Frank Leslie's Illustrated Historical Register of the Centennial Exposition 1876
FRANK LESLIE'S

HISTORICAL REGISTER

OF THE UNITED STATES

CENTENNIAL EXPOSITION,

1876.

Embellished with nearly Eight Hundred Illustrations drawn expressly for this Work by the most Eminent Artists in America.

INCLUDING ILLUSTRATIONS AND DESCRIPTIONS OF ALL PREVIOUS INTERNATIONAL EXHIBITIONS, AND CONTAINING MUCH USEFUL INFORMATION, AND STATISTICS OF THE FOREIGN COUNTRIES REPRESENTED AT THE EXPOSITION.

Edited by Frank J. Norton,
Assisted by Scientific Men in the different Departments of Art, Manufactures, Mechanics, Agriculture.

NEW YORK:
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MDCCCLXXVII.
INTRODUCTION.

The design of Frank Leslie's Historical Register of the Centennial Exposition has been, as was indicated in its Prospectus—"To furnish a permanent, truthful, and beautiful Chronicle of the Congress of Nations assembled in friendly competition in Philadelphia in 1876," and to "afford a complete history of exhibitive effort in the past, and an artistic and discriminating Record of the Great Centennial, the entire work illustrated in the highest style of art, and forming altogether a magnificent Memorial of the Colossal Exhibition in Fairmount Park."

The intention thus set forth was conscientiously undertaken, and has been carried out on a scale of liberal consideration for the presumed requirements of the public, which, it is believed, has never before characterized any similar publication.

The great works illustrating the Exhibitions of London and Paris are only to be obtained at a cost far exceeding the purse of the ordinary book-buyer; the present publication, on the contrary, is within the reach of every one. The foreign works to which we allude have considered, in their descriptive and illustrative efforts, only selected subjects. Frank Leslie's Historical Register comprises history, description, and illustration of all "World's Fairs" whatsoever—while to the Centennial it has given a degree of minute attention which includes nearly every detail of structure and exhibit. Finally, the Historical Register presents, in connection with the subject immediately under consideration, a vast amount of historical, descriptive, and statistical information, which renders it, in fact, a comprehensive Encyclopedia of the Agriculture, Manufactures, and Commerce of the World.

The Centennial Exposition was, in itself, the culminating effort of a century of grand achievements. Presenting a panorama of the intellectual and industrial results of a hundred years of toil, it stands before humanity as a vast and complete exemplification of the progress of the past—to be utilized as a picture of experience for the benefit of the future.

To the millions of visitors to the Centennial Exposition, it would seem that some record should be desirable which might perfect for them the memory of happy days passed at Fairmount, and of the wondrous exhibition of human development in skill, industry, and intelligence there displayed before them.

To these it is hoped that Frank Leslie's Historical Register will come in the guise of an intelligent and discriminating friend— noting down and describing for their benefit the incidents and objects which they most desire to remember; and, while affording instruction, presenting also a fund of interesting and entertaining reminiscence, which shall serve to recall out of the past the almost magic beauty and wondrous completeness of the Champion Exhibition of the World.

Lavishly illustrated by the pencils of the best living artists, the Historical Register offers its services to the public as the only complete and permanent record of the magnificent events it chronicles, and the industrial works it describes.
THE EXHIBITIONS OF THE WORLD.

The international exposition of our time is the culmination of a long series of steps in competitive exhibition. The best method, therefore, of arriving at a just conclusion as to the merits of our own labors in this direction is by comparison, and we purpose for this reason to lay before our readers some examination of the history and progress of international exhibitions from first to last. The whole subject of competitive exhibitions is one not unworthy the consideration of the reader, and, as it seems not inappropriate at this time to extend even further our investigations, we will seek to trace the record of such exhibitions from the most recent international examples, away back to the more remote and simple illustrations among the ancients.

FIARS.

The word "fair" comes to us either from the Latin forum—a marketplace; or festa—holidays. The Romans established such marts as these in all their provinces. In those days the difficulties of transportation precluded frequent markets, such as are obtained in our time with perfect facility; and, furthermore, these institutions were deemed serviceable in the earlier stages of society, and in rude and inland countries, where, in the absence of shops, it was necessary that something of this character should be established for the benefit both of merchants and of the general public. In fact, so generally was the usefulness of fairs admitted, that it became customary for Governments to grant certain privileges to them and special facilities were afforded them for the disposal of property. To give them still greater importance, and, as it were, to "kill two birds with one stone," these were originally associated with religious festivals or holidays.

This practice has come down even to our day, the fairs of Europe being commonly fixed for some saint's day or other religious festival. In England, no fair or market could be held in ancient times but by a grant from the crown, with the provision, also, that no two fairs should interfere with or impede each other. Various laws and enactments were made in reference to fairs. One of these was peculiar. A bona-fide sale made in the fair on market day transferred the property to the vendee, no matter how vicious or illegal the title of the vendor might be.
any circumstances, the claim of the buyer was good against any one except the king. And the better to exclude injustice during those gatherings, a court was commonly held at the same time and place with them, this court being called *pie-poudre*, in allusion to the dusty feet of the suitors.

At this court, accounts—as to contracts, purchase, and sale—were considered, as also the just weight and measure provided. A very important species of these fairs in England, and, indeed, on the Continent, was the cattle-fair, of which instances occurred at least once a year in different places—Exeter, Norwich, Norfolk, Carlisle, for instance. The great *St. Bartholomew Fair* was formerly one of great importance, and was one of the most interesting features of London life. As early as the time of William the Conqueror, there was established at St. Giles's Hill, near Winchester, England, a fair which was apparently instituted for the purpose of adding to the revenues of the Bishop of Winchester. In the time of Henry III. this fair extended to sixteen days, and its jurisdiction covered a space of seven miles. The law concerning it provided that within the fair district any one who sold goods individually forfeited their price to the bishop; this continuing as late as 1512.

The most important fair on the continent of Europe was formerly that of Beaucourt, in France. So highly was this market considered that, in 1314, Philip of France complained solemnly to Edward II. that the merchants of England had deserted from frequenting these, to the great loss of his subjects, and entreated his brother-monarch to persuade the merchants of his dominion to return in their former custom.

The most important German fairs have been those of Frankfort-on-the-Main, Frankfort-on-the-Oder, and Leipzig, the latter being more particularly a book-fair, and very celebrated. The Easter fair at Leipzig has been
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

The American fairs.

On the American continent fairs date from an early period. In ancient Mexico, where there were no shops, the fair season was held at San Isidro del Campo, is still of importance, being held at the period when the annual pilgrimages draw crowds to that locality.

The fairs of Liépca date from the twelfth century, and are the most frequent of any in Germany. The principal articles of trade are silk, cloth, cotton, glass, porcelain, drugs, drugs, hides, leather, brass-stuffs, dyestuffs, color, oils, books, etc. The number of the books sold at this fair is so great as to require for the booksellers' trade-sale and settling of accounts; but the exhibition of books formerly connected with fairs has fallen into disuse.

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trades. Nearly all the bazaars are supplied with slates, or coffee-houses, to which the merchants resort after each trade (a fashion not entirely unknown even in Europe and this country). It is said that in Constantinople ladies sometimes provide for their private purse by embroidering handkerchiefs and other needlework, the result of their labors being sold in the bazaars. Women, however, are rarely seen in the bazaars, except those of the lower class. Men resort there for conversation, and to pass away the time, as well as for actual business.

National and State Industrial Exhibitions.

Face the idea of the great fair undeniably suggesting that of the Industrial Exhibition. The first being held for profit only, and being, in fact, only trade fairs, and backed by commercial interests, it naturally lead to the idea of a society to encourage invention in its application to the arts and manufactures. Among other means for advancing civilization, it may be mentioned that the society promoted earnestly the improvement of the fishery trade and commerce in the British colonies, besides all kinds of arts, sciences and manufactures; and to this end a London society was at present its magnificent daily supply of fish.

A fact interesting to Americans, in connection with the early history of the Society of Arts, is given. The society was organized in 1753, and first met in 1754, at a coffee-house in Covent Garden, and continued to be held at such places for twenty years, when a building was erected for it in the Adelphi, on the site of the palace of the Bishop of Dublin. From its inception this society was patronized by the nobility of England, some nobleman of high rank being always elected president; and this continued until 1845, when Prince Albert took the chair. The influence of this society upon the arts and manufactures of Great Britain has been enormous. By a judicious system of prizes, native ingenuity and inventions were encouraged, and some of the most prominent artists and others in England rose to such encouragement on the part of the Society of Arts, in 1788, and compared, chiefly, speciments of arts and manufactures loaned by their owners. This display led another during the same year, and the apparent utility and evident success of both those prompted the more extended exhibitions under the Committee, in 1801 and 1802. Thereafter it was intended that these exhibitions should be triennial, but on account of interruptions from political causes they were irregular. In England local exhibitions were held in Manchester, Leeds, Birmingham, and other cities, in 1828, 1837, 1839 and 1849. In Ireland the Royal Society of Dublin began a series of triennial exhibitions of Irish manufactures in 1829. Similar representations were held in Ghent in 1839, in Berlin in 1832, and Vienna in 1835. In 1852 a particularly successful exhibition of Irish arts and manufactures was held at Cork, and in 1861 a very important exhibition of the industries of Holland was held in Harleum, besides others at Nantes, in France, and Florence, in Italy. In 1863 an International Exhibition was held at Constantinople for the display of Turkish products, and, though this was not intended in the general sense of the word, it was rendered attractive by the display of both vital and manufactured goods. In 1874 there was an exhibition in Amsterdam for the display of Dutch industries, and in the same year local shows of the kind were held at Malo, Calcutta and Leith, besides a combined Spanish and French exhibition at Bayonne. The South London and North London Working Classes Industrial Exhibitions began in 1864. One of these was very important, having 541 exhibitors and 200,000 visits during the eighteen days in which it was open. It realized a clear profit of £1,000. In 1875 there was an industrial exhibition at Oporto, confined to Portuguese manufacturers; and the same year a New Zealand contributed an exhibition at Dunedin.

At about this time, also, there took place at Cologne a combined exhibition by Germany, Holland, and Belgium.
exhibitions were being held at Birmingham, Nottingham, Preston, Manchester, and other English towns, while in Vienna 615 prizes were distributed amongst 1,025 exhibitions. The idea continued to spread, and, in 1860, Sweden, Norway, Denmark, and Finland combined in a competitive display of Southern industry. This third joint exhibition took place at Stockholm, the principal manufactures shown being those in iron, steel, wool, and earthenware. The same year there occurred an exhibition at Melbourne, where 3,360 exhibitors offered articles from South Australia, Victoria, New Zealand, South Wales and Queensland. The Brazilian Exhibition, which took place first at Pernambuco, and afterward at Rio Janeiro, consisted mainly of raw products. In 1867, a very important exhibition was held at Agra, in India, at St. Petersburg, Ghent, and Berlin, while, in 1870, another was given at St. Petersburg, displaying Russian progress in the manufacture of various products, etc. Similar exhibitions took place during this year, also, an Intercolonial Exhibition was held at Sydney, New South Wales, which was important for its display of the products of the South Australian colonies, and was continued to Australia. A series of annual exhibitions was commenced by the "Italian Institute," which has a fund of 875,000 in Government and all appliances for curing fish, making fishermen's instruments, etc. Similar exhibitions took place during the same year, also, at Paris, Manchester, and New York. The greater part of these exhibitions, that the displays on a grander scale to j...

The United States. Industrial Exhibitions have long been a feature in the progress of State industry. The most important of these being those of the American Institute, which was organized, in New York, in 1824. For many years the annual exhibitions of the Institute were in part agricultural and partly horticultural; but lately they have been chiefly devoted to the industries and arts, and open to exhibitors from all parts of the Union. These have constantly increased in magnitude and importance, and have acquired the character and reputation of themselves. Their display, including Castle Garden and the Crystal Palace, the latter of which was burned, in 1858, during the progress of one of the American Institute Fairs, and all its contents destroyed. Of late years the exhibitions have been held in the premises known as the "Rich," near "Central Park," which has been purchased by the Institute. This association has a fund of 775,000 in Government bonds and loans and city real estate, with an annual rental of $12,000. These fairs are generally profitable. The Franklin Institute, of Philadelphia, was founded at about the same time with the American Institute, and publishes a valuable journal. In Cincinnati, the local association has held five annual exhibitions, and the "Mechanics' Institute, of San Francisco," etc., Baltimore, New York, and other large cities, have also had successful local Industrial Exhibitions, and for many years nearly all the County and State Agricultural Societies have held fairs and offered prizes. It is undoubtedly to the enterprise and success noted in these exhibitions, that the displays on a grander scale to which we may now direct attention, owe their origin. Thus, by succeeding steps of energy and originality, the present class of Exposition has been made practicable.
the Lord-Lieutenant of Ireland on May 12th, 1853, and remained open until October 29th. The value of its contents at the height of the exhibition was estimated to be £500,000, of which the fine arts represented £300,000. Up to that period no finer collection of paintings had ever been gathered together in the kingdom. The exhibition was exceedingly popular, being visited by 1,150,000 people; but it was not financially successful. This failure is believed to have been due to the circumstance that the prevailing character of the exhibition was too high for that of the people. It was neither national nor representative in its nature, and, therefore, it did not arouse Irish sympathy, nor stimulate Irish industry, since it neither participated nor stimulated Irish industry, since it neither participated nor represented the other.

**NEW YORK CRYSTAL PALACE EXHIBITION, 1853.**

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**THE GRAND VIADUCT OF THE PARIS EXPOSITION.**

On October 25th, 1852, the Corporation of the City of New York granted a lease for five years of the piece of ground known as "Beverly Square," on two conditions. First, that the building to be erected thereon should be composed of iron, glass and wood; secondly, that the entrance-fee to the proposed building was $200,000.

**THE CRYSTAL PALACE IN THE PARK OF THE PARIS EXPOSITION.**

**THE ENTRANCE TO THE PARIS EXPOSITION.**
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

PARIS INTERNATIONAL EXHIBITION, 1867.

This exhibition was originated by an imperial decree of June 28th, 1863, in which was announced the fact that an exhibition would be held in 1867, at Paris, and that it was designed to be more completely universal in its character than any of its predecessors.

With a view to this intent, notice was given far in advance of the time to give ample opportunity for mature consideration and reflection, and for the arrangement and carrying out of the necessary preparations. A second decree was made in April 1865, appointing the Imperial Commission to proceed abroad. The Commission consisted of sixty members, including three from England—LordCowley, Earl Granville, and Mr. Richard Cobden. The Champs de Mars was placed at the disposal of the Commissioners by the Government, and thereupon was erected a courtly building of oval shape, in which the entire exhibition was included. This building was surrounded by small outer buildings, each containing the principal exhibits of the nations, and having within the innermost of the series a pavilion open to the air, by which a colonnade was formed. The building was about 3,000 feet long, and 1,250 feet wide, covering eleven acres, while the entire area built over was thirty-five acres, and seventy acres surrounding were part laid out as a garden, sprinkled with all sorts of small buildings, including model cottages, restaurants, theaters, and open places of worship.

The classification was as follows: First floor, works of art; second, models of the liberal arts—such as printing, surgical, scientific and other instruments, etc.; third, household goods—such as clothing, linen, machinery, etc.; fourth, metals; fifth, raw materials; sixth, machinery of various kinds, etc. From the various countries, upwards of 50,226 exhibitors took part, and 10,200,000 persons visited the exhibition.

The cost of the exhibition was estimated at £10,000,000, of which £5,356,967 was contributed by the French Government, while the remainder was subscribed by French citizens, amounting to £4,643,033.

The decoration was largely French, and the means used was to make the exhibition resemble a French fair.

The most prominent features of the exhibition were the grand display, and of course a vast amount of money was expended by the French government, which was undoubtedly owing, and more than any other person in the world, to the Presidency of the Prince Consort, a guarantee fund of £10,000 of this amount.

Of the medals awarded, France took the largest number, 1,250. Among the most distinguished American exhibits were the large machinery of the Lighthouse Board of the United States, the State of Massachusetts and city of Boston, for school system, and the School of the Smithsonian Institute, of Washington, received grand diploma of honor. The entire number of exhibitors was about 42,584, this exclusive of Oriental entries, the open number of visitors to the exhibition being 7,254,875.

The cost of the exhibition was more than £12,000,000. The original Government appropriation was £3,000,000, with the provision that it would not be exceeded, and, as the receipts barely paid running expenses, there was a deficit of about £9,000,000. Added to the expenses was a large sum for advertising, which should be mentioned in the aggregate amount furnished by the City of Paris, and the extinguishing cost of the fire. The Viennese seemed to think that the entire grand exhibition was for the purpose of being laughed, and acted accordingly. The result of this greed and majority will probably deter other localities from a similar course in the future.

Different countries in the order of their geographical position. About sixty acres were covered by the buildings; the average daily attendance was 42,584, which was equal to that of the Russian Government. It was on a large scale, and admirably managed. Its various buildings occupied a space of two English miles. In its arrangement the greatest skill was bestowed on the palaces of art, which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此 and exchange, down to the international exhibition of our day. From the public markets, fairs and bazaars, which date, back and forward, and which were designed in the period of difficult transportation to facilitate彼此和
some direction and tending toward the same great result—the spread of knowledge among the different peoples of the earth concerning the advancement made by each in industrial labor, in the arts of design, and in the culture and adaptation of the earth's products to the necessities of mankind. In the earlier stages of this process it was necessary to offer inducements to enable the gathering of large numbers of people from distances wide apart, and therefore the purchase and sale of goods exhibited were particularly a feature of the occasion. But as the world became richer, transportation freer, and the minds of men more widespread in the ambitious thirst for knowledge, the necessities for this feature no longer existed, and it was found that visitors, by reason of this, would travel vast distances only to see and not to purchase the products of the ingenuity and constructive skill and industry of their fellow-men. In the Centennial Exposition of 1876, it is to be hoped that we shall witness the culmination of all the better features of international ex-

**HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.**

With a view to lay before the American people and the world in general a complete and authentic record of the origin and progress of this magnificent conception, it is designed to collate from the official authorities every fact of interesting and suggestive communica- tion on the subject to the Hon. Morton M. McMichael, at the time mayor of Philadelphia.

In 1880, Colonel M. Richards, from Philadelphia, advanced the suggestion that a grand musical festival should be the distinguishing feature of the celebration.

Occasional hints toward some national display to commemorate our Centennial appearance in the newspapers of the day, and, at last, even the character of the proposed celebration was fully indicated. Such illusions began gradually...
A TURNED AT WORK AT THE OTTOMAN FAIR, PARIS EXPOSITION.

THE OTTOMAN SECTION, PARIS EXPOSITION—TURKISH MOSQUE AND PALACE OF THE PASHA OF EGYPT IN THE PARK, PARIS EXPOSITION.

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OPENING OF THE PALAIS DE L'INDUSTRIE, PARIS. 1855.
TURKISH PAVILION AT THE PARIS EXPOSITION.
From these appointments the following organization was completed:

**Principal Compartment of the Human Section, Paris Exposition.**


In view of the fact that only annual meetings of the mem-

bers of the Continental Commission were deemed advisable, it was provided that the prosecution of the detailed work of the exhibition should be in charge of the Executive Committee mentioned above, and which should hold nightly meetings. Further, a "scheme of admission" was judiciously ordered by the following organization:

**Organization.**

President: Joseph E. Hawley, Five Centennial, Alfred T. Goodwin, Oregon; Connecticut, Connecticut; John D. Currier, Robert Lowry, Robert Hales, Director-General; Alfred T. Goshorn, Secretary; John L. Campbell, Assistant Secretary; Dorsey Gardner, Commissary, and Superintendent, John L. Shopmaker.

Executive Committee: Daniel J. Moreau, Nebraska; Pennsylvania; Alfred T. Goodwin, Ohio; E. A. Start, New Hampshire; N. B. Reckless, New York; Samuel T. Elam, Illinois; Samuel B. Currence, Rhode Island; John G. Stickers, New Jersey; A. B. Billings, West Virginia; B. C. McCune; Arizona; John Levitt, Louisiana; James Henry, Maryland; Charles A Miller, North Carolina; Secretary: Myer Asch, Philadelphia.

**Bureaus of Administration.**

Foreign—Director of the foreign representation: DIRECTOR-GENERAL.

Installation—Classification of applications for space—allocation of space in Main Building—supervision of special structures: Henry Pettey.

Transportation—Foreign transportation for goods and visitors—transportation for goods and visitors in the United States—local transportation—marketing and consular missions: DELPHIC TOURS.

Materials—Supervision of the Machinery department and building, including allotment of space to Exhibitions: John S. Lunt.

Agriculture—Superintendence of the Agricultural Department, building and grounds, including allotment of space to Exhibitions: BURNET LYNCH.

Horticulture—Supervision of Horticultural Department, conservatories and grounds, including allotment of space to Exhibitions: GEORGE W. MILLER.

**Exhibition.**

Fine Arts—superintendence of the Fine Arts Department and building, including allotment of space to Exhibitions:

A. T. Goshorn, Director-General.

John L. Campbell, Secretary.

Philadelphia, March, 1875.
created a body corporate, to be known by the name of the Centennial Board of Finance, and by that name to have an independent existence, until the object for which it is formed shall have been accomplished; and it shall be competent to own and to hold real and personal estate, in all courts of law and equity in the United States, and may make and have a corporate seal, and may purchase, take, have, hold, and sell, and may grant, sell, and of placer dispossession of all such real and personal estate as may be required in carrying into effect the provisions of an Act of Congress, entitled "An Act to provide for celebrating the one hundredth anniversary of American Independence, by holding an international exhibition of arts and manufactures, and products of the soil and mines, in the City of Philadelphia, and state of Pennsylvania, in the year eighteen hundred and seventy-six," approved March third, eighteen hundred and seventy-six.

The said board of directors, and every subsequent board, shall be charged by the stockholders with the duty of holding an international exhibition of arts and manufactures, and products of the soil and mines, in the City of Philadelphia, and state of Pennsylvania, in the year eighteen hundred and seventy-six, approved March third, eighteen hundred and seventy-six, and said board of directors shall consist of the following named persons, their successors and successors, from the States and Territories as herein set forth.

Section 2. That the said corporation shall have authority, and is hereby empowered, to secure subscriptions of capital stock in any sum not exceeding ten million dollars, to be divided into shares of ten dollars each, and to secure subscribers of said stock certificates therein under the corporate seal of said corporation.

Section 3. That after the expiration of said period of one hundred days, stock not taken may be sold to any person or persons or corporation willing to purchase the same, and the proceeds, together with the receipts from other sources, shall be used by said corporation, and shall be disposed of suitable buildings, with all other sources, shall be used by said corporation for the erection of suitable buildings, with their appropriate fixtures and appurtenances, and for all other purposes required in carrying out the objects of the said act of Congress of March third, eighteen hundred and seventy-six.

Section 4. That the said corporation shall have authority to issue bonds, not in excess of its capital stock, and may purchase, take, have, hold, and sell, and of placer dispossession of all such real and personal estate as may be required in carrying into effect the provisions of an Act of Congress, entitled "An Act to provide for celebrating the one hundredth anniversary of American Independence, by holding an international exhibition of arts and manufactures, and products of the soil and mines, in the City of Philadelphia, and state of Pennsylvania, in the year eighteen hundred and seventy-six," approved March third, eighteen hundred and seventy-six, and said board of directors shall consist of the following named persons, their successors and successors, from the States and Territories as herein set forth.

Section 5. That the said board of directors shall elect, from its own number, a president and two vice-presidents, one of whom shall be the secretary of the corporation, and shall be charged with the duty of conferring rights or privileges of any description, or relating to said exhibition or celebration, shall be made without the consent of the United States Centennial Commission, and shall be subject to the rules and regulations for the conduct of such exhibition or celebration, as the same shall be adopted by the United States Centennial Commission; and said commission shall have power to control, change or revoke all such grants, and shall appoint all judges and examiners, and shall appoint all officers, and shall act by the same, and the said board of directors shall have authority, and is hereby empowered, to secure subscriptions of capital stock in any sum not exceeding ten million dollars, to be divided into shares of ten dollars each, and to secure subscribers of said stock certificates therein under the corporate seal of said corporation.

Section 6. That the grounds for the exhibition shall be prepared and buildings erected by the said corporation in accordance with the plans, which shall have been previously adopted by the United States Centennial Commission, and the rules and regulations of said corporation, governing rates for "entrance" and "admission," and all other sources, shall be used by said corporation for the erection of suitable buildings, with their appropriate fixtures and appurtenances, and for all other purposes required in carrying out the objects of the said act of Congress of March third, eighteen hundred and seventy-six.

Section 7. That the said corporation shall have authority to issue bonds, not in excess of its capital stock, and may purchase, take, have, hold, and sell, and of placer dispossession of all such real and personal estate as may be required in carrying into effect the provisions of an Act of Congress, entitled "An Act to provide for celebrating the one hundredth anniversary of American Independence, by holding an international exhibition of arts and manufactures, and products of the soil and mines, in the City of Philadelphia, and state of Pennsylvania, in the year eighteen hundred and seventy-six," approved March third, eighteen hundred and seventy-six, and said board of directors shall consist of the following named persons, their successors and successors, from the States and Territories as herein set forth.

Section 8. That the said Centennial Board of Finance shall have authority to issue bonds, not in excess of its capital stock, and may purchase, take, have, hold, and sell, and of placer dispossession of all such real and personal estate as may be required in carrying into effect the provisions of an Act of Congress, entitled "An Act to provide for celebrating the one hundredth anniversary of American Independence, by holding an international exhibition of arts and manufactures, and products of the soil and mines, in the City of Philadelphia, and state of Pennsylvania, in the year eighteen hundred and seventy-six," approved March third, eighteen hundred and seventy-six, and said board of directors shall consist of the following named persons, their successors and successors, from the States and Territories as herein set forth.

Section 9. That the said Centennial Board of Finance shall have authority to issue bonds, not in excess of its capital stock, and may purchase, take, have, hold, and sell, and of placer dispossession of all such real and personal estate as may be required in carrying into effect the provisions of an Act of Congress, entitled "An Act to provide for celebrating the one hundredth anniversary of American Independence, by holding an international exhibition of arts and manufactures, and products of the soil and mines, in the City of Philadelphia, and state of Pennsylvania, in the year eighteen hundred and seventy-six," approved March third, eighteen hundred and seventy-six, and said board of directors shall consist of the following named persons, their successors and successors, from the States and Territories as herein set forth.
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

The payment of the same, principal and interest, by mortgage upon its property and prospective income.

Sec. That it shall be the duty of the Secretary of the Treasury of the United States, as soon as practicable after the passage of this Act, to cause to be prepared, in accordance with a design approved by the United States Centennial Commission and the Secretary of the Treasury, a sufficient number of certificates of stock to meet the requirements of this Act; and any person found guilty of counterfeiting, or attempting to counterfeit, or knowingly circulating false certificates of stock, herein authorized, shall be subject to the same pains and penalties as are or may be provided by law for counterfeiting United States currency; but nothing in this Act shall be so construed as to create any liability of the United States, direct or indirect, for any debt or obligation incurred, or for any claim, by the Centennial International Exhibition, or the corporation hereby created for or by any person or corporation, for any debt or obligation created by the corporation herein authorized.

Of course, the first and more immediately important duty of the "Board of Finance" was to conclude, after careful computation, an estimate of the sum of money necessary to carry out the intentions of the "Centennial Commission." The conclusion was fixed upon the holders, pro rata, in full satisfaction and discharge of its capital stock.

The Centennial Board of Finance was organized, and, as now constituted, is as follows:

**Centennial Board of Finance.**


The Canadian Section at the Paris Exposition.

