring the future fundamental laws of Spain. The projected constitution provides that the power to make laws shall reside " in the Cortes with the king," and that the Cortes shall be composed of a Senate and Congress equal in faculties.

The various provinces of Spain, districts and communes, are governed by their own municipal laws, with strongly pronounced local administration. Neither the national executive nor the Cortes have the right to interfere in the established municipal and provincial self-government, except in case the action of the provincial parliaments or municipal councils (ayuntamientos) goes beyond the locally limited sphere to the injury of general and permanent interests.

The public debt, June 1, 1874, was 10,120,285,220 pesetas; the estimated public receipts for the financial year 1874-75, 609,541,141; estimated expenditures for the same year, 605,125,569. The army statistics are as follows:

<table>
<thead>
<tr>
<th></th>
<th>On a Peace Footing</th>
<th>On a War Footing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infantry</td>
<td>56,000</td>
<td>173,000</td>
</tr>
<tr>
<td>Cavalry</td>
<td>10,900</td>
<td>10,900</td>
</tr>
<tr>
<td>Artillery</td>
<td>9,300</td>
<td>11,900</td>
</tr>
<tr>
<td>Engineers</td>
<td>2,200</td>
<td>2,200</td>
</tr>
<tr>
<td>Carabiners</td>
<td>13,000</td>
<td>13,000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>91,400</strong></td>
<td><strong>216,000</strong></td>
</tr>
</tbody>
</table>

The navy consists of 123 steam-vessels, carrying 755 guns and aggregating 21,161 horse-power. Besides these, there are 3 school-ships, carrying 54 guns, and 2 sailing-vessels. The Spanish fleet is manned by 14,000 seamen and 5500 marines.

The length of railways in operation January, 1875, was 3810 English miles, and 1264 English miles were in course of construction. The whole of the Spanish railways belong to private companies, but nearly all have obtained guarantees or subventions from the government.

The post-office carried 75,300,000 letters in the year 1874. There were 2365 post-offices on the 1st of January, 1875.

The length of lines of telegraph on the 1st of January, 1875, was 7510 English miles, and the total length of wires 16,950 English miles. In the year 1874 the number of messages was 937,845.

### COLONIES

<table>
<thead>
<tr>
<th>Colony</th>
<th>Area in English Sq. Miles</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AMERICA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cuba</td>
<td>43,225</td>
<td>1,400,000</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>3,544</td>
<td>625,000</td>
</tr>
<tr>
<td><strong>ASIA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippine Islands and adjacent archipelago</td>
<td>66,423</td>
<td>6,034,410</td>
</tr>
<tr>
<td><strong>AFRICA</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fernando Po, Annobon, etc.</td>
<td>483</td>
<td>35,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113,675</strong></td>
<td><strong>8,069,410</strong></td>
</tr>
</tbody>
</table>

* The peseta = 19.3 cents. 
The following figures show the production of sugar and molasses and amount exported from Cuba during the year 1873:

<table>
<thead>
<tr>
<th></th>
<th>Production</th>
<th>Exported</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar</td>
<td>796,179</td>
<td>714,960</td>
</tr>
<tr>
<td>Molasses</td>
<td>242,308</td>
<td>189,333</td>
</tr>
<tr>
<td>Total</td>
<td>1,038,487</td>
<td>904,293</td>
</tr>
</tbody>
</table>

About two-thirds of the sugar and about nine-tenths of the molasses are sent to the United States.

The exports from the port of Havana during the year 1873 included 1412 tierces of honey, 19,574 pipes of rum, 46,216 lbs. of wax, 13,387,652 lbs. of tobacco, and 224,765,000 cigars. The number of vessels entered at the port of Havana during 1873 was 2194, with a total tonnage of 921,632.

During the same year Porto Rico exported 2,032,913 quintals of sugar, 6,082,539 gallons of molasses, 270,895 quintals of coffee, 51,766 quintals of tobacco, 2484 quintals of cotton, and 32,782 gallons of rum.

The exports of the Philippine Islands are principally sugar, hemp, tobacco, cigars, and coffee, and amounted in 1873 to 15,216,000 pesos.*

(The above statistics were furnished in part by the Spanish Commission.)

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Commission from SPAIN to the International Exhibition:

**Colonel F. Lopez Fabra**, Royal Commissioner-General.
**Colonel Juan J. Marin**, Engineer Corps, Royal Spanish Commissioner.
**Don Joaquin Oliver**, Secretary.
**Don Alvaro de la Gandara**, Director of the Industrial Department.
**Count del Donadio**, Director of the Department of Fine Arts.
**Don Jose Jordana y Morera**, Director of the Agricultural Department.
**Don Juan Morphy**, Consul-General of Spain, Member of the Commission.
**Don Julian A Principe**, Vice-Consul, Attache.
**Don Miguel Gonzalez**, Attache.
**Don Jose Fonrodona**, Attache.

*Chiefs of Bureaus.*

**Don Enrique Brotons.**
**Don Alfredo Escobar.**

*Chiefs of Installation.*

**Don Bernardo Forzano.**
**Don Francisco Forzano.**
**Don Francisco Parody**, Interpreter.

*The peso = 92½ cent.*
PORTUGAL.

PORTUGAL, the most westerly kingdom of Europe, is a part of the great Spanish peninsula, and lies in 36° 55' to 42° 8' N. lat., and 6° 15' to 9° 30' W. long. Its greatest length from north to south is 368 miles, and its average breadth from east to west about 100 miles. It is bounded by the Atlantic on the south and west, and by Spain on the north and east.

Portugal is divided into six provinces, the area of which and population, according to the last census (1868), is given in the subjoined table:

<table>
<thead>
<tr>
<th>PROVINCES</th>
<th>AREA IN ENGLISH SQ. MILES</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minho</td>
<td>2,671</td>
<td>983,985</td>
</tr>
<tr>
<td>Tras-os-Montes</td>
<td>4,065</td>
<td>376,144</td>
</tr>
<tr>
<td>Beira</td>
<td>8,589</td>
<td>1,288,994</td>
</tr>
<tr>
<td>Estremadura</td>
<td>8,834</td>
<td>875,751</td>
</tr>
<tr>
<td>Alemtejo</td>
<td>10,455</td>
<td>332,237</td>
</tr>
<tr>
<td>Algarve</td>
<td>2,099</td>
<td>177,342</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36,510</strong></td>
<td><strong>3,995,153</strong></td>
</tr>
</tbody>
</table>

The insular appendages of Portugal are, the Azores, 1,133,79 sq. miles, pop. (1868) 252,480; Madeira, etc., 330.75 sq. miles, pop. 113,341. The total area of the home possessions of Portugal is, therefore, 37,510.83 sq. miles, and the population 4,360,674.

Portugal must be regarded as essentially a littoral country, forming the Atlantic or western part of the Spanish peninsula, from which it is separated by political rather than physical boundaries. Its mountains and rivers are, with few exceptions, mere western prolongations of those of Spain. The principal mountain ranges lie about halfway inland, leaving almost the whole of its 500 miles of coast-line a flat sandy tract, with few rocky headlands, and hence there are scarcely any harbors or places of safe anchorage, except at the embouchures of the larger rivers. The highest range is the Serra de Estrela, which, passing from north-north-east to south-south-west, through Beira and Estremadura, terminates in the steep acclivities of Cintra and Cap la Rocca, near Lisbon. The principal chain, which is also known as the Serra da Junto, merges in a series of ridges, which cover a tract thirty miles in length between the Tagus and the sea. Another mountain range, named the Serra de Calderao and the Serra de Monchique, but constituting a mere continuation of the Spanish Sierra Morena, crosses the southern part of Portugal from east to west, and terminates in its most southern promontory of Cape St. Vincent. These ranges, with the numerous mountain-spurs that intersect the northern districts in every direction, so thoroughly occupy the area of Portugal that there are only two or three plains of any extent in the whole country, and these are situated to the west of the Guadiana, in Alemtejo, and in Beira and Estremadura, near the Tagus and Vouga. The valleys are very numerous, and by their great fruitfulness present a striking contrast to the barren and rugged mountains by which they are enclosed. The principal rivers enter Portugal from Spain. Of these, the largest are the Guadiana, which, leaving Spain near Badajoz, forms in part the boundary between the southern provinces of the neighboring kingdom, while the Minho and Douro, flowing west, form a part of the boundary in the north and north-east. The Tagus, or Tejo, intersects Portugal from its northern frontier to the southern termination of the Estrela Mountains, where it enters the sea a little below Lisbon. The Mondego, the largest river belonging entirely to Portugal, after receiving numerous affluents in its course, falls into the sea about midway between the Douro and the Tagus. The larger rivers, although obstructed at their mouth with dangerous bars, afford admirable means of internal navigation, together with the numerous lesser streams, and might through
canals be connected into one great system of water routes; but hitherto nothing has been done to improve these great natural advantages. Except a few mountain tarns, Portugal has no lakes. It has salt marshes on the coast near Setubal, in Estremadura, and Aveiro, in Beira, whence large quantities of salt are annually obtained by evaporation. Mineral springs are abundant in many parts of the country, but hitherto they have been almost wholly neglected.

The vicinity to the western ocean tempers the climate of Portugal and exempts it from the dry heat by which Spain is visited. The great inequalities of the surface produce, however, great diversities of climate; for while snow falls abundantly on the mountains in the northern provinces, it is never seen in the lowlands of the southern districts, where spring begins with the new year and harvest is over by mid-summer. Rain falls abundantly, especially on the coast, from October to March, and as a general rule the climate is healthy in the elevated districts even of the southern provinces; but malaria and fever prevail in low, flat lands and near the salt marshes. The mean annual temperature at Lisbon is 61° Fahr.

The natural products correspond to the diversity of the physical and climatic conditions; for while barley, oats and wheat, flax, hemp are grown in the more elevated tracts, rice is cultivated in the lowlands, the oak thrives in the northern, the chestnut in the central, and the cork, date, and American aloe in the southern parts, while every species of European and various kinds of semi-tropical fruits and vegetables are grown in different parts of the country. The soil is generally rich, but agriculture is everywhere neglected, and is scarcely made subservient to the wants of the population. The cultivation of the vine and that of the olive are almost the sole branches of industry; from the former is derived the rich red wine familiarly known to us as Port, from its being shipped at Oporto, "the port." The mineral products include gold, antimony, lead, copper, marble, slate, coal, iron, and salt, but of these the last is alone worked in sufficient quantity for exportation, and is in eager demand for the British market on account of its superior hardness, which adapts it specially for the salting of meat for ships. The commercial industry of the country falls very far below its physical capabilities, and Oporto and Lisbon are the only centres of manufacture and trade, the former of which has important silk and glove manufactories, and produces an inconsiderable quantity of linen, cotton, and wool fabrics, metal and earthenware goods, tobacco, cigars, leather, etc.

The external trade of Portugal is as follows: Imports 34,047,000 milreis, exports 23,609,000 milreis. (The milreis equals $1.08 in gold.)

The commercial navy of Portugal consisted on the 1st of January, 1872, of 813 vessels, of a total burden of 88,510 tons.

The fundamental law of the kingdom is the "Carta Constitucional," granted by King Pedro IV. April 29th, 1826, and altered by an additional act, dated July 5th, 1852. The crown is hereditary in the female as well as male line, but with preference of male in case of equal birthright. The constitution recognizes four powers in the state, the legislative, the executive, the judicial, and the "moderating" authority, the last of which is vested in the sovereign. There are two legislative chambers, the "Camera dos Pares," or House of Peers, and the "Camera dos Deputados," or House of Commons, which are conjunctively called the Cortes Geraes. The peers, unlimited in numbers, but actually comprising 133, are named for life by the sovereign, by whom also the president and vice-president of the first chamber are nominated. The members of the second chamber are chosen in direct election by all citizens having a clear annual income of 133 milreis. The deputies must have an income of at least 390 milreis, but lawyers, professors, physicians, or the graduates of any of the learned professions need no property qualification. Continental Portugal is divided into ninety-four electoral districts, returning as many deputies. The General Cortes meet and separate at specified periods, without the intervention of the sovereign, and the latter has no veto on a law passed twice by both Houses. All laws
relating to the army or general taxation must originate in the Chamber of Deputies. The executive authority vests, under the sovereign, in a responsible ministry.

The budget of the financial year 1875-76 gives the estimated revenue at 23,152,000 milreis, and the expenditure at 24,129,000 milreis.

About one-half of the total liabilities of Portugal rank as an external debt, contracted for mainly in Great Britain, the rest being a home debt. The entire public debt amounted November 30, 1873, to £72,833,000. The army, in time of peace, numbers 31,826 men.

The navy of Portugal comprised, at the end of 1875, 21 steamers and 11 sailing-vessels, most of the latter laid up in harbor. The steamers comprise 9 corvettes, 3 sloops, and 7 gunboats, with a total of 170 guns and 4906 horse-power. The navy is officered by 1 vice-admiral, 5 rear-admirals, and 31 captains, and manned by 3493 sailors and marines.

The total length of railways in Portugal at the commencement of 1875 was 523 English miles. All the railways receive subventions from the state.

The number of post-offices in the kingdom at the beginning of 1872 was 599, and the number of telegraph offices 121. There were at the same time 1944 miles of telegraph lines. The number of telegrams despatched in the year 1871 was 698,700, nearly one-fifth for foreign countries. An international service by submarine cables was opened June 11, 1870.

Public education is entirely free from the supervision and control of the Church. By a law enacted in 1844 it is compulsory on parents to send their children to a place of public instruction, but this prescription is far from being enforced.

There are at present—

Scientific establishments for higher education, ........................................ 9
For secondary education, .............................................................. 19
Elementary schools, ...................................................................... 2445
For especial instruction, ............................................................ 6

The sum voted in 1875 for public instruction amounted to 902,730 milreis. The sum expended by private persons is estimated at about 300,000 more.

Colonies.

The colonial possessions of Portugal, situated in Asia and Africa, embrace a total area of 713,225 English square miles, or 34,820 geographical square miles. The latest official returns, based mainly on estimates, state the area and population as follows:

<table>
<thead>
<tr>
<th>AREA IN GEOG. SQ. MILES</th>
<th>POPULATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. POSSESSIONS IN ASIA:</td>
<td></td>
</tr>
<tr>
<td>Settlements at Goa, Salcete, etc.......................... 68.60</td>
<td>474,233</td>
</tr>
<tr>
<td>&quot; Damas and Diu .................................................. 7.45</td>
<td>53,284</td>
</tr>
<tr>
<td>Indian Archipelago, ............................................. 26.00</td>
<td>850,300</td>
</tr>
<tr>
<td>Macao ..................................................................  .56</td>
<td>100,000</td>
</tr>
<tr>
<td>Total Asia .......................................................... 336.61</td>
<td>1,477,817</td>
</tr>
<tr>
<td>2. POSSESSIONS IN AFRICA:</td>
<td></td>
</tr>
<tr>
<td>Cape Verde Islands, ............................................... 77.64</td>
<td>67,347</td>
</tr>
<tr>
<td>Settlements in Senegambia and Guinea, ................... 1,687</td>
<td>8,500</td>
</tr>
<tr>
<td>Islands of St. Thomas and Principe, ....................... 21.36</td>
<td>19,295</td>
</tr>
<tr>
<td>Angola, Benguela, and Mossamedas, ...................... 14,700</td>
<td>2,000,000</td>
</tr>
<tr>
<td>Mozambique and Sofala, ......................................... 18,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Total Africa ...................................................... 34,486</td>
<td>2,395,142</td>
</tr>
<tr>
<td>Total Possessions ............................................... 34,822</td>
<td>3,872,059</td>
</tr>
</tbody>
</table>
Although of small extent, the Cape Verde Islands are estimated as the most important colonial possession of Portugal, politically and commercially. There are nine principal or inhabited islands that form the archipelago of the Cape de Verdes. Five of these islands—viz., St. Nicholas, Bona Vista, San Antonio, St. Vincent, and Sal—compose the Windward, and the four remaining islands—St. Jago, Fogo, Brava, and Maio—the Leeward, group. The island of St. Vincent, 70 English square miles in extent, but with not more than 1700 inhabitants, is possessed of a deep and excellent harbor, affording a secure anchorage at all seasons for vessels of the largest size. In the year 1871 there entered St. Vincent harbor 317 vessels of all nations. These islands, being in the direct route of European steamers bound to the coast of Brazil, the river Plate, and the west coast of South America, are of great value as affording a convenient resting-place for coaling and renewing provisions and water.

By the terms of a law passed by the Cortes Geraes of Portugal in 1858, domestic slavery is to cease in all the Portuguese colonies and settlements on the 29th of April, 1878.

Commission from PORTUGAL to the International Exhibition:

The preliminary works of the International Exhibition of Philadelphia were committed by the Portuguese Government to different corporations, these being helped by the authorities of the country.

EXECUTIVE COMMITTEES IN PORTUGAL.

DEPARTMENT I.

Bureau of Mines. JOAO BAPTISTA SCHIAPPA D'AZEVEDO, Chief.

Mining Engineers.

JOAO FERREIRA BRAGA.
LOURENCO MALHEIRO.

Francisco Ferreira Roquette.
Pedro Victor da Costa Sequeira.

DEPARTMENTS II., III., IV., AND V.

Committee of the Society for the Encouragement of Manufacturing Industry.

ANTONIO AUGUSTO D'AGUIAR, Director of the Industrial Institute of Lisbon, President.

DANIEL CORDEIRO FEIO.
JOAQUIM MOREIRA MARQUES.
MANUEL DE CARVALHO RIBEIRO VIANNA.
IZIDORO THOMAZ DE MOURA CARVALHO.
MANUEL GOMES DA SILVA.
JOSE CAETANO D'ALMEIDA NAVARRO.
ANTONIO ADRIANO DA COSTA.
FIRMINO SEIXAS.
FRANCISCO JOSE LOPES FERREIRA.
MATHEUS FERREIRA.
ANTONIO DOS SANTOS MIGUEIS.
JULIO JOSE PIRES.
HENRIQUE PEREIRA TAVEIRA.

AT OPORTO.

GUSTAVO ADOLPHO GONCALVES E SOUZA, Director of the Industrial Institute of Oporto.

DEPARTMENTS VI. AND VII.

Committee of the Royal Central Society of Portuguese Agriculture.

VISCONT OF CARNIDE, President.

MANUEL JOSE RIBEIRO.
CAETANO DA SILVA LUZ.
JAYME BATALHA REIS.
ALFREDO DE QUEIROZ GUEDES, Treasurer.
LUIZ AUGUSTO MARTINS D'ANDRADE, Secretary.
Committee of the Agricultural Society of Oporto.
BENTO DE FREITAS SOARES, President.
BARON OF ROEDA.
VISCOUNT OF VILLARINHO DE S. ROMAO.
VISCOUNT OF VILLAR ALLEN.
CONSTANTINO VANZELLER.
ARNALDO AMANDIO PEREIRA DE FARIA.
ALFREDO CARLOS LE COCQ.
Joaquim Taibner de Moraes, Secretary.

COMMISSION IN PHILADELPHIA.
BARON OF SANT' ANNA, Royal General Commissioner.

DEPARTMENTS I., II., III., IV., AND V.

LOURENCO MALHEIRO, Commissioner.
ANTONIO JOSE ANTUNES NAVARRO.
FORGE CANDIDO BERKELEY COTTER.
THOMAZ VICTOR DA COSTA SEQUEIRA.

DEPARTMENTS VI. AND VII.

JAYME BATALHA REIS, Commissioner.
ALFREDO CARLOS LE COCQ.
MEM RODRIGUES DE VASCONCELLOS.
CAETANO OLYMPIO ROVERE.
TURKEY.

Turkey, or the Ottoman Empire, includes large portions of the continents of Europe, Asia, and Africa, and consists of Turkey Proper, which is under the direct rule of the sultan, and of numerous dependent and tributary states, governed by their own princes. Turkey Proper is partly in Europe and partly in Asia, and is divided into a number of provinces, or eyalets.

The total area of the empire comprises 1,812,048 square miles, divided as follows:

<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turkey in Europe</td>
<td>207,438</td>
</tr>
<tr>
<td>&quot; &quot; Asia,</td>
<td>660,870</td>
</tr>
<tr>
<td>&quot; &quot; Africa,</td>
<td>943,740</td>
</tr>
<tr>
<td>Total</td>
<td>1,812,048</td>
</tr>
</tbody>
</table>

The states dependent upon Turkey are either subject to hereditary chiefs—as in Egypt, Servia, and Montenegro—to elective rulers, or to viceroyes appointed by the Sultan; and these chiefs, of whatever sort, must, on their accession, be approved of by the sultan, must acknowledge his suzerainty, and pay tribute; in all other respects they are on the footing of independent rulers.

Turkey Proper, as the immediate possessions of the sultan are called, is bounded by the Austrian dominions, Roumania, and the Black Sea on the north; by Persia, the Persian Gulf, and the Arabian Desert on the east; and by the Red Sea and its outlet, Egypt, the Mediterranean, Greece, the Adriatic Sea, and the Austrian empire on the south and west.

Turkey in Europe, the smaller of the two divisions of Turkey Proper, is generally hilly and undulating, traversed by a mountain system which has its origin in the Alps, whose eastern extension, the Julian Alps, enters the country at its north-west corner, runs in a south-west direction as the Dinaric Alps, keeping parallel to the coast-line, and after entering Albania, where it becomes Mount Findus, assumes an almost southern direction till it reaches the Greek frontier. This range, which forms the water-shed between the Adriatic and Egean Seas, has its culminating point in Mount Dinara (7458 feet), and sends out numerous offshoots over Montenegro and Albania.

The great river of Turkey is the Danube, which, with its tributary, the Save, forms the northern boundary, and receives in Turkey the Bosna and Drin from Bosnia, the Morava from Servia, and the Isker and Osma from Bulgaria. The Maritsa, whose basin is formed by the Great Balkan and its two south-eastern branches, and the Strumo and Vardar, in Macedonia, are also considerable rivers, but those which are situated to the west of the Dinaric-Pindus range are, from the proximity of that water-shed to the sea-coast, insignificant in size; chief of them are the Narenta, Drin, and Voyutzata. The Primitive rocks predominate in Macedonia, the Secondary group in the western provinces and to the north of the Balkan, and Tertiary deposits in the basins of the Save and Maritzas, and in the Sull.