Of course, the first and more immediately important duty of the "Board of Finance" was to conclude, after careful computation, an estimate of the sum of money necessary to carry out the intentions of the "Centennial Commission." The conclusion was fixed upon the
Up to December 15, 1873, the actual amounts subscribed for the purposes of the Centennial were as follows:

**Total stock subscriptions (saleable)**

<table>
<thead>
<tr>
<th>State</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Jersey</td>
<td>$100,000</td>
</tr>
<tr>
<td>Delaware</td>
<td>50,000</td>
</tr>
<tr>
<td>Connecticut</td>
<td>10,000</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>10,000</td>
</tr>
<tr>
<td>Wilmington, Del.</td>
<td>5,000</td>
</tr>
</tbody>
</table>

**Gifts, contributions, and interest**

- $200,000

**Furtherto complete from subscriptions**

- Proprietors 1,000,000
- Appropriation by Philadelphia 3,000,000

**Total amount required to proceed for opening up**

- May 10, 1876: 2,131,557

**By which it will be seen that the original estimate of $10,000,000 was found to be much too small for the expenses of the Exhibition.**

The following table will display the cost of other international exhibitions:

<table>
<thead>
<tr>
<th>Place</th>
<th>Year</th>
<th>Month</th>
<th>Cost in Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>1851</td>
<td>12</td>
<td>1,464,000</td>
</tr>
<tr>
<td>New York</td>
<td>1873</td>
<td>5</td>
<td>300,000</td>
</tr>
<tr>
<td>Paris</td>
<td>1867</td>
<td>3</td>
<td>2,000,000</td>
</tr>
<tr>
<td>London</td>
<td>1847</td>
<td>3</td>
<td>1,850,000</td>
</tr>
<tr>
<td>Paris</td>
<td>1878</td>
<td>5</td>
<td>1,050,000</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>1876</td>
<td>3</td>
<td>1,183,000</td>
</tr>
</tbody>
</table>

The following nations have appropriated the sums subscribed against their own expenses in the Centennial:

- Great Britain, Australia and Canada (1873)
- France and Algeria (1873)
- Germany (1873)
- Austria (1873)
- Italy (Government, $100,000; Chamber of Commerce, $150,000) (1873)
- Japan (1873)
- Belgium (1873)
- Denmark (1873)
- Sweden (1873)
- Norway (1873)
- Netherlands (manned preachers) (1873)
- Brusel (1873)
- Venezuela (all expenses) (1873)
- Ecuador (1873)
- Spain (1873)
- Argentine Confederation (cost of all goods exhibited) (1873)

A primary difficulty, which at one time presented itself in the way of collecting subscriptions for stock, was the financial crisis of 1873; and this, with the difficulty of carrying out a working system through the agency of the banks, induced the adoption of a different plan, and the following "Board of Directors" was established, with a view of operating through the labor of voluntary auxiliary bodies, organized in different sections of the States and Territories:

- New York: John Cummings, Mayor
- Delaware: Governor
- Connecticut: Governor
- New Hampshire: Governor
- Wilmington, Del.: Governor

Chiefly through the medium of the emigrés and coöperative action of this Board, the entire aggregate of the sums subscribed for carrying on the labors of the "Centennial Corporation" was accomplished. But, as we have already observed, the labors of these and other agents operating for the Centennial were rendered extremely arduous, and it is not difficult to account for the opposition which the enterprise met with in its different quarters in the first years of the undertaking. This opposition at first took the form of objections to the locality chosen for the exhibition, and on this account sprang up, and very soon manifested themselves through the Press and otherwise. Boston, New York, and all other cities held claim to the honor of selecting for the purposes in hand, and for a time this rivalry was argued with considerable determination and such force as could be gained for it through the support of sectional events or other localities. It was finally, however, observed that the selection of Philadelphia, as the scene of our Centennial memorial was just, wise, and proper.

Thus the idea of a jubilee in honor of the American Independence of the year Seventy-one, providing for the reception of the representatives of the world's nations, and especially in connection with the celebration of the one hundredth anniversary of the American Independence, was generally based upon the idea that, for one reason or another, foreign nations would refuse to comply with American in the exhibition of their products and manufactures. This was the case with Great Britain, Spain, Italy, and the United States, and it was especially alleged that the circumstances connecting British national brotherhood of a charter, and the submission of the nations in the proposed exhibits. These latter objections, however, soon fell to the ground in the face of the almost unanimous acceptance by foreign powers of the invitation of the President, as expressed in his proclamation, and in the subsequent note to foreign ministers, which documents were concurred as follows:

**Proclamation by the President of the United States.**

"Whereas, by the Act of Congress approved March third, eight hundred and seventy, providing for a National Celebration of the four hundredth anniversary of the Independence of the United States, by the holding of an International Exhibition of..."
which already happily unite between the Government and people of the United States and those of other nations.

I have the honor to be, sir, With the highest consideration, Your obedient servant.

In response to these documents, which were circulated throughout all civilized countries by means of our official agents, the following named countries accepted the invitation of the President:


In testimony whereof I have hereunto set my hand and caused the Seal of the United States to be affixed.

The President.

In the name of this Government and people, I cordially commend them to all nations who may be pleased to take part therein.

And in the interests of peace, civilization, and domestic and international friendship and intercourse, I commend the celebration and Exhibition to the people of the United States; and, in view of the great advances attained, and the successes achieved, in the Industry of all nations as will serve to illustrate the products of the Soil and Mine, to be opened on the nineteenth day of April, Anno Domini, eighteen hundred and seventy-six.

The Exhibition is designed to commemorate the Emancipation of the United States the thirty-ninth anniversary of the Emancipation of the United States the fifty-ninth anniversary of the Emancipation of the United States the sixty-ninth anniversary of the Emancipation of the United States the seventy-ninth anniversary of the Emancipation of the United States the eighty-ninth anniversary of the Emancipation of the United States the ninety-ninth anniversary of the Emancipation of the United States the one hundredth anniversary of the Emancipation of the United States the one hundred and one-...
also was placed the duty of abiding space, assigning each exhibitor to his appropriate department, and, in fact, generally superintending and supervising the Exhibition, as such. The "Centennial Board of Finance" had charge of all interests involving expenditures of money, as well as all the plans and arrangements for collecting the same.

Then, in the hands of this latter important body was placed the duty of directing the construction of the buildings necessary for the Exhibition; and to a description of these magnificent structures, erected upon a scale of unprecedented grandeur in every part of the building, we will now proceed to direct the attention of the reader.

As has been heretofore remarked, the land obtained for the purposes of the Centennial Exhibition is comprised in Fairmount Park, the largest public park in proximity to a great city in the world. This park contains 3,160 acres, of which 2,500 were enclosed for this exhibition, besides which allotment provision was made for the exhibition of stock, and a farm of forty-two acres, arranged for the test of plows, mowers, reapers, and other agricultural machinery.

The Centennial grounds, lying on the west bank of the Schuylkill river, extend over elevated land, while the "George's Hill," at one extremity, offers not only a magnificent view of the entire exhibition territory, but also a perfect presentation of the great city beyond. A complete system of water works has been introduced to carry water, and fire may be easily taken down, and building erected again upon another site. The columns and arches are arranged at the corners of the building, in the form of a parallel-oground, extending east and west, 1,880 ft. in length, and north and south, 444 ft. in width. The larger portion of the structure being one story in height, showing the main entrance upon the outside at 40 ft. from the ground, the interior height being 70 ft. At the center of the longer sides of the building are projections 145 ft. in width, and 36 ft. in height, and in the center of the shorter sides are also projections 78 ft. in length. In these projections in the center of the side, there are the main entrances, which are provided with a frontage of 107 ft. in width, and 36 ft. in height. The dome surmounts a great city m the world. This park contains 3,160 acres.

The general arrangement of the ground plan of this building develops a central avenue or nave 120 ft. in width and extending 1,832 ft. in length, this being the longest avenue of that width ever introduced into an exhibition building. On either side of this nave is an avenue 100 ft. wide by 1,832 ft. in length, and between the nave and side avenues are aisles 48 ft. wide; and on the other sides of the building similar aisles 24 ft. in width.

There are also three cross avenues or transept aisles, central transept 120 ft. in width by 480 ft. in length, and one on either side of 100 ft. by 416 ft. The aggregate weight of iron in the roof trusses and girders is 5,600,000 lbs. A peculiar fact in the building consists in the fact that the columns and arches are so designed as to be easily taken down, and erected again upon another site. The sides of the building, from the ground, are finished with brickwork in panels between the columns; and at the vertices, ornamental brick and tile have been introduced.

The building standing nearly due east and west, the light is obtained almost entirely by side-lightings from the north and south sides. Small balconies or galleries of observation are provided in the four central towers, at the height of the different stories, these being attractive from the front, and from the windows of theinterior can be obtained.

The building is situated on a terrace 6 ft. above the general level of the Schuylkill, and is thoroughly fire-proof. It is 365 ft. in length, 210 ft. in width, and 50 ft. in height, over a spacious basement 12 ft. in height, surrounded by a colonnade. The main front looks southwest, on which side is the main entrance, consisting of a colonnade of 72 columns, 26 ft. 11 in. in height, and 125 ft. long and 48 ft. high. The doors are of iron, and are relieved by bronze panels with the costumers of all States and Territories.

The central building is entirely surrounded by a belt, and with colonnades at either end. The dome rises from the center of the structure 150 ft. in height, 96 ft. in width, built of glass and iron, and of unique design, with a colossal hall, from which the figure of "Columbia" rises with protecting fames. A figure of colossal size also stands at each corner of the base of the dome, typifying the four quarters of the globe.

The main entrance opens upon a hall 82 ft. long, 56 ft. wide, and 50 ft. high, decorated in the modern Renaissance style. On the further side of this hall, three doorways, each 10 ft. 9 in. and 25 ft. high, open into the central hall, 25 ft. square, and surmounted by the dome, rising to a height of 80 ft. From its eastern and western sides extend the galleries, each 56 ft. long, 54 ft. wide, and 35 ft. high. These galleries exhibit the best display of contemporary art in the form of various halls, galleries, and rooms used for the reception of visitors, and for the exhibition of works of art. The gallery hall and the central hall are lighted from the north and south sides, and are arranged for the reception of visitors, and for the exhibition of works of art.
The pavilions and central hall being designed especially for the exhibition of sculpture. This building cost $1,500,000.

III. Machinery Hall.

The arrangement of the buildings located this structure west of the intersection of Belmont and Elm Avenues, at a distance of 512 feet from the west front of the Main Exhibition Building, and 271 ft. from the north side of Elm Avenue. The north front of the building being upon the main line as the Main Exhibition Building, already described, a frontage is thus presented of 3,924 ft. from the east to the west ends of the exhibition buildings upon the principal avenue in the grounds.

This building is arranged to consist of a main hall 369 ft. wide by 1,402 ft. long, with an annex on the south side of 208 ft. by 210, the entire area covered by the main hall and annex being 548,409 sq. ft., or 12.82 acres. Including the upper floors, the building, as completed, provides fourteen acres of floor space.

The arrangement of the ground-plan of this building comprised two main avenues, 30 ft. in width by 1,350 ft. in length, with a central aisle between and an aisle on either side. At the center of this building, a transept extends 50 ft. in

width, forming an annex for hydraulic machines. The foundations of this building consist of piers of masonry, the superstructure of solid timber columns supporting roof-trusses, the outer walls being built of masonry to the height of 5 ft., and above that composed of glazed sash placed between the columns.

The construction of this building admits of the most complete shafting, the facilities in this respect being very superior. In the annex for hydraulic machines is built a tank 60 by 106 ft., allowing for a depth of water of 10 ft. At the south end of this arrangement is made for a water-fall 35 ft. high by 40 ft. wide.

This building cost $792,000.

A few figures having reference to the material used in the construction of the Machinery Hall will not be uninteresting to the reader, and will give some faint idea of the vast quantity of material absorbed in the buildings of this Exposition. There were used in this building 5,000,000 ft. of lumber; 500,000 lbs. of cast iron; 750,000 lbs. of wrought iron; 700,000 lbs. of wrought iron; 20,000 lbs. of nails and spikes; 280,000 sq. ft. of the roofing; 375,000 sq. ft. of American glass, weighing 150,000 lbs., the average size of pane being 24 x 32; 15,000,000 lbs. of stone; 225 men were employed daily on the erection of this building, which was commenced on April 13th, 1875, and finished in about five months.
IV. Horticultural Hall.

To the city of Philadelphia is owing the special instance of liberality, which provided that the Horticultural Building of the exhibition should be so constructed as to remain a permanent feature of Fairmount Park. It is located on the Lansdowne Terrace, a short distance north of the Art Gallery, and has, like the latter, a commanding view of the Schuylkill River and a portion of the city. The design is in the Mauresque style of architecture of the twelfth century, the principal materials externally, being iron and glass. The length is 390 ft., the width 193 ft., and the height to the top of the lantern 72 ft.

The main floor is occupied by the central conservatory, 230 x 80 ft., and 55 ft. high, surmounted by a lantern 170 ft. long, 20 ft. wide, and 14 ft. high. Running entirely around this conservatory, at a height of 20 ft., is a gallery 5 ft. in width. On the north and south sides are four forcing-houses for the propagation of young plants; each house is 190 by 30 ft., and covered with a curved roof of iron and glass. From the vestibule, at the upper of the east and west ends, ornamental stairways lead to the internal galleries of the conservatory, as well as to the four external galleries, each 190 by 18 ft., which surround the roof of the forcing-houses. These external galleries are connected by a fine promenade, formed by the roofs of the spires on the ground floor, and having a superficial area of 1,300 sq. yrs.

MACHINERY HALL AT THE VIENNA EXPOSITION.

INTERNATIONAL INDUSTRIAL EXHIBITION AT BUFFALO, N. Y., OCTOBER 6TH, 1893.
INTERIOR VIEW OF THE MACHINERY BUILDING, WHILE IN PROCESS OF COMPLETION AT THE INTERNATIONAL EXHIBITION, PHILADELPHIA.
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

MAIN EXHIBITION BUILDING.

ART GALLERY.

HORTICULTURAL HALL.

THE BUILDINGS FOR THE CENTENNIAL EXPOSITION AT FAIRMOUNT PARK, PHILADELPHIA.
The east and west entrances are reached by flights of blue marble steps from terraces 80 x 20 ft., in the centre of each of which stands an open kiosque 20 ft. in diameter. At the angles of the main conservatory are eight ornamental fountains. Beside this principal building, a number of structures have been erected for various horticultural purposes, while the surrounding grounds are arranged for outdoor planting.

This building cost $233,067.

V. Agricultural Building.

This structure, standing north of the Horticultural Building, and on the eastern side of Belmont Avenue, has been built on a plan illustrating a novel combination of materials, the latter being wood and glass. This combination consists simply of a long nave, crossed by three transepts, nave and transept being composed of Howe-trussed arches of a Gothic form, the nave being 826 feet in length and 100 ft. in width.

The ground-plan of this building forms a parallelogram, 405 by 630 ft., covering a space of seven and a quarter acres. In its immediate vicinity provision is made for space for the exhibition of horses, cattle, sheep, swine, poultry, etc. The arrangement of the ground-plan of the Agricultural Building includes four main avenues; one running north and south through the center, 786 ft. long by 70 ft. wide, the remaining three running east and west, each 472 ft. long. By these avenues the building is divided into four sections, the four main avenues with 12 sides forming an admirably arranged for exhibition, each section containing four spaces, 184 ft. long and 42 wide, for the exhibition of goods, making sixteen in all, covering 117,700 sq. ft. of ground.

The ground enclosed for the site of all the exhibition buildings comprises 230 acres, the boundaries of the enclosure being as follows:

The State of Columbus at Fairmount Park, Philadelphia, February 25th, 1876.

South, Elm Avenue from Forty-first Street to Fifty-second Street; west, the Park Drive to George's Hill with the same course; north, Belmont Avenue Drive from George's Hill to the foot of Belmont; and east, Lansdowne Drive from Belmont to Forty-first Street. The whole of the exhibition being enclosed, thirteen entrances are established along the boundary drive.

The following figures are of interest in connection with the situation plan:

- Area of grounds, 230 acres; length of conserv., 12,000, number of structures, 21; dimensions of Main Building, 1,600 ft. by 800 ft. - 30 acres; Art Gallery, 210 ft. by 130 ft. - 15 acres; Machinery Building, 300 ft. by 1,000 ft. - 34 acres; Horticultural Hall, 150 ft. by 500 ft. - 7 1/2 acres; Agricultural Building, 300 ft. by 800 ft. - 10 acres; United States Government Building, 500 ft. by 300 ft. - 15 acres; offices of the Administration, 30 ft. by 30 ft. - 1 acre, avenues and walks, 7 miles; length of horse railway (substitute length of railroad track inside the grounds for the delivery of material and goods, 10.5 miles.

Among our illustrations will be found one showing, by a simple system of diagrams, the comparative size of the international buildings of the world, by which it will be seen that the Centennial Exposition buildings cover a very much larger area of ground than any other.

As a general rule, the various States organized local Centennial commissions, the better to enable the proper representation of State products and manufactures. Some of these Commissions obtained permission to erect buildings for their own use upon the Centennial grounds, and we shall have occasion to describe and illustrate certain of these structures. The duty of these local Commissions, as defined by the Centennial Commission, appears to be as follows: first, to disseminate information regarding the exhibition; second, to secure the cooperation of industrial, scientific, agricultural, and other associations in their districts; third, to secure cooperative local
committees representing the different industries in their districts; fourth, to stimulate local action on all measures intended to make the exhibition successful and a worthy representation; fifth, to encourage the display of all articles suitable for the exhibition; sixth, to distribute documents issued by the Commission, to manufacturers and others in their districts interested in the exhibition; and seventh, to render assistance in furthering the financial and other objects of the exhibition, and to furnish information on subjects referred to them.

With a view to the better encouragement of exhibitors, members of this body will be appointed by the Commission of each country and in conformity with the distribution and allotment to each, which will be hereafter announced. The Judges from the United States will be appointed by the Centennial Commissioner.

Third.—The sum of one thousand dollars will be paid to each commissioned Judge for personal expenses.

Fourth.—Reports and awards shall be based upon merit. The elements of merit shall be held to include originality, invention, discovery, utility, quality, skill, workmanship, fitness for the purposes intended, adaptation to public wants, economy and cost.

Fifth.—Each report will be delivered to the Centennial Commission as soon as completed, for final award and publication.

GENERAL DIRECTIONS FOR EXHIBITORS FROM THE UNITED STATES.

1. The Exhibition will be held at Fairmount Park, in the City of Philadelphia, and will be opened on the 10th day of May, 1876, and closed on the 8th day of November following.

2. Applications for space and regulations relative thereto should be addressed to the Director-General, International Expositions, Philadelphia, Penn.

3. Exhibitors will not be charged for space.

A limited quantity of steam and water power will be supplied gratuitously. The quantity of each will be settled definitively at the time of the allotments of space. Any power required by the exhibitor in excess of that allowed will be furnished by the Commission at a fixed price. Demands for such excess of power must also be settled at the time of the allotment of space.

4. Exhibitors must provide, at their own cost, all show-cases, shelving, counters, fittings, etc., which they may require, and all countershafts, with their pulleys, belting, etc., for the transmission of power from the main shafts in the Machinery Hall. All arrangements of articles and decorations must be in conformity with the general plan adopted by the Director-General.

Special constructions of any kind, whether in the buildings or grounds, can only be made upon the written approval of the Director-General.
HEADQUARTERS OF THE NEW YORK STATE CENTENNIAL BOARD AT FAIRMOUNT PARK, PHILADELPHIA.

In the meantime, it became obvious that certain further action on the part of the Executive Department of the United States Government would be fruitful of good service to the Centennial Exposition; and, accordingly, and with a particular view towards a representative exhibition of the Government in the Exposition, the President issued the necessary orders and made the requisite appointments. The documents which follow will be found to contain these, as also the Act of Congress authorizing the President to extend a cordial invitation to the Governments of foreign nations to be represented at and take part in the International Exposition; the resolution of the United States Senate respecting the admission of free of duty articles intended for the International Exhibition; and the regulations governing the importation of this class of goods, issued by the Secretary of the Treasury.

EXECUTIVE ORDER.

BY THE PRESIDENT OF THE UNITED STATES.

Whereas it has been brought to the notice of the President of the United States that in the International Exhibition of Arts, Manufactures, and Products of the Soil and Mine, to be held in the City of Philadelphia, in the year 1876, for the purpose of celebrating the one hundredth anniversary of the Independence of the United States, it is desirable that from the Executive Departments of the Government to times of peace, and its resources as a war power, and thereby serve to demonstrate the nature of our institutions and their adaptation to the wants of the people. Now, for the purpose of securing a complete and harmonious arrangement of the articles and materials designed to be exhibited from the Executive Department of the Government, it is ordered that a Board, to be composed of one person to be named by the head of each of the Executive Departments which may have articles and materials to be exhibited, and also of one person to be named in behalf of the Smithsonian Institution, and one to be named in the behalf of the Department of Agriculture, be charged with the proper arrangement, and supervision of such articles and materials as are the hands of the several Departments and the
SCENES AND INCIDENTS ATTENDING THE PROGRESS OF THE WORK ON THE CENTENNIAL BUILDINGS.
Reception to be held at Philadelphia, under the auspices of the Government of the United States, in the year eighteen hundred and seventy-five, respectively doorknock shall be embraced in the several departments of the Government, except the Department of State; but including the Executive and the Attorney-General's Department; and the several departments having executive faculties of the Government in time of peace and war, and the Smithsonian Institution and U. S. Fishery Commissioner, and the Commissioner of Agriculture, and the Director of the Smithsonian Institution, shall be submitted to the President for designation.

By order of the President:

HAMILTON FISH,

Secretary of State.

WASHINGTON, January 29, 1874.

Act Relating to Centennial Medals.

An Act authorizing medals commemorating the One Hundredth Anniversary of the First Meeting of the Continental Congress, and the Declaration of Independence, is passed as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles which shall be imported for the sole purpose of exhibition at the International Exhibition to be held in the City of Philadelphia in the year 1876, shall be admitted without the payment of duty or of customs fees or charges, under such regulations as the Secretary of the Treasury shall prescribe: Provided, That such articles shall be sold in the United States or withdrawn for consumption, or shall be sold without payment of duty as required by law, if any, imposed on like articles under such regulations as the Secretary of the Treasury shall prescribe: Provided further, That in case any articles imported under the provisions of this Act shall be withdrawn for consumption, or shall be sold without payment of duty as required by law, all the penalties prescribed by the revenue laws shall be applied and enforced against such articles and against the person who may be guilty of such withdrawal or sale.

In pursuance of the provisions of this Act the following regulations are prescribed:

First. No duty or customs fees or charges being required on any such importations, a new form of entry is prescribed, which will be employed in all cases at the ports where such goods are received.

SECRETARY OF THE TREASURY,

Treasury Department...Hon. R. W. Tyler, 1st Auditor of the Treasury.

Navy Department...Admiral Throop A. Jenkins, C. S. Navy, Secretary.

Post-Office Department...Mr. Geo. P. McDowell, Chief Post-Office Department.

Agricultural Department...Mr. Wm. Raney, Superintendent of Propaganda and Information.

Smithsonian Institution...Prof. J. D. Dana, Secretary of Smithsonian Institution and U. S. Fishery Commissioner.

W. A. De Camp, Secretary of State.

This Board has been charged with the duty of perfecting a system of regulations which may be adapted to the general exhibition and show the United States in a good light to the foreign nations. This Board has been charged with the duty of perfecting a system of regulations which may be adapted to the general exhibition and show the United States in a good light to the foreign nations.

HEADQUARTERS OF THE WOMEN'S CENTENNIAL EXECUTIVE COMMITTEE, 926 WALNUT STREET, PHILADELPHIA.--Mrs. E. D. Gillette, Receiver.

ACT RELATING TO DUTIES ON FOREIGN ARTICLES.

An Act authorizing free importation of goods for the International Exhibition of Eighteen Hundred and Seventy-six, is passed as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles which shall be imported for the sole purpose of exhibition at the International Exhibition of Eighteen Hundred and Seventy-six, shall be admitted without the payment of duty or of customs fees, or charges, under such regulations as the Secretary of the Treasury shall prescribe: Provided, That in case any articles imported under the provisions of this Act shall be withdrawn for consumption, or shall be sold without payment of duty as required by law, all the penalties prescribed by the revenue laws shall be applied and enforced against such articles and against the person who may be guilty of such withdrawal or sale.

Approved, June 16, 1874.

REGULATIONS GENERATING THE FREE IMPORATION OF GOODS FOR THE INTERNATIONAL EXHIBITION OF EIGHTEEN HUNDRED AND SEVENTY-SIX, AT PHILADELPHIA.


An Act of Congress approved June 16, 1874, entitled "An Act to admit free of duty articles intended for the International Exhibition of Eighteen Hundred and Seventy-six," provides as follows:

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles which shall be imported for the sole purpose of exhibition at the International Exhibition to be held in the City of Philadelphia in the year 1876, shall be admitted without the payment of duty or of customs fees or charges, under such regulations as the Secretary of the Treasury shall prescribe: Provided, That such articles shall be sold in the United States or withdrawn for consumption or shall be sold without payment of duty as required by law, if any, imposed on like articles under such regulations as the Secretary of the Treasury shall prescribe: Provided further, That in case any articles imported under the provisions of this Act shall be withdrawn for consumption, or shall be sold without payment of duty as required by law, all the penalties prescribed by the revenue laws shall be applied and enforced against such articles and against the person who may be guilty of such withdrawal or sale.

In pursuance of the provisions of this Act the following regulations are prescribed:

First. No duty or customs fees or charges being required on any such importations, a new form of entry is prescribed, which will be employed in all cases at the ports where such goods are received.

SECOND. The ports of New York, Boston, Portland (Me.), Baltimore, Philadelphia, New Orleans, and San Francisco, will alone constitute ports of entry at which importations for said Exhibition may be received.

Third. All articles designed for said Exhibition must be forwarded, accompanied by invoices in the names of the owner and consignees, and commercial value of each article, which must be attested before a Consul of the United States, or a civil magistrate of the country in which they are produced or from which they are shipped to the United States. Such verified invoice and valuation will be forwarded to the Collector of Customs at Philadelphia, and by him delivered with the invoice and invoice to the Collector of Customs at the port where it is desired to be shipped, which will be returned for the file of his office; one copy of each invoice will be forwarded to the Collector of the Port of Philadelphia, and all packages and contents containing goods destined for said Exhibition must be plainly and conspicuously marked with the words "for the International Exhibition of 1876, at Philadelphia."
Exhibition, transmitted and received by the Collector at Philadelphia will be entered for such Exhibition in addition to the

Fourth. B. H. Bristow,
Secretary,

Register of the centennial exposition.

The Centennial Commissioners will take precautions, for the sake of security, in regard to the transportation of articles, for which no power provisionally to be responsible for damage of any kind, as follows: mail or express by

Fourth. The Centennial Commission reserves the right to require the payment of the duties, and on payment of the duty charging upon a proper form, to be prepared for such purpose,

Fifth. No charge will be made for space

Third. All charges for transportation, storage, and insurance, as related to the condition of articles, will be paid by the owner or agent at the time of the delivery into the custody of the Collector. And no packages for which no proper account is kept in good faith for said Exhibition, they will be charged with duty according to the articles produced.

Second. Applications for space and negotiations relative thereto should be made to the Director-General, and all agreements made by the Storekeeper at the port of Philadelphia in a book of proper form, in which will be entered, so far as

First. The Exhibition building. No fees for entry, permit, or

Second. The Centennial Commissioner reserves the right to require the payment of the duties, and on payment of the duty charging upon a proper form, to be prepared for such purpose,

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General Regulations for Foreign Exhibitors.

It is hereby ordered, that all packages which have been forwarded not in good faith for said Exhibition, they will be charged with duty according to the

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sitting-voiced, and a laborer with a sickle. The legend in the body of the certificate was engraved by a new and ingenious process, and is most un-ambiguously, as is also the printing, the Department evidently being determined to make the work worthy of the nation and the great commemorative occasion.

With this illustrative memorial may properly be closed the Centennial Medal, struck at the Mint at Philadelphia in accordance with the Act of Congress already given. The description of this medal is as follows: The design of the obverse represents the Genius of American Independence rising from her recumbent position, grasping with her right hand the sword with which to enforce her demands, and placing her left upon the thirteen stars, which, indicating the original colonies or States, are blazing in the magnificent. Beneath is the date 1776. The reverse displays the Genius of Liberty, with the new coronet wound back to her, the Stars and Stripes at rest in her right hand, while with the other she extends a hand to the Arts and Sciences in accordance with the Act of Congress, for the late 1776, which is inscribed upon the platform. These medals have been struck in bronze, silver, and other metals.