On the high lands the cold is excessive in winter, owing to the north-east winds, which blow from the bleak and icy steppes of Southern Russia; and the heat
of summer is almost insupportable in the western valleys. Violent climatic change is, on the whole, the rule in European Turkey; but those districts which are sheltered from the cold winds, as the Albanian valleys, enjoy a comparatively equable temperature. Although the soil is for the most part very fertile, but little progress has been made in the art of agriculture, and the most primitive implements are in common use. The cultivated products are maize in the south; rice, cotton, rye, barley in the centre, and millet in the north; the natural products are the pine, beech, oak, lime, and ash, with the apple, pear, cherry, and apricot in the Danube basin; the palm, maple, almond, sycamore, walnut, chestnut, carob, box, myrtle, laurel, etc., in the provinces south of the Balkan; large forests of fir and pine in the north-west; the olive, orange, citron, vine, peach, plum, and other fruit trees in Albania; and abundance of roses in the valley of the Maritza. The mineral products are, iron in abundance, argentiferous lead ore, copper, sulphur, salt, alum, and a little gold, but no coal. The wild animals are the wild boar, bear, wolf, wild dog, civet, chamois, wild ox, and those others which are generally distributed in Europe. The lion was formerly an inhabitant of the Thessalian Mountains.

TURKEY IN ASIA.—This portion of the Turkish Empire is more hilly than the other; the two almost parallel ranges Taurus and Anti-Taurus, which are the basis of its mountain system, cover almost the whole of the peninsula of Asia Minor or Anatolia, with their ramifications and offshoots, forming the surface into elevated plateaux, deep valleys, and enclosed plains. From the Taurus chain the Lebanon range proceeds southward parallel to the coast of Syria, and diminishing in elevation in Palestine terminates on the Red Sea coast at Sinai. Besides the Euphrates, Tigris, and Orontes, the only important rivers of Turkey in Asia are the Kizil-Ermak, which rises on the borders of Cilicia, and after a devious course across the peninsula falls into the Black Sea near Samsoun; the Maeander and Sarabat, which flow to the Ægean; and the Sakaria, which empties itself into the Euxine. On the whole, Turkey in Asia is ill-supplied with water; and though the mountain slopes afford abundance of excellent pasture, the plains and many of the valleys, especially those of the Euphrates, Tigris, and Jordan, are reduced by the parching droughts of summer to the condition of sandy deserts.

The fertile portions produce abundance of wheat, barley, rice, maize, tobacco, hemp, flax, and cotton; the cedar, cypress, and evergreen oak flourish on the mountain slopes; the sycamore and mulberry on the lower hills; and the olive, fig, citron, orange, pomegranate, and vine on the low lands. The mineral products are iron, copper, lead, alum, silver, rock salt, coal (in Syria), and limestone. The fauna includes the lion (east of the Euphrates), the hyena, lynx, panther, leopard, bufalo, wild boar, wild ass, bear, wolf, jackal, jerboa, and many others; and the camel and dromedary increase the ordinary list of domestic animals.

Notwithstanding the primitive state of agriculture in Turkey, the extreme fertility of the soil, which returns from twenty-five fold to one hundred fold, makes ample amends for this defect, and supplies materials for the comparatively unimportant manufactures and industries of the country. The products are wax, raisins, dried figs, olive oil, silks, red cloth, dressed goat-skins, excellent morocco, saddlery, swords of superior quality, shawls, carpets, dye-stuffs, embroidery, essential oils, altar of roses, plum brandy, etc. The commerce of Turkey is extensive and important, and under the influence of judicious regulations is rapidly increasing. Detailed statistics are not obtainable. The average annual value of the imports of Turkey in Europe is estimated at £18,500,000; and of the exports at £10,000,000. The exports are the surplus of the above-mentioned natural and manufactured products of the country, also wool, goats' hair, meerschaum clay, honey, sponges, drugs, madder, gall-nuts, various gums and resins, and excellent wines; the imports are manufactured goods of all kinds, glass, pottery, arms, paper, cutlery, steel, amber, etc.

The merchant navy included, in 1873, 224 sailing-vessels of a total burden of
34,711 tons, and 9 steamers, aggregating 3049 tons. The total tonnage of the merchant navy is estimated at 180,000.

The sovereign is commonly styled sultan, but has also the titles padishah, grand seignior, khan, and hunkiar; though nominally absolute, his power is much limited by the sheikh-ul-islam, the chief of the Ulemas, who has the power of objecting to any of the sultan’s decrees, and frequently possesses more authority over the people than his sovereign. The supreme head of the administration, and the next in rank to the sultan, is the grand vizier (sadri-azam), under whom are the members of the cabinet or divan (menasybi-divanis), namely, the presidents of the supreme council of state (alkiami-adlis) and of the Tanzimat, the Seraskier, the capudan pasha, or high-admiral, and the other heads of departments of the administration. The governors of the eyalets, or provinces, are styled walis; each eyalet is divided into sanjaks or livas, ruled by kaimakams, each liva containing a number of cazas, or districts, and each caza a number of nahiyehs, composed of villages and hamlets.

According to the budget for 1875-76 (the year 1291, according to the Turkish calendar), the estimated public revenue was 4,776,588 purses* of 500 piastres each; the expenditure, 5,785,819 purses. The foreign debt of Turkey amounted in 1875 to £184,981,783; the internal and floating debt has been estimated variously at from £13,000,000 to £30,000,000.

The military forces of Turkey were officially estimated as follows in 1875: on a peace footing, 157,667 men; on a war footing, 586,100.

The navy consisted at the end of 1875 of 20 iron-clad ships and 70 other steamers. In addition to these there were 4 steam transports and a number of old sailing-vessels not fit for service. The total length of railways open for traffic on January 1st, 1875, was 825 English miles, of which 654 were in Europe and 171 in Asiatic Turkey. The length of telegraph lines on the 1st of January, 1875, was 17,597 miles. The total number of despatches carried in the year 1874 was 910,130, of which number 102,987 were international messages.

Education was long neglected, but in 1847 a new system was introduced; and since then schools for elementary instruction have been established throughout Turkey, and middle schools for higher education and colleges for the teaching of medicine, agriculture, naval and military science, etc. In 1870, Constantinople had 415 public schools, which were attended by 24,000 pupils.

Commission from Turkey to the International Exhibition:

His Excellency G. D'Aristarchi Bey, Minister Plenipotentiary, President.

Baltazzi Effendi, First Secretary of Legation.

Rustem Effendi, Second Secretary of Legation.

Count Della Sala, Acting Consul of Turkey.

Mr. Edward Sherer.

Mr. Auguste Giese, Honorary Member.

* One purse of 300 piastres = £25, gold.
RUSSIA.

The empire of Russia, extending over a large proportion of the northern regions of the globe, includes the eastern part of Europe, the whole of Northern Asia, and a part of Central Asia. Lat. 38° 30' to 78° N.; long. 17° 19' E. to 190° E. (176° W.). Russia is bounded on the N. by the Arctic Ocean; on the E. by the Pacific Ocean; on the S. by the Chinese Empire, Turkestan, Caspian Sea, Persia, Asiatic and European Turkey, and the Black Sea; on the W. by Austria, Prussia, the Baltic, and Sweden.

The following table, showing the area and population of the Russian empire, is from the Almanach de Gotha for 1876:

<table>
<thead>
<tr>
<th></th>
<th>Area in square kilometres</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>4,909,104</td>
<td>65,704,559 (1870)</td>
</tr>
<tr>
<td>Poland</td>
<td>127,316</td>
<td>6,026,421 (1870)</td>
</tr>
<tr>
<td>Grand Duchy of Finland</td>
<td>373,536</td>
<td>1,832,138 (1872)</td>
</tr>
<tr>
<td>Lieutenancy of Caucasus</td>
<td>447,645</td>
<td>4,893,332 (1871)</td>
</tr>
<tr>
<td>Siberia</td>
<td>12,500,083</td>
<td>3,428,867 (1870)</td>
</tr>
<tr>
<td>Central Asia</td>
<td>3,307,953</td>
<td>5,800,628</td>
</tr>
<tr>
<td>Total</td>
<td>21,665,727</td>
<td>87,685,945</td>
</tr>
</tbody>
</table>

The northern shores of the Russian territories, which are washed by the Arctic Ocean, are deeply indented. The White Sea, an immense arm of the Arctic Ocean, penetrates 350 miles into the mainland, and is subdivided into the gulfs of Onega and Archangel or Dwina. The other chief inlets on the north of Russia are the Kara Sea and the gulfs of Obi and Yenisei. Westward from Nova Zembla the Arctic Ocean is navigable for three months of the year; east from that island the sea, even at the mildest season, is encumbered with floating icebergs. The chief islands in this ocean are the Kolguef, Waigatz, Nova Zembla, and Spitzbergen isles. The eastern shores of Russia are washed by the Pacific, subdivided into the Behring, Okhotsk, and Japan Seas, and the islands belonging to this country in these seas are Sakhalin and the northern part of the Kuriles. On the south are the Black Sea and the Sea of Azov, the latter communicating with the former by the Strait of Kertch, and so shallow that it is navigable for small craft only. Of the Caspian Sea, Russia commands the whole, with the exception of the south shore, which belongs to Persia. The northern and eastern banks of the Caspian are the seats of the chief fisheries of the empire. On the north-west of Russia are the Baltic Sea, with the gulfs of Riga, Finland, and Bothnia; and in these waters the islands of Aland, Esel, and Dago belong to the empire. The freezing of the water near the shores of the Baltic renders the navigation of this sea impracticable during five months of the year, although a few ports are accessible throughout the whole year. Possessing means of easy communication with the most fertile governments of the interior, and sustaining chiefly the commerce of the Russian empire with the other parts of Europe and with America, the Baltic is of the highest commercial importance.

European Russia consists of a vast plain bordered with mountains. On the east are the Ural Mountains, forming a broad range of no great elevation, ending on the
north on the shores of the Arctic Ocean, and on the south in a range of elevated plains on the left bank of the Volga. On the south-east of the great plain is the lofty range of the Caucasus, crossed by the Pass of Derbend and the so-called Military Georgian Road. The Crimean Mountains, a continuation of the Caucasian chain, rise to 5000 feet in their highest summit. The districts in the south-west of Russia, between the Vistula and the Pruth, are covered by hilly ranges from the Carpathian Mountains, which in Poland are known as the Sandomir Mountains. The Finland Mountains, on the north-west, are ranges of granite rocks, embracing numerous lakes, and not rising higher than 600 feet. The Alaunsky table-land, which connects itself with the Ural Mountains by a chain of hills in latitude about 62° N., is the key to the configuration of European Russia. From this table-land, with an elevation of about 1200 feet, the country, with gradually declining slopes, falls away in four directions—north to the Arctic, north-west to the Baltic, south to the Black, and south-east to the Caspian Seas. The sloping country on the north of the Alaunsky heights is called, from its eastern and western limits, the Ural-Baltic table-land; that on the south of the same dividing heights is called, for the same reason, the Ural-Carpathian table-land. The Alaunsky heights form the great water-shed, and regulate the course of all the great rivers of the Russian empire. To the north they throw off the Petchora, the Northern Dwina, and the Onega; to the south, the Dniester, Bug, Dnieper, Don, and Kouban; to the south-east, the Volga, with its great affluents the Oka and Kama. The Western Dwina, the Niemen, and the Vistula fall into the Baltic Sea. At the foot of the north-west slope from the central terrace is the lake country of European Russia, and the great lakes are Ladoga, Onega, Ilmen, Peipus, and Pskov. The plain of European Russia naturally divides itself into three tracts or zones, each of which differs from the others in the nature and quality of its soil. The northern zone extends between the Arctic Ocean and the Ural-Baltic table-land, the middle zone between the Ural-Baltic and the Ural-Carpathian table-lands, and the southern zone between the Ural-Carpathian table-land and the Black and Caspian Seas. The soil of the northern zone is marshy and the climate inclement. In its middle part, between the rivers Onega and Mezen, and especially along the banks of the Northern Dwina, forests of fir-wood and large tracts of fodder-grass occur. Toward the east of this tract the woods disappear, and vast marshes, frozen the greater part of the year, cover the country. The middle zone reaches south-west to the government of Volhynia and the South of Poland, and north-east to the Ural Mountains. In the west it consists of an extensive hollow, covered with woods and with marshes, the chief of which are those of Pinsk. In the middle part of this zone the soil is partly heavy and covered with mould, and toward the north sandy. Beyond the Oka luxuriant meadows abound, and on the east, beyond the Volga, this tract forms an extensive valley, covered with a thick layer of mould, abounding in woods, and rising into hills in the vicinity of the Ural range. The southern zone consists of steppes extending along the shores of the Black and Caspian Seas. The steppes of the Black Sea have mostly a mouldy soil covered with grass, but in the south-east shifting sands and salt marshes predominate. The steppes of the Caspian consist of sand, salt marshes, and salt lakes, the Elton lake, yielding nearly 4,000,000 pouds (about 1,200,000 hundred weights) of salt annually, being the most remarkable.

Owing to its vast extent, the Russian empire presents great varieties of climate. At Archangel the mean temperature of the year is 32° Fahr.; at Yalta, in the Crimea, 52°; and at Kutais, in the Caucasus, 58°. Consisting of an immense area of dry land, the climate of the empire is essentially continental, and the climate of localities in its interior is much more rigorous than that of places on the western shores of Europe in the same latitudes. The rigor of the climate of the empire increases not only with the latitude, but as you advance eastward; thus, the mean winter temperature of the town of Abo, on the Gulf of Bothnia, is the same as that
of Astrakhan, viz., 23° Fahr., although the former is in lat. 61° and the other in lat. 47°, or 14° nearer the equator. The difference of the mean summer temperature under the same latitudes is, on the contrary, not very considerable. The isothermal line of Astrakhan (60° Fahr.) passes through Lublin, in Poland, and Ekaterinoslav. In the east the maximum heat is even greater than in the west, and such heat-loving plants as the watermelon are grown more successfully in the south-east of Russia than in the west of Europe under the same latitude. The dryness of the atmosphere increases in the direction from north-west to south-east. On the banks of the Baltic the average number of rainy and snowy days is 150 and the annual rainfall is 20 inches, while near the Caspian the number of such days is 70 and the rainfall only 4 inches. The climate of Russia is in general healthy, but there are several places where diseases seem to be localized, as the shores of the Frozen Ocean, where scurvy is common, the marshes along the Niemen and Vistula, where the pica polonica is the chief disease, and the marshy lands on the Black, Azof, and Caspian Seas, whereague always prevails.

Russia is an eminently agricultural country, although only a comparatively small portion is under cultivation. In the central zone the soil is almost entirely black mould, extremely fertile, and hardly ever requiring manure. The system of husbandry most extensively practiced is what is called the "three-field system," in the working of which one-third of the land is always in fallow. In the south and south-east a system of agriculture peculiar in Russia is in operation; it is called the "fallow system," and consists in raising three or four consecutive crops from the same land, and afterward allowing it to lie fallow for five or six years, after which time it begins to grow feather-grass (Stipa pennata), which is considered a token of returning fertility. A great drawback to the development of agriculture is the want of proper means of communication, and consequently the low price of corn in the locality in which it is grown. Fodder-grass is rarely cultivated, as a sufficient supply of fodder is afforded by the extensive natural meadows. The chief cereals are wheat, which is grown as far north as lat. 62°, rye, barley, and oats. Buckwheat and millet are grown in the south, and from these, but specially from rye, the staple food of the inhabitants is made. Hemp and flax are extensively cultivated, and the oil extracted from the seeds of the former is an indispensable article of the peasant's household, as it is used for food during the fasts, which, taken together, extend over about half the year. Tobacco crops cover about 16,000 acres. Beet-root and maize are also cultivated, and there are numerous vineyards in the Crimea, Bessarabia, and along the Don. Gardening is an important branch of industry, the products being cucumbers, onions, cabbages, and other vegetables and fruits. An area of 486,000,000 acres is covered with woods, but the quantity of timber, from which material the peasant supplies almost all his wants, is at present suffering diminution. Coniferous trees are the chief in the northern districts, but in the central tracts oaks, limes, maples, and ashes are the chief. Timber is the chief article of internal commerce, and is floated down the rivers from the well-wooded districts to those which are destitute of wood.

ANIMALS AND ANIMAL PRODUCTS.—In the northern and central provinces cattle are kept chiefly for the purpose of obtaining manure, but in other parts cattle-breeding is an important branch of industry. On an average there are 30,000,000 head of cattle in Russia. Of horses the best, chiefly trotters, are reared in breeding-stables in the southern central governments, but the great bulk of the horses are obtained from the half-wild studs of the Cossacks, Kalmucks, and Kirghiz. The horses of Viatka, Kazan, and Finland are strong and hardy. The total number of horses in Russia is about 18,000,000. Sheep-breeding is carried on extensively on the southern steppes. The sheep number 10,000,000, of which upward of 1,000,000 are of the fine merino breed. Besides these animals, there are camels in the south of Russia, reindeer in the north, and hogs and poultry in
great abundance everywhere. A breed of the urus—a huge and rare animal which does not occur in any other country—is preserved in a forest of the government of Grodno. Among the wild animals are (chiefly in the north) the bear, wolf, elk, fox, and marten; on the northern coasts are found the seal and walrus and the eider-duck and other wild-fowl. The more expensive kinds of furs are procured from Siberia.

The most important Russian fisheries are those of the Caspian and Black Seas and the Sea of Azof and their tributaries. The Baltic Sea is not remarkably rich in fish, but the produce of the adjoining lakes is much more considerable. The herrings, cod-fish, and salmon, caught in abundance in the White Sea, constitute the chief resources of the inhabitants of the adjoining districts. Bee-culture is very general in Russia. Silkworms are reared chiefly in the Caucasus.

During the year 1874, according to official returns, the state foundries smelted 1,225,000 Russian pouds* of bronze, 557,000 pouds of iron, and 1000 pouds of steel; 89,000 pouds weight of articles in bronze were cast, and 508,000 pouds weight of ammunition, 9000 pouds weight of steel cannon and 15,000 pouds weight of iron cannon, besides which 15,000 pouds of lead and 6600 pouds of zinc were smelted. There were also made 7800 pouds weight of iron articles, 10,000 pouds sheet-iron, and 7500 roubles† worth of iron for use in shipbuilding, and 46,700 side-arms, 20,000 blades, and 5725 gun-barrels. The amount of metal passing through private factories is given approximately in the same official returns. They state the estimated products of the smelting establishments of the Ural at 13,200,000 pouds of bronze, 1,017,000 pouds of iron, 69,000 pouds of steel, and 100,000 pouds of copper. Those around Moscow are supposed to have produced 3,360,000 pouds of bronze and 1,830,000 pouds of iron. South Russian produce is estimated at 430,000 pouds of bronze and 44,000 pouds of iron; that of the Polish provinces at 1,370,000 pouds of bronze, 800,000 of iron, and 120,000 of zinc. Lastly, 44,000 pouds of copper is estimated as the return from the Caucasus. During 1874 gold to the amount of 1869 pouds was extracted, without reckoning the districts of Altai and Nerchinst, which yield an annual average of 165 pouds. The total amount of coal raised in 1874 was 83,375,000 pouds. The extraction of mineral oils in the Caucasus shows a great increase, and oil-wells have lately been discovered in the government of Kielee, Poland. Small handicraft manufacturing establishments abound in all the central governments, especially in the neighborhood of Moscow, where whole villages during the winter season are employed in some special industry, as weaving, tanning, fur-dressing, joiners' work, shoemaking, etc. The chief manufacture is spinning and weaving flax and hemp. Linen is manufactured to the value of 100,000,000 roubles, chiefly in hand-loomns, although the finer qualities are manufactured by power-loomns, mostly in the governments of Jaroslav and Kostroma and the capitals. Hemp is manufactured into sailcloth and ropes, which articles are largely exported. Woolen and worsted stuffs are made to the value of 50,000,000 roubles, and the quantity is on the increase. Fine cloths and mixed fabrics are made in the capitals, and in the governments of Livonia and Tchernigov. Silk-spinning and weaving are carried on in the factories of Moscow, which is renowned for its broacades and gold and silver embroideries.

In 1870 there were 158 cotton-spinning mills, producing goods to the value of 53,350,000 roubles, and weaving establishments with an annual product of 13,000,000 roubles. The next most important branch of industry is tanning, the products of which amount to 20,000,000 roubles. Other important branches of industry are cutlery, pottery, and glass-works. The produce of the machine-factories in 1870 did not exceed 15,000,000 roubles; of the sugar-refineries 27,250,000 roubles; of the paper-mills 5,750,000 roubles.

The following table shows the imports and exports during the year 1873:

* The pud or poud = 36 lbs. avoirdupois.  
† One rouble = 77 cents, gold.
RUSSIA.

<table>
<thead>
<tr>
<th>IMPORTS Roubles.</th>
<th>EXPORTS Roubles.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltic ports,</td>
<td>232,900,000</td>
</tr>
<tr>
<td>White Sea ports,</td>
<td>981,000</td>
</tr>
<tr>
<td>Southern Sea ports,</td>
<td>61,070,000</td>
</tr>
<tr>
<td>Land frontier,</td>
<td>117,524,000</td>
</tr>
<tr>
<td>Total, Europe,</td>
<td>412,475,000</td>
</tr>
<tr>
<td>&quot; Asia,</td>
<td>20,958,000</td>
</tr>
<tr>
<td></td>
<td>433,433,000</td>
</tr>
</tbody>
</table>

By far the largest portion of exports consisted of cereals.

The merchant navy of Russia consisted, at the end of the year 1874, of 2512 seagoing vessels, of an aggregate burden of 521,008 tons. Included in the total were 621 ships engaged in trading to foreign countries, and 1672 coasting-vessels, many of them belonging to Greeks, but sailing under the Russian flag. Not included in the return were 385 river and lake steames.

The government of Russia is an unlimited monarchy, the head of which is the emperor, who unites in himself every authority and power—that is to say, is the head of the military, the legislative, and the judicial systems, and is also the ecclesiastical chief of the orthodox Greek Church. The order of succession is by primogeniture, hereditary in heirs-male, and in females in default of males. Every military or civil officer of the crown is required to take an oath of allegiance. The council of state is the highest branch of the executive, and comprehends the legislative, judicial, and administrative powers. The president and members—among whom are always included the ministers of the crown—are appointed by the emperor. A secretary of state, whose duty it is to report the opinion of the council to the emperor, is attached to this body. The estimates of expenditure and income, and every proposition introducing an addition to or a modification of the laws, are considered and revised by this council.

European Russia is divided into 50 provinces, over each of which is a governor appointed by the emperor. Some of these provinces, although administered by governors, are united under a governor-general. The governor-general ships are generally the remote frontier regions.

The nominal strength of the various divisions of the Russian army, according to the returns of the ministry of war, was as follows in 1874:

PEACE FOOTING. | WAR FOOTING. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular army,</td>
<td>457,872</td>
</tr>
<tr>
<td>Army of first reserve,</td>
<td>180,740</td>
</tr>
<tr>
<td>Army of second reserve,</td>
<td>207,812</td>
</tr>
<tr>
<td>Total,</td>
<td>846,424</td>
</tr>
</tbody>
</table>

The navy comprised, in 1875, 223 vessels, of 188,120 tons burden, and carrying 561 guns. This included an iron-clad fleet of 29 vessels, of 9210 horse-power, 74,793 tons burden, and carrying 184 guns.

In the budget for 1875, the revenue is estimated at 559,361,193 roubles, and the expenditure at 556,105,410 roubles.

In 1875 the public debt was stated as 2,409,739,996 roubles, against which there was a credit, consisting of advances made to railway companies, etc., of 634,489,942 roubles.

The total length of railways at the end of the year 1874 was 13,227 English miles. Nearly one-half of the railway property was held by the government.

The post-office, in the year 1874, conveyed 59,529,000 letters, 1,300,000 post-cards, 2,218,000 wrappers, 1,493,000 parcels, and 29,020,000 newspapers. There were 3,191 post-offices. The total receipts for the year 1874 did not cover the expenditure.
The length of telegraph lines, Jan. 1st, 1875, was 31,459 English miles, and the length of wires 58,675 miles. About five-sixths of the total belonged to the state. The total number of telegrams in 1874 was 3,512,003.

The following table shows, after official returns, the number of educational establishments in Russia, maintained either wholly or in part by the government, and placed under the Minister of Public Instruction, at the end of the year 1870:

<table>
<thead>
<tr>
<th>NUMBER.</th>
<th>PUPILS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universities,</td>
<td>8</td>
</tr>
<tr>
<td>Lyceums,</td>
<td>2</td>
</tr>
<tr>
<td>Veterinary schools,</td>
<td>2</td>
</tr>
<tr>
<td>Gymnasia and progymnasia (for males, 153)</td>
<td></td>
</tr>
<tr>
<td>(for females, 173)</td>
<td></td>
</tr>
<tr>
<td>Training schools for teachers,</td>
<td>39</td>
</tr>
<tr>
<td>District schools,</td>
<td>419</td>
</tr>
<tr>
<td>Primary schools,</td>
<td>22,827</td>
</tr>
<tr>
<td><strong>Total,</strong></td>
<td><strong>23,623</strong></td>
</tr>
</tbody>
</table>

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Executive Committee at Philadelphia.

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OTTO KITZING, Special Secretary.

ERNEST PELLETIER, Attaché.
INDEX OF EXHIBITORS.

DEPARTMENTS VI., VII.

A.

A— J. C., Cotton, 74.
Abad, G., Wheat, 88d.
Abadia, N., Bros., Wines, 88f.
Abbara, G. V., Fig bread, 88f.
Abattoir of Lisbon, Manures, 122.
Abbott, C. F., Plants, 152.
Abecassis Brothers, Wine, etc., 115.
Abel, Heinrich, Wine, 55.
Abell, John, Portable engine, 46.
Abello & Son, Wine, 88a.
Abello y Boada, Nuts, 88f.
Aboin Joao, C. de S., Cheese, etc., 100.
Abolana, A., Maize, 88e.
Abromoff, Tobacco, etc., 124.
Abrancaia, Abrantes, Viscount da, Olives, 91; Grain, butter, 96.
Abrantes, Viscount da A., Oil, 119.
Abramoff, P., Linseed, 224.
Abreio, Joao Vaz de, Wine, 113.
Abreu, Carlos de Souza Pinto, Wine, 116.
Abreu, Francisco José de, Wine, 113.
Abreu, Francisco Rodrigues de, Beans, 97.
Abreu, J. L. C. de, Oil, 118.
Abreu, J. Monteiro d', Cigars, 70.
Abreu, José Martens de, Honey, 101.
Abrigada, Viscount of, Wines, 110.
Abrikossoff's Sons, Preserves, 125.
Abrunhosa, J. C. de, Cheese, etc., 100.
Acacio Manuel Pereira, & Augusto, Flour, 106.
Academy of Natural Sciences, Birds, etc., 18.
Acapulco, Marquis of, Olive oil, 88f.
Acari, Commission for, Resins, 68.
Acciole, Joao da Fonseca, Cur, 93.
Accioli, Joao da Fonseca, Vinegar, 116, 118.
Acclimatization & Agr. Society, Honey, 63.
Acchel y M., Chocolate, 88idd.
Acchelò, F., Wine, 88a.
Ackerman, C. B. G., Fibres of tucum, 75.
Ackermann, L., Liqueurs, 54.
Acosta, Maria E. de, Candied quinces, 84.
Acton, M., Egypt, 252.
Acton Plow Co., Plow, 46.
Acena, Francisco, Barley and corn, 78.
Acina, P. G., Cow trapes, 52.
Adams, P. F., 183.
Adams. R., New South Wales, 180.
Adéte, J. J., Fagon, 135.
Administrador do Cansello, Grain, 95; Wax, 102.
Administration Council, Mangualde, Timber, 99.
Administrative Council, Cantanhede, Seeds, 99.
Administrative Council, Castro daire, Timber, 59.
Administrative Council, Coimbra, Fruits, 97.
Administrative Council, Guinmares, Grain, 95.
Administrative Council, Lusada, Fruit, 103.
Administrative Council, Montemor o Velho, Grain, 94; Vinegar, 114.
Administrative Council, Penacova, Timber, 89.
Administrative Council, Vourvolla, Timber, 89.
Adorno Puma, Cax. Gaet, Wine, 66.
Adrian, Platt, & Co., Reapers, mowers, 28.
Adriatano, Luciano M., Cabo negro, 133.
Adrild, A., Claret, 88r.
Affonso, Domingos Arialva, Wines, 106.
Affonso, Joao Hilarlo, Wine, etc., 108.
Agelet, R., Walnuts, 88a.
Agger, H., Liquors, 86.
Agger, J. D., Wool, 88f.
Agger, L. Matte, 71.
Agnew, Eisenbeis, Vinegars, 22.
Agnew, Hannah M., Banana, 152.
Aguniu, Tommaso, F. E., Liquors, 66.
Agosti, Brothers, Dried prunes, 64.
Agostini, Count Alfredo, Wine, 65.
Agramunt, Corp. of, Cereals, 88f; Oil, 88f.
Agricultural Committee, Wine, 65.
Agricultural Committee of Chiavari, Cheese, 63.
Agricultural Colony of S. Martino, Grains, 63.
Agricultural Association, Products, 57.
Agricultural Committee of Palermo, Seeds, 63.
Agricultural Institute, Wool, 75.
Agricultural School, Oats, rye, and barley, 61.
Agricultural Union, Brandies, 51.
Agriculture, Classification of, 44.
Agriculture, Practical School of Deets, 88f.
Aguado, J. de B., Vegetables, 88f.
Aguero, Martina, Musk raisins, 84; Syrup, 85.
Aguila y Aguila, S., Olives, 88e; Olive oil, 88e; Hemp, 88f.
Aguilar, Bernardo, Teixeira de, jr., Wines, 106.
Aguilar, F. D., Woods, 76.
Aguilar, J. M., Carob paste, 84.
Aguilar, Juan M., Red corn, 78.
Aguilar, O., Wheat, 79.
Aguirre, S., Honey, 88f.
Aguiló, F. F. & Bros., Wines, etc., 88f.
Ahamada, B., Wheat, 79.
Akin, W. H., & Son, Hops, 136.
Alagao, Province of, Wool, 74, 75.
Alba, D. S., Wheat, 88g.
Alba, T., Wine, 88g.
Alhany Lubricating Compound & Co., Oil cups, 139.
Albarez, F., Walnuts, 77.
Albarracin Saturnio, Wax, 84.
Albear y Ward, F. B., Prunes, 88f.
Albergaria, T. A., P., Corkwood, 8; Grain, 91; Beans, 99, 101, 120.
Albergotti, G., & Agostino Bros., Wine, 66.
Albert, A. P., Wine, 88f.
Albert, Perez & Co., Vinegar, 88f; Olive oil, 88dd.
Albó y Ginér, A., Vinegar, 88g.
Albat, Edward, Casks of duca, 65.
Albion Coffee Huller Co., Machines, 32.
Albir, B., Rice, 131.
INDEX.
B.

B.— A. A., Cotton, 74.
Baars, H., Norway, 243.
Badham, John, Wheat, 152.
Baca, V., Brandy, 52.
Bacca y Estévez, J., Wine, 88a; Oil, 88dd.
Baccarani, J., M., Coffee, 88a.
Bagley, M. S., Sardines, 86.
Baguena, J., Pepper, 88m.
Bahamas, Statistics of, 188.
Bahia, Presidency of, Cigars, 70.
Baker, William, Wheat starch, 22.
Bar, L. E., Co., Cigars, 88.
Barcellos, Francisco Maria, Wines, 113.
Barens, Mariano, Mexico, 274.
Bareos, P., Skins, 83.
Barcus, N. H., Hazelnuts, 88.
Barra, J., M., Beer, 88.
Barreyns y Magniñas, G., Barley, 88.
Barroso, Simonio Almonso, Beans, 97.
Barrow & Mal, Com. on, Barley, malt, 136.
Barnard, Bishop, & Barnard, Wire netting, 41; Chairs, 156.
Barrett, William, Wheat starch, 22.
Barhnhill, B. B., Moosehead, 45.
Barnes, P., Guano, 887.
Baro y Gibert, J., Wine, 88n.
Bartlett, W. C., Co., Portugal, 265.
Baron von Thüngen, Brewery, 54.
Warr, W. S., Bermudas, 150.
Barra, Luigi, Wine, 66.
Barral, J. L., Wines, 86.
Barragao, Carmen, Wax and honey, 84.
Barrenengo, D., Coffee, 88m.
Barrenengo, D., de, Chocolate, 88ec.
Barrera, J. M., Olive oil, 88f.
Barrera, P. G., Starch, 88s.
Barreto, J. E., Oils, 74.
Barrett, J. O., Es, "Old Abe," 18.
Barriod, L., Co., Peru, 270.
Barriónueva, F., Cereals, 88d; Beans, 88.
Barrios, M., Flour, 88.
Barrios, Rios, & Co., Flour, 88r.
Barry, A. de, Fibre, 75.
Barros, Antonio Manuel Ferreira, Brandy, 108.
Barros, de, Sugar, 73.
Barros, A. A., Cotton, 75.
Barros e Cunha, José de, Wine, 113.
Barros, F., de, Sugar, 73.
Barros, F., de, Fibres de tucum, 75.
Barros Gomes, B., Oil, 118.
Barros, J. L. de, Medicinal plants, 69.
Barros, José Xavier Pereira, Sweetmeats, 103.
Barros, L. Gomes de, Cipo matta gente, 75.
Barros, L. X. de, Oil, 118.
Barro, de, Coffee, 71.
Barros, E., Cane, Chili, 267.
Barros, Rita Candida de, Olives, 104.
Barros, S., de, Coffee, 71.
Barros, Sebastiao, Cumin and anise, 80.
Barros, T., de, Coffee, 71.
Barros, S., de, Tobacco, 74.
Barroso, P., Sugar, 73.
Barrotaran, J., Skins, 82.
Barrows, Savery, & Co., Steamer, 34.
Barria, E., Pig, 88.
Barrow, A., Co., Wheat flour, 43.
Barry & Nephews, Wool, aloe, 43.
Barry, Sir Redmond, Victoria, 182.
INDEX.

Daman, Samuel C., Hawaii, 261.
Damiro, M., Egypt, 252.
Dammann, L. & Cordes, Bitters, 54.
Dana, C. H., Label machine, 38.
Dandrelle & Gaudin, Wines, 50.
Danks, J., Victoria, 182.
Dannfelt, C. J., Sweden, 240.
Daney, I., Sugarcane, Dried fruit, 103.
Daoix, Count of, Olive oil, 882c.
Daol, J., Olive oil, 882r.
Darcher, A., Skins, 83.
Dardel, F. L. von, Sweden, 240.
Dardilie & Co., Vegetables, 49.
D’Aristarchi, G., Turkey, 288.
Dasii, Joseph, Italy, 249.
Daubin & Co., Lard, 49.
Daumas, J. & Co., Cigarettes, tobacco, 81.
Davalos, A., Wine, 86.
Davalos, Benjamin, Tobacco leaves, 81.
Davenport, S., South Australia, 184.
Davenat & Co., Brandy, 884.
Davey, W. O., Oakum, 24.
Davidson, G., & Co., Cochinchine, 88w.
Davila, Beneficio, Beans, 80; Wines, anise, 80; Fruit, 80.
Davila, Carmen T. de, Preserved olives, 84.
Davila, D., Wines, 86.
Davila, G., Beans, 79; Syrup, 85; Cotton, wines, 86.
Davila, D., V. de, Wines, 86.
Davila, Nicolasa, Monogosta syrup, 85.
Davis, H. S., Horseshoes, 38.
Davis, T., & Bro., Powder, 45, 139.
Davidson, Edw. T., Argentine Rep., 265.
Dawson, W. G., 134.
Day, Edmund, Viper, 81.
Day, Frederick, Wheat, 78.
Daza, F., Cereals, 88c.
Daza y Ruiz, F., Grapes, 88r; Beans, 88f; Wines, 88f; Flax, 88f.
De Bont, M. J., Confectionery, 58.
De Chaibel, 200.
De Fallois, Mr., France, 200.
De Jough, Wz. D., Vegetable oils, 58.
De la Cruz Videl, Juan, Wheat, 80.
De Laforet, Mr., France, 200.
Dean, William G., Mustard, 17.
Deardoff, Isaac N., Stove, 38.
Deas, J. S., Canned salmon, 45.
Deby, J., Belgium, 229.
Decker, J., Cotton, 74.
Decker, J., & Son, Ice swimmers, 137.
Decker, P. H., Hollow tooth harrow, 25.
Deevey, F., Soap, 33.
Dederick, P. K., & Co., Machines, 33.
Deener, Cissel, & Welsh, Flour, 21.
Deere & Co., Steel plows, etc., 25.
Defagot, G., Peaches, 86.
Deitz, George A., Dryer, 37.
Dekardin, E., Syrup, 50.
Delfort, E., Wine, 88.
Del Bono, Eorlino, olive, 65.
Delaware, State of, Timber, 15; Cereals, 16.
Delchalarie, M., Egypt, 252.
Delf, W., Wheat, 43.
Delgado, Daniel, Grapes, 80.
Delgado, F. G., Olive oil, 88d.
Delgado, M., Wool, 88j.
Delgado, M. G., Wheat, 88g.
Delgado, Manuel, Tobacco, 84.
Delgado y Palacios, J., Alcohol, 88v.
Delizy & Dolostan, jr., Liquors, 81.
Delmas, A., Woods, 43.
D’Elpeux, Ravin, France, 209.
Delta Moss Co., Moss, 15.
Dengink, H., Maize, 123; Lentils, 124.
Dennia, R., Wine, 88c.
Denmark, Statistics of, 235.
Denner, Santiago, Lima beans, 80.
Dennis, Rowland, & Co., Flow, 46.
Deplanque, jr., Emery, 48.
Deriviere, J., Food, 49.
Derrill, H. F., & Co., Tools, 34.
Descals, F. P., Wine, 88w.
Desfaut, P., Sheets, 32.
Deshariot, A., Liquors, 125.
Densmoots, Quennessen, & Le Brun, Platinum, 48.
Dessauer, A., Gue, 53.
Detlos, G. de, Maize, 88c; Seeds, 88m.
Detrie-Grandjean, Kirschwasser, 51.
Detring, G., China, 537.
Deu, J., & Co., Wine, 88x.
Deus, J. R. de, & Co., Oil, 120.
Diaz, B., Fruit, 88; Sugar, 73.
D’Hassonville, Viscount, France, 209.
Diamante, Sub-commission of, Cochinchine, 77.
Diasor, J. Matte, 71.
Dias, C. F., Plants, 65; Pharmacies, 75.
Dias, J., Drug, 54.
Dias, J. F., Oils, 71.
Dias, Luis Antonio, Beans, 98.
Diaz, A., Hemp, 88e.
Diaz, B., Bances, & Co., Tobacco, 88w.
Diaz, C., Wine, 88v; Wool, 88f.
Diaz, A., Wine, 88r.
Diaz, Eulogia, Stuffed viper, 81.
Diaz, F., Walnuts, 88r; Rye, 88f.
Diaz, G., Wheat, 88g.
Diaz, B., Sugar, 73.
Diaz, J., Sweetmeats, 88s; Liquors, 88c.
Diaz, L. B., Wine, 88y.
Diaz, B., Wheat, 73.
Diaz y Gomez, E., Wines, 88w.
Dibble, Andrew J., F., 35.
Dick, J., Ferns, 15; Boiler, 15; Plants, 154.
Dickey, A. P., Mills, 34.
Dickson, C., Sweden, 240.
Diego, F. de, Wheat, 88e.
Diego, F. de, Banches, 88f; Wines, 88f.
Diego y Carsi, I. & J., Carrobs, 88f; Oil, 88h.
Diequez, M., Anise seed cordial, 88c.
Diener, H., Wines, 53.
Dier & Dietz, Skins, wool, 43.
Dieringer, C., Coopers’ work, 138.
Dietrich, A., Tobacco, 70.
Dietrich & Co., Wines, 53.
Dietz-Monin, France, 209.
Diaz, C. P., Liquors, 88c.
Diez y Diez, L., Wine, 88c.
Dimayuga, Procera, Cotton, 132.
Dinge, Squire, Pickles, chow-chow, etc., 21.
Digo, Paulo Jose, Grain, 94.
Dione, A. C., Food, 49.
Doa Alvaro y Alarcón, J. de, Cereals, 88c.
Dois Quemada, Juan de, & Sons, Root, 88m.
Direction of the Works of the River Moneglo, Timber, 93; Olives, 91; Grain, 93.
Ditchy, D., Wine, 88.
Diz, M. F., Wine, 882.
Dobrozdinsky Sugar Mfg. Co., Sugar, 125.
Dodds, John, Sulky horse, hay-rakes, 25.
Dodon, Maurice, J., Carrobs, 88f; Wines, 88n.
Doe, W. H., Nest, 45.
Dorechuck, G., Varnish, 136.
Dole Bros., Hops, 136.
Dolfin, Mrs., Vermouth, 51.
Domec, G., Honey, 88a.
Domech, P., Sherry, 88c.
Domeche y Monte, J., Almonds, 886.
Domenic, Anithole, Meat, 64.
Domoyko, Ignacio, Chili, 267.
Domingo, D., Almonds, 886; Cereals, 886.
Domingo, G., de, Honey, 889.
Domingo, T., Olive, 88a.
Domingues, V. J., Oil, 120.
Dominguez, B., Honey, 88b.
Dominguez, F., Brandies, 886.
Dominguez, G., Skins, 81; Vinegar, 85.
Dominguez, J., Skins, 882.
Dominguez, M., Barley, 88f; Wine, 886.
Dominguez, P., Maize, 884; Olive oil, 88a.
Donadio, Count del, Spain, 280.
Doncel, J. F., Wine, 88.
Doncel, R., Wine, 56.
Dornier & Suhl, Hay cutter, 33.
Dons, Henrik, Fish, 61; Meats, 62.
Dookhamoff Brothers, Linsed, 124.
Doochetoff, D., Wine, 886.
Doonieff, N., Tobacco, etc., 124.
Doordin, J., Beer, 126.
Doorenthcha, M., Tobacco, etc., 124.
Doorenthcha, S., Tobacco, etc., 124.
Dorado, M. L., Oil, 882.
D'Orechs, Gaston, Brazil, 263.
Dornas, Luis Cazemiro Pinto dos, Grain, 93.
Dornon, L. G., Weau, 88.
Dortmund Brewery, Beer, 54.
Dos, F., Wheat, 88g.
Douthon, H., & Co., Vases, 156.
Douglenmont, Count, Belgium, 289.
Dow, John, Harrow, 46.
Dowine, W., Hops, 44.
Downs, W. H., Churns, 35.
Driessen, C. A. J., & H. T., Cacao, 58.
Dronne, L. F., Meats, 49.
Dreuven, J. & Co., Liqueurs, 54.
Drown, W. A., Umbrellas, 57.
Druealle, Wine, 51; Corking apparatus, 51.
Du Summerard, France, 209.
Duarte, E. J., Oil, 119.
Dubois, B. B., Cheese, 88.
Dubois, E., Brewing machine, 51.
Dubois, José B., Flour, 85.
Dubois, L., Chocolate, 88d.
Duchesne Bros., Leather, 49.
Ducheler, M., Frappes, 29.
Dufour, A., & Co., Wines, 49; Sardines, 49.
Dugage, R., France, 209.
Dugan, T., Skins, 82.
Dugay, J., & Co., Vinegar, 228.
Duijvis, J., Starch, 58.
Duisburg, E., Belgium, 229.
Dulce y Alvarez, B., Flour, 88r.
Dunantier, C., Agricultural products, 48.
Dunn Edge Tool Co., Seynies, 31.
Dunn, T. J., & Co., Cigars, 17.
Dupiron, Chas., Harrow, 46.
Dupland, E., Sardines, 49.
Duportail, E., Skins, 82; Wool, 57.
Duportail, Emilio, Argentine Republic, 265.
Duquenel, Wines, 51.
Durand, A., Sardines, 85.
Durango, M. M., Barley, 887; Flour, 88r.
Duraio, Pedro Manuel, Vinegar, 116.
Durfach, S., & Sons, Wines, 54.
Duro, Francisco dos Santos, Grain, 94.
Dursbrinck, Emery, 48.
Dwcow, Kneading, etc., 58.
Duryea's Glen Cove Starch Co., Starch, 22.
Dutch Agricultural Society, Agriculture, 57.
Dutch Association for Encouragement of Flax Industry, Flax, 28.
Dutton, R., Reaping and mowing machine, 29.