The classification of articles to be exhibited at the Centennial Exposition is simple and comprehensive. It embraces the following ten departments:

2. Manufactures and Industries used for Food or in the Arts, the results of mechanical or chemical processes.
3. Textile and Felted Fabrics — Apparel, Furniture and Ornaments for the person.
4. Furniture and Manufactures of general use in Constructions and in dressings.
5. Toiletries, Surfaces and Paints—Medicines and Potions.
6. Motors and Transportation.
7. Apparatus and Methods for the Increase and Diffusion of Knowledge.
8. Engineering, Political Works, Architecture, etc.
10. Objects illustrating the efforts for the Improvement of the Human, Intellectual, Physical, and Moral Advancement, and the arts of construction and in Dwellings.

The classification of works of Art admitted to the Exhibition will be under the superintendence of the Commissions of the Department to which they belong.

Each person presenting works of Art for admission must be of a high order of merit, and those produced by citizens of the United States will be admitted to the Exhibition only on the approval of the Committee of Selection.

To those passages7 exhibitions by individuals, or of works of Art admitted to the Exhibition, there must be in the exhibit and models of such paintings &c., giving the name and address of the exhibitor, and the title and number of articles to the particular department.

In general, quicksilver, copper and lead, will be placed in square frames. Excessive breadth in frames or projecting shoulders should be avoided. Shadow boxes will not be allowed to project more than one inch beyond the frame. Glass over paintings will not be permitted.

The classification of works of Art intended for sale will be so designated in the Official Catalogue as to permit of the separate and distinct classes of commerce and industry.

Each person presenting works of Art for admission shall agree to comply with the special rules established for his department and the general rules for the government of the Exhibition.

J. L. CAMPBELL, Secretary.
MARCH 15, 1875.

The stock certificate of the Centennial Exposition, which we have already referred to, as an appropriate memento of the occasion, was engraved in the United States Treasury Engraving Department, and is a remarkably fine specimen of that class of work. The design is pyramidal, American Digesting the apex, with Peace and Art, personified, sitting at her feet. The busts of Washington and Grant on either side, typical of the commencement and end of the century. America is represented as welcoming the representatives of foreign nations, who bear samples of their national industries and resources. Independence Hall and the National Capitol are in the background. Beneath the former stand Fulton and Fitch, with their steamboats models, and under the latter, Franklin and Morse, with electrical and telegraphic instruments. On the right, facing the figures of Liberty, Morse, offering his sewing-machine, also a shipwright with a model of a clipper. The Freedman, Continental, and Federal soldier and mechanics form a group on the right, and a farmer, miner, trapper and Indian, with evidences of their labor, on the left. In the centre of the base is a statuette of Franklin’s publishing of "The Signing of the Declaration of Independence," on the right of which is exemplified Progress—a busy manufacturing city in contrast with a neglected windmill. To the left of the base is represented Civilization—combining the railroad, telegraph, steamship, and railway-machine, in contrast with a Conestoga wagon, mail-riding,
WORKMEN ASPHALTING THE WALKS AND BLASTING OUT THE STUMPS OF TREES IN THE CENTENNIAL GROUNDS
It is, of course, important that the world should see the machinery contemplates a separate department from that accepted. Concerning this, it is desirable to establish a permanent exhibition lasting during the six months of the Centennial, of the most prominent in the world.

A temporary exhibition of poultry is arranged from October 25th to November 10th in the coops and boxes in which they are forwarded. They must be fed and hay taken to the extent of the best we can show, while it is probable the competition will be as lively as possible in that department.

Concerning fruit, the following is the intention of the Commission: "The display of pomological products will include the most prominent elements of merit. The very furthest points will be made to exhibit, with a view to show before the world a creditable evidence of the resource and capacity of our country in respect to fruit culture and products."

The very furthest points will be made to exhibit, with a view to show before the world a creditable evidence of the resource and capacity of our country in respect to fruit culture and products. The space set apart for the pomological contributions is the centre hall of the Agricultural Building, and is the most prominent in the whole building. A bird's-eye view of the entire Centennial grounds, taken from the summit of George's Hill, presents a picture of such magnificent proportions, and representing such a tremendous development of energy and industry, as to create in the mind of the beholder a reasonable foreboding of the expression of these qualities which he beholds spread out before him.

Immediately beneath him, and on his right, extends the great machinery building, running from the extreme western end of the grounds to the point where Belmont and Elm Avenues nearly meet.

Following on the 1,500 ft., which represent the length of the building, the eye next meets the even grander proportions of the Main Exhibition Building, which completes, with its 3,824 ft., the almost medallion line of exhibition space, of 4,324 ft. A little to the left of this, again, the observer sees the superb Art Building itself, an architectural structure unequalled in the beauty of its lines and the general character of its execution; and as an executive effort offering a most praiseworthy and creditable combination of the architectural taste and capacity of this country.

Further north of the main building, and to a point about opposite to its extreme western end, standing on the eastern extremity of Fountain Avenue, is the beautiful Music-structure, Horticultural Hall, which, with the Art Building, is destined to give permanent value and beauty to this portion of Fairmount Park.
The want of money was so great in the colony that corn was made a legal tender for debts.

In 1642 there arrived at Plymouth a carpenter and salt-maker, who had been sent out by the Plymouth Company. This salt-maker made several unsuccessful attempts at his business of salt-making at Cape Ann and at Cape Cod, while the ship-carpenter died, after building only two small vessels.

The saw-mill is said to have been introduced into Massachusetts in 1633, some years before it was used in England. Even as late as 1767, a saw-mill was destroyed in the latter country by the mob, because it was supposed to be destructive to the work of the sawyers. As late as 1663, England depended chiefly upon Holland for its sawn lumber. In 1641 the General Court of Massachusetts passed an Act to the effect that there "should be no monopolies but of such new inventions as were profitable to the country, and that for a short time only." Under this provision sawing came in and paid a certain royalty. Saw-mills were erected by the Dutch in New York as early as 1633, and were also used there for grinding-mills. Of course, the introduction of saw-mills gave a great impetus to house construction. Whereas, before this, buildings were mere huts or wigwams, now they began to be more carefully fashioned. These two important industries, house-building and ship-building, had already been established as early as 1631. But house-building thus far was only by means of wood as a material. The first brick-works in New England were set up in Salem, Mass., in 1629. Before this, even the chimneys had been made of wood, coated with clay. In the first year of the settlement of Jamestown, Va., the fort, storehouse, with all its surplus supplies, and most of the rest of the town, were burnt down by fire, originating in a wooden chimney. The same fate, from the same cause, befell, in Plymouth, the storehouse within a month of its being finished. In Boston, a fire in 1641 was occasioned by the same cause, and thereafter the use of wooden chimneys and thatched roofs was forbidden by Governor Dudley. The first brick house built in Massachusetts is said to have been erected in 1628. In 1692 all buildings of a certain size were ordered by the Massachusetts General Court to be built of stone or brick, and to be roofed with slate or tiles. In New York, bricks were early imported from Holland, and the style of the houses was in imitation of those of Amsterdam. Brick-making was introduced by Governor Stuyvesant. Bricks were made at the Van Rensselaer estate, below Albany, before they were at New York. Between 1650 and 1646, bricks were sold at fifteen florins a thousand.

Furthermore, which was said to equal that made at Delphi, was early manufactured on Long Island. The daily wages of carpenters was about 80 cents, and those of day-laborers 40 cents a day. Nails were worth about 16 to 20 cents per lb of 100 nails. At the beginning of this century, a house was still standing in New Castle, in which Governor Lovelace entertained Fox in 1672. The Manor House, built by William Penn, near Pensborough, was constructed of bricks brought from England. This house cost its owner £5,000. In New Castle, wood was the material chiefly used in domestic architecture.

In a work called "Wonders-workings," published in 1651, the industries of the New England colonies are referred to, the author mentioning the trades of tanning and shoe-making, and the great ability and industry in the latter.
Indians and the wolves

It has been said, among other trades, that the English settlers introduced many animals into the colonies, including cattle, sheep, goats, and horses. These animals were brought over by the Portuguese from Africa. In 1519, hogs, goats, sheep, and many calves were brought to the New World, and in 1520 twelve cows were sent to Cape Ann. In 1527, the Salem District was supplied with cattle from the West India Company.

In 1597, the Assembly of the United Colonies of Connecticut passed laws fixing the prices for tanning and for hides, as also those for which shoemakers were permitted to make shoes.

The first cattle ever brought to America are said to have been introduced by Columbus in his second voyage in 1493. In 1535, cattle were carried by the Portuguese to Nova Scotia and Newfoundland, and are said to have increased there very rapidly. In 1600, hogs, goats, sheep, and horses were introduced into Virginia; and the following year another stock of cattle was brought thither from the West Indies. In 1640, the cattle of Virginia, including bulls, cows, and calves, were estimated at 20,000, with 200 horses and 3,000 goats, and many swine, many of which were exported to New England, where the diversities of sheep, with 200 horses and 3,000 goats, created there very rapidly. In 1679, cattle were imported from England for the Plymouth colony.

The cattle of Virginia were very destructive to the animals of the colony, and yet the increase of this stock was very rapid. In New York, domestic cattle were imported from Holland by the West India Company in 1625. In 1657, a cow was worth there £30, and a yoke of oxen £10. New Jersey was provided with cattle from New York, and their increase here soon made this province one of the richest in the colonies. But, despite the restrictions she sought by every means in her power to suppress the industries of her colonies, England obtained through her colonies a great deal of wealth, which she was dependent upon for supplies and other luxuries.

In 1597, among the trades in vogue were tanners, glovers, shoemakers, bookbinders, and carriagenakers. Stone was not used as a building material in the colonies until 1753, when King's Chapel in Boston was built of a Braintree granite. The Dutch of New York put stone on the free list in 1640, to encourage its introduction from abroad—when it might have been had for the quarrying close by, in New Jersey. Quarrying at Quincy, Mass., began early in the present century, and the first railroad in the country was built from these quarries, three miles from the Neponset River. In 1827, it was a horse-railroad, designed for the transportation of this stone for shipment. American marbles were first used for making busts in Philadelphia in 1804. The Portland Corn, quarry of brown freestone or sandstone, has been worked for more than a century, and stone is now taken from that quarry at a depth of more than two hundred feet below the Connecticut River. In those quarries were often seen fossil footprints of gigantic birds, some with the footprints measuring sixteen inches in length and ten in width, and the tracks from four to six feet apart. The stone from here is extensively used in New York, while streets of residences in the upper part of the city being built either of the solid stone or of brick faced with stone veneering.

CLOTHS.

In regard to the manufacture of cloths, in the early days of the settlements of the colonists, the distaff and spindle appear to have been used, though these were soon superseded by the spinning-wheel. In those days, England sought by every means in her power to suppress the industries of her colonies. But, despite the restrictions she placed upon the exportation of cloths made in America, the manufacture continued. In the early part of the last century, a public meeting was held in Boston, at which a committee was appointed to report upon the propriety of establishing spinning-schools for the instruction of children in the town. This resulted in the erection of a large brick building upon Tremont Street, and lands being deeded to the city, with a figure upon its façade of a woman spinning. At its opening an immense crowd gathered, the women of Boston coming in large numbers, carrying their spinning-wheels, and displaying their dexterity in using them. In 1827, a tax was laid upon private carriages and other luxuries, for the benefit of this spinning-school.

During the War of Independence the population was dependent for supplies of clothes upon home manufacture. After the invention of the spinning-jenny by Hargraves, and, of the spinning-frame by Arkwright, it was for a long time impossible to obtain these implements in America, so jealous did England prevent their exportation. It has been said that models of
Arkwright's machines, small enough to be concealed in a trunk, were seized by the Customs authorities and confiscated. Despite these precautions, however, to prevent the spread of the use of the machinery, the business was promoted in the United States by the establishment of a cotton factory at Beverley, Mass., in 1787. Some of the handkerchiefs made here were still in existence a few years ago, and were of a remarkably fine and solid texture. Possibly specimens of these may turn up at the Centennial. Of Arkwright's machines, the first used were in a mill at Pawtucket, R. I., which commenced operations in 1790.

Plymouth is still extant. Indeed, the quantity of chests, bedsteads, chairs, and bureaus which are said to have been brought over by the Mayflower, would load a fleet of full-sized steamships. For the first few years after the settlement of the colonies, all the best furniture—chiefly of mahogany, though sometimes of oak—was imported. Among the first pieces made in this country were economical articles, such as tables hung against the walls, which, when not in use, might be turned down, thus saving considerable space. These, of course, were made of native woods. After a while our West India trade led to the importation of mahogany, which was worked up solidly and in veneers into high-backed, uncomfortable chairs, tall beds, huge bureaus, and side-boards, containing enormous closets, etc. Afterward came rosewood from the West Indies and South America, and furniture began to be made, for those who could afford to purchase it, from this beautiful material.

NAILS.

The first nails made in the United States were manufactured by a hand process, and it was common for the country people, in Massachusetts for instance, to erect forges in chimney corners, and in winter, in the evenings when little work could be done, to make quantities of nails—even the children taking part in this industry. These manufacturers took the iron from the merchant, and returned him the nails.

About 1775, Jeremiah Wilkinson, of Cumberland, R. I., engaged in manufacturing hand-cards used in spinning, found the price of tacks so high, owing to the Revolution and to the time and labor necessary to their manufacture by the hand process, invented a process for cutting them with a pair of shears, and the heading them in a vise. A machine for cutting and heading nails was invented about 1790, by Jacob Perkins, of Newburyport. It was patented in 1795, and is said to have been able to turn out 10,000 nails a day. In 1786 a machine was invented by a citizen of Bridgewater, Mass., for cutting tacks and nails. This machine made, in 1815, 150,000,000 tacks. A son of its inventor patented, in 1807, a machine for making and heading tacks, which turned them out at the then very wonderful speed of 60,000 per day.
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

CELEBRATION OF THE NINETY-NINTH ANNIVERSARY OF THE DECLARATION OF INDEPENDENCE AT FAIRMOUNT PARK
Glass-works at Pittsburgh, was found at his death a memorandum, "To-day we made the first bottle, at a cost of $30,000."

POTTERY.

In colonial times, wooden dishes and pewter platters were used almost entirely; and the granddames of the present generation took as great a pride in keeping their pewter dishes brilliantly polished as we now feel in keeping gold and silver in the same condition. In fact, it is only within this century that china and porcelain have come into general use. Potters, however, came out from England with the first settlers, both from the Plymouth and Virginia colonies. The Dutch, too, in their settlements in New York and the adjacent country, introduced the making of pottery; and such manufactories were established in the different colonies. An extensive bed of clay was discovered in 1740, and a company was organized for the purpose of making porcelain. In 1749, the manufacturers of fine porcelain was commenced in New York, and in 1827 a manufactury in Pennsylvania brought this industry to an extensive and successful point of development. The first factory in this country of American Queen's ware was set up in 1825; and even at that time our manufactories were claimed to be second only to those of France.

HATS.

Among the industries of America, the manufacture of hats has always held a prominent position. As early as 1662, the colonial government of Virginia offered a premium of ten pounds of tobacco for every hat made in the province. With the establishment of the first colony in Jamestown, in 1607, some of the colonists brought over with them "trials" of pitch, tar, glass, frankincense, and soap-suds. The first glass manufactory was set up in the woods about a mile from Jamestown, Va.

In 1612 a grant was subscribed to establish a factory of glass beads, to be used as currency in the trade with the Indians for furs. The use of glass was not common in the old country, and, of course, not in the colonies. In 1724 the General Court of Massachusetts passed an Act granting the sole privilege of making glass in the province. In 1672, some hatters in Massachusetts attempted to establish a factory of hats in the colonies, failed in the attempt, and the Court granted in February, 1757, to Thomas Perkins, in Philadelphia, a grant of ten pounds of tobacco for every hat made in the province.
FOREIGN VISITORS TO THE CENTENNIAL EXPOSITION—OFFICERS OF THE SPANISH ENGINEER CORPS PROMENADING CHESTNUT STREET, PHILADELPHIA.
After the successful termination of the Revolution, the business increased steadily, and before 1800 was carried on in every State of the Union. By the census of 1810, returns were made of the manufacture of hats to the value of $4,323,744. In 1831, a convention estimated the hat manufacture at fifteen millions yearly.

**SILK.**

Silk culture was proposed by James I. on the settlement of Virginia, and that monarch sent supplies of silkworms' eggs from his private stores to the colony. This industry another to Lord Chesterfield, and the third was the dress of Mrs. Harvey.

In 1837, in a report of the Congressional Committee on Manufactures, it was stated that it had been found practicable to raise mulberry-trees and silkworms in the United States. One specimen of the species orcinus would sustain sufficient silkworms to raise 120 lbs of silk, worth $40. The New England States were all of them engaged in the manufacture, and the Governments of those encouraged the industry by bounties. In all the States much interest was felt in the subject.

**THE EXPRESS BUSINESS.**

One of the most remarkable industries ever prosecuted in any country—of neither an agricultural or a manufacturing character—certainly deserves a place in this sketch.

The express business is a vast transportation agency, which, from the smallest possible beginning, has in less than half a century extended its Iliaeric arms over this entire country, and has even reached across oceans to most distant lands, presenting with perfect safety, celer-
amounts of money from the touchy, in Southern and Western bank-notes, to exchange and deliver. From this time Mr. Haraden found himself engaged in a constantly increasing business. In the same year, he made a contract with the railroad and steamboat companies, increased the frequency of his trips, and, with a masterly display of shrewdness, at once gained the favor of the Post by bringing them matter in advance of the mails. The advantages of this system were promptly recognized by the mercantile interests of the two cities, and soon his business increased to such an extent that it became necessary to organize it on a larger scale.

About the same time that Mr. Haraden started his enterprise, a similar express was commenced by Alvin Adams, and another, designed to connect Boston and New York, by the Southern and Western lines. In the beginning of this business, a new berth was brought into use, the accommodation of the entire business; and from this has grown the vast Adams Express business with its immense capital, its vast express connections, and its great and widely extended business connections. The foreign express business was established in 1842 by an agent visiting England. The following year it was extended to Philadelphia and Albany. A year or two later, the line was commenced between Philadelphia and Washington, and a third express from Boston and New York by the New York and Fall River line. From Albany to Buffalo, thence to other cities of the West, express lines were established by the different firms of Wells & Co., Wells, Fargo & Co., etc. In 1849, Adams & Co. extended their line to California, and, in 1852, Wells, Fargo & Co. there. In 1854, Adams & Co., Haraden Express Co., Kimsey & Co., and Hoyt & Co. were consolidated in the Adams Express Co., whose capital was $1,200,000. At present, the entire capital invested in the business is supposed to be in the neighborhood of thirty million dollars.

LADIES' SHOES.

The manufacture of ladies' shoes in this country began early in colonial times, and the town of Lynn, in Massachusetts, has been distinguished for this branch of industry almost from the beginning of the Pilgrims. The first shoe-makers in Lynn are said to have been Philip Kerckland and Thomas Bridges, in 1635. At first, women's shoes were made in Lynn of woolen cloth or leather only. A pair of white silk were made for the wedding-day and preserved afterward. In 1790, the Post office of the United States was established at West Newbury, in Massachusetts, where the business is still extensively carried on. In the same year, a manufacturers in Pennsylvania advertised shoes at wholesale and retail. In 1790, there was a comb factory in Boston, and two or three in Leominster, Mass. The first machine for making combs was patented by Isaac Tryon in 1798. As the importation of combs slowed entirely ceased, the domestic manufacture was proportionately increased. In 1809, three factories were established in Connecticut.

At first the teeth were cut singly by a fine steel saw: but in 1814 one of the Leicester manufacturers secured a patent of a saw that would cut all the teeth at one operation. Another patent was granted to a Philadelphia manufacturer in 1816. The invention of vulcanized India-rubber, and experiments in hard rubber, resulted in the discovery that this was one of the best and cheapest materials for making combs; and very superior and highly finished combs are now made extensively of this material.

CARDS.

The construction, by machinery, of cards used in the manufacture of cotton and woolen cloths is one of the novelties of modern industry, and the manufacture with which this difficult and delicate process is performed is an American undertaking. In the year 1798, a factory was established at West Newbury, in Massachusetts, where the business was still extensively carried on. In the same year, a manufacturer in Pennsylvania advertised combs at wholesale and retail. In 1790, there was a comb factory in Boston, and two or three in Leominster, Mass. The first machine for making combs was patented by Isaac Tryon in 1798. As the importation of combs slowed entirely ceased, the domestic manufacture was proportionately increased. In 1809, three factories were established in Connecticut.

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JEWELRY.

Providence is the chief seat of this great industry, although it is pronounced to be more extensively carried on in a number of other towns in Connecticut and Rhode Island. As early as 1810, a jewelry manufacturer, of Providence, was reported as employing over 100 workmen, with an annual production of $200,000. At present that city gives employment in this business to nearly 2,000 men and women.
SCENES AND INCIDENTS ON THE CENTENNIAL GROUNDS, FAIRMOUNT PARK, MONDAY, NOVEMBER 15th, 1875.
River. In the following year the entire company were massacred by the Indians, except a young boy and girl, who managed to escape. This unfortunate event stopped the manufacture of iron in that locality, and it was not there revived until the year 1712.

In 1663, the General Court of Massachusetts granted certain persons the sole right and privilege of making iron for twenty years, allowing them the use of certain lands on which to set up their furnaces and forges. It is stated that the first factory established in that State was erected in Lynn. The village about the works was called Hammer-town of the same name in England, and from which many of the workmen here had emigrated. Operations were continued here for more than a century.

In 1750, there were in existence in this country three iron-mills and one furnace. Rolling-mills were chiefly employed in making nail-rods to be worked up by hand. The iron-mills and one furnace. Rolling-mills were chiefly employed in making nail-rods to be worked up by hand. The iron-mills and one furnace. Rolling-mills were chiefly employed in making nail-rods to be worked up by hand. The first article of iron said to have been cast in this country was received from the mother country. It was, however, thirty years later before the colonists of Massachusetts and Connecticut took any decided step in the matter of raising hemp, especially for cordage for ship-rigging, although John Harrison had made cordage in Boston as early as 1651, and John Heyman was employed to make ropes and lines in Charleston in 1682. The business soon spread rapidly through the colonies, and, in the year 1769, there were several ropewalks in Philadelphia.

Providence and Newport were also early engaged in the manufacture of cordage, and in 1759 had several manufactories in operation. In 1794, Virginia, as well as Maryland, had more ropewalks than any two of the Northern and Eastern States.

A spinning and twisting mill for making cordage was patented in the United States in 1804. In 1808, the Massachusetts manufacturers petitioned Congress for duty on the imported articles, though nearly all the flax worked into cordage came from abroad. In 1810, the domestic manufacture of cordage of all kinds was claimed to be fully equal to the imports; and, in the year 1811, Kentucky had at that time thirteen ropewalks. In 1811, though the country was still importing immense quantities of hemp from abroad, and principally from Russia, the Secretary of the Navy, in a report, advised an annual appropriation for hemp for the use of the navy.

There was in use at this time, in this country, a machine in which the threads were passed through perforated iron plates, and through iron tubes, of different dimensions, for various sizes of ropes. In 1834, a new machine was introduced in New York, which spun ropes from hemp, without the usual boiling process, and thus saved from 8 to 10 per cent. of the material. And as, from the earliest manufacture of cordage, rapid progress has been made—from the use of horse-power to that of steam-power—until the latest improvements enable the largest ropes to be made as well as the smallest twine, and a single establishment can make all the rigging for the use of the largest ship.
after the Revolution, in 1787, he stated that he had been greatly interested in the establishment of paper-mills; and the same way.

In 1829, the old mill was taken down and replaced by an establishment was built by an ancestor of David Rittenhouse, the first manufactory of white paper in England. This establishment was probably by the English Government for the establishment of the kind erected in the colonies—unless the one upon Chester Creek, in Delaware County, Penn., should be so classed. This mill in Delaware County, shortly after came into the possession of Mr. Wilcox, and his descendants continued the manufacture of paper by the hand-process. From this mill the press of Benjamin Franklin himself, as was natural, was always personally concerned in the erection of eighteen of them. In 1732, the first paper-mill in Massachusetts was built in 1717, and that, three years later, the quantity of paper manufactured there was estimated to be worth £200. Another statement made is, that the first paper-mill in Pennsylvania, producing, altogether, paper to the value of $250,000 annually.

The first patent for improvement in the process of paper-making in the United States, was granted to John Carnes, Jr., of Delaware, in April, 1738, for an improvement connected with the molds. The second, in March, 1794, was granted to John Biddis, of Pennsylvania. It is stated that the first paper-mill in Massachusetts was built in 1717, and that, three years later, the quantity of paper manufactured there was estimated to be worth £200. Another statement made is, that the first paper-mill in Massachusetts was built in 1736, by Daniel Hanchman, a bookseller and publisher in Boston. Benjamin Faneuil, Thomas Hancock, and others, were induced to enter into this industry, by being specially encouraged by the terms of the license, which was granted them by the General Court. As was the case with nearly all colonial interests, the English paper merchants, learning, in 1752, that this mill was in successful operation, complained to the British Board of Trade of it, as being an infringement of their business. This mill was built at Milton, a town about seven miles from Boston, and continued in successful operation until the time of the Revolution, though with one or two interruptions from lack of experienced workmen.

The manufacture of paper during the last century, however, although it constantly and steadily increased, never equalled the demand. One of the causes of this was the difficulty of obtaining the necessary supply of rags. In order to stimulate the industry, the American company of book-sellers, in 1804, offered gold and silver medals for the greatest quantity and best qualities of printing and wrapping papers made from other material than rags.

Meanwhile, in New York and New England both, the people were urged to preserve their rags, by advertisements and patriotic appeals in both prose and verse; added to which inducements, a considerable price per pound had doubtless something to do with the matter.

Steam-power was first applied in the United States to the manufacture of paper in 1816. The introduction of the Fourdrinier machines has greatly facilitated the manufacture of paper, and made the production of modern times quite able to satisfy the increased demand caused by the wonderful industrial demands of this century.

STOCKINGS AND KNITTING-MACHINES.

Felt, in his "Annals of Salem," gives a list of articles to be exported to New England in 1629, among which are eight hundred pairs of stockings, two hundred of which were to be Irish, and one hundred pairs of linen stockings. The prohibition of the exportation of knitting-frames from the mother country forced the colonists to depend entirely upon hand-labor for stockings and other articles of hosewory. Naturally enough, this labor fell to the women; and up to the present century the chief supply of hosewory for the
Inland population of the country was produced by women's fingers in such moments of leisure as they could find during the long winter evenings. In the year 1600, the Assembly of Virginia voted a premium of 50 sh. of tobacco—at that time serving as legal currency in the colony—for every dozen pairs of woolen or worsted stockings. Just before the Revolution, the same State offered 50 sh. for every five hundred pairs of men's and women's stockings produced. The knitters of coarse woolen stockings in Pennsylvania received, as a premium, in 1698, half-a-crown a pair. But, notwithstanding the prohibition by the English Government of the exportation of stocking-frames—which, by the way, were invented by William Lee, in England, in the sixteenth century—knitting by their art was introduced into the colonies a considerable time before the Revolution, the machine being probably brought over by the Germans.

The earliest mention of them is found in the American Weekly Mercury for 1729. In 1776, the Committee on Safety, in Maryland, appropriated the sum of £300 to the establishment of a stocking manufactory. Before this, however, the "Society of Arts," in New York, offered a prize of £10 for the first three stocking-frames of yar set up that year, £5 for the next three, and £15 for the first stocking-frame made in the province. In 1778, a New-York man petitioned Congress for a higher duty to be imposed on hosery, or for some other protection to that industry. In the course, taken in 1810, the returns from ten States and Territories reported a manufacture of 181,299 pairs of stockings, valued at $572,742. Of this quantity, Virginia had made almost one-half, the balance being divided between the other States.

In 1831, Timothy Bailie, of Albany, succeeded in applying the power-loom. This had been repeatedly tried in England for the express purpose of binding Eliot's Indian Bible, copies of the Psalms bound in parchment had appeared in Boston as early as the year 1647. Up to the time of the Revolution there had been thirty binderies in Boston, New York had one in 1718, Benjamin Franklin's bindery, in Marlet Street, Philadelphia, was in operation in 1720, and two book-sellers in Charleston, S. C., had binderies in operation in 1764 and 1771. In 1808, "Barlow's Columbian" was issued in quarto form, with fine plates—then the finest book published in the country. Two years later, "Wilson's Ornithology," in folio, with colored plates, was published in Philadelphia.

MANUFACTURE OF SALT.

It has been stated that this manufacture was the earliest in American history, since the colonists of Jamestown, Va., established salt-works in 1628, and as early as 1633 began to send salt to Massachusetts. In 1669, salt was made in South Carolina, and, indeed, since the earliest settlement of the country, it has been produced all along the Atlantic coast from sea-water, in large quantities, by boiling, or natural evaporation—especially during the Revolution, and during the war of 1812, when foreign importations were difficult. After the Revolution, saltpetre by solar evaporation became a very important business on Cape Cod. No less than thirty of the States and Territories are believed to have salt springs. Those of Southern Illinois were worked by the French and Indians in 1720. The Kentucky salt-works were used before 1760. The first salt manufactured in the State of Ohio was in 1786, and the first in Western Pennsylvania in 1812. It is said that the State of New York now produced more than one-half of the entire domestic supply of this article.

PLOWS.

One of the first persons to make a plow in this country was Thomas Jefferson, who attempted to solve the multitude of problems of the true surface of the mold-board. In the year 1760, Mr. Jefferson had several plows made after his patterns, and used them on his estates in Virginia. The first American after Mr. Jefferson, who made plows for common use, was a farmer, living in New-Jersey, by the name of Charles Newbold. He invented the first cast-iron plow made in America. Mr. Newbold is said to have spent upward of $36,000 in trying to introduce his plow, but was forced to abandon it on account of the objection made by farmers, at the time, that the cast-iron plow poisoned the land. It is perhaps, not generally known that, in about 1836, Daniel Webster invented a plow 12 to 14 inches deep, cutting a furrow 24 inches wide. This plow is still in existence. It is 12 ft. long, the mold-board being of wood, fitted with thin iron strips. The beam is 28 inches from the ground. Concerning this plow, Mr. Webster remarked: "When I have hold of the handle of my plow, with two pair of oxen to pull it through, and hear the sound which the oxen make as they ogle the ground, and observe the string, or chain, or the manure which falls into the furrow, I feel more enthusiasm from my encounter with the American genius than comes from my encounters in public life at Washington."

GRIST AND FLOUR MILLS.

It is said that the first mill in New England was a wind-mill, near Watertown, Mass., which was taken down in 1624, and was rebuilt in the vicinity of Boston. This mill was removed from its original position because it would not grind but with a wicker stick, and it was therefore set up in the locality known as Copp's Hill, in 1626. The first windmill set up in Rhode Island was built, in 1668, at Newport. In New York, the first wind-mill was a horse-mill, which was built, in 1636, on the site now occupied by Trinity Church. A horse-mill also stood for many years on the north side of South William Street, near the corner of Broad. A wind-mill once stood in the locality now occupied by the present Hall of Records, in the New York City Hall Park. The Swedes had a wind-mill on the Delaware in 1643, but it appears to have been comparatively little used. That was in the vicinity of Philadelphia. In Virginia, in 1649, were in operation four wind-mills and five water-mills. The first water-mill known in New England is supposed to have been built in 1633, in Roxborough, Mass., and the second, in the same year, at Lynn. The first water-mill erected in the Plymouth colony was put up in January, 1638, and was engaged in grinding corn for the whole colony. The first grist-mill incorporated in Pennsylvania was built by Colonel John Pointz, the Governor of New Sweden, in 1643. This was the most ancient water-mill—rather than any other in Pennsylvania, New Jersey, or Delaware—and stood near the Blue Ball Tavern, where the hoist and the wheel which supported the posts of the framework are still to be seen. The stream on which it was built is Cold's Creek, a tributary of Darby Creek, which empties south of Tinicum, of which place Colonial Pointz had a grant from Queen Christian of Sweden. A few years following, a number of corn-mills were erected, at Wissahickon, by the German and English families who had settled in Germantown and Roxborough.

BREWING.

Wine and beer making were among the earliest industries in the colonial part of our history. At the time of the settlement of the American colonies, tea, coffee,
and chocolate were almost unknown in England, their place being supplied with fermented liquors.

Ale and beer were originally made without hops, which were first raised in England in 1524. Of course, the early emigrants to America followed the tastes and desires of their ancestors, and brought their previous habits with them. The Court of Assistance, in 1629, mindful of this fact, sent among the outfits to New England, in addition to four hundred-weight of hops, forty-five tons of beer to the Plymouth colony. John Yenny, who came to Plymouth in 1623, was Massachusetts, set up a malt-house in that State. The practice of using Indian corn was doubtless of American origin, and was probably derived from the Indians, who made artificial drinks from several native products, including maize.

Beer, in 1607, was sold in New England at one penny-halfpenny per quart; and, not very many years after this, beer and distilled spirits were made and exported from New England to the West Indies, Newfoundland, and other of the Continental colonies, in considerable quantities. In New York, in 1633, the Dutch West India Company, through their director, Wouter Van Twiller, caused the erection of a brewery upon a farm, which extended from the present Wall Street limits westward as far as Hudson Street. Its site was the north side of what is now known as Bridge Street, between Broad and Whitehall.

The distillation of brandy commenced in 1640—probably the first instance of its manufacture in the colonies. In the following year, drunkards had become so alarmingly prevalent, particularly on the Sabbath, that the municipal authorities took measures to prohibit the taping of beer during service, under penalty of £25 for each offence, and of confiscation under the Schoutfiscall. Besides, the offender was not allowed to tap beer again for three months following.

In 1644, when New York was harassed by wars with Indians, John Krabel and his council imposed a tax of two guilders on each barrel of beer tapped by the tavern-keepers, and four stuyvers on each quart of Spanish wine. The Swedes, who were among the first settlers in Pennsylvania, allIlilVAL OF A LARGE SPECIMEN OF THE “PHENIX SYLVESTRIS,” OR EAST INDIAN WILD DATE PALM, AT HORTICULTURAL HALL.
been mentioned, there were six noble brew-houses in 1642, but most of the families brewed their own beer. The old custom of having the beer for the household brewed by the women appears to have been brought over by the colonists.

Duchy was, during colonial times, a household manufacture of considerable value, and an object of it was exported. Researches were established in the Carolinas and Distilleries were common. The manufacture of beer was also common in all parts of Virginia. Pole and porter were first made in this country about the year 1774.

MANUFACTURE OF WINE.

The early colonists found the vine growing wild in the woods, often climbing the loftest trees. Even the earliest narratives of the Norse voyagers to America speak of the quantity and variety of the vines; and a portion of the" continent was called by them "Vineland." As early as the narratives of the Norse voyagers to America speak of the vineyards. The earliest order of the Court, which was fixed, was made by the Massachusetts Assembly in 1640, when the magistrates and deputies of the several towns were required to investigate the facilities existing for spinning and weaving, and what course it might be well to take for teaching boys and girls in the spinning and weaving of yarn, and of carding wool.

A description of cloth, for the manufacture of which this Act of the Court was designed to prepare the way, was a mixture known as cotton, linen, and wool. In the same year, 1640, an order of the Court offered a bounty on every shilling's worth of linen, woolen, and cotton cloth made in the colonies. Under this order, in 1641, certain persons were granted a bounty for their manufacture, which appears to have been the first sample of cloth ever made in the country. This was probably a coarse description of linen. In 1642 the different towns of New England agreed to take cotton-well in certain quantities, and the price was fixed by two inspectors in each town being appointed to arrange this. In 1644 the first regular or systematic attempt at the manufacture of cloth, particularly woolen, was made by a company of Yorkshiremen, who were settled at Rowley, in Massachusetts, between Jewfish and Newbury. Here was built the first fulling-mill erected in the colonies, and this appears to have been the first place in which woollen cloth was made in New England.

At this time cotton was obtained from Barbadoes, while hemp and flax were grown native. This very early effort of the young community to become independent in the manufacture of clothing deserves peculiar mention, from the fact that it involved the earlier nations of the use by the European population in America of the material. Cotton was manufactured, however, made but slow progress in the other colonies. In 1719 there were but six clothiers established in Pennsylvania, and yet the cloth was very unskilled and impure. Among the settlers of New Sweden the manufacture was regarded in 1672, 1669, when haberls and linen products were said to have been cultivated and sold; and three years before this, William Penn, in a letter to the "Free Society of Traders," refers especially to the manufacture of linen in the Province of Pennsylvania. A variety of linen and woolen stuffs are mentioned as the manufactures of the Germans in Pennsylvania in 1698, such as doublets, serges, etc., and it is stated that the part of Germantown was then a small number of sawyers per week and their diet.

In 1658, in Virginia, a Captain Matthews was a great cultivator of hemp and flax, which he also manufactured into cloth. Silk and cotton had been also attempted in 1641, and been recommended to the attention of the planters. Several vegetable-dyestuffs had all been tested. In 1692 the Assembly of Virginia caused several laws for the promotion of all industries, and particularly in the manufacture of cloth. Flaxseed was ordered imported by the law of dressed flax or hemp. After the year 1664 another law was enacted in Virginia for the encouragement of the manufacture of linen and woollen cloth. The first falling machinery was erected in Virginia in 1692, during the administration of John Rolfe, for the encouragement of the manufacture of linen and woollen cloth. The first fulling machinery was erected in Virginia in 1692, during the administration of John Rolfe, for the encouragement of the manufacture of linen and woollen cloth. The first falling machinery was erected in Virginia in 1692, during the administration of John Rolfe, for the encouragement of the manufacture of linen and woollen cloth. The first fulling machinery was erected in Virginia in 1692, during the administration of John Rolfe, for the encouragement of the manufacture of linen and woollen cloth. The first falling machinery was erected in Virginia in 1692, during the administration of John Rolfe, for the encouragement of the manufacture of linen and woollen cloth. The first falling machinery was erected in Virginia in 1692, during the administration of John Rolfe, for the encouragement of the manufacture of linen and woollen cloth.

In 1626, a number of the Council of New York wrote to the British Board of Trade that he had bribed to the Americans from going on with their linen and woollen manufactures. He said, further, that they were all so far advanced that three-fourths of what they wove was made amongst them—especially the coarse sort—and if some effective means of stopping it be not found, they will carry it on a great deal further, and perhaps in time produce our manufactures at home.

In 1606 it was stated that the great soil, in the colonies, of woollen goods, which then sold at 200 per cent, advance on the cost, had forced the colonists to set up a very considerable manufactory for stuffs, kergens, dry-woollens, flannels, blankets, etc., by which the importation of these goods was soon decreased £60,000 per annum. The descriptions of cloth...
INTERIOR OF THE MAIN BUILDING SHOWING THE VARIOUS PAVILIONS AND SHOW-CASES CONSTRUCTED AND IN PROCESS OF ERECTION.
made at this time in America were chiefly those mentioned above, and generally they were the coarser kinds. Cotton was regularly imported in small quantities, chiefly from the Barbadoes, and occasionally, also, from Smyrna and other places to which trade had extended, and was made into fustians and other similar stuffs. But linen then subserved nearly all the purposes for which cotton is now employed, and hence the attention given to the cultivation of flax and hemp. The linens made at that time were for the most part of a very coarse texture. The kerseys, linsey-woolseys, serges, and druggets consisted of wool combined with flax and tow, and these formed the outer clothing of a large part of the population of the country. Hempen cloth and linen of different grades of fineness, from the coarsest tow cloth to the finest Osnaburg of Holland, constituted the principal wearing apparel, outward and inward, at most times. The under garments and the table-linen were almost entirely supplied from the serviceable products of the household industry. As the implements of manufacture then in use were comparatively rude, and many modern processes of manufacture and finish were as yet unknown, the fabrics, whether woolen or linen, were more remarkable for service than for elegance. The material was usually grown upon the farms of the planters; and the breaking and hackling being done by the men, while the carding, spinning, weaving, bleaching and dyeing were performed by the wives and daughters of the planters, these useful products of the household were an object of pride and emulation with all thrifty families. The dress of the apprentices and laborers in the last century almost invariably comprised shirts of Ozenbrig, made of hemp and flax, and varying in price from one shilling to one shilling and sixpence per yard, and coats and breeches of the same. Coats, or doublets, and breeches of leather or buckskin, and coats also of kersey, drugget, frieze, etc.; felt hats, coarse leather shoes, with laces of brass and wooden heels, and coarse yarn or worsted stockings, were the common outward habiliments of that class of home manufacture. The differences of rank were pretty clearly defined, and the dresses of the middle and wealthier classes generally corresponded with the tastes of each. With the former class, domestic fabrics were much worn, and particularly the finer class of Osnaburg and Holland, and cloths of mixed and unmixed wool, such as they possessed the means of making or of purchasing. They also frequently used imported broad cloths, which, however, were often worn white or undyed. The dresses of the rich consisted of the woolen manufactures of England, and the linens of Ireland, Scot-
A RIDE IN THE ELEVATOR ON BELMONT HILL, FAIRMOUNT PARK—TAKING A BIRD’S-EYE VIEW OF THE EXPOSITION BUILDING.
OPENING OF THE CENTENNIAL YEAR AT PHILADELPHIA—RAISING THE OLD COLONIAL FLAG ON INDEPENDENCE HALL.
six commissioners of trade. After recommending the same exclusive policy as to the commerce of the country, he points out the advantages derived from them. He shows that the luxuries of the colonists are daily increased, they consuming great quantities of English silks, haberdashery and printed and woven goods of all sorts, and a considerable quantity of East India goods. A report made to the House of Commons by the Board of Trade on Colonial Industries, in 1731, stated that in the American colonies the settlers had fallen into the manufacture of woolen cloths and linen cloths, but for the use of their own families only; that the very high price of labor rendered it impracticable for them to manufacture such articles at less than twenty per cent. lower than that exported from England; that the greater part of the clothing worn in the province of Massachusetts Bay was imported from Great Britain, and sometimes from Ireland; that there were few hat-makers, only in the maritime towns; that there were no manufactures in New York worth mentioning, nor in New Jersey; that the chief trade of Pennsylvania lay in the importation of provisions, no manufactures being established, and their clothing and utensils for their houses all imported from England; that in Massachusetts Bay some manufactures were carried on, as brown holland for women’s ware, which lessens the importation of cloaks and some other sorts of East India goods.

Concerning the woolen manufacture, the country people, who used to make the most of their clothing out of their wool, did not then make a third part of what they wore, but they were mainly clothed with British manufactures. It is believed, however, that this report fell considerably short of a correct statement of the extent to which domestic manufactures were even at that time carried on in the colonies. These were excellent reasons why the truth should not have been made known in England, and it is alleged that it was with the greatest difficulty that the officers of the Government were able to procure true information concerning the trade and manufactures of the American colonies.

Meanwhile, in the Southern States of Carolina and Virginia, scarcely any progress had yet been made towards the supply of their own clothing; while Georgia made scarcely any progress in the mechanical arts before the Revolution. In Virginia it is stated that the profits of the tobacco culture were exceedingly large, while all their clothing was received from England. Hides were very plentiful, and were suffered to lie and rot—and that man was considered a rare economist who made a pair of leather breeches from the deerskins which abounded.

There is mention made, however, in 1721 of a coarse stuff for servants’ wear, known by the name of Virginia cloth. An article of that name is mentioned as having been brought to great perfection in that State after the Revolution. It was generally worn by the women of the country, and being brought to town, it was much sought after for the use of slaves, it being considered much superior to anything of the kind imported.

Up to 1763 it does not appear that any material advances were made towards the introduction of the manufacture of cloth. Great Britain and her colonies were then principally occupied with wars with the French and Indians; and, while commerce and the fisheries grew, this industry was totally neglected. The importations of English manufactures continued to augment with the constantly growing wealth and luxury of the people to the full extent of their ability to purchase. Large quantities of woollens, draperys, aigara, Ramillies, Scotch plaid, and hosiery were imported, with linens of English, Scotch, Irish, and Dutch manufacture, and India goods, including silks. The cheaper and coarser kinds, particularly of woollens, were for the Indian trade and for negro wear. Gold and silver, and fine Flanders laces, French cambrics and chintzes, for the use of the planters’ families, swelled the importations to a large sum.

Some efforts were continued to be made to work up the wool which the sheep supplied, but not in sufficient
THE TRANSPORTATION OF FOREIGN GOODS TO THE MAIN BUILDING.
In 1749 a society was formed in Boston for promoting
quantities for home consumption. Although in the main, the
society was simple and frugal in its habits, yet
the progress in luxuries of all kinds was sufficient to
cause a rapid increase in general trade and commerce.
In 1710 a society was formed in Boston for promoting
industry and fragility.

COTTON.
Cotton seeds were first planted in the American colonies in 1621. In the province of Carolina the growth of the
cotton plant was introduced in 1665. In 1736 it was grown
in Maryland, and four years afterwards it was cultivated in
Cape May. It was, however, not cultivated, except as a
garden plant, until after the Revolutionary war, although at
the commencement of the war one party is said to have had
thirty acres under cultivation. A small shipment of cotton
was made in the year 1754, and in 1770 three more, amount¬
ing to ten bales in the aggregate. In 1784 eight bales, about to be shipped to England, were seized on the ground that so much cotton could not be produced in the United
States. Some parties it was thought that this came from the West Indies, and that the first American cotton
was exported in 1790. It is, however, known that Sea
Island cotton was raised in Georgia, and the first successful
crop of this famed variety was raised in Carolina in 1790.
The excellent quality of this cotton enabled it to command
much higher prices than any other. In 1836 it sold at 36
cents per pound, while other cotton brought only 22 cents.
The increased attention which had been given to wool¬
growing during the war and to cotton in the South, created a
desire to secure the improved machinery by which England was being rapidly enriched. By 1780 spinning-
jennys were beginning to be imported by subscription; and on the 30th of April of that year, in the Worcester (Mass.)
Syp, it was announced: "On Tuesday last the first piece of
machinery manufactured in this town was taken from the
loom." Shortly after this cotton manufactory began to make their appearance in various parts of New England, and the industry of cloth manufacture may be said to have been
founded in the United States.

ILLUSTRATIONS OF THE
CENTENNIAL EXPOSITION.

Centennial Tea Party in the National Capitol.
One of the first and most important Centennial annu¬
veraries was that of the destruction of tea in Boston
harbor, December 16th, 1773, which was celebrated by a
grand tea party in the Rotunda of the Capitol at Washing¬
ton. Congress, at the previous session, had passed a joint
resolution of both houses giving to the Centennial Tea
Party Association the use of the Rotunda for the occasion.
Of course the novelty of devoting the Government build¬
ings to this purpose attracted general attention, and the
place was crowded with ladies and gentlemen, dail in the
picturesque costume of a hundred years ago.
The Capitol Rotunda was originally designed for public
ceremonials, but was never before used for the purpose,
except once, under the presidency of John Quincy Adams,
when there was an exhibition of American manufactures
held in it. For the occasion of which we speak it was
adapted to the purpose by the generous donation of
theROTUNDA COMMITTEE, who fitted up the Rotunda with
suitable decorations, and in use the roof and walls with
conversation. The Capitol Rotunda was designed to contain
the winning crew; for the second, the prize was a piece of plate,
with a gold medal to each member of the winning crew; and
for the remainder of bronze. Second, the International Club
Race of four-oar shells, the prize to be a piece of plate, with
a gold medal to each member of the winning crew; and
open only to undergraduates. Third, the International
Graduates' Race, for four-oar shells, open only to graduates
of colleges or universities, the prize being a piece of plate
and a gold medal to each member of the winning crew.
No person will be allowed to row in both the International
Club and the International Graduates' Race.

The first general meeting was held at Carpenter's Hall on the 16th of March, and Dr. Rush was elected
president. The object of this organization was to establish
American manufactures of woolens, linens, and cottons, with
a view to the exclusion and suppression of British goods.

The "Unical Company of Philadelphia for Promoting Manufactures," was formed, and books were opened for subscrip-
COTTON.
COTTON.
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COTTON.
closed with a review of the Schuylkill navvies, and in concert in Machinery Hall. The ceremonies of the day were marked by the presentation of a bouquet and a flag, while the hall was magnificently decorated. "Liberty," which was followed by the unveiling of a statue of General Washington, mounted on scaffolding, are decorating the ceilings and walls of the building, placing boards and nailing them in position. The labor of hoisting one of the great girders employed a number of men, is plainly displayed by the artist, as also that of cutting the roads on the Centennial grounds, also done by workmen. The manner in which the workmen came down from the laborers on the scaffoldings to obtain their dinner, by sliding down ropes, is a somewhat amusing incident, while the picture of a Centennial boss will be recognized as a not unfamiliar figure on the grounds during the past few years.

A group of men with large wooden implements, nailing the grounds around Horticultural Hall, and another group carrying one of the iron girders from one point to another, will be found in our illustrations.

The Penn Statue.
One of the most important of the statues to be placed in Horticultural Park is that of William Penn, by Mr. Bailie, of Philadelphia. It will be of bronze, thirty feet high, the Quaker being represented in the act of explaining the original plan of the city, which rests upon the stump of a tree in his left hand. This statue will be placed in the park, and there remain until the public buildings on Broad and Market Streets are completed, when it is to be permanently set upon the dome. As this will be 500 feet above the sidewalk, this figure of W. Penn will be the highest specimen of terminal architecture in the world.

The Water Babies.
A very charming piece of sculpture to be exhibited at the Centennial is by Marshal G. Goedl, a young sculptor not yet of age, who has been for the last three years studying with his father Thomas B. Goedl, in Florence. The design of the work presents two naked children, who have taken shelter in a shell. One of them is asleep, and is clasped in the arms of the other, who appears as the protector. The figures are of infant life, and the whole is being sculptured out of a single block of marble in Florence. The work is described by those who have seen the original design in plaster as presenting the most charming illustration of the subject selected.

The Brazilian Commission.
Brazil has taken a lively interest in the Centennial from its inception. On September 26th of last year the Brazilian government, in a paper published in Il rendering of bells and fire-works of all parts of the country. The ringing of bells and firing of cannon in all the great cities closed the Centennial year in most praiseworthy manner. In Philadelphia, however, the event was bold with more than ordinary enthusiasm. On the night of the last day of the year 1875, by special request of the Mayor, the houses in Philadelphia were illuminated, and, despite the fact that the weather was dark, stormy, and disagreeable, the city presented a most brilliant appearance. The streets were thronged with people until a late hour of the night, while the illuminations made a complete blaze of light everywhere. Every building in the city connected with revolutionary history was appropriately illuminated. At the southwest corner of Seventh and Market Streets stands a brick building which, in 1776, was a fashionable boarding-house, and where Thomas Jefferson wrote the Declaration of Independence. On this occasion it was blazoned with light and covered with appropriate inscriptions. Carpenter's Hall, where the first Centennial Congress met, was also illuminated, and inscribed "The Nation's Birthplace," in gay jete. Christ's Church was lighted from basement to step-top, while its bells rang out a merry welcoming peal—the same bells that adorned the first year of the century. Independence Hall was the grand scene of attraction, the streets in the vicinity being jammed with people, during the whole evening, and until after midnight. Masqueraders, in groups and singly, threaded their way among the crowd; drums, fifes, horns, and trumpets sounded; processions of clubs and military paraded, and at precisely twelve o'clock the Mayor raised the old Colonial flag at the head of the flagstaff of Independence Hall, and the cheers of a hundred thousand people. The State House bells struck 1,7,7,6, then 1,8,7,6 and then 100 taps in quick succession. The State Forces fired thirteen rounds from Independence Square, which was succeeded by rapid freelifing from another regiment, continued for fifteen minutes. Red and blue lights were burned by hundreds, and calcium lights and fireworks from the State House completed the celebration.

The Women's Pavilion.
A noble monument of the energy and patriotism of the women of America is the Women's Centennial Pavilion in Fairmount Park, which was built under the supervision of the Woman's Centennial Committee. The pavilion is

HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

Special celebrations of New Year's Day, 1876, occurred in all parts of the country. The ringing of bells and firing of cannon in all the great cities ushered in the Centennial year in most praiseworthy manner. In Philadelphia, however, the event was held with more than ordinary enthusiasm. On the night of the last day of the year 1875, by special request of the Mayor, the houses in Philadelphia were illuminated, and, despite the fact that the weather was dark, stormy, and disagreeable, the city presented a most brilliant appearance. The streets were thronged with people until a late hour of the night, while the illuminations made a complete blaze of light everywhere. Every building in the city connected with revolutionary history was appropriately illuminated. At the southwest corner of Seventh and Market Streets stands a brick building which, in 1776, was a fashionable boarding-house, and where Thomas Jefferson wrote the Declaration of Independence. On this occasion it was blazoned with light and covered with appropriate inscriptions. Carpenter's Hall, where the first Centennial Congress met, was also illuminated, and inscribed "The Nation's Birthplace," in gay jete. Christ's Church was lighted from basement to step-top, while its bells rang out a merry welcoming peal—the same bells that adorned the first year of the century. Independence Hall was the grand scene of attraction, the streets in the vicinity being jammed with people, during the whole evening, and until after midnight. Masqueraders, in groups and singly, threaded their way among the crowd; drums, fifes, horns, and trumpets sounded; processions of clubs and military paraded, and at precisely twelve o'clock the Mayor raised the old Colonial flag at the head of the flagstaff of Independence Hall, and the cheers of a hundred thousand people. The State House bells struck 1,7,7,6, then 1,8,7,6 and then 100 taps in quick succession. The State Forces fired thirteen rounds from Independence Square, which was succeeded by rapid freelifing from another regiment, continued for fifteen minutes. Red and blue lights were burned by hundreds, and calcium lights and fireworks from the State House completed the celebration.

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RECEPTION AND EXAMINATION OF JAPANESE GOODS by CUSTOM-HOUSE OFFICIALS.

The Centennial New Year's

The Women's Pavilion.
located on Belmont Avenue, near the Horticultural grounds, and covers an area of 30,000 square feet. It is formed by two naves intersecting each other, each 64 ft. in width and 102 ft. long. At the end of these is a porch 8 by 32 ft. The corners formed by the two naves are filled by four pavilions, each 48 ft. square. The whole structure is built of wood, in a modern and ornate style of architecture, and is roofed over by segmental trusses. In the centre, which is raised 25 ft. higher than the rest of the building, is an observatory, with a cupola on top, making the entire height of the building 90 ft.

The Centennial Elevator.

On Belmont Hill, in Fairmount Park, stands the Sawyer Observatory, 385 feet high in itself, and 410 feet above the level of the Schuylkill River. This observatory is a straight shaft, the summit of which is reached by an elevator car, which is raised or lowered by eight wire cables, and this is prevented from falling, should the cables give way, by steel columns acting on perpendicular rods, which would immediately stop the car and hold it in position. To the east the Delaware River is seen winding its way along the borders of Pennsylvania and New Jersey, with the Delaware Bay lying far away in the distance; north and west one sees towns and villages, fields and meadows. Closer at hand the entire city of Philadelphia is spread out like a bird's-eye view, while, immediately beneath, Fairmount Park, with the elegant Centennial buildings, appears like a charming garden.

A specimen of the East India wild date palm, or Phoenix Sylvesteria, on exhibition at Horticultural Hall, twenty feet in width by thirty feet in height, will be one of the curiosities of the Exhibition. It belongs to a class of palm trees, similar to that from which the dates of commerce are obtained. It is a native of Africa and Tropical Asia, and is common throughout the East Indies. The specimen in question is said to be one of the most magnificent ever brought to this country.

The Judges' Pavilion.