D.

Eagle Co., Seychets, 29.
Eagle, L. J., Plants, 151.
Eagle Mowing Flax Reaping Machine Co., Mowing and reaping machines, 28.
Eastern Furnettizing Co., Lumber, 15.
Eastwood & Co., Shraits, 41.
Ebert, J., Fountain, 153.
Edison, E. & W., 137.
Eca, José Ferreira de, Brandy, 106.
Echarrieta, S., Paste, 88b.
Echevarria, C., Dyss, 76; Vipers, 81; Skins, 33.
Echevet, Gabriel, Stuffed wildcat, 81.
Eckel Bros., Wines, 53.
Eckstein, A. M., & Sons, Tobacco, 53.
Eckstein, P. H., Kid leather, 55.
Eclipse Windmill Co., Windmills, 140.
Economical Society, Tea, 131.
Economical Society of Friends of the Country, Grapes, 88a.
Forcheville & Legrand, Fruits, 49.
Edwards, J., Fenton, Porcelain, 41.
Edwards, J., & Son, White ware, 41.
Egan, Thos., J., Birds, 44.
Egberts, B. H., Succory, 58.
Eigen, J. H., etc., 153.
Egidius, Peter, Herring, anchovies, 61.
Egreja, José Francisco de Serra, Grain, 95; Flour, 156.
Egreja, Manuel Antonio, Indian corn, beans, 95; Flour, 106.
Egypt, Statistics of, 250.
Ehrel, Geo., Beer, 137.
Ehrhardt, J., Wines, 53.
Eichler, G., Plans, 158.
Eigeman, A. H., Netherlands, 254.
Eisemayer & Co., Flour, 22.
Eldred, L. P., Plows, 60.
Eldridge, N. H., Sweden, 240.
Elia, Antonia, & Sons, Pistachio almonds, 63.
Elia, F., Cheese, 82.
Elías & Betz, Beer, 137.
Elisabet, Edward, Egypt, 239.
Elliott, James, Bottles, etc., 35.
Elliot, Thos., Hay rake, 46.
Ellis, Chas. R., Tank, 37; Beelers, 152.
Ellis, Hoffman, & Co., Machines, 32.
Ellis, Wright, & Sons, 25.
Elsham & Hayward, Fruit, 37.
Elsworth, John T., Churn, 35.
Elmore, Daniel, Settees, 154; Pagodas, 155.
Elphec, Edmund, Seed wretch picture, 37.
Elten, D. D. K., van, Netherlands, 234.
Elvira, J., Jam, 88g.
Emery, Horace L., Machine, 34.
Emmett, Wm. P., Churns, 35.
Empire Portable Forge Co., Forges, 33.
Enedio, Corporation of, Rye, 88c.; Beans, 85f.; Flax, 86f.
Enido, A. M., Pepper, 88a.
Engineers of woods and Forests, Insects, 88r; Esparto grass, 88z; Implements, etc., 89f.
Enison, Catullion, Sugar, 132.
Endological Society of Savigniano, Wine, 65.
Endological Society of Scandiano, Wine, 65.
Estenada, Justice of the Peace of, Woods, 70.
Ente Rios, Prov. Com. of, Woods, 77; Skins, 83
Ergueta, S. M., Chocolate, 88.
Esparto, & Flax, 81.
Espiné, J., 66.
Espinosa, F. M., de, Wool, 88f.
Espinosa, J., Wheat, 88d.
Espinosa, J. V., Olive oil, 88o.
Espinosa, Luis, Wheat, 88d.; Acorns, 88n; Peas, 88g; Olive oil, 88r.
Escudero, D., & Son, Chocolate, 88dd.
Escudero, F., Wheat, 88f.
Escudero, D. & Sons, Sheep, 88.
Escorza, J. C., Honey, etc., 101.
Espada, T., Wine, 88.
Esparsa, J., Seed, 77.
Esperanca, Viscount of, Wine, 109; Brandy, vinegar, oil, 117.
Espina, J. M., Vinegar, 88r.
Espino, L. J., 66.
Espinoza, S. M., de, Wool, 88f.
Espinoza, J., Wheat, 88c.
Esquivel, Peter A., Cigars, 80.
Estape y Cardona, J., Peas, 88r.
Esteban, F., Wheat, 88d; Flour, 88r.
Esteban y Balen, A., Peas, 88g.
Estefani, J. G., Champagne, 88n.
Estefan, G., Raisins, 88g.
Estey, Geo. W., Cultivator, seeder, 28.
Estey, D. E., widow & son of, Nuts, 88c; Olives, 88s; Vinegar, 88ar; Olive oil, 88zh.
Estey, J. M., Starch, 132.
Esteves, Felipe, Nite, 133.
Esteves, J. V., Wine, 82.
Estefan, E., Olive oil, 82.
Estefan, L., Barley, 82.
Estefan, Ramon, Cereals, 82.
Estefan, S., Wax, 132.
Estefan y Alcorno, J., Wine, 82za.
Estefan y Periano, R., Olive oil, 88ee.
Eugenia & T. White, silk, 75.
Euphy, Reina, Wine, 65.
Evans Bros., Ham, Biscuit, etc., 21.
Evans & Ford, Machines, 33.
Evans, Lippincott, & Cunningham, Bacon, hams, etc., 21.
Evans & Stafford, Cheese, 40.
F.

Fabařés, F. R., Wheat, 88f.
Fabia, M. A., Syrup, 88r.
Fabra, F. Loyser, Spain, 280.
Fabregues, G., Nougat, 88r, 88q; Mill, 88k.
Fabrita, Pouvense, Fish, 97.
Facchi, Pierre & Co., Hemp, 66.
Facchetti, Enrico, Wines, 66.
Factory of Miguel A. da S. P., Tobacco, 92.
Factory of Tobacco, Lechblad, Tobacco, 99.
Factory of Tobacco, Liberdade, Cigars, 92.
Fues Bros. & Co., Cordial, etc., 88d.
Fagerheim Net Co., Nets, 61.
Fairbanks & Ewing, Scales, 33.
Falko, J. R., New South Wales, 180.
Falcão, D. C., Oils, 88.
Falcão, J. C. da C., Woods, 89; Oil, 120.
Falcão, F. Prado, Cheese, 69.
Falcão, Jeronimo F., Honey, wine, 101.
Falcão, L. D., Wool, 122.
Falcão, M. L., Oil, 88.
Falcão, Maria M., Beans, 89; Brandy, 109.
Falcão, P., Aguardente, 73.
Falcão, P. P., Sugar-cane brandy, 73.
Falk, Ytter, Norwegian fishing sled, 61.
Falcon, W. F., Wheat, 88f.
Falero y Fajardo, P., Cheese, 88o.
Fallon, James T., Wines, 42.
Falkz, F., Wool, 127.
Fantezzi, Cesare, Liquors, 66.
Faria, Arnaldo A. P. de, Portugal, 283.
Faria, B. de, Tobacco, 70.
Faria, M. A. P. R., Wine, 107.
Faria, Manuel Simplicio, Corkwood, 89.
Faria, Sousa, Samples of woods, 68.
Farías, José A., Beans, etc., 80.
Farinola, P. T., Potatoes, 88.
Faro, J. de C. A., Beans, 98; Wine, 116.
Farr, L. D., Sprinkler, 122.
Farrell, A. P., Wine, 45.
Fastrzemba, Stanislas, Grains, 123.
Fatz, T., Wool, 126.
Fau, J., Peas, 49.
Fauquez, A., Millstones, 48, 52.
Fauric, J., Sr., Wines, 51.
Fausé, F., Almonds, 88b; Vegetables, 88f.
Faust, W. H., Lily, 152.
Fava, C., Cochineal, 77; Skins, 81; Cotton, 87.
Favare, Marquis Delle, Sumac leaves, 63.
Fay, C. J., Hay press, 32; Rock lifter, 36.
Fayn, J., Feltsman, 23.
Febur, Michel Le, Vinegar, 45.
Feenders, Harm., Cod crouter, 25.
Feigh, A., Beer, 137.
Feijo Corneiro, Dantil, Portugal, 284.
Feist Bros., & Sons, Wines, 53.
Feith, H. J., & Son, Biscuits, 60.
Feldiner, E. W., & Son, Smoking tobacco, 17.
Felhú, J., Almonds, 88a.
Feliú y Rodriguez, J., Almonds, 88a.
Felix, B., Austria, 32.
Fell, C. J., & Bro., Spices, 16; Gelatine, 21.
Felten, A. L., Vegetables, 18; Plants, 114.
Ferreira, Joao Dias, Beans, 98.
Feria, Jose Maria de la Escrfa, Olives, 105.
Fernandes, J., Oil, 120.
Fernandes, J., Oil, 120.
Fernandes, Joaquin Filippe, Grain, 95.
Fernandes, Joaquim, Seeds, 97; Choco, 100.
Fernandes, Jose Antonio, Beans, 98.
Fernandes, Jose Manuel, Honey, etc., 102.
Fernandez, Manuel I, Grain, 95; Honey, 102.
Fernandez, A., Wheat, 88d; Wine, 88s; Chocolate, 88dd.
Fernandez de Villalba, A., Seed, 82a.
Fernandez, F., Honey, 85c; Wine, 88w.
Fernandez, F., & Bro., Chocolate, 88dd.
Fernandez, G., Wheat, 86d.
Fernandez, J., Olivos, 88g; Wine, 88x; Chocolate, 88c; 88dd.
Fernandez, M., Wheat, 89h.
Fernandez, P., Cereals, 88d.
Fernandez, S., Olive oil, 88dd.
Ferrandis, A. & Sperws, 81.
Ferrandis, T., Walnuts, 86a; Cereals, 88c; Vegetables, 88f.
Ferrandis, T. V., Walnuts, 88c.
Ferrandis y Conde, P., Wine, 88y.
Ferran, M., Olive oil, 88u.
Ferrandis y Soler, J., Maize, 88a; Carrobs, 88f; Wine, 88bb.
Ferrando, Juan, Lima beans, peas, 80.
Ferrant, M., Vinegar, 88f.
Ferrari, G., Wine, 107.
Ferrari, Sebastiano, Paste for soup, 64.
Ferrarin Bros. & Co., Rice, 63.
Ferratges, J. V., Wine, 88aa.
Ferrer, Vincente, Sugar canes, 80.
Ferreira, Antonio M. T., Dried fruits, 105.
Ferreira, Augusto Dias, Wine, 116.
Ferreira & Bros., Kidskins, 101.
Ferreira, Camillo P. da C., Leather, 100.
Ferreira, Candido J., Cigars, 79.
Ferreira & Co., Chocolate, 90; Candy, 105.
Ferreira & Co., Gasper P., Fibres, 75.
Ferreira, Convict, Dried plums, 103.
Ferreira & Dowrado, Wine, 107.
Ferreira, L. R., Wine, 70.
Ferreira, F. de S., Wine, 107.
Ferreira, Francisco Jose Lopes, Portugal, 284.
Ferreira, J. D., Flax, 121.
Ferreira, J. da M., Oil, 120.
Ferreira, J. J., Oil, 120.
Ferreira, J. M., Wine, 107; Oil, 120.
Ferreira, Januario da Silva, Corn Flour, 106.
Ferreira, Joao Dias, Grain, 94.
Ferreira, Jose, Grain, 94.
Ferreira, Jose Henrique, Wine, 108.
Ferreira, Manuel de Costa, Beans, 98.
Ferreira, Manuel F., Cork, Corkwood, 99.
Ferreira, Mathews, Portugal, 284.
Ferreira, V. R. J., Oil, 74.
Ferreiro, A., Seed, 88a.
Ferreiro y Heredia, A., Maize, 88f.
Ferrera, J. N., Oil, 120.
Ferrer, J., Vinegar, 88f.
Ferrer, V., Woods, 75.
Ferris, H. & Son, Ale, 122.
Ferriz y Martinez, C., Wine, 88z.
Ferro, B., Wine, 89v.
Ferro, G. Vigna del, Italy, 249.
Ferro, Martinez Luis, Grain, 94.
Feydel, Son, Hides, 72.
Filho, Francisco d’Almeida, Wine, 108.
Filho, Jacintho Maria, & Son, Wine, 106.
Fibbi, Raffaello, Glue, size, 63.
Fiederlin, F., Washing machine, 139.
Field & Carpenter, Hay-rake, 29.
Fiel, W., Oatmeal, 100.
Filatov, V., Denmark, 236.
Filatov, Enrico, Dried meat, 64.
Filgueira, Manuel D., Olives, 91; Oil, 120.
Filgueiredo, Antonio Jose de, Olives, 105.
Filgueiredo, Augusto da Sa, Grain, 94.
Filgueiredo, J. F. de, Oil, 120.
Filgueiredo, Joaovim de, Honey, 101.
Filgueiredo, Jose Cereira de, Honey, etc., 102.
Filgueiredo, Jose Paula, Grain, 95; Oil, 120.
Filgueiredo, Sr., English, Chill, 167.
Filgueiras, J., Wine, 88c.
Filgueiro, P. de, Twisted tobacco, 71.
Filgueira, Andres, Fibres, 133.
Filgueira, E., Olive oil, 88f.
Filgueira, Jose E., Syrup, 85.
Filgueira, M., Wine, 86.
Filgueira, Molas, & Co., Wine, 86.
Filgueira, Tomas, White corn, 79.
Filgueira, J., Wine, 88aa.
Filgueirele, J., Wine, 88aa.
Fili, P., Wines, 51.
Filipe, Jose Antonio Corn, 94.
Filipant, G., Plan of irrigation, 67.
Finn, A. Son, Beer, 137.
Finnegan, A. J., Butter, 35.
Fino, Luigi, & Co., Aluben, 63.
Finser, G., Grain, 123.
Fischo, John, Jr., Champagne, 55.
Fish Bros. & Co., Wagons, 135.
Fisher & Hall, Cedar tubs, 138.
Fisher, Henry, Mower knife, etc., 29.
Fisher, J. H., Refrigerator, 35.
Fisher, M., Cranberries, 44.
Fisher, W. A., Fertilizers, 36.
Fison, J. P., Steam engine, 41.
Fitzhugh, & Co., Glutens, champagne, 51.
Fitch, Homer W., & Co., Hay conveyer, 37.
Fiton & Nouville, Liquors, 49.
Fitz, W. Scott, China, 257.
Fitzgerald, R., Cactus, 121.
Fitchburg, J. R., Hay elevator, 34.
Fini, Domingo Antonio, Grain, 95.
Flanagan & Wallace, Ale, 137.
Flandre, H. R. de la Comte de Belgium, 228.
Flemming, M., Seeds, 77; Potatoes, 97; Wine, 86.
Flood, E., New South Wales, 180.
Floral Works, Fountains, 153.
Flores, A., Wines, 86.
Flores, N. Tar, 77; Wines, 86.
Flores, P. M., Olive oil, 88k.
Fiero, Ignazio & Vincenzo, Wines, 65.
Fieldard, Mr., France, 2, 9.
Ferrimais Agricultural Institute, Tea, 71.
Starch, 77.
Fiixa v Palet, Oils, 88dd.
Fock, Baron A. H. E., Sweden, 240.
Fogelmark, Sixton, Cereals, 59.
Fors, I., Leather, 55.
Foggia, Z. M., Medicinal plants, 69.
Forsk or Co., Cordials, 125.
Folch, J. B., Wine, 88bb.
Foley, C., Stuffed birds, 44.
Foley, Margaret A., Fountain, 159.
Fonrodona, Don Jose, Spain, 280.
Fonseca, Francisco da Costa, Grain, 94.
Hagerstown Agricultural Implements Mg. Co., Grain, seed, and fertilizing drills, 38.
Hagerstown Steam Engine & Machine Co., Machines, 32.
Hagedorn, Bros., Separator, 46.
Haggin, J. C., & Whisky, 46.
Haideman, Frank, Bird cage, 37.
Hale, S. B., Wool, 88.
Hall, H. L., Sower and cultivator, 28.
Hall, John, Wool, 89.
Hall, S. W., Fences, 36.
Hallen, J. P., Leather, 61.
Hallgren, J. E., Anchovies and herrings, 99.
Hallgren, Andrew, Fur trader, 180.
Hall's Self-feeding Cotton Gin Co., Machines, 32; Cotton gin, 34.
Hamar Brewery, Ale, 62.
Hammer, W., Denmark, 236.
Hammond, J. L., China, 257.
Hampel, O., Model malt kiln, 138.
Hance, A., & Sons, Revoluta, 152; Plants, 154.
Hanch, S., & Bro., Vegetable cutters, 34.
Hand, Salmon Co., Tobacco, 17.
Hand, A. S., Lawn mower, 36.
Handy Horse Hay-Fork Co., Hay-fork, 30.
Hanes, John, Corn sheller, 31.
Hannis Distillery Co., Whisky, 22.
Handot, John, Licorice, 180.
Hansen, C., Denmark, 256.
Hansen, J., Denmark, 256.
Hansen, O., Denmark, 256.
Hanson, F., Galvanized railing, 154.
Harrington & Co., Preserved salmon, 18.
Harbert & Raymond, Mower, hay-rakes, 31.
Harrison, W. C., White mountain honey, 19.
Harris, Milo, Dried fruits, 21; Dryer, 37.
Harris, Minard, Machines, 32.
Hardin, L. S., Butter making, 35.
Harman, G. W., Chichory, 124.
Harnish, Edward P., Cultivator, 26.
Harper, Smith, Steel hoes, 25.
Harrauff & Engle, Tobacco, 16.
Harris, A., & Son, Mower, 46.
Harris, Milo, Dried fruits, 21; Dryer, 37.
Harvey, James, Bros., etc., 18.
Harvey, John, Crackers, etc., 23.
Harstens, F., Netherlands, 234.
Hart, James H., China, 257.
Hart, Robt., China, 257.
Hart, R. T., Manufactured tobacco, 17.
Hartford Pump Co., Wind mill, 140.
Harley, Richard, etc., 18.
Hartman, John, Crackers, etc., 23.
Hartwick, H., Beer, etc., 125.
Harvey & Adamson, Vases, 153.
Harvey, J., & Co., Wool, 46.
Hashimoto, S., Spirits, etc., 129.
Hastings, James, Wines, 45.
Hawkins, Vincent, Co., Ginger ale, 22.
Hatfield, F. A., Moose heads, 45.
Hatter, Carl, Bottle stoppers, 138.
Hatton, I., China grass, 129.
Hauser, C. S., Cider, 54.
Havener, J., Switzerland, 221.
Havenhij, J., Belgium, 229.
Hawaii, Statistics of, 260.
Hawaiian Islands, Ferns, 159.
Hawkins, Chas. P., Ale, 137.
Hay, Hon. J., New South Wales, 179.
Haya, Sanchez, & Co., Cigars, 17.
Hayashi, Y., Tea, 128.
Hay, M., Cotton, 74.
Haynes, H., New elevator, 29.
Hayward & Jenkinson, Mouldings, 134.
Hazard, Thomas, Straw cutters, 34.
Hazelhurst & Young, Flowers, 152.
Hunter, John, & Son, Oatmeal, 40.
Hunyady, Count Emerich, Wool fleeces, 56.
Hupel’s, A., Sons, Beer, 137.
Hurl, Lewis, Fruit honey, 19.
Hurley, T., Dyers, 77.
Hutchinson, Samuel, Adjustable harrow, 26.
Hutter, Robert, Grape sugar, 22.

1.

Ianesch, Edward, Leather, 55.
Ibanez, L., Olive oil, 86/f.
Ibanez, L. G., Pears, 884.
Ibarra, J. M., & Son, Wines, 888; Oil, 88gr.
Ibarra, y Roviro, J., Carobs, 882.
Icey, J. E., Switzerland, 22.
Idelmeck, Adolph, Glove leather, 55.
Iglesias, A., Lentiis, 886.
Iglesias, R. & Cerda, Graft/; Beans, 88k.
Iglesias, P., Hazelnuts, 884; Vetch, 88j.
Iglesia, F., Cordage, 887.
Iles, F., Designs, 151; Baskets, 153.
IIjine, Nicolas, Russia, 204.
IIlaiacs, M., Grain, 73.
IIlais, J. M., Hazelnuts, 886.
IIllinois State Board of Agri., Samples, 18.
IIlicos Sur, Provincial Board of, Seeds, 131.
IIlobo, Provincial Board of, Seeds, 130.
IIma, K., Tea, 70.
Imaz Bros, Wheat, 77.
IIperial Nikitsky Garden, Wine, 125.
IIperial Russian Horticultural Society, 123.
IIin & Antonio Dias, Nuts, Nuts, 131; Grain, 95; Oil, 120.
IIinchausti & Co., Alcohol, 132.
IInd, Coope, & Co., Ale, 40.
India, Statistics of, 109.
IIndia, State of, Timber, 15; Wheat, etc., 16.
IInfante, J. de Dios, Olive oil, 88ee.
IInfante, J. E., Wine, 88r.
IIngham, & Beard, Organic separator, 137.
IInguez, A., Charcoal, 82.
IInguez, E., Olive oil, 88ff.
IInguez, J., Liquors, 88/e; Olive oil, 88ff.
IInguez, M., Flour, 88s.
IInguez, M. A., Vipers in alcohol, 81.
IInguez, R., Wines, 88w.
IInman Brothers, Aerated waters, 40.
IInstitute of Agricultural & Forestry, Wheat, 123.
IInternational Salt Co., Salt, 47.
Invernize, Pedro, Spurge, 80.
IInvernizero, J., & Toschini, J., Wax, honey, 84; Cotton, 87.
IIntota, M., Wheat, 88e.
IIowa, State Board of, Woods, grains, 15.
IIrazco, O., Rice, 87.
IIramon, Juan, Honey, wax, 84.
IIranzo, J., Wine, 88/f.
IIriarte, J. M., Chocolate, 88dd.
IIriartete, C., Skins, 87.
IIron Clad Can Co., Apparatus for ale, 137.
IIsaacs, Fred. H., Sulky gang plow, 25.
IIseus, M., Sweden, 240.
IIshby, R., Austria, 221.
IIsham, Chas. R., Glass honey boxes, 37.
IIsla, P., Wine, 88r.
IIslatelli & Co., Vermouth, 66.
IIslam, J. N., Cigars, 16.
IItabapoana, Baron de Langainha, 74.
IItajahy Colony, Woods, 68; Tobacco, 71.
IItalian Enological Committee, Liquor, 65.
IItaly, Statistics of, 244.