This building, which is intended for the use of the judges and committees who are to award the prizes at the Exposition, covers a space of 152 by 113 feet, is built of wood and plaster, and highly ornamented. In the centre is a large hall, 59 by 78 ft., containing a platform and speaker's desk. A corridor, 10 ft. wide, runs entirely around this, and separates it from another hall 28 by 59 ft. By an arrangement of partitions rendering them movable, these two rooms can be thrown into one large hall, 59 by 118 ft. On the side of the building are seven commodious committee rooms, and in the front are three other spacious rooms. Two stairways give access to a gallery 10 ft. wide, running round three sides of the main hall.

The Phoenix Sylvesteria Palm Tree.

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ordnance of the United States is represented having an i.aat seated in its muzzle, laughing gleefully at the group of ladies and gentlemen who have placed her there.

The Pennsylvania State Building.

This building, which is located on Belmont Avenue, near the United States buildings, was built by the State for the headquarters of the Pennsylvania State Commission under an appropriation of $15,000. It is a wooden building, Gothic style, 98 by 55 ft. in dimensions. It is active labor and earnest enthusiasm during the past three years. The Women's Centennial Committee was organized February 15th, 1873, with Mrs. Elizabeth Duane Gillespie as its president. The original number of this committee was thirteen, symbolic of the original States. Sub-committees were organized in every ward in the city, while prominent ladies in other States were added to the original organization, forming a most efficient body, extending throughout the entire country, and whose work has been most important and efficient.

Japanese Tools.

The Japanese are quite as peculiar in their tools and implements as they are in every other incidental of their life. They use an ink line instead of a chalk line, for instance. The apparatus for this is a case, in the centre of which is a sponge, which may be saturated with any color. When the line is to be made, the case is placed in the centre of the work, and the line is made by passing the sponge around the spot to be marked. The Japanese seldom use nails, and those they do use are of a peculiar construction, having tapering points with wing-shaped heads. These they carry in small wicker baskets, hung to a sash worn around the waist. Their plane is a flat tool, an inch and a half thick, which they drive towards them, instead of pushing from them, as we do. The saw is shaped like a cleaver, with a thin blade, and with small and sharp teeth. The adz differs from our own in having a peculiar twist to the handle. The chisel is a short piece of steel of a semi-circular shape, with a short handle. The Japanese show great facility in handling these tools, and are by no means such clumsy workmen as their implements might lead us to suppose.

The Great Corliss Engine.

The grand power which is to keep in motion the mechanical part of the Exposition is the Corliss engine, situated in the centre of Machinery Hall. This engine is of fifteen hundred horse power, but is capable of doing the work of twenty-five hundred horses if necessary. It is from Providence, Rhode Island, and weighs some seven
The appropriation by Congress of one and a half million dollars to the purposes of the Exposition gave fresh impetus to the work upon the grounds at Fairmount Park, prior to the opening, continued to be marked by the same energy and industry which had characterized the proceeded with the best possible effect.

Meanwhile, the city began rapidly to assume a more varied and cosmopolitan aspect than it had ever before presented. The arrival of the members and employees of the various foreign nations— including the British, Belgian, Spanish, Swedish, French, German, Japanese, Turkish, etc.— introduced new elements among the promenaders on Chestnut Street, contesting that thoroughfare to present daily an appearance of renewed brightness and vitality, while, at Fairmount Park, the new artillery pieces constantly was engaged in the creation of the various National Buildings and in other necessary avocations.

New Jersey State Building. This building is 94 ft. long by 57 ft. wide, two stories in height, with attic and observatory. It has been erected on a very elevated position, with a view can be had of Fairmount Park and its delightful environs.

Spanish Buildings.

The Spanish Pavilion in the Main Building, situated about half-way between the centre transept and the west entrance on the centre nave, has been from the moment of its commencement an object of interest. Embellished and very elaborately ornamented, the façade is 46 ft. in height, constructed of wood and canvas, painted, carved and gilded in rich and ornate style, having a grand doorway in the centre, and two grand portals handsomely decorated. The central entrance, ornamented by a massive pediment broken in the centre, is ornamented with a painting representing Spain in the act of disclosing the Western Hemisphere to the assembled nations. Below this, the portraits of Columbus, Isabella, Cortez, Pizarro, Don Soto and other prominent personages in the history of Spanish discovery. The doorway is hung with heavy folds of silk curtains, displaying the Spanish national colors—red and yellow. There, surrounded by a grand trophy of shields, helmets, and standards, present a very neat and elegant appearance.

Indians State Building.

The headquarters of the State of Indiana, located on State Avenue, near Belmont Avenue, is peculiar and original in its construction, 65x65 ft. in dimensions, with an extension in the rear of 33x14 ft. The front building is 30 ft. in height to the top of the lantern. It is octagonal in shape, and built of ornamental woodwork, inlaid large pilasters, a portion of which is to be the largest 18 ft., high by 8 ft. 2 inches in width. A tasty veranda is built around three sides of the structure. The interior, handsomely finished with wainscoting, a large central hall, with a covered court-yard, parlor, post-office, and other offices.

The Swedish Schoolhouse.

Sweden, being noted for her educational facilities, and particularly for the admirable construction of her school-houses, has always, in international exhibitions, made a special point of this species of exhibit. Under the direction of the Government, the schoolhouses of Sweden are more carefully constructed in a sanitary point of view than those of any other country. At the Vienna Exposition, a Swedish school-house was constructed which cost 6,000 crowns. That at Fairmount cost 25,000, and the building, although plain and simple in appearance, is a most interesting feature of the Exposition. It has been erected between the Jury Pavilion and Memorial Hall, near the west end of the Main Building, and is a faithful representation of the best common schoolhouses of Sweden, except that it is not divided into two rooms, as is customary, but is formed in one in order to obtain advantages for displaying school-furniture, apparatus, etc. It is one and a half stories in height, constructed of native stone, and erected by Swedish workmen. A peaked roof enclosing the sides is a feature of the method of construction. The roof is carefully finished, all the wood being either oiled or polished, and no nails being exposed. The windows are small, the whole having an appearance of neatness and elegance. It is part of the post office buildings on the grounds.

The last days of constructive effort on the grounds at Fairmount, prior to the opening, continued to be marked by the same energy and industry which had characterized the proceeding with the best possible effect.

As a result of this, the portraits of Cortez, Pizarro, Don Soto and other prominent personages in the history of Spanish discovery. The doorway is hung with heavy folds of silk curtains, displaying the Spanish national colors—red and yellow. There, surrounded by a grand trophy of shields, helmets, and standards, present a very neat and elegant appearance.

A Cautious Exhibition.

The arrival of goods at the Exposition Buildings awakened much interest, and aroused the curiosity of all those who were employed, and those being specially directed toward the French workmen, on account of the peculiar character of the tools which they employed, and also toward the Swedish department, where soldiers were engaged in various manipulations connected with their duties.

Each morning and certainly useful feature of the Exposition was the "business brigade," a squad of men and boys kept constantly employed in the buildings, sweeping up the aisles after the workmen, cleaning the windows, carrying off the refuse in huge wheelbarrows constructed for that purpose.

The arrival of goods at the Exposition Buildings awakened much interest, and aroused the curiosity of all those who were permitted to be present and observe it. Considerable amusement was occasioned among the bystanders on the opening of the exhibition, for the Art Department, as the figures were gradually unveiled.

The transportation of heavy boxes of goods, and of that immense masses of stone, as displayed in our illustrations, was also a never-ending fund of interest. A process which did not fail to attract a crowd was the erection of the interesting model of the city of Paris. This remarkable structure represented the topography of the famous city, with the Seine, bridges, public buildings, hotels, Arc de Triomphe,
plastered outside and in, the

ing.

timbers painted a deep-brown,

tances of all nations in

the matter of postal communi-

nation. Of this interchange,

scriptions in

all languages explained the purpose of the receptacle in a

manner easily to be understood. Such boxes, distributed

throughout the grounds and buildings illustrate the use

which was taken by the Centennial authorities to offer all

the facilities possible.

Massachusetts State Building.

This fine structure occupies one of the most prominent

positions within the inclosure. It is built after the style

of houses common in colonial times, and of course presents

a raised quaint-looking appearance that could not fail to

attract general attention. A steep roof, the rear rising so

long as the front, in a peculiar


tility making the rear wall con-

siderably shorter than the front

. The building is one and a

half stories in height, with
dorman windows, and light

fancy verandas over the en-

trance. Over the main entrance

there is a shingled covering.

The building is faced and

plastered outside and in, the

timbers painted a deep-brown,

giving an appearance of palm-

Chilian Court.

Each of the different foreign

nations devoted time, labor and

expense in fitting up res-

pectively their quarters in the

Main Building in a style as

one commensurate and pleasant.

The Chilian Government has

not fallen short of the others

in this regard. The portion

assigned and devoted to the

uses of that South American

State is situated near the west

entrance of the Building. It

is arranged in two rows of

lambeth cases, having a pa-

ivation at each end in ornamental woodwork, attractively

painted and decored. This is naturally one of the most

pleasing departments of the Exposition. In all former

exhibitions and international displays, Chili has made a

credible showing, but inferior to what has been done in

connection with the Centennial.

Turkish Coffee House.

Near the bazaar of the Syrians from Jerusalem is erected

the Turkish "Khave," or Coffee House, where two Com-

municable citizens direct smoking and coffee-drinking in

genuine Ottoman style, visitors being served by legitimate

Turks in full costume. This building has been erected

by American carpenters, under the direction of Turkish

architects.

Kansas State Building.

The State of Kansas has erected a large structure near

the "Women's Pavilion" and the New Jersey Building,

occupying a spot of ground 132 by 225 ft. Elaborately de-

signed, this building is an honor to the State which directed

its construction and that engaged in building it. In

form it is an ornamental cottage, having a large circular

tower in its centre. From this radiates commodious apart-

ments, attached to which are numerous large rooms fo-

tended for private offices.

SITE OF THE EXPOSITION.

A view of 249 acres, more or less, occupied by the

Centennial Exposition, as it appeared at the time of the open-

ing, was certainly calculated to impress the eye-witness

with a just idea of the immensity of the undertaking

which has been carried through by the Centennial Com-

mission. Standing on George's Hill, where perhaps the

most comprehensive view can be obtained, the eye first

meets the magnificent proportions of Machinery Hall, run-

ning east and west, extending nearly from the extreme

western end of the grounds to the point where Belmont

and Elm Avenues intersect each other. Carrying the eye

beyond this point—and at this distance the line seems

unbroken—stretches the vast length of the Main Exhibition

Building, giving an entire and nearly unbroken covered

space for exhibition of 3,824 ft. in length, and between

centre he sees the beautiful structure known as Mem-

orial Hall, and which is really the Art Gallery of the

Exposition, built in the modern Renaissance style of architec-

ture, and admirably pro-

portioned and sur-

mounted by a beautiful dome, from whose apex

rises the colossal statue of

Columba,

springing 150 ft. from the ground. This building is,

in the chasteness and symmetry of its architecture, an im-

mediate relief from the more formal lines of the Main

and Machinery Buildings. Situated on a considerable

elevation in the Lansdown Plateau, overlooking the city in

the distance and the beautiful river at its feet, no more

charming spot could have been chosen for this prominent

building.

Gazing still further north, and at a point about opposite

the extreme western end of the Main Building, the eye

now meets the Horticultural Building, also designed to re-

main a permanent monument to Fairmount, and which, being

built in the Mauresque style of architecture of the twelfth

century, is still more ornate and picturesque than these struc-

tures already seen. Nearly

400 ft. in length, 200 ft. in width,

and 75 ft. in height, this little

beautiful edifice, devoted entirely to plants and flowers,

is one of the most interesting and pleasing features of the

total view.

Finally, the chief system of structures is completed by the

Agricultural Building, north of the last-mentioned and on the

eastern side of Belmont Ave-

ue. Midway between this and

Machinery Hall is the building for the Exhibition of the United

States Government.

The eye, taking in the numer-

ous smaller edifices erected for

the use of the different States,

for the exhibition of special

trades and manufactures, for the convenience and accommodation

of the visitors to the Exposition,

for the display of private

corporations, industry and energy,

is filled with a vision of architectural exercise and in-

dustry excellence which has probably never been excelled in

any one locality in the world. The special purpose

and character of these minor buildings are described else-

where. Of those not thus specified, there should be

mentioned the following:

The Carriage and Wagon Building.

This building is located northwest of Memorial Hall. It

is built of wood and iron, and lighted principally by
Historical Register of the Centennial Exposition.

The building is 200 ft. by 80, and contains all the machinery used in brewing, with samples of lager-bier, Rochester and Milwaukee bier, English pale ale, stout and porter, Philadelphia and New York ales, with a large exhibit from the best breweries in Europe.

Arkansas State Building.

This building is octagonal in shape, covering an area of 5,000 square ft., the columns being placed in a circle of 82 ft. in diameter, the ceiling spherical, with an octagonal dome over all, the top being 50 ft. above the floor line.

The Centennial Photographic Company's Building.

The Centennial Photographic Company, which has the concession of all photographs made within the precincts of the Exhibition, have a building on the east side of Bellevue Avenue, just north of the western end of the Main Exhibition Building. It is built of wood and plaster, highly decorated, is one story high, and situated on a terrace 3 ft. above the ordinary grade, has a vestibule, reception-room, gallery 22 ft. square for the exhibition of photographs; public and private offices, dressing-rooms, etc., are included in its scope.

Glass Manufacture.

Messrs. Gilkinder & Sons have erected a handsome building wherein will be represented, in actual working order, the highly interesting and important industry, and all the processes of glass melting, blowing and manufacturing will be exhibited in all their various branches, in active operation.

Machinery Building.

This building is 200 ft. wide, 314 deep, forming a pseudo-gymnasium, constructed of wood, glass and iron. The interior presents an open space, 396 ft. long by 109 wide. The roof is supported by columns 50 ft. apart. The central section is a curve 90 ft. wide, of the Roman temple pattern, over which, 50 ft. above the ground, is a Lorenz ventilator, 20 ft. wide, running the entire length of the building. The flagstaffs are 90 ft. high, and the pavilions, respectively, 20 and 30 ft. in height. Within, on one side, 16 ft. wide, runs through the centre of the building from end to end, having on either side two aisles, 10 ft. wide, running parallel with it. Across the centre is an aisle 10 ft. wide, ending in sliding-doors, which lead to
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

Machinery Hall on the north, and to Elm Avenue on the south. The east and west sections of the ground-floor have aisles 14 ft. wide. On the right and left of the main entrance, stairways lead to the second-floor, in front of which are galleries 8 ft. wide, which give an unobstructed view of the lower floor. A hall, 40 ft. wide, divides the second story into two parts, and leads to the balcony facing Belmont Avenue, giving a commanding view of all the buildings on the grounds. On either side of the hall are ladies' and gentlemen's parlors, and on the first floor various rooms for the accommodation of exhibitors and those employed in the building.

Photographers' Hall.

The photographic profession throughout the United States have combined to procure the erection of this building, which will contain the specimens of photographs exhibited by the different nations. The building occupies a space 258 ft. long by 107 ft. wide. The interior furnishes 28 hanging screens, 48 spaces of 240 square ft. each, and 8 spaces of 169 square ft. each. The walls of the building furnish 5,320 ft. more, making in all 18,300 square ft. The entire exhibition space is 20,000 square ft., furnishing an opportunity for the exhibition of photographs such as has never before been witnessed.

Delaware State Building.

This is located on State Avenue, north of the British Government Buildings, and opposite the New York State Commission Building. It is built in the Swiss Gothic style of architecture, and entirely of woods native to the State. The first floor is used for reception-rooms, the second floor being devoted to business purposes.

Pennsylvania Educational Hall.

This building is situated north of the Art Gallery, fronting the Lansdowne Drive. It is octagonal in shape, 148 ft. by 100 ft., and contains 32 alcoves for exhibition purposes, a large assembly-room and reception-room. The exhibits will include Kinder Garten; Primary, Grammar and High Schools, with their furniture, fittings, apparatus, etc.; academies and seminaries with pictures of buildings, cabinet collections, etc.; normal schools; views of buildings and grounds, models and charts; institution for the blind, apparatus for teaching; orphan schools; music buildings, charts, etc.; Sunday schools, with materials, maps, charts, forms and models.

New York State Building.

This building is 60 ft. long and two stories high, with a French roof, having in the centre a graceful tower, from the top of which a charming view of the grounds can be enjoyed. Around three sides of the building is a tasteful piazza, 15 ft. wide. Within are offices for the State Centennial Board, reception-rooms for visitors from New York, private rooms for ladies, and all modern improvements for the comfort of exhibitors and guests. This is a beautiful specimen of modern architecture, designed and constructed under the direction of skilled artists. The following are the Commissioners for the State of New York:

TURKISH COMMISSIONERS AND THEIR GUIDE INSPECTING THE UNLOADING OF HEAVY MACHINERY.
The World's Ticket and Inquiry Office of Cook, Son & Jenny.

It is erected on a triangular piece of ground, on Belmont Avenue, near Machinery Hall. In the centre is a hall 60 ft. in diameter, and there are also numerous offices and waiting-rooms for the accommodation of visitors. Here also will be found a staff of officials in the employ of the exposition. It is erected on a triangular piece of ground, on Belmont Avenue, near Machinery Hall. In the centre is a hall 60 ft. in diameter, and there are also numerous offices and waiting-rooms for the accommodation of visitors. Here also will be found a staff of officials in the employ of the exposition.

The Administration.

The uniform price of admission to the Centennial Exposition is 50 cents. The seemingly unnecessary statement that this sum should be paid in each case in a single stamp has been abolished, and hereafter the ordinary custom will be observed.

There are thirteen entrances to the Exposition, and the admission fee once paid and the grounds entered, there are no additional fees, all the buildings being free for the entrance of any visitor. A force of 600 uniformed policemen, carefully organized and well disciplined, is distributed throughout the grounds to preserve order and protect the buildings and exhibits. There is also a large and efficient Fire Department, provided with steam fire-engines, and ready at a moment's notice in an emergency. Besides this, the telegraphic and postal communication system of the Exposition has been perfected under the most excellent and

Frank Leslie, President; John Murdoch, Alonzo B. Correll, Felix Campbell, Jackson S. Schultz; and Thomas McElrath, Secretary.

Michigan State Building.

This structure is built in a highly ornamental style of architecture, finished in the most attractive and liberal manner, and is well worth the examination of visitors. It is erected on a triangular piece of ground, on Belmont Avenue, near Machinery Hall. In the centre is a hall 60 ft. in diameter, and there are also numerous offices and waiting-rooms for the accommodation of visitors. Here also will be found a staff of officials in the employ of the exhibitors.

Campbell Press Building.

In this building, erected in the interest of the press of the country, will be seen the process of running a complete newspaper, a job-printing office, as well as the various articles manufactured by the exhibitors, whose liberality has procured the erection of the structure. It covers an area of over 4,000 square ft., is three stories in height, and is carefully adapted to the purpose it is intended to subserve. It is located at the west end of Machinery Hall, and will contain, among other interesting exhibits, the press on which the Declaration of Independence was first printed.

The Newspaper Building.

On a line between the United States Government Building and Machinery Hall is the structure devoted to the exhibition of newspapers and periodicals, such exhibits being presented in an alphabetical arrangement of partial files, and bearing suitable labels.

The Dairymen's Association Building.

Located near the Horticultural Hall, under the shade-trees of this peculiarly attractive structure, modeled after the favorite resort of Maria Antoinette, the Petit Trianon, is a most pleasing object. It is 50 ft. wide, 100 ft. long, the height of the ground, profitably laid out and ornamented with fountains and statues.

The American Restaurant, Paris Restaurant, Sanger Sewing Machine Building, and others, complete the private and State structures.

ADMINISTRATION.

The uniform price of admission to the Centennial Exposition is 50 cents. The seemingly unnecessary statement that this sum should be paid in each case in a single stamp has been abolished, and hereafter the ordinary custom will be observed.

There are thirteen entrances to the Exposition, and the admission fee once paid and the grounds entered, there are being presented in an alphabetical arrangement of partial files, and bearing suitable labels.

The Infrastructure of the Colonnies Department.

In the Colonnies Department are found entirely considerable and are competent to all the necessary uses of those who may have to use these institutions. The breakfast is located at the west end of Machinery Hall, and will contain, among other interesting exhibits, the press on which the Declaration of Independence was first printed.

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makes the circuit of the inclosure, having stations adjoining all the principal buildings. The cars are open at the sides and are drawn by dummy-engines. Passengers pay five cents at the gates leading to the station-platform, and can ride the entire length of the line, about four miles, or get off at any stopping-place.

The transfer companies run omnibuses to Chestnut Street and the principal hotels, fare 50 cents; while another company runs vehicles between Fairmount Park and the foot of Market Street for 25 cents fare.

The Pennsylvania Railroad put in operation a new schedule on the opening day of the Exposition. By this the company runs daily (Sunday excepted) from New York to Philadelphia numerous express and accommodation trains direct to the grounds and return. A uniform reduction of 33 per cent. below the regular rates has been made.

In securing lodgings in advance through the agencies, a friend should be employed to select a locality in order to be near the Exposition. Those intending to remain only a few days will promote their comfort by adjourning at one of the numerous hotels which have been recently erected. It should be generally understood that the Centennial Exposition cannot be seen without time and some exercise of judgment. It is estimated that a week is the least time it should be allowed, while two weeks is only a fair period to devote to a thorough examination of all the features of the Exposition. Ordinarily speaking, an allowance of $5 a day may be made to cover all expenses of visiting the Centennial Exposition. Of course there are means of economizing on this, while those with more extravagant tastes can exceed the amount to their full desire. Hotel board rates from $2 to $5 per day. Board can be obtained in private houses all the way from a dollar a day up.

The visitor entering the Main Building from Machinery Hall finds on his left, next to the entrance, the space allotted to Italy. This is followed by Norway and Sweden, the southern, following the United States toward the Machinery Hall, is first, the space of the German Empire; next, that of Austria and Hungary; then Russia, Spain and Portugal; next, Egypt, Turkey, Tunis and the Sandwich Islands, with an additional allotment to Sweden and Denmark. Following this are Japan and China, which brings us to Chili, Peru and the Orange Free States of Africa, when we have made the entire circuit of the building and find ourselves again at the entrance facing the eastern end of Machinery Hall.
OPENING OF THE CENTENNIAL EXPOSITION, MAY 10th, 1876—SCENE ON THE GRAND PLAZA IN FRONT OF MEMORIAL HALL.
the principal approach for carriages to the Main Build- 

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We pray Thy benediction especially on the women of America, who for the first time in the history of our race take so conspicuous a place in a national celebration. May the light of their intelligence, purity, and enterprise shed its beams afar, until in distant lands their sisters may realize in unnumbered foreign homes the blessings we present to the world an illustration of Christian freedom and elevation. May Thy guidance, O Thou God of all the nations of the earth, rest upon our National guests, our visitors from distant lands. We welcome them to our shores, and we invoke in their presence guiding grace, that they may represent to the world an instance of true greatness, until her mission is accomplished by presenting to the world an illustration of our form of government. Preserve, we beseech Thee, them in health and safety, and in due time may they be welcomed by loved native lands.

May the influence of Thy light of men, will we ascribe glory and praise, now and forever. Amen.

Let the new cycle shame the old!

And unto Thee, our Father, through Him whose life is the light of the world, may we ascribe glory and praise, now and forever. Amen.

HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

GENERAL T. SAD0, CENTENNIAL COMMISSIONER FROM JAPAN.

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Presentation Speech by Mr. John Welsh.

Mr. John Welsh, President of the Centennial Board of Finance, then presented the buildings to the United States.
Original text: Mr. President and Gentlemen of the United States Centennial Commission: In the presence of the Government of the United States, and of the several distinguished bodies by whom we are surrounded, and in behalf of the Centennial Board of Finance, I greet you.

In readiness at the appointed time, I have the honor to announce to you that, under your supervision, and in accordance with the plans fixed and established by you, we have erected the buildings belonging to us, and have made all the arrangements devolving on us necessary for the opening of the "International Exhibition." We hereby now formally appropriate them for their intended occupation; and we hold ourselves ready to make all further arrangements that may be needed for carrying into full and complete effect all the requirements of the acts of Congress relating to the Exhibition.

For a like purpose, we also appropriate the buildings belonging to the State of Pennsylvania and the City of Philadelphia, erected by us at their bidding, to wit: Memorial Hall, Machinery Hall and Horticultural Hall. These and other substantial offerings stand as the evidence of their patriotic cooperation. To the United States of America, through Congress, we are indebted for the aid which crowned our success.

In addition to those to which I have just referred, there are other beautiful and convenient edifices, which have been erected by the representatives of foreign nations, by State authority, and by individuals, which are also devoted to the purposes of the Exhibition.

Ladies and Gentlemen: If in the past we have met with disappointments, difficulties and trials, they have been overcome by a consciousness that no sacrifice can be too great which is made to honor the memories of those who brought our nation into being. This commemoration of the events of 1776 excites our present gratitude. The same feelings here to-day of so many foreign representatives uniting with us in this reverential tribute is our reward.

We congratulate you on the occurrence of this day. Many of the nations have gathered here in peaceful competition. Each may profit by the association. This exhibition is but a school: the more thoroughly its lessons are learned, the greater will be the gain; and, when it shall have closed, if by that study the nations engaged in it shall have learned respect for each other, then it may be hoped that reservation for Him who rules on high will be more universal, and the angels' song once more be heard:

"Glory to God in the highest,
And on earth, peace, good will toward men."

General Hawley then arose, and said that the President of the Centennial Commission accepted the great trust confided by the Board of Finance.

The Cantata.

At 11:55 the following cantata by Sidney Lanier, of Georgia, was rendered with very great effect:

From this hundred-terrace height
Sight more large with nobler light
Ranges down yon towering years;
Humbler smiles and lordlier tears
Shine and fall, shine and fall,
While old voices rise and call
Yonder where the to-and-fro
Weltering of my Long-Ago
Moves about the moveless base
Far below my resting-place.

Mayflower, Mayflower, slowly hither flying,
Trembling westward o'er yon balking sea.
Hearts within Farewell dear England sighing,
Winds without But dear in vain replying,
Gray-lipp'd waves about these shouted, crying
No! It shall not be!

Jamestown, out of theo—
Plymouth, thee, thee, Albany—
Winter cries Ye freeze: away!
a century of the natural resources of the country and their development, and of the progress in those arts which benefit mankind," and ordered that an exhibition of American and foreign arts, products, and manufactures should be held, under the auspices of the Government of the United States, in the City of Philadelphia, in the year 1876. To put into effect the several laws relating to the Exhibition, the United States Centennial Commission was constituted, composed of two Commissioners from each State and Territory, nominated by their respective Governors and appointed by the President. The Congress also created our auxiliary and associate corporation, the Centennial Board of Finance, whose unexceptionally heavy burdens have been notably borne. A remarkable and prolonged display of the progress and industries of the country has greatly magnified the task; but we hope for a favorable judgment of the degree of success attained. July 4, 1876, the ground was dedicated to its present uses. Twenty-one months ago this Memorial Hall was begun. All the 180 buildings within the inclusive have been erected within twelve months. All the buildings exhibited in the plans of the Commissioners have been finished. The demands of appetites created the space, and numerous and continuous efforts have been made to get every exhibitor ready in time.

By general consent the Exhibition is appropriately held in the City of Brotherly Love. Yonder, almost within your view, stand the various, splendid, elevated buildings. Here this work is designed to commence, and the hall in which the first Continental Congress assembled. Within the present limits of this great work were the homes of old patriots of the time, where Washington and his associates received generous hospitality. You have observed the surpassing beauty of the natural and the cultivated scenery, the wonderful works of art, the labors, the toils, and the energy of the people individually.

In the name of the United States you extend a respectful invitation to the Governments of other nations to be present and to participate in the Exhibition. You know the very acceptable terms in which they responded, from even the most distant regions. Their Commissioners are here, and you will soon see with what energy and brilliancy they have entered upon this friendly competition in the arts of peace. It has been the sentiment of that nation and this continent that during the 150 years since the people from all States and sections of the United States, with equal rights of our friends, from all nations, you may recall all those great benefits to instruction, manufactures, agriculture, trade and commerce, but also strengthen international friendship and more lasting peace.

To this invitation they have generously responded; for so doing we tender them our hearty thanks. We are glad to know that a view of specimens of the skill of all nations will afford you unspeakable pleasure, as well as yield to you a valuable practical knowledge of so many of the remarkable results of the wondrous skill existing in enlightened communities.

One hundred years ago our country was new and but partially settled. Our necessities compelled us to chiefly expend our means and time in foresting forests, eroding prairies, building dwellings, fortresses, ships, docks, warehouses, canals, roads, musketry, etc., etc. Most of our schools, churches, libraries, and roads have been established within a hundred years. Inspired by these great primal works of necessity, which could not be delayed, we yet have done what this Exhibition will show, what is about to be exhibited to you will not only inspire you with a profound respect for the skill and industry of the people of the world, the work of our foreign visitors—to whom we tender our hearty thanks.
At 12 o'clock, at a signal from General Hawley, the American flag was unfurled from the Main Building, the Hallalujah Chorus was rendered with oratorical and organ accompaniment, and a salute of 100 guns was fired from the top of the Main Building. This closed the formal ceremonies of the day.

The President of the United States and Alfred T. Goshorn, Director-General, accompanied by the guests of the day, also passed through the Main Building and thence to Machinery Hall, and from there to the Judges' quarters, where a reception by the President was held. The procession, headed by the President, passed through the Main Exit Building, passed to Machinery Hall, where the President assisted by Dom Pedro, at 1:22 p.m., put in motion the great engine, thus starting all the machinery in that building. This closed the formal ceremonies of the day.

The following was the order of the procession as it passed through the Main Building:

- The Governor of States and Territories
- The Senate of the United States
- The House of Representatives
- The General of the Army and Navy
- The Admiral of the Navy
- The Equerry of the Navy and Staff
- The Rear-Admiral and Commodore
- General Officers of the Army and Navy
- Military and Naval Officers of Foreign Governments
- Consuls-General and Consuls of Foreign Governments
- Judges of the United States Courts and Officers of the United States Executive
- Officers of the United States Coast Survey
- Officers of the Smithsonian Institution
- The Board of Judges of Awards of the Exhibition
- The Supreme Court of Pennsylvania
- The Legislature of Pennsylvania
- The Board of State Supervisors of Pennsylvania
- The Board of Supervisors of Philadelphia
- The Mayor of Philadelphia
- The Magistrates of Cities
- The Solicitor and County Councils of Philadelphia
- The Women's Centennial Commission
- The Advisory and Co-operating Committees, and Boards of Commissioners
- The International Regents Commissioners and the Committee of the International Silk Association
- Officers of the City Department of Philadelphia

BISHOP SIMPSON INVOKING A BLESSING UPON THE EXHIBITION.

The Centennial Dull

Nesvius, R. L., contributor to the Centennial a doll believed to be the oldest in the country. It is made of wax, is about ten inches high, and has grown yellow with age, until it looks frightfully like a corpse. It boasts of a unique feature: it was made from a model of the fashions of the day, and was bought in the United States Executive. The doll was given to his niece, Miss Lilly C. Turner, daughter of Dr. Turner, a surgeon in the Revolutionary Army. The doll's eyes still move, and it continues to wear the finery in which it crossed the ocean, to show the ambitions of young republic how their Parisian sisters dressed.

TEXTILE FABRICS:

Their Origin and History.

The idea of the arts and manufactures as displayed in the exhibits of textile fabrics in the Centennial Exposition is a subject of interest to the world at large. For this reason, and before considering the actual display of these exhibits at Fairmount, we devote some space to the consideration of the past history of this important branch of manufacture.

While there are many references in the Scriptures which have been taken by different translators and commentators to have the meaning of silk, there is yet no absolute agreement as to the use of any of the articles, or any clear mention of it, in the Bible. In certain Hebrew books, the "Targum" for instance, this fabric seems more clearly designated, but it has been decided by some of the best scholars that there is no mention of silk in the Old Testament, and that it was unknown to the Hebrews in ancient times. The first nar.
place prepared for that purpose, and discovered not only
the means of raising, but also the manner of reeling, the
silk, and of employing it to make garments. It is through
gratitude for so great a benefit that posterity has deified
Si-Ling-Chi, and rendered her particular honors under the
name of "The Goddess of Silkworms."

The first ancient author who affords any evidence respect¬
ing the use of silk is Aristotle, who
refers
to Panphile,
daughter of Plates, as reported to
have first woven in Cos;
but as, long before the time of Aristotle, a regular trade
the world's history. They evidently existed in Egypt at
the time of Joseph, 1,700 years before the Christian era,
and two centuries later the Hebrews carried with them, on
their departure from that ancient seat of civilization, the
arts of spinning, dyeing, weaving, and embroidery. The
women of Sidon, before the Trojan War, were especially
celebrated for their skill in embroidery; and Homer, who
lived 900 B.C., mentions Helen as being engaged in em¬
broidering the combat of the Greeks and Romans. Ac¬
cording to Pliny, Semiramis, the Syrian Queen, was be-
having to the present day the distaff and spindle, and in the interior of Asia, bringing its
most valuable productions, and especially those which were
most easily transported, to the shores opposite this flour¬
ishing island, it is quite probable that the raw silk was
brought to the coast from the interior of Asia, and there
manufactured.

The arts of spinning and weaving, which rank next in
importance to agriculture, having been found among almost
all the nations of the old and new continents—even among
those little removed from barbarism—are not unreasonably
supposed to have been invented at a very remote period of
loved to have been the inventor of the art of weaving.
Minerva, in some ancient statues, is represented with a
distaff, to intimate that she taught men the art of spinning.
This honor is given by the Egyptians to Isis; by the Mo-
hammedans, to the son of Japheth; by the Chinese, to the
consort of their emperor, Yao; and by the Peruvians, to
Manama, wife of Manco Capac, their first sovereign.

Paintings representing the gathering and preparation of
flax have been found on the walls of ancient sepulchres at
Eleuthres and Benihassan, in Upper Egypt. The instrument
used for spinning in all countries, in the earliest times, was
servants, and using the distaff herself. Her spindle, made
of costly material and richly ornamented, and the wool
dyed of some bright hue to render it capable of being
bunched with aristocratic fingers, remain an appropriate
present which the Egyptian Queen, Alcandra, made to the
Spartan Helen whose skill in embroidery and every species
of ornamental work was as much exalted as her beauty.
The distaff was generally about three feet in length, com-
nonly a stick or reed, with an expansion near the top for
holding the ball. It was usually held in the left arm, and
the fibres were drawn out from the projecting ball, being

PRESIDENT GRANT AND THE EMPEROR OF BRAZIL STARTING THE GREAT CORLISS ENGINE IN MACHINERY HALL.
OPENING OF THE EXPOSITION, MAY 10th BY PRESIDENT GRANT—SCENE IN THE ROTUNDA OF MEMORIAL HALL.
In India, women inserted into a wheel made of wire weaver, spinning on a piece of wound upon the spindle. The clasp was then taken out of the slit or clasp, and of all castes prepared the thread for then closed together, and the spinning ground, the thread spun was steady and to pro-
both served to keep it that the weight of the spindle might carry tin* thread down to the ground as fast as it

goods into more general use. In the time of Horace silken webs were worn at it is said that silk as a part of his dress when he appeared only by women who aimed at being no-

sury, sold at public auction in the forum of Trajan the imperial ornaments, together with gold and silver in that capital knew that silk was produced by a worm, probable that silk was interwoven with threads of a bright yellow color, the materials of the Emperor Commodus, which, after his death, were sold by his successor, Pertinax, was a garment with a wof of silk which are more beautiful than if the ma-

of a bright yellow color, the materials of which are more beautiful than if the ma-


dressed the worms are now reared in small houses, which are more beautiful than if the ma-

silk by covering the thread with gold, and raw state, as well as wovan, was conveyed down the Indian to the coast of the Ery-

throm Sea, and also brought to the great port of Bary-

gus, on the Gulf of Cambay, near the modern Surat, Tyre appears to have been the only city of antiquity which made dying its chief occupation and the staple of its commerce. There is little doubt that people, the sacred symbol of royal dignity, was a color discovered in that city, and that the use of the dye contributed to the city’s opu-

death and grandeur. The Tyrian dye was used to stain and silk. The introduction of silkworms in Byzantine, took place about 330, when two monks, arrived from China, learning that Justinian was desirous that his subjects should no longer purchase raw-silk from the Persians, went to him and informed him as to the nature and process of silk manufacture, offering to furnish him with eggs of the silkworm. The Emperor having prai-

med the monks a reward, they returned to India and brought the eggs to Byzantium, where, having hatched them by barreling them in warm soil, the oaks fed the silkworms with the leaves of the black mulberry, and thus enabled the Romans henceforth to obtain raw silk in their own country.

In Europe, appears to have been confined to Greece from the time of the Emperor Justinina and spread throughout the twelfth century. The manufacture of silk was also very rare in other parts of Europe, being probably introduced as a ren-

vention and an accomplishment for ladies; but in the year 1148, Richard I., King of Sicily, sold the gardens of Campania, Thebes, and Athens, thus got into his power a great number of silk-weavers, took them with the implements and materials necessary for the exercise of their art, and forced them to reside at Palermo. In twenty years from this for-

blished establishment of the manufacture, the silks of Sicily are described as having attained a decided excellence; as being of diversified patterns and colors, sometimes in the garment of silk. At a very early period the use of dyeing had been carried to a great degree of perfec-

tion in Byzantium. The method of dyeing wollen cloth of Byzantium, discovered by a Persian merchant, who introduced it to Constantinople, is as follows: the materials of which are more beautiful than if the ma-

of a bright yellow color, the materials of which are more beautiful than if the ma-


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OPENING OF THE EXPOSITION, MAY 10th—SCENE IN HORTICULTURAL HALL.
THE EMPEROR AND EMPRESS OF BRAZIL VISITING THE BRAZILIAN DEPARTMENT ON THE DAY OF THE OPENING OF THE EXPOSITION.
that whoever should wear silk in any form should be imprisoned during three months and forfeit ten pounds. In the first year of James I. this law was repealed. The trade in silk carried on by the merchants of Antwerp was very extensive, yet none of the costly goods were retained for their own wear. They sold the finest of their own cloths to France, and bought coarse cloth from England to wear themselves. On the taking of the City of Antwerp by the Duke of Parma, in 1585, the commercial law of the country was almost destroyed, and about one-third

of the inhabitants of England was still very defective, the best machinery being in existence in Italy. In fact, this machinery was introduced into England by the unscrupulous bribing of workmen connected with the mill at Fovell, to allow an emissary secretly to make an inspection. The information was brought to England at the risk of the lives of the conspirators, who obtained it in 1717, when a famous silk-mill was erected on the Derwent, at Derby, which excited great astonishment at the time. It was five stories high, and one-eighth of a mile in length. Rapid improvements were made in the English machinery and manufacture, and in the year 1842 the value of British silk goods exported to France amounted to about £1,000,000. The great Exhibition in London, in 1851, displayed the vast advance made in that country in this manufacture.

The quantity of silk raised in the world is enormous. Great Britain imports, in the unmanufactured state, about 12,814,700 pounds, valued at £10,000,000 sterling, and, in addition to this, manufactured silk goods to the

value of about £6,500,000 sterling. It requires 1,000 worms to raise a pound of silk. The silk manufactories of Great Britain are chiefly located in Spitalfields (London), Macclesfield, Coventry, and Derby. The dyeing is done chiefly at London, at Nottingham, and at Manchester, and considerable quantities of silk goods are sent from India, to be printed in patterns at London and other ports of England.

Concerning the introduction and progress of this industry in America, an account has already been given on page 38, in the "Sketch of the Early History of American Industry."

WOOL.

Of the materials employed by the ancients for making cloth, by far the most important was the wool of Europe. In examining the history of this industry we find, first, that the sheep is not a native of Europe, but has been introduced there by man. In fact, it is generally conceded by zoologists that the whole race of domesticated sheep found their part of the manufacturers took refuge in England, and gave a powerful impulse to manufacture there. In 1568 it was stated that no fewer than 40,000 individuals in England were engaged in this trade. Thus the English manufacturers thus steadily progressed, notwithstanding the fact that the importations of foreign silk, with occasional exceptions, were quite free. In 1685 the evacuation of France drove hundreds of thousands of the industrious people of France to seek protection in other countries. Some 50,000 came to England. At the con-

HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

that whoever should wear silk in any form should be imprisoned during three months and forfeit ten pounds. In the first year of James I. this law was repealed. The trade in silk carried on by the merchants of Antwerp was very extensive, yet none of the costly goods were retained for their own wear. They sold the finest of their own cloths to France, and bought coarse cloth from England to wear themselves. On the taking of the City of Antwerp by the Duke of Parma, in 1585, the commercial law of the country was almost destroyed, and about one-third
origin in the elevated regions of Central Asia, and we are, therefore, not surprised to learn that these earliest inhabitants of Tartary, Persia, Mesopotamia, Syria and Palestine, and North Arabia, have been addicted to pastoral employment. The tribes of wandering Arabs which still frequent those countries are descendants of progenitors who left the same five or six years ago, and whose habits and manners are preserved to the present day, with scarcely the slightest change. Herodotus, Strabo and others speak of sheep, and other early writers refer to shepherds and herdsmen wandering through uncultivated fields, employed in attending flocks and herds. These, however, were strangers to the use of woolen garments, being clothed in skins and furs. Damascus supplied the materials of wool, and Syria was generally noted for its breeding of sheep and wool products. The Arabs appear from the earliest times to the present day to have bestowed less attention upon sheep than upon their horses. The Phoenicians, however, did not employ themselves in breeding and pasturing sheep. The narrow strip of territory which they occupied at the eastern extremity of the Mediterranean was in general too densely populated to be adapted to this purpose. Their activity and enterprise were directed toward commerce and other channels, and they supplied them-
of the queen, who was a native of their country. In this they were successful, and were established in their trade as weavers under royal patronage. By the close of the reign of Henry II., the manufacture of wool had been extended to many parts of the kingdom, and several companies of weavers were formed in various counties, paying to the king for the privilege of carrying on their trade. Under this reign the use of Spanish wool was prohibited under pain of forfeiture of the goods. In the reign of Edward III., numerous Flemish wool manufacturers were invited to England, and, as a result, followed the production of wool footings, fleeces, brocades, kerseys, friezes, and serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities. The cruelty of the reigning Duke of Lancaster to England, and, as a result, followed the production of serges in large quantities.

The total annual importation of wool into England in 1872 was 137,567,186 pounds. The estimated production of home-grown wool in 1871 was 144,885,712. The introduction of cotton machinery in a modified form became of great importance to manufacturing processes. The chief seat of the woollen manufacture in England is in Yorkshire, though it is also carried on in considerable extent in other parts of the kingdom. Woolen cloths, formerly woven by hand, is now manufactured chiefly by power-looms. Some of the British colonies are very important wool-producing countries. Australia, in this respect standing far in advance of all other countries whatever, though California is not far behind. The Australian wool is in general a beautiful, short, silky staple, well adapted for the manufacture of soft, pliable and elastic fabrics. The breed has sprung from three merino lambs and five ewes taken out to Cologne to redeem King Philip's crown, which was pawned there for £2,500. The long-wooled sheep of England soon became celebrated, and the fleece was in large supply. Wool soon became so much esteemed that it sold for more than money; and it is related that in 1342, when gold was scarce, the king sent a large number of sacks of wool

THE HUNTERS' CAMP IN LANSDOWNE RAVINE.

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half-way between Memorial and Horticultural Halls is a picturesque ravine, the most romantic spot within the Centennial Grounds. It begins near the centre of the latter, and runs east, growing broader and deeper until it opens out upon the Schuykill. It is crossed within the grounds by three bridges, of which the central one is 90 ft. above the bottom of the ravine. From end to end of the latter a stream of clear water, having its source in Centerdale Lake, passes in alternate cascades and gentle falls, being also fed by rills kept down the rugged, verdant and rugged, but beautiful and picturesque ravine, the most romantic spot within the Centennial Grounds. It begins near the centre of the latter, and runs east, growing broader and deeper until it opens out upon the Schuykill. It is crossed within the grounds by three bridges, of which the central one is 90 ft. above the bottom of the ravine. From end to end of the latter a stream of clear water, having its source in Centerdale Lake, passes in alternate cascades and gentle falls, being also fed by rills kept down the rugged, verdant and picturesque ravine, the most romantic spot within the Centennial Grounds. It begins near the centre of the latter, and runs east, growing broader and deeper until it opens out upon the Schuykill. It is crossed within the grounds by three bridges, of which the central one is 90 ft. above the bottom of the ravine. From end to end of the latter a stream of clear water, having its source in Centerdale Lake, passes in alternate cascades and gentle falls, being also fed by rills kept down the rugged, verdant and picturesque ravine, the most romantic spot within the Centennial Grounds. It begins near the centre of the latter, and runs east, growing broader and deeper until it opens out upon the Schuykill. It is crossed within the grounds by three bridges, of which the central one is 90 ft. above the bottom of the ravine. From end to end of the latter a stream of clear water, having its source in Centerdale Lake, passes in alternate cascades and gentle falls, being also fed by rills kept down the rugged, verdant and picturesque ravine, the most romantic spot within the Centennial Grounds. It begins near the centre of the latter, and runs east, growing broader and deeper until it opens out upon the Schuykill. It is crossed within the grounds by three bridges, of which the central one is 90 ft. above the bottom of the ravine. From end to end of the latter a stream of clear water, having its source in Centerdale Lake, passes in alternate cascades and gentle falls, being also fed by rills kept down the rugged, verdant and picturesque ravine, the most romantic spot within the Centennial Grounds. It begins near the centre of the latter, and runs east, growing broader and deeper until it opens out upon the Schuykill. It is crossed within the grounds by three bridges, of which the central one is 90 ft. above the bottom of the ravine. From end to end of the latter a stream of clear water, having its source in Centerd...
the rough log couch, smoke, dress skins, cook and eat, thereby illustrating their manner of living in the West. Just outside the cabin is a campfire, kept constantly burning. In front are the big oaks; beyond is a meadow with a windmill near Walnut Street. His reputation as a business man and executive officer was, at the time of his election, of the highest character. It is said of him that he had been a man of great influence for three years in extent, he had proven himself eminently qualified for the responsible position. On the 3d of March he had, in his capacity, the Chairman of the Board, and with Mr. Finley, the Treasurer, he signed a bond of $1,500,000 for the faithful discharge of the Congressional appropriation of $1,500,000. The best evidence of the high esteem with which both himself and Mr. Finley are held by their fellow-citizens is shown in the eagerness of the most prominent and wealthy men to assist them in their undertaking. The services of one hundred gentlemen were accepted, and the bond, as now filed, represents the interest of at least ten times greater than the amount appropriated.

JOHN WELSH,
Chairman of the Board of Finance.

THE CHINESE COURT.

The Chinese section is, next to the Japanese, the most curious in the Main Building. Its attraction, however, is owing more to the extreme quaintness of the structural arrangements and the extraordinary interest possessed by its contents. The section is 148 ft. in length and 38 ft. in width, the structure inclosing it more than to any joss-house, and the towers seen inside—the quaint pavilion (if it may be so called) was conformed to imitate, had recourse to their rainbow to imitate, had recourse to their extraordinary interest possessed by its pagoda style. All these are of the pagoda style, which doubtless, to-day, the most gaudy building fertile invention for other shades. The peacock's tail and of tin, rainbow, and gives one a pleasing view of life in New England a century ago, and culinary operations and attending table a century ago, and describing of familiar architecture, and called the New England Log Cabin. In connection with it is a building of southern side of this valley, and snugly nestled among the tall trees which are now in the freshness of renewed life, is a quaint and picturesque house. A pewter platter, said to have been made 170 years ago, is exhibited, and other ancient articles, above which hang the old black-looked mask and powder-horn. At the side of the fireplace is a small but most spanning-board, which, according to Mrs. General Cunningham, was brought to this country in the Mayflower. Years ago it was thrown aside as useless, but when the Centennial movement began to extend its influence over the country, a Mason Tower took hold of it, burnished it up, and put it in condition to be operated on by her, much to the amusement of the visitors. Alongside of the fireplace is a display of weapons and armor, to which you may turn your attention, and you will not be sorry. A rough table, upon which the frugal repast is spread; a rough table, upon which the frugal repast is spread; a rough table, upon which the frugal repast is spread; a rough table, upon which the frugal repast is spread. A wooden teapot used by the Marquis de Lafayette during his residence in this country, and displays all the furniture and apparatus customary used. The Swedish school-house at Vienna cost 6,000 crowns, while that at Philadelphia will cost 23,000 and cost about $7,000. In her art department, Sweden has one hundred paintings by her best artists. This department presents numerous recent inventions of value and importance, including the new and ingenious machines invented by the Governments of Russia, Italy, and Denmark, and also an ingenious machine for cutting cork, two or three steamengines, and a railway locomotive. A small iron steamboat, used for canal navigation in Sweden, is exhibited. The Swedish collection also displays farm products, a beautiful variety of fishes in glass jars, and agricultural machines and implements, including a reaping machine of novel construction and Swedish glory. The great iron and steel industries of that country are fully represented, as well as her wooden goods and fabrics of silk, cotton, and linen. In the manufacture of matches there is an extensive display of the products of Gustafsvry and Rosendal have sent admirable specimens of porcelain and majolica ware. Paper and cardboard made from pine is among the interesting specialties of this country, while paper is also made of the leather of the Swedish school. As the wall of the Swedish school-house erected on the Centennial Grounds, near the Art Building, is a free copy of the best common school-houses in the country, and displays all the furniture and apparatus customary used. The Swedish school-house at Vienna cost 6,000 crowns, while that at Philadelphia will cost 23,000 and cost about $7,000. In her art department, Sweden has one hundred paintings by her best artists. This department presents numerous recent inventions of value and importance, including the new and ingenious machines invented by the Governments of Russia, Italy, and Denmark, and also an ingenious machine for cutting cork, two or three steamengines, and a railway locomotive. A small iron steamboat, used for canal navigation in Sweden, is exhibited. The Swedish collection also displays farm products, a beautiful variety of fishes in glass jars, and agricultural machines and implements, including a reaping machine of novel construction and Swedish glory. The great iron and steel industries of that country are fully represented, as well as her wooden goods and fabrics of silk, cotton, and linen. In the manufacture of matches there is an extensive display of the products of Gustafsvry and Rosendal have sent admirable specimens of porcelain and majolica ware. Paper and cardboard made from pine is among the interesting specialties of this country, while paper is also made of the leather of the Swedish school.
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EXTERIOR OF THE NEW ENGLAND KITCHEN.

INTERIOR OF THE NEW ENGLAND KITCHEN.
MISCELLANEOUS ITEMS.

The Italian Exhibit.

Barth's contributions to the Centennial are in charge of the Central Committee formed in Florence, the members of which act in concert with the ministers of agriculture, industry, and commerce. This committee consists of the following gentlemen: Giuseppe Dami, President; Professor Salvatore Mazza, Vice-President; Professor Bignanie, Luigi Bianchi, Baron Eugeni Cantoni, Giovanni Spinetti, Giovanni Gottoscher, and teamwork. The articles exhibited include, first, representations of painting and sculpture, of which there are a large number. Then follow works from Greece, mosaic, terracotta, and porcelain.

Native Pacific Coast Woods.

A fine collection of Pacific coast woods has been made for the Centennial, and to these have been added select specimens of Mexican woods, representing 455 varieties, all of which are exhibited under the superintendence of the Southern Pacific Railway Company. Among the samples are white, black, colored, and gray walnut. There is also a sample of engravers' wood, called mimela, a kind which is extensively used both in this country and in Europe. There is a class of ship-building wood, called hickory, said to be equal in strength and durability in water to the best live oak. Specimens of hickory-wood, formerly used for spars by the negro tribes of Mexico, are also exhibited in the manufacture of flutes and other musical instruments, are exhibited. The collection also contains many samples of maple, linch, blood-wood, acacia, primula, verbena, granillo (or rosewood), melodica (or yellow rosewood), cacao (mahogany for veneering), linch (eucalyptus), and indigana, beautiful in grain and susceptible of the highest polish.

Geological Exhibit.

In displaying the geological character of at least a portion of the United States, the drift deposits along the north side of the James river are shown from a bluff recently sunk of the James river. The deposits appear to have been chiefly of a reddish hue, four rounded feet; abed and bluish pebbles, four feet; alternate seams or beds of compact sand, gray, and as far as known, four feet. The drift from the lower bed of gravel appear to have been worked chiefly from the bluish-looking pebbles that lie so conspicuously in the same bed. After being washed and dried, these stones assume that glossiness which, it is said, belongs exclusively to implements from the drift. These discoveries are considered as the Smithsonian as among the most important bearing upon the pre-historic man of this continent.

Spain at the Centennial.

The Central Committee for Spain has charge of all articles sent from Spain, Cuba, and the Philippine Islands. The articles include ancient and modern paintings, manufactures of iron, wool, cotton, and wood, and the various contributions to the Centennial are in charge of the Spanish Minister in Washington. Among these, in the lower beds of gravel, are war-flints, said to be equal in strength and durability in water to the best live oak. There is also a collection of Australian ferns, ranging from three to eight feet in height—an evidence of the fact that these delicate plants may be transplanted safely from long distances.

North Carolina as an Agricultural State.

It is in a fast little known to the general public, but which has doubtless been demonstrated in the course of the Centennial Exposition, that North Carolina is the only State in the Union in which every article enumerated in the census of 1860 has been produced. Her great diversity of climate and climate enables her to yield a variety of productions almost endless; among others are cotton, tobacco, rice,

Irish corn and wool, rye, barley, oats, potatoes, together with all kinds of fruits (except the tropical), and grapes of all species, including the Scuppernong, Catawba, Isabella, and others.

United States Government Exhibition.

The building erected by the United States Government in the grounds of the Centennial Exposition covers two acres in extent, and cost about $28,000. In the War Department alone occupies about 12,000 square feet, besides outside buildings. This department sends contributions from its different bureaus—the Engineers, Quartermaster, Ordnance, Medical, Signal. The Engineer Bureau exhibits maps, charts and caricatures, illustrating the system of rivers and canals, models of some of the works, samples of building-stone, bridges and pontoon wagon-trains, mining tools and models of light-houses. The Ordnance Bureau shows a complete set of gun-matching machinery in operation, as also the parts of the Springfield rifle and carbine, various small arms, apparatus for determining the velocity of projectiles, and a twenty-inch Rodman gun, weighing more than 180,000 pounds. Besides those, there is an immense variety of projectiles, fuses, powder, etc.
feature of the exhibition display consists of a series of figures, showing the types and dress of the American soldier during the Revolutionary period, the War of 1812, the Mexican War, the War of the Rebellion, and at the present time. The Medal Department contributes a post hospital and twenty-four beds; one wing of which has been fitted up for actual service, so that if necessary it can be used as a hospital of the Centennial Exposition. There is also presented a very complete series of medical apparatus, as used in the army, including physicians and surgical instruments, hospital stores, hospital clothing, railing, and other paraphernalia for the transportation of the sick and wounded.

In the Quartermaster's Department may be seen the clothing from every branch of the service, from an early date to the present time, all articles of campaign equipment, including medical instruments from each arm of the service, army wagons and harnesses, etc. The Signal Bureau furnishes an entire signal-train with nine wagons, a complete outfit of international and Government signals, and an assortment of thermometers, anemometers, and other meteorological apparatus. The entire machinery of this office is exhibited, including its method of making the daily weather maps, etc.