Itarra, Venero, Wheat, 78.
Ithaca Agricultural Works, Wheel rake, 30.
Ithcher, W., Switzerland, 225.
IItuapse Co., Wheat, 79.
IItuapse & Co., Bran, etc., 55.
IIzaga, N., Sugar, 88a.
IIzerquio, N., Honey, 88a.

J.

J. C. A., Cotton, 75.
Jaa, J., Curry, 40; Yeast, 41.
Jabon, B., Pepper, 88r.
Jacintho, Maria F., & Sons, Wine, 108.
Iarbin, James L., Stable fixtures, 38.
Jacob, E. A., Sweden, 240.
Jacob, Dr., Germany, 215.
Jacobini Brothers, Wine, 66.
Jacobs, Chas., Jr. & Co., Hams, etc., 21.
Jacquand, sr. & jr., Phosphates, 52.
Jacquemard, V., Charcoal, 82; Manure, 88.
Jacquier & Saupiquet, Sardines, 49.
Jacqui, I., Cigars, 18.
Jagt, P. G. van der, & Francois, J., Cigars, 57.
IIime, M., Cordial, 88r.
IIamaica, Statistics of, 187.
James, Jos., Bag holder, 46.
Ian, T., Tobacco, 70.
Ianc & Kirtland, Ornamental fountain, 39.
Iansen, E., Flowers, 151.
IIapan, Statistics of, 258.
IIaquary,Viscount of, Coffee, 71; Brazil, 263.
IIara, Loule, Almonds, 91; Beans, 98.
Iarboe, John W., Model, 135.
Iardin, Gomes de, Coffee, 71.
Iardim, J. R. de Moraes, Tobacco, 70.
IIarrin, B., Pastes, 88a.
Iarvis & Hooper, Fertilizers, 36.
IIausa, F., Maize, 884.
Ienkis, G. E., Sprinkler, 132.
IIener, Hon. C. J., Australia, 182.
IIennings, P. A., New South Wales, 180.
IIeremboa, T., Aguardiente, 73.
Iesus, F. de, Bark, 130; Seed, 131; Sugar, 132; Cord, 133.
Iesus, Laureano, Sugar, 132.
IIewell Bros, Rum, 196.
Iewett, Solomon W., Models, 39.
IJoacks & Behrns, Millstones, 54.
IIoaquim Guelderhe de Vasconels & Sons, Corkwood, 89; Plants, 97; Vinegar, 116.
IJofre, Roman, Red clo, 79; Figs, 84.
IIohnsson, C. S., Leather, 59.
IIohnsen, Chr., Salted and dried cod, 61.
IIohnsen & Co., Pale ale, terra-cotta, 41.
IIohnson & Gere, Grain drill, 28.
IIohnson, J., Plants, 152.
IIohnson, Robbins, & Co., Garden seed, 18.
IIohnson, T. H., Unfermented wines, 22.
IIohnston Harvester Co., Reaper, 29.
IIoston, Samul, Harvesters, binders, 28.
IIonckbloet, W. T. A., Netherlands, 234.
IIones, D., Malt, 137.
IIones, Fabian, Red corn, 78; Figs, 84.
IIones Fruit Evaporating Co., Evaporator, 37.
IIones, J. M., Implements, 152.
IIones, John A., Potato assoriser, 32.
IIones, John Winslow, Canned green corn, 20.
IIong, M. & K. de, Edam cheese, 57.
IIoping, J., Great Britain, 173.
IIorin Horticultural Red Co., Heater, 152.
IIordan, M., Wine, 8866.
IIordor, Miranda, Coffee, 71.
IIordor, R., Coffee, 71.
IIordor, S., Coffee, 71.
IIorge, M. F. A., Oil, 74.
IIose Ferrera Pinto Basto, Wine, 116.
INDEX.

K.

Kadach, J., Bitters, 54.
Kadzomari, Sugiyama, Japan, 250.
Kagoshima-ken, Gov. of, Tobacco, 128.
Kaitaku-Shi, Department of, Wheat, 128; Mats, 129.
Kaku, S., Tea, 128.
Kalashnikoff, P., Liquors, etc., 126.
Kalden, Baron of, Tobacco, 72; Flax, 75.
Kalling Iron Works, Dairy utensils, 65.
Kalmi Agricultural Society, Cereals, 59.
Kalmweiller, David, Cotton seed huller, 32.
Kambayashi, Sansho, & Sannin, Tea, etc., 128.
Kaminura, N., Tea, 128.
Kampf, S., Malt shovels, 137.
Kane, E., & Co., Beer, 137.
Kantz, E., Austria, '21.
Kansai-Manufactory Co., Wagons, 135.
Kauffman, M. Capt, Pickled meats, 54.
Karali, G. N., & Co., Cordials, etc., 126.
Karamycheff, E., Linseed, 124.
Karamycheff, E., Flax, 126.
Karamycheff, N., Grain, 123; Flax, 126.
Karlovka Estate, Wool, 126.
Karolyi, Count Alois, Sheep wool, 56.
Katakura, J., Tea, 128.
Kauffman, M., Malt, 55.
Kauffman, Mr., Germany, 215.
Kawai, S., Tea, 128.
Kawainui, J. N., Hawaii, 261.
Kay & Hilton, Burr mill stones, 41.
Kane, C. N., Bermuda, 190.
Keastner, Chas., & Co., Feed mills, 137.
Keeck, J. L., & Bros., Pickled meats, 21.
Keen & Hagercy, Freezers, 35.
Keen, Robinson, Bellville, & Co., Mustard, 40.
Kehrmann, F., Wines, 53.
Keiser, J. S., Liqueurs, 54.
Keith & Son, Ale, 139.
Kellen, D. van der, Jr., Netherlands, 234.
Keller, Henry, Machines, 32.
Keller, J. S., Wine, 139.
Keller, M., Wines, brandies, 27.
Keller, Philippe, Flax, 75.
Kelley's Island Wine Co., Wines, 23.
Kellogg, Adam, Bale of cotton, 24.
Kelly, Wm. E., Mowing machine, 29.
Kelsey, John, Harrow and scraper, 25.
Kempe, Old, 119.
Kennard, Amos, Cant hook, 37.
Kenoshia Fanning Mill Co., Fanning mill, 32.
Kenyon Bros., Potato digger, 30.
Kenyon, Silas R., Corn husking machine, 32.
Ker, Beniz., 132.
Kerber, P. J., Wines, 53.
Kerls & Spiess, Cigars, 17.
Kerkwyk, L. C. van, Netherlands, 234.
Kerr, R. F., Old, 44.
Keshner, F., Sugar, 125.
Ketterman, V., Tobacco, 70.
Keyser, James, & Son, Fastenings, 36.
Keystone Bridge Co., Iron, 147.
Kharkoff Model Farm, Hops, 124.
Kibler, N., Machines, 32.
Kiderlen, E., Alcohol, potash, 58.
Kiesler, J., Beer wagon, 138.
Kift, J., & Son, Bouquets, 151.
Killion, J. E., Fibres, 75.
Kinderling, W., Wines, 53.
Kindt, J., Belgium, 229.
King, Joseph G., Flour, 45.
King, William, Table sauce, 20.
Kingsford, T., & Son, Laundry starch, etc., 22.
Kinney, Francis, S., Cigarettes, tobacco, 16.
Kirchner, A., & Co., Liquors, 54.
Kiria-Kosho-Kuwaishita, Cigarettes, etc., 128.
Kissing, W., Fishing apparatus, 129.
Kissell, Blount, & Co., Corn cultivator, 25.
Kitakaze, Y., Vinegar, 123.
Kitizing, Otto, Russia, 294.
Kiyoto, Municipality of, Tobacco, 128.
Klug, P., Flowers, 152.
Klein, E., Fried fruits, 64.
Kleinh, J., Wines, 53.
Kleinjies, J., Plant 100 years old, 57.
Klem, Hansen, & Co., Leather, etc., 61.
Klippe & Brother, Hides, 72.
Klotzinger, L., Hemp, 66.
Klinjen, J. H., Bed leather, 57.
Kompatsch, P., Malt shovels, 37.
Kniajewitch, A., Wine, 125.
Knitller, Mr., Germany, 215.
Knickbocker Ice Co., Wagon, 135.
Knight, C. B., & Son, Fruit jellys, 20.
Knight, F. P., China, 257.
Knight, J., Liquors, 45.
Knight, Sir J. M., New South Wales, 179.
Knight, Sir W. M., New South Wales, 165.
Knowles Steam Pump Works, Pumps, 139.
Knowlton, E. J., Bathing apparatus, 39.
Kobeko, Dmitri, Russia, 294.
Kobori, C., Tea, 128.
Kochler, J. G., Churns, 35.
Koerper & Co., Resin, 53.
Kohei, Makiyama, Japan, 250.
Kohler & Frohling, Wines, 22.
Koldfossens Bobbin Works, Bobbins, 61.
Komarovsky, Count, Wool, 156.
Kongsberg Brewery, Pale ale, 62.
König, J. B., Wines, 53.
König-Räck, Bros., Alcohol, 55.
Konnstein, Geyfried, Outer, 26.
Koodriavzeff, A. & G., Sweetmeats, etc., 126.
Kooshnareff, J., Tobacco, etc., 124.
Kopke & Co., Wine, 106, 111.
Kopp, T., & Son, Vignyr, 54.
Koppent. H. T., & Son, Cigars, 57.
Kopscn, Ch., Tobacco, 70.
Koradi, R., Switzerland, 225.
Koskowa Amori, Japan, 229.
Korf, Baron K., Spirits, etc., 126.
Korf, Baron Michael, Grain, 132.
Korn, G. W., Refrigerator, 132.
Lima, Lino Anclaes, Wheat, 94; Flour, 105.
Lima, Meyer, & Sons, Oil, 119.
Lifon, Diego, Rice, mongsu, 139; Benesseed, 137; Sugar, 132.
Linares, C., Cheese, 82.
Linares, C., Hemp, 88a.
Linares, J. R., Almonds, 88a; Cereals, 88c; Peas, 82.
Linares & Obeso, D., Wine, 882.
Lindahl, Dr. J., Sweden, 240.
Lindemann, O., & Co., Cages, 37.
Line & Canes, J., Camomile flowers, 88m.
Link, J., Barrels, 138.
Lifola, Corp. of, Camomile flowers, 88m.
Lirer, Manuel, Sugar, 132.
Liro, Hidaka, Japan, 128.
Lisboa, Luis Emilio, Wine, 110.
Lisbon, President of the Municipal Chamber of, Tallow, 102.
Lisbon Tobacco Co., Tobacco, 90.
Lista, Manuel, & Schroeder, T., Tobacco, 81.
Lister Bros., Glue, etc., 19; Fertilizers, 36.
Litta, Count B., Italy, 157.
Littlejohn, L., Bung bushes, 138.
Live Stock, Exhibitions of, 142-144.
Llaberia, J. S., Wine, 88aa.
Llansado, V., Wine, 88d.
Lander, M. O., Carobs, 887.
Llandes, M. O., Seeds, 88m.
Llanos, A., Peas, 886.
Llanzado & Pames, J., Olive oil, 88gg.
Llanova, S., Wax, 88.
Lleco & Gomis, V., Hemp, 883.
Llorat y Fontanillas, J., Wine, 88aa.
Llovera & Llovet, V., Wine, 88v.
Llovera, Lissandrello, White corn, 78.
Lloyd & Sons, Flour Mills, Machines, 41.
Luch, F., Wine, 8866.
Lurba, F., Almonds, 88a.
Lurba, J. B., Chick-peas, 887.
Lobato, Francisco Rasquilla, Jr., Grain, 92.
Lobo, B. J., Corn, 93; Cheese, etc., 100.
Lobo, Bernardino Vas, Wine, 111.
Lobo, Francisco Teixeira, Wine, 110.
Lobo, Jose Maria, Grass, 93; Beans, 98; Cheese, 99; Oil, 119.
Lobo, Jose Nogueira Pereira, Wine, 111.
Lobo, Nicholas Joaquim, Wine, 110.
Lobo, T. A. de, A., Oil, 119.
Lobato, Carmen, Bermuda, 190.
Lockwood, James L., & Co., Dryer, 37.
Locur, V., Beer, 137.
Låvensköld, Ch., Drawings, 60.
Logatto, A., Clasps, 51.
Logate, A., & Co., Salmon, trout, cranberries, 41; Oil, 45.
Loio, G. da S., Oil, 119.
Lombard, Daniel, Shelling machine, 34.
Loomis, Chocolate, 53.
Long, Allstatter, & Co., Rake, etc., 29.
Long Bros., Designs, 152.
Long & Co., Wax, 72.
Long, J. C., Jr., Prepared food, 39.
Longer, Joseph, Tea, 57.
Loonutchiky, L., Coconuts, 127.
Lopes, Alvaro Pereiro, Flour, 105.
Lopes, Antonio Camilo da Silva, Wine, 115.
Lopes, Jacintho, Grain, 93; Seed, 98; Wine, 132.
Lopes, Joao da Cunha, Wine, 111.
Lopes, Joaquim Emilio, Wine, 117.
Lopes, Jose Martinis Thomar, Figs, 91.
Lopes, Jose Oliva, Wines, 111.
Lopes, Jose Ramos, Beans, 98; Wines, 110.
Lopes, Manuel Joao, Wine, 111.
Lopez, A., Brandy, 88s; Wines, 88m.
Lopez, D., Esparto grass, 8844.

Lopez, C., Brandy, 88s.
Lopez, E., Olive oil, 88ee.
Lopez, F., Wines, 86; Coffee, 130.
Lopez, F. K., Sardine oil, 885.
Lopez, J. B., Honey ropes, 8844.
Lopez, J. M., Cereals, 88e; Olive oil, 887.
Lopez, L. M., Wine, 88m.
Lopey, M. H., Barley, 88s; Cereals, 88g; Chocolate, 88ed; Olive oil, 88ff.
Lopez, M. G., Honey, 886.
Lopez, P., Wine, 88w.
Lopez y Pastor, L., Olive oil, 88kh.
Lopez & Vaugier, Chocolate, 88dd.
Lopo, C., Cereals, 88c.
Lopo, F., Cereals, 88c.
Lord & Co., F., Liquor, 55.
Lour, W. J., New South Wales, 180.
Lorenzano, Corp. of, Nuts, 88a; Maize, 88f.
Lorenco, C., Arrowroot, 130; Sugar, 132.
Lorenzo Puig Bros., Wine, 8866.
Loreti, Gioacchino, Candy, 66.
Loring Bros., Wheat, 88f; Wines, 88rrc; Grass, 88fi.
Loro, Francisco, Maize, 88a.
Lousada, M. J., Wine, 889.
Loustic, Fred, Foster coop, 37.
Lossy & Co., Wines, 50.
Lottier, Lawrence, Manufactured tobacco, 17.
Lotzbeck Bros., Snuff, 53.
Luo, Antonio Cazes, 887; Wines, 88d.
Loui Bres. & Co., Vinagar, 50.
Louquey & Co., Cements, 48.
Loureo, Bento Maria, Honey, 101.
Lourinho, Antonio Jose, Nuts, 91.
Lourenco, Francisco, Wine, 111.
Lousa, Jose Luis Rodrigues, Grain, 93.
Loura, A. P. da A., Flax, 120.
Louvell & Baffington, Tobacco, 17.
Lovering, J. S., Plants, 151.
Loving, A., Tobacco, 17.
Loy, Edward, Beesfie, 40.
Loy, Jose Bittres, 85.
Lozano, J., Wheat, 88s.
Lozano, J. A., Wool, 88g.
Lozano, M. S., Barley, 88g.
Lozoya, Marquis of, Wool, 88y.
Lubary, Tomas, Wheat, 79; Flour, 85.
Lublan, S., Cereals, 88d.
Lud Lottier de la S., Canada, 205.
Lucena, de Francisca, Paste for soup, 64.
Lucena, Corporation of, Wheat, 88ad.
Lucena, N., Wine, 88a.
Lucchapeu Bros., Kegs, 138.
Lucy, L. E., Export, 88m.
Lugo, Provincial Commission of, Eels, 88u.
Lugiz, L., Olive oil, 88er.
Lullato, G. B., Liquors, 65.
Lum, J., Preserves, 88a.
Lund, George, Anchovies, etc., 64.
Lundgren, P. W., Preserved fish, 59.
Lundstrom, C. F., Sweden, 240.
Lundstrom, Sweden, 240.
Lutoslawski, T., Beer, 126.
Luxardo, Giroallo, Liquors, 55.
Luxembourg, Statistics of, 596.
Luy, Pere, Thomas, Mate, 71.
Lyka, Dementer, Wheat, 55.
Lyman, T. C., & Co., Ale, 137.
Lynch, Peter, Hog scalders, 135.
Mabette, J. A., Malt shovels, 137.
Lysell, Aug., Anchovies, 59.
Lysholm, Jorgen B., Norwegian brandy, 62.

M.

Maas, A. E., Boats, nets, hooks, etc., 57.
Mabett, Truman, Cultivators, 26.
INDEX.

McKay, Thomas, & Co., Oatmeal, 44.
McKenzie, J. & A., Ale, beer, 137.
McKevett, Jas., Refrigerators, 47.
McKee, W., Dried Higgins, 49.
McLaughlin, J. M., & Son, Noses, 18.
McLaurin, Edmund, Flour, 49.
Mcdonald, McNaughton, & Co., Ales, 45.
Mcdonald, R. E., & Co., Cheeses, 45.
Mcmurry, John, Rapier and mowers, 31.
McNaughton & Co., Bermuda vegetables, 19.
Mechanical Bakery, Corn, 93.
Mock, C. von, Sugar, 125.
Meder, C. Gow, 48.
Medina del Campo, Corporation of Wheat, 884; Wine, 882; Wool, 889.
Medina, J., Skin, 82.
Medina, L. R., Woods, 77; Nuts, 81.
Medinaceli, D. J. C., Olive oil, 832.
Medinaceli, Duke of Olive oil, 88er.
Medino, J. Illeson o, Abaca, 133.
Modrano, F., Berley, 85.
Modrano, S. B., Skins, 850.
Meehan, Thomas, Seeds, 12; Plants, 134.
Meers, C., Belgium, 229.
Mellinger, C., 24.
Mellin, Maurice, Seeds, 98.
Mireles, Antonio N. del C., Wine, 110.
Milan, I., Cereals, 886.
Milgarejo, W. M., Wheat, 85.
Milgarejo, M. J., Cheese, 883; Grass, 8834.
Melen y Artilles, M., Aldon, 882.
M. Deh, F. C., Macaroni, 18.
Mellen, A., Pickings, 35.
Mellen, L. F., Tobacco, 17.
Mellin, Gustav, Food, 49.
Mello, Antonio Maria de Wine, 111.
Mello, Benito de Castro, Beans, 97; Wine, 107.
Mello, C. de, Cotton, 74.
Mello, Faro Joaquina Carvalho, Nuts, grain, 99.
Mello, H. O. de, Wine, 110; Oil, 110.
Mello, J. C. de, Rice, 65; Cotton, 74; Wine, 110.
Mello, J. J. de, Oil, 129.
Mello, José de Thomar, Wine, 111.
Mello, Luis de M., Sweetmeat, 105.
Mello, Luis de, Seed Oil, Wine, 111.
Mello, Netto, Fran de Paula, Coconuts, 75.
Menchero, E., Opinion, 8342; Wine, 889.
Mendes, Augusto A. E., Meats, 123.
Mendes, Bernarda, Corn, 93.
Mendes, Carlos de la Costa Pereira, Wine, 117.
Mendes, Casimiro E., Nuts, 91, 98; Oil, 119.
Mendes, J. J. S., Oil, 119.
Mendes, J., Olive, Honey, 72; Liquor, 73.
Mendes, L. A. S., Grain, 96; Chestnuts, 105; Flax, 121.
Mendes, Olinte, Corn, 69.
Mendes, Raymendo J. S., Seed, 99; Oil, 119.
Mendivel, Fidel, Sugars, 89.
Mendez, A., Wheat, 88g.
Mendez, A. P., Peas, 883.
Mendez, B. D., Tobacco, 88m.
Mendez, F., Cereals, 88g; Peas, 884; Olive Oil, 88g.
Mendez, J. P., Cereals, 88v.
Mendez & Keller, Sugar, 85.
Mendonca, J. T. de, Oil, 119.
Mendonca, Manuel F. de, Corkwood, 89.
Mendonca, Manuel Marcal, Wine, 111.
Mendonca, Thomaz A. de, Starch, etc., 106.
Mendoza, G., Coffee, 131.
Mendoza, M. J., Olives, 70.
Mendoza, Agricultural Villa, Corn, wheat, 80.
Mendoza, F., Olive oil, 88k.
Mendoza, I. H., Olive oil, 88g.

Mendoza, Provincial Com. of, Resins, 76.
Birds, 82; Skins, 83; Hemp, 87; Cacti, 159.
Menezes, B. A. de, Liquor, 73.
Menezes, José Correia, Dried fruits, 103.
Menezes, José de Vasconcellos, Woods, 89; Grain, 94; Beans, 60; Honey, 102.
MERCHANT, C., Rice, Sugar, Wine, 126.
Menezes, José Rabelo Cardosa, Wine, 115.
Menezes, Manuel Antonio, Figs, 91; Wine, 115.
Menezes, Rev. M. de, Tobacco, 70.
Merce & Co., Coffee, 88w; Chocolate, 883d.
Merino, M., Wheat, 88f.
Merlo, Vincenzo, Dried figs, 64.
Meran, G., Wines, 50.
Merryweather, A. E., Aloe, 122.
Mesa, F. C., Preserves, 88r; Brandy, 88m.
M. S. Hitchener, J., winnowing machine, 127.
Meson, C., Olives, 884.
Meson, J. A., & Son, Olive oil, 88ed.
Mesones, M. J. B., Wine, 88c.
Mesquita, Antonio da Silva, Wines, 111.
Mesquita, F. J. de, Corkwood, 89; Nuts, 99.
Mesquita, G., Rice, 87; Flax, 121.
Messina, Special Com., Sicilian products, 67.
Metternich, Prince von, Wines, 53.
Mether, C. G., Feather, 88g.
Methurt, J., Flour, 45.
Mekow, A. C., Brandies, 50.
Meeschel, J. W., Sr., Wines, 53.
Mexico, Statistics of, 271.
Meyer & Coblenz, Wines, 54.
Meyer, E., Bitters, 54; Wheat, 77; Hemp, 87.
Meyer, L., Fig coffee, 124; Gingerbread, 126.
Meyer, Samuel B., Leather, 61.
Meyerhofer, C., Beer, 136.
Mezo, Calcisodio, Wine, 65.
Michel, S., Wines, 86.
Miguel, Miguel, Mild peach sugar cane, 83.
Michigan State Agricultural College, Farm products, 18; Birds, etc., 18.
Michigan, State of, Soils, 38.
Michon & Gassau, Brandy, 115.
Middleton, G. W., & Co., Alcohol, 22.
Migerva, F., Austria, 231.
Mignot, A. J., & de Block, A. A. M., Cigars, 57.
Migueis, Antonio Dos Santos, Portugal, 884.
Migueis, J. J., Cork, 129.
Migueis, R., Almonds, 886.
Milburn Wagon Co., Wagons, 135.
Mildred, Juan, Wheat, barley, 78.
Miles, W. A., & Co., Ale, 136; 137.
Milla, M., Olive oil, 88er.
Miller, A. S., Fruit ladder, 32.
Miller, Chas. L., Pumpkin flour, 22.
Miller, Frederick A., Condition powders, 38.
Miller, S. A., & Son, Confectionery, 29.
Miller & Hayes, Frens, 151; Design, 153.
Plants, 154.
Miller, A. J., Extract, 44.
Miller & Sievers, Frens, 135; Conos, 155.
Miller & Wallace, Texas plow, 25.
Millet, D. Caldwell, Hive and bees, 32.
N. N——N——Straw, 63; Rice, 73.

Nácar, J., Chocolate, 88Fig.

Nachtmann, Jacob, Honey, 55.

Nagamasa, Yoshih, Japan, 259.

Nagoya, Z., Liquors, etc., 125.

Nagasaki-ken, Government of, Cigars, 126; Fishing apparatus, 129.

Nagaya, B., Tea, 128.

Nager y Juan, P., J., Wine, 886.

Nagle, and M., Y. Lard, 85.

Nagura, O., Isinglass, 129.


Napheys, Geo., C., & Son, Lard, 19.

Narvaez, Miguel, S., Wine, 111.

Napoli, Francesco, Preserved tomatoes, 64.

Napoli, Giuseppe, Wine, 66.

Narbuth, Johann, Hemp, 55.

Navarz, D., Wines, 86.

Navarette, J. M., Wheat, 88r.

Navarro, M., Licor, 88.

Nascimento, M. A., Liquors, 1.6; Wine, 109.

Nascimento, Rev. A. F., Tobacco, 70.

Nash & Bro., Potato planter, 27.

Nathanson, J., Sugar, 125.


National Manufactory of Tobacco, Tobacco, 88m.

National Yeast Co., Dry hop yeast cakes, 24.

Nagado, Jose General, Wine, 110.

Natu, T., & Co., Spirits, etc., 126.

Naumann, F., Liquors, 54.

Naumann, L., Spices, 53.

Navajas, F. S., Wheat, 88r.

Navarro, A. J., Wheat, 88r.

Navarro, Antonio Jose Antunes, Portugal, 285.

Navarro, Cornelio, Wheat starch, 85.

Navarro, E., Wine, 886.

Navarro, Jose C. D., Portugal, 284.

Navarro, C., Cork, 88d.

Navas, M., G., Brandy, 88.

Naves, A., Tapjican, 190; Oil, 132.

Nazar & Co., Wool, 87.

Neaffie & Levy, Engine, 39.

Nebbie, J. M., Tobacco, 70.

Needham & Kite, Filter press, 41.

Noges, F. de P., Wine, 88m.

Negaro, J. d’a, Seed, 98; Figs, 104.

Negrao, M. N. O., Oil, 110.

Négre, J., Confectionery, 51.

Negreiros, Bento Antonio, Wine, 111.

Negrete, A. F., Cereals, 88F; Seed, 88m.

Negridt, Dr., Germany, 215.


Neighbour & Sons, G., Bee hives, 41.


Nemfield, A., Hemp, 126.

Nennich, Henry, Vinegar, 22.

Nemzonti Brothers, Preserved tomatoes, 64.

Nes, A. P. van, Trees, 15B.


Neto, Manuel Jose Setubal, Fish, 99.

Netto, Felipe Lopes, Brazil, 263.

Netto, Joao Mascarenhas, Corks, 89.

Netz, Christian, Lard, 45.

Neuman & Sons, Vinegar essences, 56.

Neumer, Christof, Leather, 55.

Neves, Adelino, Beans, 98.

Neves, Adelino, & Son, Nuts, 91.

Neves, F., Oil, 110.

Neves, Fortunato Vieira das, Wine, 110.

Neves, Francisco X., Grain, 93; Peas, 98.

Neves, J. Ribeiro, Brazil, 70.

Neves, Jose Eloy das Cadaval, Wine, 110.

Neves, Jose J. das, & Bros., Almonds, 97.

Neves, Jose J. dos, & Sons, Figs, 103.

Neves, Jose Maria, Beans, 98.

Nevis, Wm., Machines, 34.

New Brunswick Adv. Board, Lumber, 123.

New Era Manufacturing Co., Machines, 32.


New Hampshire State Centennial Board, Woods, 15; Corn, etc., 16; Sugar, 22; Wool, 24; Implements, 32; Books, 38.
Overbeck, P., Beer, 54.
Oviado, Board of Agriculture, etc. of, Nuts, 86c; Cereals, 88f; Vegetables, 88f; Cheese, 89f; Ham, 89f; Cider, 89f.
Owen, Hon. L. C., Canada, 204.
Owen, Judge, Barred heads, 35.
Ozaki, I., Tea, 128.
Ozene, M. M., France, 209.
Ozorio, Alvaro de Azevedo, Beans, 98.
Ozorio, Jose Augus, Wine, 1,99.
Ozorio, Manuel de A. F., Beans, 98.

P.
Pacheco, R. G., Barley, 88f; Beans, 89f.
Fagni, Faustino, & Co., Biscuits, 66.
Pajares de Oteros, Corporation of, Cereals, 88f; Peas, 88f; Wine, 88f.
Pala, J., Chocolate, 88c.
Palacin, D., Wheat, 88f.
Palatin y M., Maize, 89f.
Palau, J. de, Wines, 89f.
Palomeño, Duke of,-make for soup, 64.
Palcois, Lino, Argentine Republic, 265.
Palin, T., Malt, 136.
Pallares, Count of, Wheat, 88f.
Palks, J., Wheat, 89f.
Palma, A. J. da, Embira, 75.
Palma del Rio, Corporation of, Walnuts, 88f; Honey, 88f.
Palmeiro, Xavier Rosado, Grain, 95.
Palm, B., New South Wales, 180.
Palmieri, Benedetto, Wine, 66.
Palomar, N., Flour, 88c.
Palomino, T., Wine, 88f.
Panics y Ortedena, J., Olive oil, 88g.
Pampanga, Provincial Board of, Seed, 131.
Pampiero, Antonio di S. M., Wheat, flour, etc., 89f.
Pampiero, R. de S., Cereals, 93; Flour, 106.
Panda, Corporation of, Fibres, 133.
Panerio y Martínez, Jnau, Chocolate, 88df.
Panitz, J. C., Tobacco, 70.
Pantleon, M. F., Maize, 89f.
Papana, M. A. M., Oil, 118.
Papotti, Cantalamessa, N., Italy, 249.
Paquio, R., Belgium, 229.
Para, Province of, Guaraná, 74; Jute, 75.
Paradela, D., Cereals, 88f; Linseed, 88c.
Paradinas, A., Cereals, 88f.
Paradinas, G., Barley, 88c.
Paradinas, J., Wheat, 88c.
Paraby,na, Province of, Cotton, 74.
Paraiso, D. V., Tobacco, 70.
Parano del Sil, Corporation of, Maize, 88f.
Flax, 88f.
Para and other Provinces, Cereals, 69; Jute, 75; Fuss, hides, etc., 72; Fenelas, 73; Cotton, 74; Flows, wool, 75.
Para, Commission of, Woods, 77; Corn, 79; Cocos, 87.
Para, Commission of, Sponges, etc., 81.
Parana, V. D., Tobacco, 71.
Parahyba, Director of, Butter, 72.
Pardo, Chas. W., Barley, malt, 136.
Pardo, J., Orange wine, 8866.
Parde, R. & P., Flour, 88c.
Paredes, C., Beans; Wine, 88c.
Parent Bros., Sweetmeats, 88g.
Parfomy & Lemaire, Marble, 48.
Parilla, J. de, Wine, 89f.
Parisian Flower Co., Bouquets, 131.
Park, H. & H., Fork, hoe, etc., 25.
Parkin, W. W., China, 237.
Parkyn, Jas., Flour, 45.
Parlato, Luigi, Almonds, 65.
Parmentier, E., 229.
Parnell, Montague, Wines, 42.
Parchial Curate, Textiles, 133.
Parody, Don Francisco, Spain, 280.

Parrales, V., Pepper, 88m.
Parra, E., Esparto grass, 88h.
Parsons, S. B., & Sons, Plants, 151, 154.
Pasalli, Gaetano, Fermo, & Cottignano, Liquors, 62.
Pasaran, J., Wheat, 88f.
Pascoal, Otero, Beer, 110.
Pascual, E., Peas, 88f; Olive oil, 88f.
Pascual, E. A., Wool, 121.
Pascual, Jose Augus, Wine, 1,99.
Pascual, Widow & Sons of, Wine, 89f.
Pascual y Caballero, P., Wine, 88f.
Pasetto, B., Flax, 88f.
Pasqua, A., Rice, 13.
Paskevitch, F., Wine, 125.
Passe, Theodore, Wax, 84.
Passos, Jose Francisco R., Dried figs, 104.
Patagones, Justice of the, Peace of, Wine, 82; Wool, 87.
Patañano, Orazio, Wine, 66.
Patio, J. M., Wine and oil, 88f; Wool, 89f.
Patron, Wm., Road scrap, 36.
Paua Buhes, F. de, Peas, 88f.
Paulino, C. P., Prunes, 89g; Olive oil, 88gf; 88c.
Paulino, J. P., Wheat, 88g; Olive oil, 88g.
Paulino, B. E., Almonds, 88f.
Paulo Affonso, District of, Cajufen oil, 74.
Paulo Cordeiro, J., Nufft, 71.
Paulo de Oliveira, A., 88f.
Paulweis, F. Belgium, 229.
Pavão, A. A. G., Wine, 111.
Pavin de la Forge, L. & E., Lime, 48.
Pavay, P., Olive oil, 88c.
Paya, C. P., Wines, 88e.
Payas, C. P., Olive oil, 88dd.
Peabody, Geo. H., Rice huller, etc., 34.
Peakock, C. J. P., South Australia, 184.
Penio J. R., & Co., Tobacco, 16.
Pecana, Jose Pereira de Castro, Wine, 112.
Peck Brothers, Bone dust, 36.
Peck & Skilton, Rustic goods, 154.
Pedraza, B. G., Wine, 88c.
Pedroso, Henrique Caldeira, Olives, etc., 103.
Pedroza, Maria Jose Lopes, Seed, 96; Wine, 117; Flax, 121.
Peele, Hubbell, & Co., Abaca, 133.
Peez, E., Wines, 53.
Peinado Lasas, Cereals, 88f.
Peira y Mach, A., Nuts, 88f; Wine, 88e.
Peireira, Henrique Augusto, Rice, 93.
Peixoto, Jose de S., Acorns, 91; Seed, 97;
Oil, 118.
Peixoto, Augusto Gavia, Olives, 104.
Pelicier, F., Almonds, 88b; Wine, 88a; Figs, 88g.
Pellicier, J., Olive oil, 88ka.
Pell, A. P., Silk, 51.
Pelliter, Ernest, Russia, 294.
Pelliter & Pallard, Wines, 49.
Pelot, Ingel, Barley, 78; Silk, 88f.
Peña, J. E., Cheese, 88a.
Peña, J. G. de la, Wheat, 88f; Oil, 88gr.
Peña y Mach, Olive oil, 88ka.
Penåñil, Flour, 1-6.
Penåñil, Innes, Abaca, 133.
Penåñosa, A., Cocoa, 131.
Penåñoso, A. S., Seed, 131.
Pénsalier, J. D., Seed, 88m.
Pendock Brothers, Cider, 41.
Penedo, Francisco A., Grain, 93; Cheese, 99.
Penifols, Garcia, & Co., Wine, 88e, 88s.
Penitentes, Rio of Janeiro, Cases, 68.
Penick Bros., Biscuits, 88;
Ferneries, 1-3.
Penny, Hon. E. G., Canada, 204.
INDEX.