**CATHOLIC FOUNTAIN MEMENTO.**

Besides the fountain erected on the Centennial grounds by the Catholic Total Abstinence Union, the same organization ordered medals to be struck, commemorating the occasion and the gift. This medal is about the size of a fifty-cent piece, and has on the obverse a representation of the Centennial Ice-boats. The reverse of the medal has the inscription, "Erected by the Catholic Total Abstinence Union of America." On the reverse is the badge of the society, the official mark of Catholic Total Abstinence. Within its limits are shown through the medium of figures and narratives,

**FROM NEW YORK TO THE EXHIBITION.**

**SCEEN ALONG THE PENNSYLVANIA RAILROAD.**

The Pennsylvania Railroad Company, being the leading line for passenger and freight traffic to the Exposition, some account of its condition and facilities, as well as the route over which it passes, may not be uninteresting.

This road has now under control 6,615 miles of road, being the best tracked in the United States. At the main depot in Jersey City nearly 200 trains arrive and depart daily, about half of these being passenger trains. Jersey City is a port of entry, and has a population of 82,006, of which more than 50,000 are natives, the balance foreigners. Within its limits are located 333 manufacturing establishments, employing a capital of $1,713,646, and a working force of 5,624 hands. On this basis, the annual receipts from manufactures amount nearly $25,100,000.

The Pennsylvania Railroad Company, always progressive, is constantly devising and executing improvements, many of these in Jersey City, along the river front and in

Newark, New Jersey.
New Brunswick, New Jersey.

The capital of New Jersey, situated on the left bank of the Delaware, 57 miles from Jersey City, was first settled about 1683, but did not receive its present name until nearly a hundred years later, when it was there denominated in honor of Colonel William Trent, at that time Speaker of the Assembly. In 1700, it was selected as the capital of the State, and two years later incorporated. Trenton is memorable for having been the scene of the celebrated retreat of Washington with his army, after the disastrous reverses on Long Island.

This occurred on the 8th of December, 1776, when, in the night of ice and in the depth of winter, the ragged soldiery crossed the Delaware from Trenton to the Pennsylvania side, while the Hessians, unable to follow, went into camp on the Jersey shore. On the morning of the 26th, the American troops re-crossed, surprised, and completely routed their opponents, capturing nearly 2,000 men. During the prevalence of yellow fever in Philadelphia, in 1793, the Government officers removed to Trenton; and in 1819, President Adams temporarily had his official residence there. It has a population of over 23,000. Its manufacturing establishments employ about $5,000,000 worth of labor. The Pennsylvania Railroad Company have erected in Trenton a commodious passenger and freight depot, and the mere knowledge that the unexpected tourist can be relieved of all annoyance of changing cars, and be deposited at the very gates of the Exhibition after a rapid and entirely comfortable ride, in one of the most agreeable and satisfactory features of a visit to the Centennial Exposition. In every particular of its administration in this emergency—in its provision for the comfort of its patrons, in the liberality of its reduced rates, and in the conscientious regard which it pays to speed and safety combined, as well as comfort, this company has given its aid in making the great Centennial display at Fairmount an every possible way worthy of its occasion and sentiment.

The Pennsylvania Railroad Company have also established a regular line of steamships, plying between Philadelphia and Liverpool, including already four first-class iron vessels, built of American materials and by American artisans.

THE TURKISH BAZAAR.

The romantic banks of the Centennial Lake are noted for the curious buildings clustered upon them. Of these, the most remarkable are the Syrian Bazaar and the Turkish Bazaar and Cafe. The former is a frame structure, displaying a rich variegation of color and a general appearance most remarkable. The interior presents a rich exhibition of national costumes seen at every point formed the attraction of the place. The latter is the coffee—clear as amber, black as ebony, and fragrant as the perfume of "Araby the Blest." The picturesque costumes of the country are worn by the attendants, all but one of whom are males. When coffee is called for, one of the Turkish attendants serves a looped spoonful of ground and browned Mosca in a little silver dipper of about the capacity of a coffee-cup, adds a little sugar, fills up with hot water from a diminutive boiler, stirs the mixture, and holds it over the glowing charcoal until it almost reaches the boiling-point. It is then ready for drinking, and a more invigorating beverage could not be desired. Our illustration shows the manner of cooking the coffee, and of decanting it from the long-handled dippers into the customers' cups. The tent in the upper corner of the page is the private apartment of the attendants. On the lower portion are seen the cashier's desk and the Bazaar.

NATIONAL COSTUMES.

Two different costumes seen at every point formed a very attractive part of the Exhibition. Here we noticed the picturesque attire of the Turk, the Chinese, and the Spaniard. These are spared by the attendants, all but one of whom are males. When coffee is called for, one of the Turkish attendants serves a looped spoonful of ground and browned Mosca in a little silver dipper of about the capacity of a coffee-cup, adds a little sugar, fills up with hot water from a diminutive boiler, stirs the mixture, and holds it over the glowing charcoal until it almost reaches the boiling-point. It is then ready for drinking, and a more invigorating beverage could not be desired. Our illustration shows the manner of cooking the coffee, and of decanting it from the long-handled dippers into the customers' cups. The tent in the upper corner of the page is the private apartment of the attendants. On the lower portion are seen the cashier's desk and the Bazaar.
would have been more frequently seen but for the extremely rude gazing which the wearers were subjected to by the curious eyes of the vulgar. That enterprising and sensitive people, the Japanese, for instance, donned the American fashions—from plug hats to patent leather boots; and from a rear elevation the Japs might have been mistaken for genuine Americans. This vulgar curiosity prevented a great many foreigners from appearing in their national dress, and as a consequence, the grounds did not present that picturesque appearance they should.

people, and is certainly one of the most popular of living sovereigns. Nor do we think that his popularity will be in any way diminished when it is known that the government defrayed the entire cost of the magnificent Russian display at Philadelphia. The whole collection was arranged for between October, 1875, and February, 1876; nothing was prepared for show, and everything exhibited may be looked upon as having represented Russia in her everyday dress. To a citizen of the United States this display ought to have been specially interesting, for there is no country in Europe anticipated in making known to our citizens what, under the skilful guidance of wise men, like Peter the Great and his successors, has been accomplished by the Muscovite nation. Take, for instance, one branch of the display—the specimens of the pupils' work in the Stroganoff Central School of Technical Drawing, and the Art and Industrial Museum of Moscow. This latter museum, opened in 1860, consists of an artistic, a historical, and an industrial section. It received an honorable mention at the Vienna Exhibition of 1873, and the gold medal at the Polytechnical Exhibition of Moscow. It sent to Philadelphia a large collection of pottery from the studios for painting on china and delf. There were jugs, dishes, pitchers, vases for flowers, tumblers, salt-cellars, and flagons, all in true Russian style; then there were tiles of glazed clay, very creditably executed, and also some alabaster moldings, embracing the Russian styles of the eleventh, twelfth, thirteenth, fourteenth, fifteenth and sixteenth centuries. The books published by the museum comprise histories of Russian

The visitor to the Russian section must be impressed with the belief that no effort had been spared to render the exhibit worthy of the mighty Empire it represents. Deus tuam benedicta, "God save the Emperor," is the refrain of the Russian national hymn, and well may every subject of the Czar desire for the present ruler of that vast Empire long life, health, and happiness. Alexander II., by his many enlightened acts, has endeared himself to the hearts of his at all approaching Russia in extent, and the relations between our own vast Republic and the Empire ruled over by the Czar have, for many years past, been of the most friendly character.

We venture to say that the first impression of the visitor on entering the Russian department was one of mingled surprise and admiration. No one who has not visited Russia would imagine that in that northern clime arts and science, industry and mechanics were so far advanced, but from the display here made truly great results may be realized. 

Exhibition of Moscow in 1872. It sent to Philadelphia a large collection of pottery from the studios for painting on chins and delf. There were jugs, dishes, pitchers, vases for flowers, tumblers, salt-cellars, and flagons, all in true Russian style; then there were tiles of glazed clay, very creditably executed, and also some alabaster moldings, embracing the Russian styles of the eleventh, twelfth, thirteenth, fourteenth, fifteenth and sixteenth centuries. The books published by the museum comprise histories of Russian
ornaments and decorations, Russian popular embroidery, and the original Stroganoff book of image facial paintings.

The Stroganoff School of Technical Drawing was established in 1800, with a view of forming an intelligent class of designers and ornamenters for the work of manufacturers and industrial establishments. Two hundred scholars are taught there in the preparatory and special classes, and the whole course of study extends over five years. Among the 740 pupils taught there since the commencement, there are many men who have become distinguished in their profession; and, commencing with 1861, the pupils have received medals and honorable mention at every exhibition at which their productions have been displayed.

The collection of drawings sent by the Stroganoff pupils on this occasion consists of linear drawings, perspective sketches of flowers, Russian and Greek ornaments, landscapes, and calligraphy. The student will here observe sketches of flowers, Russian and Greek ornaments, landscapes and ornamental works, many exceedingly artistic. They are executed in oak, black walnut and other woods, with plate-glass inlays, and group the different types of furniture and applications. Here are specimens of split leather as fine as broadcloth; fancy colored camphorated leather, comprising all the colors of the rainbow, grouped as prettily as could be done with ribbons. Here are cases containing colored leather, invented by a Philadelphian; goat-skins for shoes, and in one case of these a fat sheep, stuffed, and exhibiting a peculiarly long and fine fleece. Lynn makes a fine display in all departments, and especially in goat-skins prepared in a superior manner.

Rubber goods are included among the exhibits, and there are shows of rubber medical goods, gas-tubs, rubber bath-tubs, gloves, etc. The Goodyear Company make an extensive display, including such articles as have been already mentioned, and besides these, toilet cases, rubber tubing, cuspidores, toys in great variety, chest-protectors, etc. There are also rubber shoes and boots from Provence, R. I., rubber-cloth of the finest quality, life-preservers, babies' teething-rings, and finally a specimen of the mulberry tree, and some rubber-walnut in a glass jar, precisely as drawn from the tree in Tuscany, Guinea and Ecuador.

After examining an exhibit of rubber-casts as fine as silk, we come back to leather, and the consideration of some magnificent specimens of hand shoe and boot making, varied by embroidered work in gold and silver thread. Next to these are heavy shoes and boots, with double soles and uppers, and ladies' booties and children's shoes in endless variety, and of every style and quality. Fancy shoes in different colored leather, camphorated and stamped, are a favored exhibit, and display the best improvements made in these goods of late years. There are also, rather incongruously, displayed here a large exhibit of ten soldiers representing veterans of 1775, the New York Seventh Regiment, and other varieties. Fancy satin shoes, in different color and of the finest make and fabric, are to be seen everywhere. There is also a liberal display of infants' shoes, girt and bronzed. Then there are shoes with tassels, and shoes with buckles, wooden shoes from Chicago, riding boots with spurs, and delicate bridal boots in white satin, besides high-heeled shoes like those worn by our grandmothers, ornamented with brilliants.

Edinburgh and London both send fine displays of tanned leather, and from Malmist and Bordeaux there are some specially excellent exhibits of fine work. A very handsome case in black and gold from Wilson, Walker & Co., Leeds, England, contains fine leather fabrics, and particularly binders' materials, including Levant morocco, which is made from sealkin.

Edwin C. Burt, the well-known manufacturer of ladies'
black and gold, filled with fine work in ladies' and child wear is sent from Boston, and a very showy case, gilding and gilt buttons, in all respects very beautiful. A is a good display of fine work in heavy men's wear. Nevak, every imaginable species of the article. How, of Haverhill, Massachusetts. As for slippers, there varied. Here Newark is also prominent, well adapted to those purposes. Next we exhibit of the curious celuloid work from Lynn offers every possible kind of shoe many heavily mounted, embossed and crossing machines used by the tanners in grind¬

The shapes were generally elaborate, adorned with mold¬

We next come upon ponderous specimens of zinc ore, of exhibits of petroleum, coal and cud of Pennsylvania, rock and shale, sandstone, on the eastern side of the Delaware, near the Susquehanna river. The town of Roxburgh, Connecticut, exhibit is made in variegated brown and exhibit was easily to be found. Here, in fact, for the first time in Europe, the body of the ware was produced, vitrified by the high temperature to which it was submitted, and also with the remarkable peculiarity that it was glazed by con¬

in our progress, we come upon boot- Shutterstock, 2023
... specimens of native woods in iron in one process, and into Bessemer manufactured into steel in two; also, hammered iron. A most interesting exhibit is a specimen of meteoric iron found on a farm in Greene County, Tennessee. The ores are from the Chattanooga mineral district, there being 40 kinds of iron ore. The locality where this is found is peculiarly fortunate, as it furnishes calcareous spar, carbonate of lime in large quantities, which can be used for flux. It is stated that these ores can be transported to the furnaces at the small cost of 91.75 per ton.

Pittsburgh, Pennsylvania, sends a fine exhibit, illustrating the manufacture of crucible steel, including pin wire, broom wire, etc. Minnesota furnishes cases of iron, zinc and iron ores, coal, limestone, sandstone and other minerals, making a very handsome collection. North Carolina has a fine display of minerals in small specimens in glass cases. These include corundum, rock phosphate, cryolite, galena, mica, violetite, galena, native copper, pyrites, greenslate and sandstone. Virginia and West Virginia exhibit specimens of sandstone (lignite), abacites from the "Fountain Caves" gypsum, iron-ore, and a peculiarly fine display of West Virginia coal. South Carolina furnishes cases of fossil teeth, including fossil horse-teeth, and a tooth of a tusk taken from the South River, Michigan, is represented by a magnificent collection. Here are large specimens of specular iron-ore, lead hematite and granular ore, magnete ore, beautiful specimens of copper ores, and rock showing the crystals of copper, copper as extracted from the ore, native silver and silver ore. This display fills four cases, and is introduced at the base by a ponderous specimen of native copper.

The display furnished by Montana is in a case ornamented with deer-hoofed and bear-skin bordering, exhibiting a varied collection of minerals, comprising crystallized ores and different kinds of stone in various forms of the state of Arizona, and Utah exhibit gold and silver ores in a large variety of specimens. Colorado has also a rich display of these ores. An upright black-walnut case, labeled "Nevada" in gilt letters, contains a most interesting collection, including silicified wood, chalcedony in numerous specimens, mable, silver ore, lode ore, and gold ore, showing free gold—these specimens being largely in gold and silver ores and products and ingots and cubes.

The Nevada exhibit is particularly rich in specimens from the Second, Third and the Nevada River District, and also offers a very fine exhibit of native selenite, waftite, etc.

Four glass cases include the contributions of California, comprising gold and silver ores, with all the materials used in their manufacture—specimens of gold-pan, fuses, and other appliances and processes.

We now leave the mineral department, and enter that devoted to the fisheries, and—to the fact of the marine display of the Navy Department of the United States Government. It commences with a collection of specimens of oyster from California, California, Melbourne, Blode Island and their waters, ranged on both sides of a long screen and including the ordinary "ed grass, as it is termed, which is one of the most interesting and beautiful species. Next are cases containing seaweed's clothing in oiled and rubber; next to which is a case in which are ranged a large number of articles illustrating the habits and customs of the American Indians. Here are various Indian implements and weapons, game-bags, trout rod. At this point we meet with a staffed figure representing a steerer in a boat and with fishing rod, but not so able to illustrate the manufacture of the pearl with the products of pearl shell. Here are also specimens of ipecacuanha, roots of sarsaparilla, and many others.

The collection of knives used by fishermen is in itself a very curious exhibit. It comprises broad knives for cutting blubber, the throating or ripping-knife, halibut knife, triangular splitting knife, clam knife, clam chopper for bait, hook and line, and every conceivable kind of fishing line and produce, from the finest to the largest, from the chum-harpoon and gear to the smallest Linstead hook and lines, trawling-spoons, very beautiful fly-hooks of every conceivable species of fly, reds, and all the trammel and landing equipment.

After these is a collection of harpoons and spears from Alaska, seal's blubber boxes, the curious "throw-stick" and a very fine example of the "throw-stick," which is, in fact, the becomenius, spear and hide lances, harpoons, harpoons of all kinds, harpoon-lines made from chokos, and harpoons.

The collection of ice-fishing equipment is also a very curious exhibit. It comprises broom lines, fishing-gear for deep sea fishing in general, and from these through every conceivable variety of fishing line and produce, from the finest to the largest, from the chum-harpoon and gear to the smallest Linstead hook and lines, trawling-spoons, very beautiful fly-hooks of every conceivable species of fly, reds, and all the trammel and landing equipment.
skins, sturgeon skins, and ladies' saddle, slippers, and
cigar cases made from alligator hide; a coil and rope manu-
factured from cow-hide, a doll's head made of raw hide, and
looking quite equal to those made of china or paper-
mache.

Here is also a sea lion's throat manufactured into a
parchment pouch designed for valuable papers. The spe-
cimens of fish-oils and glycerine are numerous, and include
black fish oil, menhaden, porpoise, sperm whale, codliver,
shark, sandfish, grampus and seal, with spermaceti can-

We now come to a large and very fine collection of
skins of animals. These include buffalo-skins, mountain-

Next is a collection including stuffed animals, among the
larger of which are the Polar bear, American deer, puma
or cougar, brown bear, grizzly, peccari, caribou, mountain
goat, American elk, American mountain sheep, antelope, a
splendid pair of musk-oxen, a group of fur seals, walruses,
harp seals, hooded seals, elephant seal, manates-leopard ;
and cases containing rabbits, hares, wild cats, lynxes,
ferns, squirrels, muskrats, weasels, minks, skunks, wolver-
ines, woodchucks, and many other small animals, all ad-
mirably prepared and placed in lifelike attitudes.

This brings us to the transept; and the first article
which we observe is a case containing a model of a whaler,
with whale fishery illustrated by whales diving, one having
a bolt in his jaws, another being harpooned, while the
various processes of skinning, etc., are being conducted on
a miniature ship.

On a table near by are specimens of hatching-cans, and
models of a lobster-house, fishing-smack, and menhaden
are frames made of skins, a portable folding-boat, wooden canoe, bark canoes, skin canoes, etc. Besides this, there is a remarkable group of imitations of sea-fish, some of them being life-size. These include black fish, striped porpoise, swordfish, bow-head whale in miniature, sea-fish, lizards, and others. Specimens of a fish-hook and fish-dresser bringing in several refrigerators filled with large fish—sturgeon, bass, etc.—concluding this portion of the exhibition.

Treasury Department.

Crossing the transept on the north side of the United States building, we enter the United States Revenue Bureau of the Treasury Department. Here are framed specimens of all the enumerated stamps used in the Treasury Department, as also models requiring internal Revenue stamps, such as tobacco, snuff, canned fruits, etc., while several large barrels of spirits which have passed the Revenue officers are exhibited, having upon them the necessary official stamps and bands.

There are also exhibited specimens of lighthouses, showing the specific gravity of liquids, and other instruments used in the Revenue service. Next comes the Bureau of Engraving and Printing, where are seen large frames containing specimens of Treasury notes and bonds, ranging all the way from $10,000 to fractional currency. An exhibit is also made of proof impressions of all the vignettes used in this department. In a very handsome case are collected specimens of the national medals and coins exhibited by the United States Mint, and conjugates to these are framed illustrations of national architecture, as represented in public buildings such as post-offices, custom-houses, etc., in different cities, with a large number in use of the public buildings in Nashville, Tennessee, containing the post-office, custom-house, and court-house.

Lighthouse Department.

This brings us to the Lighthouse Department, which is exceedingly interesting and full in its exhibits. The first and most important objects which attract the eye are the lighthouse lanterns, of which there are several, including the first, third, and fourth orders. The largest of these is in a case, revolving by clockwork. Lead oil is now used exclusively in this department, and specimens of this are given, as well as of the lamps used in the lanterns, and also of the burning-lights, including the river lights employed on Western rivers, and a range of leading lights used in channels where a certain range must be kept. A large map, about 14 ft. square, shows the United States lighthouses stations, and there are also framed illustrations, photographs, etc., of the different lighthouses on the coast.

Two models in wood display the foundations of the South-
collection of models of shells, artillery, etc., will be found on a large table facing the nave. It should be observed that all the departments of the United States Government are ornamented by oil portraits, many of them fine works of art, representing distinguished personages connected with them—the War Department being thus illustrated by portraits of Secretaries of War and prominent army officers.

In the Ordnance Department is a model of a 15-inch Rodman gun, accompanied by all the various appurtenances for its use. Here may also be seen a specimen of a sharpshooter's rifle on a tripod, and near this every variety of projectile, including shrapnel, grape and canister, and from these to a thousand-pound '20-inch shot.

From this point to the extreme eastern end of the building the space is chiefly occupied with machinery representing the entire mechanism of the shot and shell, including the breech-loading cannon of the sixteenth century and one of an iron-shot ram, the next in order. Also a small model of the French brigantie Didos, comprising the hull alone. This exhibit includes also a model in frame of the ship-of-war Ansonia, showing the construction of a slop-of-war. This is made to scale, each part being numbered.

This section closes with the model of a boat with apparatus for lowering, hoisting, and securing, and also for detaching and attaching. Two forms of hoisting-tackle conclude this portion of the Exhibition.

A valuable exhibit of the Naval Department is occupied by specimens of naval artillery and projectiles, equipments, cordage, implements, etc., while masts along the wall are filled with Remington carbines and other small arms, with and without single band, and revolvers are displayed on a shelf beneath. A miscellaneous and rather heterogeneous collection of naval armament of all kinds fills several tables in the centre, from metal cannon to guns-ships, ship's lanterns, sections of bridges, candle-molds, and cartridge-boxes. A glass-case contains a number of specimens of gun-boxes, various models of shells and mortars, as well as various marine stores and surgical instruments. A collection of curiosities displays boarding-caps, boarding-axes, bowie-knives, old Roman cutlasses, fragments of ship's and gun's masts, and representing his three expeditions to the Polar regions.

In this vicinity. A collection of charts is next in showings boarding-caps, boarding-axes, bowie-knives, old Roman cutlasses, fragments of shell, parts of Paul Jones, used by him on the ship Bon Homme Richard, and an En¬

NAVY DEPARTMENT.

We first encounter a series of models of ships, the most important of which is a full-rigged and completely equipped model of the United States sloop-of-war Antietam, built about the year 1600—a very admirable representation of a class of ships in vogue at that time. A section of a model of a double-bottomed ironclad, showing the construction of a double-bottomed ironclad, is next in order. Also a small model of the French brigantie Didos, comprising the hull alone. This exhibit includes also a model in frame of the ship-of-war Ansonia, showing the construction of a slop-of-war. This is made to scale, each part being numbered.

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The exhibit of Pumps by Messrs. H. & B. Douglas, of Middletown, Conn.

In the centre of the collection of patents are seen bound volumes of all the reports, including that photolithographed from the first volume, and running from 1790 to 1850. Among the various exhibits are the Howe sewing machine; the Morse telegraph, patented April 16th, 1845, and the model of that patented April 11th, 1846, being an improvement; the original model of the Whitney cotton gin; the first steam fire engine, invented in the United States, by Alexander B. Latie, patented April 16th, 1825; the first steam hummer, invented by James Nasmyth, and patented on the 10th of April, 1843; and the Adams power printing press, one of the first to be manufactured by skilled mechanics, they represent in every particular the exact construction and working of the articles themselves. This is illustrated particularly in the case of a cotton gin and the facilities and perfection of a full-sized gin, although it is only a model about a foot square.

Among the patented machines used in wood construction are to be found models of saws, planing machines, barrel-making, etc. Among those representing the manufacture of textile fabrics are various sorts of cotton mills, weaving machines, power looms, spinning-jennies, and bonnet-frame machines. In agriculture, the display is, of course, endless; plows, harrows, reapers, mowers, seeder, education. Here the walls are lined with large volumes containing the statistics of the United States, as given in the different censuses of 1790 to 1850—these being the original manuscript returns of the censuses of the United States, printed from 1790 to 1850, and comprising some seven or eight hundred volumes. The exhibits of the Interior Department include specimens of products of the United States useful for food, as well as for hat and apparel, imported articles secured from all parts of this country, but really, as it is believed, in no case, by the use of steam artificial ice machines. And so on to the various other departments the observer can wander, viewing at a glance the progress of manufacture and invention in each of them, including that of the first patent granted to Samuel Hopkins, in 1790.

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VIEW OF THE MAIN BUILDING, LOOKING DOWN THE CENTRAL AISLE FROM THE ORGAN LOFT IN THE EASTERN GALLERY.
A superb collection of bows, arrows, and other weapons of war, some very curious wooden idols from British Columbia, hand-brasses, jewelry, and ornaments; various skins and robes are manufactured into garments; buckskin hunting-shirts, trimmed with wampum; women's dresses of sheepskin and wampum; moccasins and arrow-heads of flint and other stones—all form a perfect museum in the manners, customs, and implements of the aborigines. The collection is one of the finest which has been brought together, and will readily repay the careful observation of those who are interested in the manners, customs, and implements of the aborigines of America.

The collection of the Department of the Interior ends with a series of gigantic models presenting the conformation of the land in different parts of the country, notably in the Territories of the West—Arizona, Colorado, Utah, etc. This completes the account of the contents of the United States Government Building, the nave, and the transept. Among these are placed large objects which could not be conveniently disposed of elsewhere.

Among these, the first exhibit represents a typical work of steel from the ore to the completion of crucible steel, and finished boiler-plates, some remarkably fine specimens of files, axes, ice-chisels, etc.

Next to these is an exhibit of Kanawha coal from the Kanawha County, W. Va. This is followed by a second iron and steel exhibit from Troy, N. Y., and this by a gigantic specimen of silver and other ores. Then comes a mammoth " dug-out, " sixty feet long and eight feet beam, made from one log by the natives of British Columbia. At the point of juncture between the nave and the transept there is an exhibit of coal, certainly the largest ever made, being forty-three feet in height. This is surrounded by marble and other minerals in large specimens, bales of cotton, and other smaller exhibits.

Without the United States Buildings are several articles too large to admit of their being placed within it. Besides numbers of the larger cannon exhibited by the Ordnance and Navy Departments, there is an iron turret, armed and equipped, which is placed near the eastern entrance of the building, and attracts considerable attention. There is also a lighthouse, with a flash revolving light, which is lighted up at night.

**Indian Collections.**

Among the curious specimens from the National Museum of the Smithsonian Institute exhibited in the United States Government Building, and to which we have alluded elsewhere, are the "totem posts," so called, of the Indians of the Northwest coast. These Indians inhabit that portion of the Pacific Coast lying between Oregon and Alaska, and the rude carvings, of which we give a full-page illustration, which will be doubtless mistaken for idols by most of those who see them, are really a species of genealogical work, the carvings being designed to perpetuate the pedigrees of those using them. As is well-known, it is a custom among all Indian warriors to take to themselves some name indicative either of a trait of character or of some incident in their lives. Such are Walk-in-the-Water, sitting Bull, White Antelope, Red Dog, Red Jacket, Black Hawk, Spotted Tail, Bear Stand Up, Crazy Horse, Scalp Head, Black Mountain, Red Cloud, Swift Bear, etc. It is, however, peculiar to the Indians of the Northwest Coast to keep a family record by cutting "totem" in tall posts of cedar. These posts are not worshipped as idols, though it is understood that they are in some sense considered, from a superstitious standpoint, as possessing some power to protect those occupying the house in front of which they stand.

The "totem posts" pictured in our illustration belong to the Mikah Indians, who are chiefly engaged in fishing. These tribes are noted for their artistic attainments, and are greatly in the habit of making such carvings as these.
Behind the Pennsylvania State Building is a large octagonal structure, having three entrances opening upon verandas. This building is the Turkish Café and Banque, and we give an illustration representing a scene within it which will be recognized as characteristic by those who have seen it. The interior of the building is furnished with divans along the sides, covered with blue and striped-colored plush, having in front of them circular tables. The windows are hung with handsomely embroidered curtains, and in two of the corners of the room will be seen a number of pipes, including the Turkish chibouke and the Persian zarafan, or water-pipe. The establishment is served by native Turks, clad in their native costume, and these furnish visitors with coffee and pipes, the former being served in small cups inclosed in silver holders, while the latter, supplied with Turkish tobacco, may be obtained by those desiring them.

The entire scene, with its surroundings, is curious and interesting. The picturesque costumes of the attendants include the red fez caps, red turban, yellow suit, and blue or brown silk trousers. On one side of the apartment are two sitting-rooms for ladies, which are furnished with lounges and ottomans and hung with Turkish tapestry. At the sides are small bazaars, where are sold rich costumes, carpets, pipes, swords, daggers, hats, and other articles.