Pezzo, W., Spirits, etc., 126.
Petrokoi, M., Wheat, 124.
Petrokoi Rural Academy, Grain, 123.
Peterson, C. E., Scythes, 60.
Perason, Otto, Pumich, 59.
Peyron, K., Sweden, 249.
Pflanzenstiel, C., Beer, 137.
Pfeiffer, H., Hazelnuts, 88.
Pfeifer, Pedro, Potatoes, 83.
Philips, J., Sons, Baskets, 150.
Philip Best Brewing Co., Beer, 137.
Philippe & Co., Food, sardines, 49.
Philippine Islands, Ferns, 163.
Philipson, Tobacco, etc., 174.
Phillip, A., Medicinal plant, 69.
Philipp, Armando, sr., Chili, 267.
Phillips, J. B., Horse training device, 38.
Pinen y Gomez, M. del, Branwine, 153.
Phosphorite Co., Lime, 122.
Pico, Amaro Jose de Bastos, Grain, 93.
Picazo, P. B., Wine, 88.
Pickering, Jonathan, Must, 139.
Pecadero, Thomas R., Tobacco, 17.
Pec, M., De, Vegetables, 88.
Pedroa, R., Olive oil, 88c.
Pereir, J. P., Native wood, 15.
Pierce, Mrs. R. M., Stands, 153.
Piekert, C., & Co., Fodder cutter, 34.
Pierpont, Wm., Machines, 32.
Pietz, S. A., Chocolate, 88d.
Pillado, E. M., Cereals, 89/1; Beans, 85/1.
Piller, N., Wheat, 89; Flour, 85.
Pilling, Geo. P., Instruments, 35.
Pimenta, Anna A. de S., Dried fruits, 103.
Pimenta, Isidora, Cheese, etc., 100.
Pimenta, Isidoro E. de Marques, Peas and beans, 97; Wool, 121.
Pimenta, Jacintico Francisco, Wine, 11.
Pimenta, Jose Maria Dantas, Nuts, 91; Dried figs, 103; Wine, 108.
Pimenta, M., Vagnameresco, 73.
Pimentel, Antonio Augusto de Moraes, Rye, wheat, 93; Seed, 98; Honey, etc., 102; Wool, 121.
Pimentel, C. A., de, Wine, 88d.
Pimentel, Jose Reis, Seed, 90; Cheese, 100; Flax, 121.
Pin, J., Almonds, 88a; Mistela, 83/1.
Olive oil, 88dd.
Pin, M. M., de, Oil, 118.
Pinango, N., Saffron, 88a; Wine, 88.
Pinhar, E., & Bros., Olive oil, 88g.
Pinaradi, Plauto, Mustard, preserves, 64.
Pineda, E. de, Cereals, 87f.
Pineda, J., Olive oil, 88c.
Pineda, N. J., Olive oil, 88ff.
Pinheiro, R. S., Cereals, 89f.
Pinheiro, Aurelio, Wax, 84.
Pinet, Castillon, & Co., Cognac, 90.
Pingueiros e Angles, F., Almonds, 88.
Pinheiro, Candido, A., Olives, etc., 103.
Pinheiro, Custod. Jo Jose Valverde, Wine, 111.
Pinheiro, J. E., Tobacco, 79.
Pinheiro, Jose Azambuja, Wine, 108.
Pinheiro, Jose do Maura, Grain, 91.
Pinheiro, Jose de Sa, Olive oil, 101.
Pinheiro, Jose Henrique, Grain, 81.
Pinheiro, T., Sugar, 72; Laranginha, 74.
Pinho, F. do, Chocolate, 74.
Pinheiro, J. M., Wheat, 89f; Olive oil, 88ff.
Pinos, J. M., Wheat, 89f;
Pincson, Ivory, 48.
Pinto, A. L. de G., Wine, 118.
Pinto, A. T. da C., Oil, 119.
Pinto, Antonio Joaquim, Red wine, 105.
Pinto, Antonio M. de, Seed, 97; Wool, 121.
Pinto, Antonio, R., Cereals, 93, Beans, 97.
Flour, 106; Wine, 118.
Pinto, Antonio Peixoto, Wine, 114.
Pinto, Augusto Leal de Gouvea, Beans, 97.
Piny, Rosalina, etc., 102.
Pinto & Bro., Tobacco, 71.
Pinto, Clementina, Acorns, 90; Peas, 98; Honey, Irandy, 102.
Pinto, Coelho, Wines, 114.
Pinto da Aonsea, Maize, 125.
Pinto, Francisco X. de M., Raisins, 105.
Pinto, J. C., Macaroni, 118.
Pinto, Joao A. da Fê, Wine, 110.
Pinto, Joao T. de Avedo, Corn, 93.
Pinto, Joao de Arevedo, Flour, 106.
Pinto, Joaquim de P. da C., Cheese, etc., 100.
Pinto, José Clemente, Grain, 92.
Pinto, José, P., Corn, 93.
Pinto & Luis A., Chocolate, Grain, 93; Beans, 97; Preserved meats, 100.
Pinto, Manuel Feireira, Wine, 114.
Pinto, Maria R. B., Wines, 114.
Pinto, O., Aguardente, 73.
Pison, J. H., Lamps, 88a.
Pison, R. I., Wines, 88a.
Plombino, Prince of, Wine, 66.
Pioneer Iron Works, Road roller, 36.
Prapitanga, Baron of, Starch, tapioca, 73.
Pires, Antonio Joaquim, Sweet fruits, 105.
Pires, Julio José, Portugal, 284.
Pirrone, Antonio, Biscuit, 66.
Plano & Luis, Cocoa, 88b.
Plano, L., Jóve, 88a.
Plano, José, & Co., Brandy, 85.
Pla y Vila, P., Brandy, 88a.
Plagniol, J. de, Oil, 51.
Plan & A., Choco, 88a.
Plassa y Alfonso, J., Mistela, 88a.
Platen, Count Carl von, Cereals, 59.
Plaza y Garrejo, F., Wheat, 88a.
Pleasant Valley Wine Co., Wines, 22.
Pletneff, Alexandre, Russia, 294.
Pley & Bidezque, Wax, 88d.
Phlighin, P., Wheat, 123.
Plunkett, John, & Co., Malt, 40.
Poblete, F., Morrellor, 77.
Poblete, Thiburco, Ostrich skin, 81.
Pobodboff, Michel, Russia, 204.
Poe, Cz. P. van der, Wheat, barley, oats, 57.
Poeschel, M., & Sherer, Hermann, Wines, 22.
Poe, J., Oranges, 88c; Vegetables, 88a; Coffee, 88a; Sugar, 88b; Honey, 88a.
Poe, J., Plants, 150.
Pohl, C., Currants, 158.
Polaris, Antonio Jose da Silva, Pitch, 90; Grain, 93; Beans, 114.
Pointe aux Peaux Wine Co., Wines, 23.
Poisson, J. T., Seed, 77; Viper’s skin, 81.
Poke, Charles, Malt, 136.
Pokorny, Frang, 56.
Pokrovsky Sisterhood, Cocoons, etc., 127.
Polà, Juan, Potatoes, etc., 80.
Poliogy Society of Agriculture, Wines, 50.
Pollock, James, Flours, 21.
Polo, B., Wine, 88a.
Pombo, P., Wheat, 88; Flour, 88a.
Ponce de Leon, Juan, Cereals, 88a.
Ponce, I., Seed, 77.
Poniferrada, Corporation of, Walnuts, 88a; Cereals, 88c; Vegetables, 88a; Wine, 88a.
Pons, A. C. de, Olive oil, 88dd.
Poncon, Gomia, J.; Paste, 88a.
Pontes, F. F. T. de, Wine, 118.
Pontes, R. O., Cements, 48.
Pontzen, E. von, 221.
Ponpet, A. C., Coffee, 88.
Porcar, T. M., Olive oil, 88dd.
Porcarli, Baron Angiolo, Grain products, 63.
Porquerias, J., Wine, 88aa.
Porli, P., Flowsheaf, 67.
Porta, A., Aonsea, Maize, 125.
Portella, F. F., Vanilla, 69; Hair, 75.
Portella, José Ferreira, Wine, 114.
Portella, J., Wine, 114.
Portabella, L. E., Coffee, 69.
Porter & Mowbray, Flour, 22.
Portillo, S. R., Wax candles, 88a.
Portland Packing Co., Canned fruits, 19.
Pórtoles, M., Anise-seed cordial, 88c.
Poiré, P. A. d’Avévedo, Matte, 70.
Portugal, Statistics of, 281.
Posadas, G., Fibre ropes, 87.
Posar, J., Rice, 131.
Posse, Count F., Sweden, 240.
Posset, A. A., Oil, 88a.
Possiponti, A., Straw, 15.
Post, C. C., Maple sugar, 22; Tools, 33.
Post, C. G. van der, Cigars, 57.
Potan y Mico, A., Wine, 88aa.
Potier, W., Wine, 88aa.
Pouyet, Miguel, Garden seeds, 80; Honey, 84.
Poveda, P., Cereals, 88a; Peas, 88a.
Poveda y Frutos, de, Wine, 88d.
Powell, Edward, Wines, 42.
Powell, J., New South Wales, 180.
Poyato, M., Peas, 88f.
Pozo Alcon, Corporation of, Seed, 88w.
Pozola, L., Cheese, 88c.
Prado, M. A. de, Walnuts, 88a; Cereals, 88b; Vegetables, 88j; Flour, 88a; Chocolate, 88c.
Prados, Viscount of, Coffee, 71.
Prasencio, M., Wine, 88c.
Prandy, A., Choco, 88a.
Pratt, C., Saucers, 157.
Pratt, James, Sauce, 40.
Pratt, José, Lupine, 88c.
Pré, J. M., Wine, 88cc.
Prego, Ezequiel de Paula Sà, Wines, 108.
Prego, Joaquim Romar Mendes, Wine, 114.
Prentzel, S., F., Oatmeal, oatina, 21.
Pressey, G. W., Stump puller, 36.
Presswood, DeFrance, Wines, 53.
Price, S. S., Plants, 152.
Prieo, R. M., Wheat, 88d.
Priest, W., Wool, 43.
Picro, F., Coffee, 131.
Picro, S., Wheat, 88d; Seed, 88w; Vegetables, 88a; Olive oil, 88e.
Prince Edwards Island Advisory Board, Cereals, 44.
Principle, District of, Resins, 68; Wax, 72.
Principle, Don Julian A., Spain, 280.
Prins, F., Hazelnuts, 19.
Pripodi, Silivnno, Coffee, 71.
Prichard, A., Raw cotton, 24.
Pritz, A., & Sons, Grain drill, 31.
Proence, F. T. d’A., Corkwood, 92; Oil, 118.
Prohens, D., Cordial, 88a.
Promis, J., Wines, 50.
Protective Fire Apparatus Co., 30.
Pross & Adjustable hoewing machine, 29.
Provincial Deputation, Oats, 88d; Honey, 88a; Barilla, 88ia.
Provoost, Stephen H., Tomato sauce, etc., 20.
Przycewskiewy, C., Pulverized bones, 107.
Remmick, G., Germany, 215.
Remington, E., & Sons, Plows, etc., 26; Carriage gear- ing, 37.
Rennie, Wm., Grains, 44.
Rechtliner, H. D., Wheat and seed drills, 28.
Repinin, P., Lisenced, 124; Flax, 126.
Reppard, R. B., Timber, 135.
Requené, M., Wine, 88c.
Requena, M., & Sons, Wine, 886.
Resende, L. de, Silkworms, 75.
Resoagli, L. Boxes, 76.
Retamoso, Count of, Liquors, 88w.
Reuniaux, F., Gears, 215.
Rens Flour Association, Wheat, 884.
Reus, Industrial Flour Mill of, Flour, 88r.
Reuter & Alley, Ale, 136.
Revila, A., Wine, 88c.
Revolult Bros., Peltries, 49.
Rey, L. J., Sugar, etc., 88a.
Rey, M. P., Hazelnuts, 88u; Cereals, 88f.
Rivas, Olives, 88g; Beans, 886; Onions, 88m; Potatoes, 88t; Wines, 88c.
Reyes, A. laurel, 130; Abacá, 133.
Reyes, Juana, Cotton, 132; Abaca, 133.
Reyes, Vicente, Wine, 132.
Reyes y Rich, A., barley, 88r; Beans, 88j; Olive, 889.
Rezende, L. de, Silkworms, 71.
Ribennis Sherkinfl Wire Co., 74.
Rhode Island Horseshoe Co., Horseshoes, 38.
Rhodes & Waters, Digger, 36.
Riabora, R., Cereals, 884; Olive oil, 88gc.
Ribas, A. L. d'Andrade, Cigarettes, 70.
Ribas, J. L. S., Tobacco, 72.
Ribas, Limas, Olives, 91; Wines, 107.
Ribas, Simao, Grain, 97.
Ribiero, Francisco Maria, Wine, 111.
Ribiero, P. F., Penola, 65.
Ribiero, J. Lopes, Corkwood, 89; Grain, 96.
Ribiero, Joaquim Antonio, Wine, 112.
Ribiero, Jose Joaquim, Wine, 111.
Ribiero, Jose Rodrigues, Grain, 92.
Ribiero, Manuel Jose, Portugal, 284.
Ribiero, Manuel Penaflhal, Brandy, 111.
Ribiero, S., Coffee, 71.
Ribiero, Serafin G., Corkwood, 89; Brandy, 111.
Ribier, Villa, & Puerta, Flour, 88r.
Ribera, Guarnier, & Bros., Vernicelli, 88e.
Ribero, J., Skins, 83.
Ribot, E., & Bros., Hemp, etc., 88ii.
Ricart, J., M., 88c.
Ricart y Sanz S., Wine, 886.
Ricasoli, Bettino, Barons, Wines, 66.
Ricaumont, de, & Co., Wines, 50.
Riccì, Emilianno, Liquors, 65.
Rice, J., Contractor, 147.
Richardson, Earp, & Slater, Ale, 41.
Richardson, J. J., & Co., Confectionery, 23.
Richardson Maflang, Grain, Mower and reaper, 31.
Richardson, Misses, Cactus, 151.
Richardson, Peter, Hoops, 134.
Richardson & Robbins, Canned fruits, 20.
Richardson, Thomas, Plow, 46.
Richardson, Wm., Machines, 32.
Richie, Henry A., Tobacco, 17.
Richmond and Gordon, His Grace the Duke of, Great Britain, 173.
Richmond Plow Works, Steel plows, 25.
Richter. Frederico, Cereals, 68.
Rickham, F. M., Wool, 42.
Rico, A. C., Wheat, 884.
Rico, A. P., Wines, 88s; Oils, 88zd.
Rico, A. T., Tobacco, 88d.
Rico, Jos., Sugar, 132.
Rico y Albert, A., Wines, 887.
Rider, A., J., Cranberries, 38.
Ridleys, M. H., Cigarettes, 16.
Riego, V., Sardines, 880.
Riera y Fernandez, J., Wheat, 88e; Vegetables, 88j.
Riefer, Col. H., Switzerland, 225.
Riggs Exchange & Committee, Flax, etc., 126.
Rigg, Ben., Soap, 47.
Riggs, M. B., Potato digger, 31.
Rije, Filippie de Jesus, Grain, 56.
Rio, Joaquim Antonio, Olives, 104; Oil, 119.
Rilo, Paix, W., Orange Free State, 255.
Rinaldo, Raffaele, Dried fruit, 64.
Rincon, J., Olive oil, 88ah.
Rio, J. P. del & Co., Tobacco, 88m.
Rio, P. del, Olive oil, 88er.
Rio Grande do Norte, Province of, Cotton, 74.
Rio-Grande-do-Sul, Province of, Tobacco, 71.
Rio-Novo, Viscountess of, Coffee, 71.
Rio de Janeiro, Military Hospital, Pharmaceutical preparations, 75.
Rio de Janeiro, Province of, and various other Provinces, Samples of Woods, 68.
Rion, J. H., Cork- Oak, 153.
Rios, E., Tropical fruits, 886.
Rives Corporation, Wheat, 884.
Ripley, Theodore, Shovel scraper, 36.
Ripolles y Perez, M., Brandy, 887.
Riscal de Alege, Marquis of, Seeds, 88u.
Rivas, B., Wine, 88b; Nettle, 88i; Cocoon, 88j.
Rivers, C., Olive oil, 77.
Riso, V., Wheat, 79.
Risques, Augusto, Cereals, 66.
Ritsch, F., Roots, 77.
Ritter, L., Garden seeds, 124.
Ritter, Philip J., Butter, 20.
Riudavets y Femenias, F., Milk, 88e; Non- 
riat, 88r.
Rivas, F., Wine, 88v.
Rivas, R., Chocolate, 88d.
Rivas, P., Wheat, 88w.
Rivas, P., de, Beans, 88a.
Rivera, A. M., Wines, 88r.
Rivera, Gregory, Fibres, 123.
Rivera, Guarnier, Chocolate, 88cc.
Rivera, Le., de, Bark, 133.
Rivera, R., Wine, 889.
Rivero, T., Almonds, 884.
Rivero, Gardet, & Co., Brandies, 50.
Riun-kian, Fibres, 129.
Rixas y Morillas, Barley, 88c.
Rizo, Isidoro, Coffee, 88g; Cotton, 86.
Roba, A., Mon., Coffee, 88a.
Robers, S. G. de, Wine, 882.
Robert, A., Belgium, 228.
Robertson, T., Plants, 151.
Robinson, C., New South Wales, 180.
Robinson, George, Corwood, 99.
Robira y GRAU, J., Wines, 88a.
Robles, S., Olive oil, 88Ah.
Robles, V., Pelt, 88i.
Robo, M. P., Wax, 884.
Roblel, MEAN, & Co., Wine, 112.
Robres, S. G. de, Almonds, 88c.
Roca, B., Fish, 88n; Preserves, 889; Wine, 88f.
Rocamora, L., Leather, 88a.
Rocamora, P., Brandsy, 882a.
Rocha, A. C. da, Oil, 119.
Rocha, C. da, Snuff, 71.
Rocha & Co., Guano, 122.
Rocha, Patricio da, S. Fish, 104.
Rocha-Ferreira, D. da, Tobacco, 71.
Rocha, Francisco Coelho, Corks, 89.
Rocha, Ignacio da, Pine lumber, 68.
Rocha, Jose Alexandre da, Wine, 108.
Rocha, Lecce, Coffee, 71.
Rocha, S. de S., Oil, 119.
Rochambau, Marquis de, France, 209.
Rochester Agri Works, Reapers, etc., 29.
Rochester, 1., Pine, 134.
Ruiz, G., White corn, 78.
Ruiz, J., Coffee, 137.
Ruiz, K., Wines, 82.
Ruiz, S., Rice, 88f.
Rusian & Harrman, Beer, 137.
Rumford Chemical Works, Yeast powder, 23.
Fertilizers, 56.
Ruppert, J., Beer, 137.
Russ & Co., M. H., Hops, 56.
Russell, W., New South Wales, 180.
Russeil, Wm. Horse shoes, 38.
Russia, Statistics of, 289.
Russian Society of Forestry, Seeds, 123.
Russo, Sauce, 124.
Rutem Effendi, Turkey, 288.
Rutherford, A. W., Wool, 42.
Rutschman Bros., Self-feeding hand drill, 38.
Ryder, B. L., Dryer, 37.
Rymarenko, M., Tobacco, 124.
Rynal, P. H., Cattle food, 38.

S.
Sa, Antonio A. do C. e, Grain, 96; Honey, etc., 103.
Sa, Felippe de, A. of E., Beers, 17.
Sa, Sabino Barros de, Honey, etc., 103.
Saal & Schlich, Beer wagon, 138.
Saatchi & Mangooili, Tobacco, etc., 124.
Saavedra, Peas, 188k.
Saavedra, J. M., Beans, 88f.
Saabriater-Granier & Son, Wines, 50.
Sachetti, C. B., Oil, 113.
Sacristan, P., Wheat, 88c.
Sadome, E., Belgium, 881.
San, E. L., Olive oil, 88ef.
San, L., Wines, 88f.
Sanz, V., Skins, 83.
Salamanca, A. T., Beeswax, 72.
Salom, A., Vegetable hair, 881.
Sagia, Government of, Tobacco, 128.
Sagiosa, Viscousness of, Wine, 110.
Sahlmann Bros., Beer, etc., 54.
Sainz, M., Peas, 88f.
Saiz, C. L., Wheat, 88c.
Sala, Count Della, Turkey, 288.
Sala, E. de, Almonds, 88a.
Salarich, J., Silk, 88j.
Salas, F. S., Wine, 88f.
Salazar, M. M., Oil, 110.
Salazar y Cuchas, P., Wheat, 88c.
Salcedo, A. P., Esparto grass, 88l.
Salcedo, J. L., Wine, 882.
Salcedo y Gomez, Olive oil, 88f/.
Saldana, Capt. Luiz de, Brazil, 263.
Saldanha, Dr. Jose de, Brazil, 63.
Salema, Mattas, & Co., Corks, 90.
Salerno Special Com., Manna, 63; Paste, 64.
Salgado, C., Wine, 88y.
Salgado, Domingos, Wine, 114.
Salgado, J. M., Wine, 88y.
Salgado, Julio Evar d'Azvedo, Corkwood, 89; Seed, 96; Dried peas, 103.
Salgado, Marianno Roza, Beans, 99.
Salgado, P. A., Wine, 88y.
Salgueir, Special Anelias, Alfonso, Corn, 93.
Salgueiro, Barnacles, Wine, 113.
Salibra, Antonio, Wine, 66.
Saliacht, Oscar, Sugar drops and punch, 62.
Salinas, F., Wine, 88z.
Saliva, F., Rice, 88z.
Salles, Joaquin Pereira, Corkwood, 89.
Salles S., Wine, 88m.
Salt, J., Tree, 133.
Salta, Provincial Com. of, Seeds, 76; Wheat, etc., 81; Skins, 82; Cotton, 87; Hair work, 88.
Salvadore, G. D., Peas, 88y.
Salvado, J., Wax, 88a.
Salvado, Mateo, Olive oil, 88gr.
Salvado, S., Hazel nuts, 88e; Olive oil, 88gg.
Salvador, S., Carobs, 88f.
Salvisberg, Mr., Switzerland, 225.
Salzinger, W., Tobacco, 66.
Sanamigio, M. G., Wheat, 88c.
Samar, Provincial Board of, Rice, 130.
Samoggia, Gaet., & Bros., Sausages, 64.
Samson, Alex, M., Seed, 98.
Sampoio, Jose de Cunha, Wines, 114.
Samper, J., Wheat, 88y.
Sanper, K., Olives, 88a.
Sanataria, A., Wine, 88f.
Sanabria, J., Sausages, 88f.
San Bernando, Count of, Beans, 88y; Olives, 88y, 88er.
San Carlos, Sub-commission o', Coconos, 88.
Sanchez, A., Wine, 88e.
Sanchez, A. C., Oranges, 88a.
Sanchez, B. I., Flour, 88r.
Sanchez, B. N., Wheat, 88g.
Sanchez, Bros. & Granados, Grapes, 88a.
Sanchez, F., Wheat, 88f.
Sanchez, F. P., Wheat, 88g.
Sanchez, J., Barley, 88e.
Sanchez, J. A., Wine, 88z; Olive oil, 88gg.
Sanchez, L., Beers, 88y.
Sanchez, M., Wheat, 88d.
Sanchez, M. R., Cereals, 88e.
Sanchez, Modesto, Beans, 80; Viper, 81; Grapes, 83.
Sanchez, R. H., Honey, 88a.
Sanchez, S., Seed, 88a; Panic grass, 88d.
Sancta Catharina, Presidency of, Coffee, 69, 71; Flour, 73; Thread, 75.
Sancho, Maria de Soleidade, Cotton, 74.
Sande, O., Cyperus, 88f.
Sande Olivares, J. de, Peas, 88i.
SanSendan & Co., Wine, 114.
Sandford, Col. Herbert, Great Britain, 173.
Sandfors, Col. Provincial Commission of, Prepared skins, baskets, 81; Skins, 83.
San Luis, Com. of, Resin, 77; Beans, 79.
San, N., Bristol, 88a.
Sandino & Bros., Beers, 88g.
San Vicente, Justice of, Horse-hair, 88.
Sanvombra y Bouda, D., Mistela, 88a.
San, J., Widow of, Leather, 88e.
San, N. Ross, Potatoes, 85.
San Anna, Baron of, Portugal, 285.
Santa Anna, Jose Candido de, Olives, 105.
Santa Catalina, Agricultural School of, Beeches, 76; Beans, corn, grasses, 78.
Santa Clara, Convict Sweetmeat, 104.
Santa Clara, F. de, P., Grain, 92; Oil, 119.
Santa Coloma, Isaac, Raisins, 84.
Santa Fe, Provincial Commission of, Woods, 76; Dry lucerne, 80; Wolf, lion, etc., 84.
Santa Maria da Soleidade, Grain, 69.
Santa Maria Sub-com., Corn, 75; Skins, 82.
Santa Marta, Marquis of, Wool, 88f.
Santa Marta, Martin, Olive oil, 88f.
Santacana, J., Wine, 88u.
Santacana, J., Wheat, 88d; Olive oil, 88ec.
Santamariana, J., Olives, 88g.
Santarelli Bros., Wines, 88y.
Santiago del Eaterno, Prov. Com. of, Woods, 77; Wheat, 88; Flour, 85; Fibre, 87; Cacti, 129.
Santillan Bros., & Co., Skins, 82.
Santivanez, P. J. C. de, Olive oil, 88ad.

DEPT.'S VI., VII.—AGRICULTURE, ETC.
INDEX.

337.

Slack, Mrs. J. H., Coste trays, 19.
Slater, R. P., Malt, 44.
Slocum, W. H., & Bro., Mincemeat, 19; Machines, 33.
Smirnoff, V., & Bros., barley, 56.
Smidt, Joao Luis, Skins, 101.
Smirnov, P., Cordials, etc., 126.
Smith, Aaron W., Horseshoses, 38.
Smith, David, & Co., Woods, 41.
Smith, Hamilton E., Churns, 35.
Smith, Hon. J. T., Victoria, 182.
Smith’s Homeopathic Pharmacy, Soluble chocolate, 74.
Smith, Isaac, Apple wine, 22.
Smith, J. C., Grains, 16.
Smith, J. G., Roller, 34.
Smith, J. M., Steep tub, 138.
Smith & Lynch, Rollers, 152.
Smith & Mrs. Giana, Auchovies, 61.
Smith, Peter E., Sulky plow, 26.
Smith, R., Ale, 136.
Smith, R. & Co., Wines, 45.
Smith, S. W., Flowers, 151.
Smith & Sons, J. M., Tank, 33.
Smith, W. E., South Australia, 184.
Smith, Wright, Table sauce, 20.
Smits, F. H. M., Strong beer, 58.
Smoker, David, Preserved fruits, 20.
Snider Bros., & Co., Cream biscuit, 24.
Soares, Bento de Frutas, Portugal, 285.
Soares, Joao B. R., Seel, 98; Wines, 114.
Soares, Jose Severino, Wine, 112.
Soares, O. J., Cotton, 74.
Soberano, B. M. C., Oil, 86.
Sobrinho, Jose, Wines, 114.
Sobrinho, Felix F. T., Macaroni, 106.
Sobrinho, Jose Guerreiro de L., Cheese, 99.
Sobrinho, Jose Martins Leitao, Wine, 112.
Sobrinho, Rafael B., Grian, 95; Honey, etc., 102.
Society of Friends of the Country, Las Palmas, Agave, 88f.
Society “La Edetana,” Rice, 88f.
Society Palma y Quesada,” Wines, 88av.
Scofield, L., Flax, 88.
Sokoloff, J., Tobacco, etc., 124.
Sokoloff, N., Islinglass, etc., 124.
Sokolokk Sugar Mfg. Co., Sugar, 125.
Sola, F., Wine, 88f.
Sola, J., Cheese, 82.
Soldan, A., Wine, 88r, 88r, 88jf; Vegetables, tables, 88f; Olive oil, 88f.
Soldelvina, T. M., Pomegranates, 88a.
Soler y Sigueria, Jh., Wheat, 88c.
Soler y Stussa, V., Vegetables, 88f, 88f, 88ff.
Soler, V., Dyes, 77; Feathers, 84.
Solinas, Anas Giuseppe, Wines, 65.
Solla, J., Yaretca, 77.
Solnitcky & Mitter, Malt, barley, 55.
Solonzano, J., Oat, 88f.
Somoz, R. M. N., Wine, 88r.
Soria, F. F., Carob seed, 88r.
Soria, M., Vinegar, 88r.
Soria, M. de, Wine, 88c.
Soriano, I. M., Almonds, 88a.
Sorrias y Domenech, J., Beans, 88r.
Soror Bros., Skin, 49.
Sorver, Cook, & Co., Tobacco, 16.
Sostes, F., Hazelnuts, 88a.
Soto, A., Wine, 88r.
Soitilo, M., Wine, 88c.
Soto, J. D., Peas, 88r.
Sotorra, A. C., Hides, 88r.
Soubeiran, Baron de, France, 209.
Soudée, Wines, 50.
Soulier & Brunot, Lime, 48.
Soure, Joaquim Manuel Soares de, Wine, 112.
Sousa, Bernardino J., de M., Vinegar, 108.
South Australia, Statistics of, 183.
South Australian Corp., Reapers, 43.
South Bend Iron Works, Plows, 25.
Souto, A. D. da C., Flax, 120.
Souto, Antonio D. da C., Nuts, 90; Grain, 96.
Souto, Major, Laurence da Cunha, Wine, 114.
Soy, A. de, Sugar, 73.
Soyo, Antonio Joaquim, Corkwood, 90.
Soyo, Augusto Pereira d’Abreu, Corn, 93.
Soyo, Bento de, Wheat, 60; Matte, 71.
Soyo, Conceicao M. A., Preserved fruits, 104.
Soyo, Francisco Jose de, Wine, 113.
Soyo, Guerino, Baron de, Coffee, 71.
Soyo, Gustavo Adolphio Goncalves e, Portugal, 284.
Soyo, Hector de Lemos e, Wine, 114.
Soyo, J. S. O. e, Corkwood, 89; Grain, 92; Corks, 92.
Soyo, Joaquim Jose de, Wine, 114.
Soyo, Jose, Olives, 104.
Soyo, Jose de A., Olive, 109.
Soyo, Jose Henriquez Coelho de, Wine, 114.
Soyo, Jose L. R. de, Beans, 97; Linseed, 99.
Soyo, Wine, 114.
Soyo, Julio Cesar, Wines, 114.
Soyo, M. J. M. de, Brandy, 73.
Soyo, M. L. de, Cigarettes, 72; Nuts, 90; Grain, 95; Wines, 116; Wool, 121.
Soyo, Manuel, Alves de, Olives, 105.
Soyo, Manuel Jose, Wines, 114.
Soyo, Manuel Paulo de, Grain, 96.
Soyo e Mello, Antonio M. de, Grain, 95.
Soyo, P., Coffee, 71.
Soyo, P. A. P. Abreu e, Corkwood, 89; Beans, 93; Wine, 117.
Soyo Pinto, F. de G., Olives, 105.
Soyo, Tobacco, 88c.
Soveral, V. da C., Flax, 121.
Soyo, Victorion Alves, Grain, 93; Flour, 1-6.
Soytas y Donche, J., Maize, 88a.
Soytas & B., Preserved fish, 61.
Spain, Statistics of, 277.
Spanish Nation, Tobacco, 120.
S Paulo, Province of, Woods, 68; Palma, plows, 75.
Speakman, Miles, & Co., Machines, 35.
Speakman, Thomas, Models, 36.
Speer, Alexander, & Sons, Plows, 25.
Speer, Alfred, Whisky, 22.
Spence, L., Machines, 32.
Spencer & Rada, E., Esparto grass, 88a.
Spieay, Fr., Malt mill, pumping, 15.
Spinelli, M. R., Vermicelli, 45.
Spitler & Lang, Maching machine, 139.
Spertozzo, B., Wine, 88r.
Spreng, Fridolin, Biscuits, 56.
Stackhouse, Com. T., New South Wales, 180.
Sta. Clara Convent, Sweetmeats, 104.
Stahlhiedt & Co., Wool, 45.
Stamattia, Tommaso, Marasincho, 56.
Staranger Preserving Co., Meats, 62.
Starbucks, Nathan, Ditcher, 36.
Stariaco y Ruiz, R., Fig bread, 88r; Wine, 88y.
Sta. Rosia de Lima Convent, Preserves, 104.
Star Plate Universal Polishing Powder Co., Polishing powder, 41.
INDEX.

339

Terreno, S. J., Wheat, 885; Peas, 886.
Terrien, sr., Food, 42.
Terrell, P., Sardines, 49.
Tesa, U., Tobacco, 71.
Thad, Waldenm, Punch, 59.
Thames, Fortunato de Coqueira, Wine, 115.
Thaina, E., Orange, 52; Sweetmeats, 163.
Thenulo, Antonio dias, Liquors, 115.
Thenuado, Jose Vicente, Preserved meats, 103.
Tecutonico, J. M. S., Olives, 124.
Thelinas, G. C., Flour, 52.
Thiry, J., Jr., Trellises, 157.
Thomson, F., Silk, 51.
Thomas, J. H., & Sons, Rape, 28.
Thomas, S., Viscount of Snow, Wine, 199.
Thomas, J., New South Wales, 183.
Thompson, C. B., Broom corn, 16
Thomson, Hon. Sir E. D., New South Wales, 172.
Thompson, J., New South Wales, 183.
Thompson, Robert, Tropical fruits, 43; Economic plants, 156.
Thompson, S. W., Jr., Barrel shooks, 35.
Thompson, W. R., Jamaica, 187.
Thompson, Wood, Machines, 36.
Thorhauk, E., & Son, Barley, 45; Wine, 51.
Thorices, B. Wine, 85.
Thorices, E. Wine, 85.
Thor & Bro., Crackers, etc., 24.
Thorne, Chr., Anchovies, 61.
Thorne, Chr. Aug., Preserved meats, 62.
Thomton, G., New South Wales, 180.
Thorrton, Hon. Sir Edward, Great Britain, 173.
Thorrand & Co., Cement, 48.
Thurlow, F., Teasels, 18.
Thyssen, C. J. F., Svee frames, 57.
Tibbles, Geo. N., Engines, 37.
Tiero S., Oil, 122.
Tiffany, O. F., Fruit dryer, 37.
Tillar, Carlos, Flour, 85.
Timirasev, Dmitri, Russia, 234.
Tinogasta Sub-commission, Skins, 82.
Tison, Jose, Sugar, 132.
Tivet, E., Bitters, 57.
Tivoli, A., Past de folle gras, 49.
Tijgewem Brewery Company, Malt, 126.
Tobacco Growers of Penn's Manor, 17.
Tocha, Josef Rodrigues, Honey, etc., 102.
Toll, Casias. H., 34.
Tolmie, Dr., Wheat, 44.
Tolosa, E., & Bro., Tobacco, 83w.
Tołosa, F., Wine, 882.
Toselli, G., Flour, 67.
Tomek, G., Wool, 887.
Toupee, Ch.s., Grate bars, 139.
Tooth, W. B., Queensland, 108.
Topi, rh, Antonio, Preserved fish, 55.
Toribio, A. M., Cereals, 88g; Vegetables, 884.
Torkelsten, J., Grain, 61.
Torner, J., Wine, 866.
Toro, I., Wheat, 79.
Torriatti, L. di Gio, Harrow, 67.
Torrado, J., Honey, 889.
Torre Afro, M. & C. de la, Cereals, 88g; Milk root, 889.
Torre y Figueroa, A. de la, Wine, 887.
Torre Novas, Court of Wine, 107.
Torre, P. de la, Wheat, 88c.
Torre, R. de la, Cochinial, 88n.
Torre y Salto, A. de la, Wine, 88w.
Torrcelli, Lenoñ Luigi, Wine, 65.
Torrent, F., Sugar, 88z.
Torres, A. A., Flax, 121.
Torres, A. V., Beans, 887.
Torres, Bernardo Uturk, Wheat, 72.
Ubatuba, D. B., Condensed milk, 74.
Uffredieu, Giacomo, Wine, 66.
Uhman, Simon, Hops, 136.
Ulex, G. F., Bitters, 54.

U.

Ubach de Colon, J., Dysces, 77.
Uratuba, Bernardo, Hallow, 72.
Ubatuba, Dr., Condensed milk, 74.
Uffredieu, Giacomo, Wine, 66.
Uhman, Simon, Hops, 136.
Ulex, G. F., Bitters, 54.
Valle y Villar, L. del, Wine, 88z.
Vallejo, J., Seed, 88g.
Vallejo, R., Wheat, 86d; Beans, 88j.
Vallier, J., Wine, 88c; Olive oil, 88h.
Valls, P. & V., Wines, etc., 88r.
Valmaseda, E. G., Cork, 54.
Valmorisco, P. N., Olive oil, 88c.
Valuteña, Corporation of, Saffron, 88r.
Valverde del Camino, Corporation of, Cereals, 88c.
Velasquez, D., Vegetables, 88z; Wine, 88s.
Valverde, F., Wheat, 88d; Olive oil, 88c.
Van Bree, J., Belgium, 289.
Van Casteel, A. T., Flax, 58.
Vander-Berg, Tobacco, 70.
Vandervliet, Henry, Aug. 25th jack, 33.
Vandiver Corn Planter Co., Corn planter, 28.
Van Dulken, Wieland, & Co., Gin, etc., 58.
Van Marken, J. C., Jr., Corn, 58.
Van Vranken, J. B., Teasels set in frame, 18.
Varaile, Antonio, Dressed lites, 66.
Varaskin, Demetrius, & Sanin, Spirits, 126.
Vardh, M. D., Wine, 88y.
Varella, J. G., Jr., Oil, 119.
Vargas, A. A., Corkwood, 49; Grain, 93.
Vargas, J. R., Wheat, 82c.
Vargas, S., Wines, 88o.
Varesa & Coelho, Preserved meats, 103.
Vasconcellos, Augusto C. C., Wine, 115.
Vasconcellos, B. d' A. C. T., de, Wine, 122.
Vasconcellos, Bento M. P., Wine, 112.
Vasconcellos, Catharina M. A., Corkwood, 90; Honey, etc., 102.
Vasconcellos, Mem Rodrigues de, Portugal, 285.
Vasconcellos, Duarte, Hops, 97, 99.
Vasconcellos, Francisco, Augusto, Wine, 93.
Vasconcellos, F. M. de, Oil, 119.
Vasconcellos, F. P. de, Preserved vegetables, 272; Wine, 73, 74.
Vasconcellos, Francisco P. C., Wine, 113.
Vasconcellos, M. S., Nuts, 91; Peas, 98; Oil, 119.
Vasella, Jose, Jr., Grain, 95.
Vas Freire, Jose S. T., Wine, 110.
Vasquez, B., Housy, 88g; Figs, 88r.
Vasquez, F., Peas, 88y; Wine, 88r.
Vasquez, J., Liquors, 88r; Wine, 88f.
Vasquez, J. L., Maize, 88f.
Vasquez, Lucrecio, Achala cheese, 82; Wine, 88r.
Vasquez y Rodriguez, Cereals, 88g.
Vassallo, Jose Baptista, Bleached wax, 101.
Vasconcellos, X. C., Corkwood, 90.
Vassilieff, N., Flax, 58.
Vassilichoff, Prince Victor, Grain, 123; Grass seeds, 124.
Vauzeller, Constantino, Portugal, 285.
Vaz, Eduardo Augusto da Cruz, Corkwood, 90; Grain, 95; Preserved meats, 103.
Vaz ProtGeraldez, Manuel Louza, Corkwood, 89; Grain, 96; Cheese, 100.
Vecinos, 1., Cereals, 88r.
Vegetable, Schiranga & Co., Potato flour, 58.
Vega de Infanzones, Corporation of, Cereals, 88z; Beans, 88y; Flax, 88ii.
Vega, G., Cork, 79.
Vega Grande, Count of, Maize, 88d; Beans, 88j; Wheat, 82r; Flour, 88g; Sugar, 88r.
Vega, L. O., Flour, 88r.
Vega, M. P. de la, Butter, 88o.
Vega y Lopez, L., Olive oil, 88c.
Vega y Tejada, E. de la, Wine, 88u.
Veelers & Pedro d'Oney, Cheese, oil, 90.
Valladolid, Board of Agriculture of, Wine, 88c.
Valle de Oro, Corporation of, Wax, 88a.
Valle, J. N., Wine, 88o.
Valle, J. R., Corkwood, 88a.
Valle, R. J. F., Rice, 69; Cotton, 74.
Valle, S., & Co., Tobacco, 88m.
DEPT.'S VI, VII.—AGRICULTURE, ETC.

von Essen, H. H., Scissors, 158.
von Holshoven, Germany, 215.
von Nostitz, Walitzitz, Germany, 215.
von Spitzemberg, Russia, 215.
von Zedlitz, Baron, Germany, 215.
Votrava, Commission, 75.
Votraves, Commission of Wines, 72.
Voturavas, District of, Medicinal plants, 69.
Veula, Marques, & Sons, Grain, 56.
Veire, M. L., Oil, 74.
Veire, S. A., Oil, 74.

W.

Waag & Son, Mustard seed, 124, 125.
Wackichiro, Tawara, Japan, 259.
Wadsworth, J. P., Flour, 45.
Wagner, C., Tree seeds, 123.
Wagoner, Elijah, Feed cutter, 33.
War Biscuits, Glue, 18; gelatine, etc., 19.
Waile, S., Cigarettes, 81.
Wain, N., Hops, 44.
Wakeman, R., Presses, 32, 34.
Walker, W., School, 259.
Walker, J., & Co., Ale, porter, 156.
Walker, James R., Iron plow, 56.
Wallace, John, Stuffed animals, 18.
Wallés, E., Almonds, 88a.
Wallis, A. B., Ale, 65.
Wallis, W., New South Wales, 180.
Walls, B. F., Poil.
Walton, S., Garden and field cultivator, 26.
Walton, Whann, & Co., Fertilizers, 56.
Wandsd., Tubs, 138.
Wanderley, Barrow, Sugar, 72.
Ward, Henry A., Camel, 38.
Ward, N., & Co., Cattle bones, etc., 19.
Warder, Minchell, & Co., Reapers, 28.
Wardle, George F., Flue tobacco, 16.
Ward's Fertilizer Co., Harrows, 26; odorless fertilizers, 36.
Warming, Sigmund, Drain pipes, 56.
Warriner, J., Boiler, 122.
Warriner, C., Canned fruits, 19.
Warsaw Sugar Manufacturing Co., 125.
Warschay, A., Grain, 123; Wool, 126.
Warschaysw, Leon, Russia, 294.
Watt, Carlos de, Flour, 83.
Watson, Cuthbert, 61, 62.
Wassiltskoff, Prince Victor, Sugar, 125.
Wastfelt, Carl C., Rennet, 59.
Watanabe, T., 128.
Waterer, A., Rhododendrons, 126.
Waterhouse, F. G., South Australia, 184.
Waterhouse, Joseph, Ales, 45.
Watkins, W. M., & C., Tobacco, 17.
Watson, J., New South Wales, 180.
Wigmore, R. S., Plants, 46.
Watt, J. B., New South Wales, 180.
Wayne Agricultural Co., Cultivators, 26.
Weatherston, N., & Co., Grain, 44; Flour, 45.
Weaver, J. R., Confectionery, 23.
Webb, Dr. F. T., Bahamas, 188.
Weches, S., Wine, 88c.
Wedding, Dr., Germany, 215.
Wehn, G. H., Artificial stone, 158.
Weir, C. Werk, & Son, Wines, 22.
Weidenmann, J., Survey, 153.
Weightman, W., Plants, 152.
Weikel & Smith Spice Co., Spices, 16.
Weibacher & Loes, Hops, 156.
Weinhagen, H., Apparatus, 35.
Weiss, C. A., Chichory, 124.
Weissmann, David, & Isaac Leib, Soundboard, 40.
Welch, H. P., Tasmania, 198.

Wellock, J., & Co., Water-proof material, 47.
Wells, Hope, & Co., Metallic signs, 139.
Wells, W., Saucers, 157.
Welsh Bros., Wines, 110.
Weitz, H., Beer, etc., 54.
Wenkelnbach, W. L., Beer wagon, 135.
Wenkenbach, W. L., Beer wagon, 138.
Wentworth, F. W., New South Wales, 180.
West Grove Manufacturing Co., Atomizer, 33.
West Jersey Land & Cranberry Co., 15.
West Virginia, State products, 515; Grasses, etc., 16; Hemp, flux, 24.
Westberg, N., Reaping machine, 127.
Westergaard, L., Netherlands, 234; Sweden, 240.
Western N. Carolina Land Co., Cereals, 17.
Western Washington Industrial Association, Grains, 16.
Wetterhahn, G., Wines, 54.
Whelan, L., Fruit picker, 33.
Wharton, J., Euclipta, 151.
Wheeler & Mellick Co., Horse-rake, etc., 27.
Wheeler, W. F., Sprinkler, 152.
Whellock, Jerome, Engine, 39.
White Elk Vineyards, Wines, 22.
White, Geo. E., Superphosphates, 36.
White, Hon. James, New South Wales, 180.
White, J. G. & Co., Barber, malt, 136; Malt mill, 137.
White Mountain Freezer Co., Freezers, 35.
White, R. P., Malt, barley, 136.
White's N. Malt House, Kiln flooring, etc., carts, 138.
Whiteley, Fassler, & Kelly, Reapers, 29.
Whitemore, D. H., Machines, 34.
Whitman, S. F., & Son, Confectionery, 23.
Whiton, David E., Mowing machine, 29.
Whittemore Bros., Hay-rake, etc., 29.
Wickberg, C., Grain, 123.
Wickel, Y., Punch, 126.
Widgren, H., Sweden, 140.
Widmark, F., Sweden, 240.
Wiedenbrug, H. T., Liqueurs, 54.
Wijkstrom, Z., Preserved vegetables, 59.
Whitmire, H., Hay, 62.
Wilkins, Theodore, Hair moss, 24.
Wilkins, Robert, Kye grass, 47.
Wilkinson, William, & Son, Binder, etc., 24.
Wilkinson, C. L., New South Wales, 180.
Wilkinson, George, Plows, 46.
Wilkinson, William, & Sons, Shears, 41.
Will, Dr., Switzerland, 225.
Williams, J. N., Plants, 156.
Williams Bros., Fertilizer, grain sower, 28.
Williams, J., New South Wales, 180.
Williams, John, Fruits, 21; Model, 37.
Williams, R. H., Quercitron bark, 15.
Williams, T. C., & Co., Plug tobacco, 17.
Williamson, A. H. A., Models, 151.
Willings & Co., Racking cock, 139.
Willoughby, James D., Grain drill, 28.
Wills, Arthur Willner, Hoes, 41.
Wiltm, Hon. R. D., Canada, 204.
Wilson, Brothers, & Co., Fodder cutter, 34.
Wilson, C. H., Geraniums, 153.
Wilson, Chas., Aces, 45.
Wilson, Child's, & Co., Wagons, 135.
Wilson, J. G., Boiler, 132.
Wilson, Jas., Oatmeal, 44.
Wilson Packing Co., Meats, 19.
Wilson & Piper, Harrow, 46.
Wilson, Thurs., Malt mill, 46.
INDEX.

Wilson, Wm. C., Plants, 154.
Wimpfheimer, David, Apparatus, 37.
Winchester & Partridge, Wagons, 180.
Windeyer, W. C., New South Wales, 130.
Winkel & Rothenbach, Wines, 53.
Winter, F., Glue, 53.
Wirmoud, E. E., Insects, 71; Wool, 75.
Wischnegradsky, Ivan, Russia, 214.
Wisconsin, State of, Forest products, 15; Agricultural products, 16.
Wisdom, R., New South Wales, 180.
Wishaw, A., Flax, 126.
Wisner, J. E., Self-discharging rake, 29.
Woelfle, Chas., Buckets, 138.
Woelmont, Baron G. de, Belgium, 228.
Woerle, W., Ice swimmer, 138.
Wolff, M. B., Flour, 57.
Wolffen, W., New South Wales, 130.
Wołowski, Mr., France, 209.
Womura, I., Tea, 128.
Wood, Hon. S. C., Canada, 204.
Wood, Hon. T. L., Bermudas, 190.
Wood, W. D., Wheat, 42.
Woodrell, W., Beef, 45.
Woods, J., New South Wales, 180.
Woronoff, Prince Simon, Wine, 125.
Worrall, E. Ponn, Rice, 38.
Wretzfl, Michael, Wine, 56.
Wriedt, Chr., Beer, 62.
Wright, Herbert, & Co., Pale ale, 40.
Wright, James W., Grain harvester, 29.
Wright, Joshua, & Son, Minced meat, 19.
Wright Spring Co., Wagon springs, 135.
Wright, T. A., Great Britain, 173.
Wurffbain, G., Roots, 27; Cotton, 87.
Wycoff & McDonald, Flour, 26.
Wyndan, Fockink, Fine liquors, 58.
Wyndham, George, Wines, 42.
Wyndham, Wadhams, Wines, 42.

X.
Xavier, A. de Paula, Matte, 76; Honey, 72.
Xavier, A. P., Honey wine, 72.
Xavier, D. Leocadia de P., Wax, 72.
Xavier, Francisco de Paulo, Grain, 94.
Xavier, J., Ribeiro, Tea, 70.
Xavier, M. C., Oil, 120.

Y.
Yacovleff, J., Preserved greens, etc., 124.
Yanagida, K., Tea, 128.
Yañez, F. V., Chestnuts, 832.
Yaniz, A., Wool, 882.
Ybanez, Aurtro, Mexico, 274.
Yeadle, Thomas, Flows, 46.
Yeihara, Y., Tea, 128.
Yeigo, F. A. da, Pharmaceutical products, 75.
Yermakov, Nicolas, Russia, 264.
Yosefow Sugar Mfg. Co., Sugar, 125.
Yoshio, Tanaka, Japan, 29.
Yoshita, Ishii, Japan, 289.
Yosso, Joao Jose da Matta, Grain, 92.
Young, Levi, Lumber, 134.
Yucèling & Sons, Ale, etc., 136.
Yulette, Andrew, Ess. of coffee, 49.
Yuquete, J. de O., Oil, 120.
Yvanez, Sr. Don Adolfo, Chili, 267.

Z.
Zablotski-Dessetovsky, P., Grain, 124.
Zablotsky, D. P., Oil, 126.
Zafforta, J. B., Carobs, 88.
Zafortezza, J. B., Oils, 88dd.
Zagallo, Antonio Carlos, Corkwood, 90.
Zahrzewsky, F., Grain, 124.
Zais, W., Wines, 53.
Zaitzeff, S., Cakes, etc., 126.
Zallas y Trigueros, M., Olive oil, 88cc.
Zamacoa, Manuel M., da, Mexico, 274.
Zamora, F., Olive oil, 88rk.
Zamora, P., Olive oil, 88oc.
Zanetti, Guido, Sauces, salted meats, 64.
Zammelli & Galliani, Liquors, 66.
Zapevaloff, A., Garden plants, etc., 124.
Zappoli Brothers, Bologna sausages, etc., 64.
Zarracina, T., Cider, 88z.
Zavalla, L., Wool, 88.
Zavalla, Pedro J., Wine, 85.
Zayas y Trigueros, M., Wool, 88j.
Zeeland Association for Encouragement of Agriculture and Cattle Breeding, 57.
Zeller, Chas., Plants, 154.
Zeni, Niccolo, Cordial, 65.
Zerpa, J., Wine, 88z.
Zeschks, L., Rags, 56.
Ziegler, A., Beer, 127.
Zierotin, Countess Gabriel von, Bushes, 55.
Ziglian, Camillo, Vermont, 61.
Zimmerman, Henry O. R., Insects, 18.
Zissner, Wm., & Co., Pumps, 139.
Zirion, Giovanni Tioriano, Salted meats, 64.
Zolezzi, Nicolas, Snuff, cigars, 81.
Zoller, A., Barrel washer, etc., 137.
Zoological Society, Fern, 132.
Zorilla, B., Skin, 83.
Zubia, I., Sherry, 88g; Olive oil, 88ff.
Zubiaurre, O., Wool, 87.
Zugadi, Nicolas, Oils, 132; Nito, 133.
Zunjlekom, Van Lebert, & Co., Gin, 58.
Zuluetta, J., Brandy, 88dr.
Zunzunegui, A., Wine, 88cc.
Zurbano, J., Wine, 88c.
Zyp, Baron W. G. B. van de, Netherlands, 234.
Zyzynski, M. Y., Bros., Cordials, etc., 128.
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