Washingtion relics in the United States building.

An interesting historical feature of the exhibition made by the United States Government, and one to which we desire to give special prominence, is a case which contains the Washington relics. These relics have been collected chiefly from members of the Custis and Lee families, many of whom have been heretofore stored at Arlington, in the old Custis mansion, over the Long Bridge from Washington. Here are the coat, breeches, and vest which the General actually wore when, at Annapolis, in 1785, he was commissioned a captain in the United States Army. Here are the coat and breeches worn by the General when he was commissioned major in the Continental Army, and also a part of the uniform, as it was worn in the years 1779-83. Here are the coat, breeches, and vest worn by the General while commanding the Boston expedition. There is certainly no exhibit in the entire building which is more entertaining. The picturesque costumes of the attendants include the red fez caps, red turban, yellow suit, and blue or brown silk trousers. On one side of the apartment are two sitting-rooms for ladies, which are furnished with lounges and ottomans and hung with Turkish tapestry. At the sides are small bazaars, where are sold rich costumes, carpets, pipes, swords, daggers, hats, and other articles.

The Turkish café.

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Babcock & Co. The wheat-cleaning machines of this firm received the highest medal at Vienna, and have the honor of holding the only gold medal given by the Royal Agricultural Society of England in 1869.

**American Firearms.**

The display of Messrs. Remington in the Main Building is a very prominent feature of the locality where it is situated. The frontage of their case is about twenty-six feet in length, comprising an elegant show-case on a neatly carpeted platform, the whole inclosed by a bronze railing. Here are to be seen a fine collection of the Remington revolvers, sporting rifles, military arms, a very handsome Creedmoor rifle, beautiful specimens of their shot-guns, long-range rifles, military rifles with sabres, short black rifles called "civil guards," they being used by the municipal police of Spain and Cuba. Between the cribs of cases is a large star composed of Remington cartridges, having on either side trophies formed by a combination of sabres and Remington rifles. This entire display of arms is arranged in the most artistic manner, and is well worthy the consideration of the visitors in such matters for this reason, and still more for the real beauty and merit of the articles themselves.

**American Bronzes.**

A very creditable competition with European manufacturers in the matter of bronzes is made by the Messrs. N. Muller's Sons, of No. 8 Cortlandt Street, New York, whose exhibit in the Main Building will be found to repay examination. It is located near the book publishers' structure, and comprises fine bronze inkstands, thermometers, and other articles, in whose design elegance and novelty are combined with utility. Our illustration gives a very good view of this handsome exhibit in its massive case, surmounted by a tasteful monogram.

**Gold Pen Exhibit.**

A very beautiful exhibit in gold pens, pencil-cases, etc., is made by Messrs. Aiken, Lambert & Co., of No. 12 Maiden Lane, New York, and is illustrated in our engraving. The exhibit is contained in a graceful and elegant ebony case, finished with gold, the canopy of which is supported by four massive pillars in the form of barrel-pens, each being clasped by a closed hand. Below is a combination of show-cases, surmounted by a pedestal, resting upon which is an eagle. These show-cases contain specimens of the workmanship of these manufacturers, including gold pen and pencil cases finished in Roman, crowned, carving, and red
concerning which he has written largely, his works being translated into several foreign languages. For many years of Grounds, Plants, and Buildings; and Captain John S. Steet-in-Chief; Mr. Thomas Cochran, Chief of the Bureau of Admissions; Mr. H. J. Schwarzmann, Archi-

THE CENTENNIAL ADMINISTRATION.

CHIEFS OF THE EXECUTIVE BUREAUX.

The term ten gentlemen comprised in the heads of the various executive bureaus of the Centennial Exposition, and of those we give portraits of six, including Mr. John Sartain, Chief of the Art Bureau; Mr. David G. Yates,

have become so popular, and which were made before they were erected.

Mr. Schwarzmann, who was born in 1843, in Munich, and is the son of the celebrated Bavarian fresco artist. Educated at the Munich military academy, he served in the Bavarian army in 1865, but in the following year came to this country. He was employed as landscape architect in laying out Fairmount Park, the Zoological Museum, and other grounds in Philadelphia; and in 1873 started the Vienna International Exhibition, in behalf of the Fairmount Park Commissioners. Mr. Schwarzmann was the author of the plans which were finally adopted for Memorial and Horticultural Halls, and also the designer of the Judges' Hall, Women's Pa-

DAVID G. YATES.

Chief of the Bureau of Admissions; Mr. John L. Shoemaker, of the Law Bureau; Mr. H. J. Schwarzmann, Architect-in-Chief; Mr. Thomas Cochran, Chief of the Bureau of Grounds, Plants, and Buildings; and Captain John S. Albert, Chief of the Machinery Bureau.

Mr. Cochran has been connected with the Centennial movement from its organization, and to him is due the general plan of the grounds and buildings; besides which, his personal influence in securing legislation and donations has been of the greatest value and importance. Mr. Cochran was born in Mercersburg, Pa., in 1822, was a lawyer and State Legislator, his specialty being the subject of Taxation, concerning which he has written largely; his works being translated into several foreign languages. For many years he was Chairman of the Board of Local Taxation at Philadelphia.

Mr. Yates has had an arduous and most difficult position to fill, in his charge of the Department of Admissions; and that he has filled it with universal satisfaction is a high compliment to his patience, judgmen

t and courtesy. This gentleman was born in Philadelphia, in 1835, and, after studying the art of portrait-painting, finally adopted that of engraving, and established himself in this business in New York in 1856. At the beginning of the war he accepted a position in the pay department of the United States Treasury in Washington; but after two years returned to the business of engraving in Philadelphia. To Mr. Yates we are indebted for the engravings of the structures which

THE CENTENNIAL ADMINISTRATION—CHIEFS OF THE EXECUTIVE BUREAUX.

John Sartain, born in Philadelphia, in 1832, was a lawyer and after

dual power of this machine is the wind operating upon huge fans hung upon the outside of the mill. Within is a small room where are the various plans for making flour, similar in construction to those in use a century ago.

Among the samples displayed in the Hecker exhibit are the self-raising flour, extra Croton flour, Manhattan flour, Swiss, American flour, cracked wheat, and numerous other products of their mills. Another pleasant feature of this exhibition is found in the actual use of the products here displayed in the manufacture of griddle-cakes on the spot, those being made and cooked in the presence of the visitor, who are invited to partake of them. The cakes are made from Hecker's self-raising flour.

became known throughout the country. Mr. Sartain has been long appreciated as a gentleman of fine art taste and culture, and his appointment to his present important post has been generally accepted as appropriate—a judgment which the thoroughness of his work has fully confirmed.

TEN WINDMILLS IN AGRICULTURAL HALL.

Near the western end of Agricultural Hall a very interesting and quaint exhibit is made by Messrs. George V. Hecker & Co., the flour manufacturers of New York, which includes a collection of their various manufactures, ranging about an ant-quoted structure attracting considerable attention. This is a reproduction of a gristmill in use among our ancestors, and of which there are at present few, if any, left in the country. The motive power of this machine is the wind operating upon large fans hung upon the outside of the mill. Within is a small room where are the various plans for making flour, similar in construction to those in use a century ago.

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Even after a reasonably complete examination of the collection of exhibits in the United States Building, one finds numerous articles of importance to have been forgotten. There is a very great number of things which are deserving of mention. For instance, as to the Lighthouse Board exhibit, it is worth mentioning that there are 952 lighthouses, lightships, and light and range marks of all kinds on the Atlantic, Pacific, and Lake Coasts of the United States. Of these, 46 are of the first order; 28 of the second; 67 of the third; 190 of the fourth; 125 of the fifth; and 175 of the sixth order, ranging in size from the liveness of the smallest. Then there are 38 reflector-lights, and 280 State-lights, inside 55 steam fog-signals. The steam fog-signal boat, which the United States Building Radar Signal is, is furnished with various times during the day, producing a voluble and not very pleasing sound, which generally attracts the attention of the moored there. The collection is considerable proportioning as to its nature and intent. Perhaps the most interesting distance a light can be seen is in the case of a lighthouse on a cliff near the town of Montauk Point, on a bluff about 400 feet above the sea level, and whose light is said to be seen at a distance of 28 nautical miles.

The Department of Agriculture of the United States Building, of which we have already given a description, is particularly worthy of notice, in that it displays by actual proces-sional the different varieties of fruit and grain, where they attain the perfect state, and in what sections the same are of inferior quality and growth, thereby affording the farmer, or those wishing to emi-grate, knowledge which it would be quite impossible to obtain but by years of personal experience. The collection of maps, charts, and drawings exhibited by Mr. J. N. Dodge, Chief Statistician of this department, is very complete and important. By these charts the exact production of wheat in each State, per capita, for instance, is given, and this is followed through other grains and products. Another chart shows the aggregate value of the crops in this country, the most valuable being corn, and the least wheat. The total consumption of corn during the years from 1870 to 1874 is shown to have been about 125,000,000 bushels. Applications are permanently being made there for fulling and in the present description. One genius is said to have wanted a patent for a machine to bore through the earth; another for a process of bringing the rider’s puncheons of dispense with the gas and the moon; and a third for an apparatus to make spirits—of the rapping kind—visible to mortals. The Martha Washington china, presented to her tree—such as birch, maple, and oak—are found in the Eastern part of the United States, while the ease of the pines, the fir, and the laurel, the olive, and pines of Arizona, and one species is the yucca-tree. Of the latter is very abundant in Arizona, and a huge illuminator, which, hung over the southern wing of the building is most complete. Each of these is shown with the planed surface out, while the other is shown with the planed surface out.

The photographic collection representing the United States of America is very full, displaying native villages, inhabitants, ruins, domestic utensils, etc. The social economy of the Alaskan Indians is skillfully shown in the collection illustrating that nationality.

The United States Government Building and contents has been the subject of much discussion. Perhaps the Government of the United States at a cost of about $500,000, its object being, in the words of one of the visitors, "to display such articles and material as well when presented in a collective exhibition, illustrating the national characteristics and capabilities of the Government in time of peace, and for the resources is a war weapon, and thereby serve to demonstrate the utility to the wants of the people." The same visitor describes it as a "scientific, practical venture, combining with the receipts and stone implements of Arizona, and running down to the mighty redoubt which birds shun far for there. There is surely a question that can be asked of the United States as a nation that cannot be answered here. Its fruits and flowers are its topography; its agricultural resources; its nav-vines; its system of education, postal-service, and military strength—all are presented palpably to the eye and touch.

That this is only a fair delineation of the wealth and resources of the American Republic, let us see the whole in the Centennial Exposition. The photographic collection representing the United States is very full, displaying native villages, inhabitants, ruins, domestic utensils, etc. The social economy of the Alaskan Indians is skillfully shown in the collection illustrating that nationality.

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From Leopold Sandpickler, of Gorz, near Trieste, we have a very brilliant display of preserved fruits of potash gained from wool by washing. Other preserved fish, prunes, nuts like English walnuts, a liqueur distilled from sardines, and boxes of candied fruits, exquisitely prepared. An interesting feature right here is the manufacture of grindstones, of different sizes, and a large collection of grindstones, of all kinds, being a very handsome and creditable display, and peculiar in that it consists of coffee. Among the millstones, and apparently a new development, is a large apparatus for testing the cohesive strength of the bricks made from the cement, which is shown to endure a direct strain of from 1,500 to 1,700 pounds per square inch. The riddle can be changed so as to adapt the machine for size, for the larger grains, or for peas, beans, or coffee. Among the millstones, and apparently a new invention, is a boiling-stone, which is said to effect acceleration in grinding, avoid excessive heat, and gain economy in motive-power. Stones are cut through the stone, and in them are inserted wire-coiling-elbows of about two lashes in width. The Portland cement is exhibited by two companies. Here is seen a heavy apparatus for testing the cohesive strength of the bricks made from the cement, which are found to endure a direct strain of from 1,500 to 1,700 pounds per square inch.
There is also a large tank of cement, in which the bricks are immersed, to prove that water has no effect upon them, and a block which has been immersed sixteen years in the sea is still solid.

The space occupied by Brazil in the Agricultural Building, is justly excelled by making one of the finest and most interesting displays, embracing all the varied products of the country and its provinces, the exhibits of coffee, sugar and cotton being especially large and fine. It should be remembered that of the immense exhibits of coffee, sugar and cotton being especially large and fine. The exhibit of coffee, sugar and cotton, some of them of immense size, is arranged in a lattice of graceful arches, giving the place an agreeably with the whitewashed roof of the gigantic hall. The effect is quite pretty, and the design original. The cotton is arranged in a lattice of graceful arches, with here and there large tufts of raw material, hanging upon rods of iron, made in imitation of branches, giving the appearance of huge wheat-blossoms. In the centre of the space formed by the temple is a pyramidal stand, formed of several hundred glass vases, containing over one hundred specimens of coffee, in various stages of preparation. Forming a low wall around the base of the inclosure are numerous packages of cotton, some of them of superior quality and neatly exhibited. The exhibit of tobacco is very full, embracing over thirty varieties, exclusive of the manufactured cigars, snuff, etc. Here are rolls of twisted tobacco, tall columns of cigarettes in showy wrappers, hundred-weights of cigars, and near these is the great amphitheatre of long-necked bottles of aqua-diemme, whiskys, brandies and wines. Immediately in the rear of the display of cotton and coffee is an inclosure 60 ft. long by 40 wide, containing exhibits of woods and miscellaneous goods. From the top of the inclosure hang the skins of tigers, leopards, deer, otter, lions and serpents, giving the place an attractive appearance. The specimens of wood comprise three or four hundred, and afford a fit commentary on the value and importance of the Brazilian forests—an importance not only represented by its gigantic trees, but also by the value which each of them possesses in relation to the arts, to house and ship-building, to food and to medicine. Among the woods, of course, any...
prominent mahogany, iron-wood, cherry, and rosewood. A number of immense pine trunks are also included in the collection, together with several specimens of woods commonly variegated. There are said to be over one thousand kinds of wood in Brazil. Those exhibited are arranged so as to show specimens with the bark on, the natural color of the wood, and also variegated. In extent and variety, they exceed any other collection in the exhibition. A large upright case contains the exhibits of silk-creams, some of the colors being very gorgeous, though the display is not as full as that made by some other nations. The collection of sugars comprises about fifty varieties, contributed by exhibitors from various provinces. The export of these products last year aggregated over $15,000,000. Indigo, rubber and other valuable products are represented by numerous specimens in various stages of manufacture, and of different qualities. Then there are exhibits of flax, hemp, sugar-cane, vegetable-fibres, used for filling mattresses, and numerous specimens of fibres made of the back of the palm and other trees. Some of these fibres are soft and pleasant to the touch, and they are said to be a source of considerable revenue. The exhibits of wines, liquors and eaux-de-vie, with rum and vintages, are large, and near these are samples of preserved fruits, sweet-meats, chocolates,等. Of beans, Brazil sends ninety varieties, of all colors and sizes, arranged in glass jars, and properly labeled. Beside these are many specimens of wheat, rice, oats, barley, etc., while in glass cases are exhibited specimen of different minerals, the largest being iron ores. The exhibits of waxes are quite noticeable, comprising a number of cases, and near these are specimens of dyestuffs, guano, guano, etc. There are also several large boxes of castile soap, each weighing hundreds of pounds, together with a number of boxes of fancy soaps. The display of hides, leather, boots and shoes, and belting, is large, as is that of other ornamental goods. The shipments of hemp and hemp-fibres are particularly fine. There are also numerous exhibits of candied-fruits, confectons, citrons, and other similar goods. At different points of the section are shown stalks of grain of different kinds, and numerous stalks of corn, with the dry ears still attached. The Italian Exhibits is a valuable and useful one, and doubtless gives a fair idea of the agricultural products of that country. The largest portion of the space occupied, however, is devoted to wines and liquors. Of the forest products, besides sumach, already mentioned as in considerable quantity, there are mauna, sweet-edelweeds, handweeds, pistachios, and numerous other nuts; in pomology, olives, lemons and oranges, from Salerno and Syracuse; agricultural products, besides those already mentioned; exhibits of rice from Modena and Novara. In fish, there are samples in oil from Leghorn, and cobs from Bologna. The animal and vegetable products are, of course, the largest. These comprise articles not already named; cheese, glass and leather from Bologna and Palermo; wax from Venice and Milan; preserved and dried meats from Genoa and Milan; paste for soup from Syracuse and Leghorn; tomato-sauce and preserved tomatoes from Bologna, Salerno and Parma; dried figs and candied fruits from Palermo; flour-paste from Naples, and wines from Naples, Leghorn, Palermo, Brescia, Syracuse, Sicily, Florence, Modena; vermouths from Alexandria, Turin, Marsala; extract of tamarind from Milan, and chocolate and confectionery from Rome and Turin. From Pisa we have biscuits, as well as cakes from Rome and Pistoia. The agricultural machinery includes plows, harrows, plowshares, hand-reaping machines, and butter-machines, coming from Ancona, Cremona, Venice, Pisa, Parma, and Bologna. A very interesting exhibit in agricultural engineering is the plan of General Garibaldi's system of irrigation relative to the river Tiber, which is exhibited by Quirico Filopanti, of Bologna.

ITALY.

The Italian agricultural display is located in the southern corner of the structure, and is tastefully arranged. It includes exhibits—the greater number being wines and liquors—from about 300 exhibitors. The section is nearly inclosed by glass cases, containing various artistic exhibition, while in the centre a number of stands of a pyramidal shape are filled with hundreds of bottles of wines and liquors of every kind. The display of olive-oil and that of mustare are, as might be expected, very rich and full. They are shown in various styles and as manufactured by different firms. There are also full exhibits of dried and preserved meats, fish and fruits. In this department the preparation of bologna-sausages will attract attention as especially fine, some samples being six feet in length. Then come the oils of all kinds, arranged in a high glass case, near which is a wooden stand, handsomely enamelled in gilt, and with bunches of artificial flowers, and upon it are placed samples of the best of wines, liquors, etc. After these are drugs, chemicals, and pharmaceutical preparations and confections. The latter are contained in fancy bottles, whose variegated colors make a very attractive appearance. Hundreds of jars contain samples of wheat, rice, oats, barley, etc., while in glass cases are exhibited specimens of different minerals, the largest being iron ores. The exhibits of waxes are quite noticeable, comprising a number of cases, and near these are specimens of dyestuffs, guano, guano, etc. There are also several large boxes of castile soap, each weighing hundreds of pounds, together with a number of boxes of fancy soaps. The display of hides, leather, boots and shoes, and belting, is large, as is that of other ornamental goods. The shipments of hemp and hemp-fibres are particularly fine. There are also numerous exhibits of candied-fruits, confectons, citrons, and other similar goods. At different points of the section are shown stalks of grain of different kinds, and numerous stalks of corn, with the dry ears still attached. The Italian Exhibits is a valuable and useful one, and doubtless gives a fair idea of the agricultural products of that country. The largest portion of the space occupied, however, is devoted to wines and liquors. Of the forest products, besides sumach, already mentioned as in considerable quantity, there are mauna, sweet-edelweeds, handweeds, pistachios, and numerous other nuts; in pomology, olives, lemons and oranges, from Salerno and Syracuse; agricultural products, besides those already mentioned; exhibits of rice from Modena and Novara. In fish, there are samples in oil from Leghorn, and cobs from Bologna. The animal and vegetable products are, of course, the largest. These comprise articles not already named; cheese, glass and leather from Bologna and Palermo; wax from Venice and Milan; preserved and dried meats from Genoa and Milan; paste for soup from Syracuse and Leghorn; tomato-sauce and preserved tomatoes from Bologna, Salerno and Parma; dried figs and candied fruits from Palermo; flour-paste from Naples, and wines from Naples, Leghorn, Palermo, Brescia, Syracuse, Sicily, Florence, Modena; vermouths from Alexandria, Turin, Marsala; extract of tamarind from Milan, and chocolate and confectionery from Rome and Turin. From Pisa we have biscuits, as well as cakes from Rome and Pistoia. The agricultural machinery includes plows, harrows, plowshares, hand-reaping machines, and butter-machines, coming from Ancona, Cremona, Venice, Pisa, Parma, and Bologna. A very interesting exhibit in agricultural engineering is the plan of General Garibaldi’s system of irrigation relative to the river Tiber, which is exhibited by Quirico Filopanti, of Bologna.

SAVIN.

The Spanish section, surrounded with a wall of yellow wood, and entered under a lofty gothic portal, is a wonderful museum of wines, oils, spices, fruits, grains, woods, tobacco, skins, and nuts—all from Spain and her colonies. On the floor lie huge logs of mahogany and rosewood, almost as heavy as so much iron. Festoons of tobacco-leaves and siraves of grain surround the pillars. Upon shelf rising above shelf stand bottles and jars in orderly array, filled with every imaginable article. Among the wines are many excellent varieties unknown outside of the Peninsula. Cuba sends her cigars and tobacco, the Havana cigar-makers exhibiting in a row of light mahogany cases mounted upon standards. From the Philippine Islands come manilla and hemp; and all the provinces of the modern empire have something of interest. AQUARIUM.

Among the many attractive displays in the Agricultural Building that of the
collection of aquaria on the west side of the building is not the least interesting. This collection has been arranged with regard not only for the interest of fish-breeders, but for the gratification of the public and the study of the naturalist. The collection is being constantly changed by deaths and accessions; but at the time of this writing is contained in thirty-five large tanks and aquaria, one tank alone being 23 ft. long by 7 wide and 4 deep. These are divided into three classes: Those for salt-water specimens, those for fresh, and the third for cold-water fish. To supply salt-water, a tank capable of holding some 10,000 gallons has been built outside the building, and water brought from the Atlantic by rail. Fresh water, of course, is plentiful, but to keep cold-water fishes properly the water, before reaching the aquarium, passes through a coil of pipe packed in a box of ice. Among the specimens in one aquarium are crabs, including the king-crab, or horse-foot. Another is filled with terrapins. In the largest tank were formerly a number of green turtles, the heaviest weighing over three hundred pounds. These, however, died. Also a dozen specimens of toad-fish, some very fine fresh-water eels, drum-fish and rock-bass are among the larger fish. Specimens of graylings from Michigan, and the Oswego bass, or Southern clump, will be interesting to the Eastern people. A curious-looking creature is pleasantly entitled "a hell-bender," and is ugly and repulsive-looking enough. This one is twelve or fifteen inches long, and has legs or fins, four in number, having four fingers each. A peculiarity of the animal is that these limbs may be removed and in less than a year will grow again. There are also long-tailed chars, suckers, black-gill sunfish, large black bass and moon-eye fish, or lake herring. In one aquarium are hundreds of specimens of little California salmon, eggs of which were sent from California by the United States Commission, and hatched at Marietta, Pennsylvania. It is designed to increase this collection from time to time with fish from other waters than our own, including the Gulf of Mexico and the Caribbean Sea.

GLOUCESTER FISHERIES.

The exhibit of the Gloucester fisheries is the most interesting one of its kind in the Exposition, and consists by far the most complete representation of the industry, inasmuch as it gives a correct idea of the growth, from very insignificant proportions to their present gigantic position, of fisheries of the largest fishing-port in the world. Since 1850 there have been lost out of these fisheries 1,500 fishermen and 333 ships. In 1873, 31 Gloucester vessels sailed out to return new cases, and 374 fishermen were lost.

In the vicinity of the aquarium department, in a corner of the Hall, the town of Gloucester has erected a tank 22 by 12 ft., filled with water in which accurate models of the fishing fleet of the old and new times are afloat, illustrating the different branches of the fisheries. In one corner is the old "cob."
The text appears to be from an old newspaper or magazine article discussing historical and natural elements. It includes various paragraphs on diverse topics, such as the Liberty Bell, agricultural products, and the Centennial Exposition. The text is a mixture of descriptive and informative content, possibly describing exhibits and important historical objects.
lizard), and a number of insects; spiders with skins of vipers; a dissected guana (South American fox, a stuffed wikl-cat of Balearec; a stuffed mouse, also the boyero, a wild bird of Gualcguaelm. There are craw-birds, etc.; nests of the hornero partridge, cliimango, etc.; a number of prepared humming-bird, the province of Santa Fe, exhibit sponges, shad oil, leather skins, ostrich brandy, and a number of skins of the lion, chinchilla, viper, dioca and wheat starch, sugar-cane syrups, aguardiente etc. Quite a number of private exhibitors send specimens of pre¬

There are a number of preserved meats, such as pickled partridges, pickled tongues, salt meats, tongue and beef, dried mutton and beef, and gelatine. Several exhibits are made of flour, bran, mandioca starch, corn-meal, grits, macaroni, vermicelli and vermicelli cheese. There is one exhibit of Peruvian bark from the province of La Rioja. Buenos Ayres woods bleaches and crackers, and the province of Santa Fe, peat oil.

The textile exhibits include cotton and cotton-pods, cloath, thread, and bark; cotton fibers; cloth of fabrics for sauces; ropes made of guarana-bark; feathers, chenille thread, hemp, hemp fiber, and flax-straw, alpaca, 

fungal, found in great quantities in several places among the mountains of Rioja, and grows to an enormous size. It is very combustible, on account of the quantity of resin it contains, and is also classified as a medical plant. A portion exhibit is that of grains of the mountain bird called guachuo. This is composed of a kind of gum or resin, and is used by the natives in cases of broken or fractured bones, being mixed with grease when splints are required. The yerba-mate comes chiefly from the province of Corrientes, and sells at about $2.50 per araba of twenty-five tons. Specimens of this herb are shown as prepared for camp-travelers. The tobacco exhibit comes from six or seven different provinces.

THE FIRST INTERNATIONAL EXHIBITION.

A Retrospect.

The Centennial Exposition having completed the first half of its period of existence, it may not be useless or uninteresting to present such information as will enable our readers to draw a modified comparison between its results thus far and those of the English exhibition of 1851. That Exhibition, as has been heretofore stated,
The instruction of children in the Kindergarten Cottage, under the auspices of the Woman's Department.
opened on the 1st of May and closed on the 15th of October, the time occupied being two weeks less than that allotted to our own. The official catalogue of the London Exhibition was not ready, in a perfect edition, until the 30th of April, notwithstanding 10,000 catalogues, properly made up and stitched, were delivered at the Building on the morning of the 1st of May, together with two copies, elegantly bound in morocco, with gilt edges, and lined with silk, for presentation to Her Majesty the Queen and Prince Albert. This official catalogue consisted of 320 pages, and was sold for one shilling. Translations in French and German were also sold at two shillings and sixpence each. At the opening there were about 25,000 persons present in the Building. Throughout the whole period of the great Exhibition the state of the metropolis occasioned wonder and admiration on the part of all who visited it. Previous to the opening there had been predictions made that confusion, disorder and demoralization, even actual revolution, would result from this extraordinary Exhibition and social gathering, while famine and pestilence were confidently expected as the inevitable consequence of the assembling of such vast multitudes in one city. Quite the reverse of all this lugubrious condition was, however, the case. London exhibited a wonderful degree of order and good-humored accommodation for the crowds, and power to provide for their wants. While the general health of the metropolis is said to have been good beyond the usual average, it was found that it was not even necessary for any special steps to be taken on the part of the authorities for the housing of guests. Such were the hospitalities exercised, the courtesies extended, and the extensive arrangements due to private enterprise, that these, taken in conjunction with the shortness of the visits and the rapidity of the succession of guests, enabled the city to comprehend within her limits a very large assembly of visitors, in addition to her own formidable population, then numbering 2,500,000.

In conducting order in the public thoroughfares the police were entirely muzzled by soldiery, and simply managed, through the necessary increase and discipline of their own members, to keep the peace of the city. Enormous excursion trains daily poured in their thousands and tens of thousands without disturbing the unanimity of the residents. It was said that, throughout the season, there was more unpretentious and genuine fellowship and less formality and customary ceremonial than had ever been known in English society. It was like an assembling for a gigantic picnic, where all felt at liberty to roam at will, and all were disposed to yield something to the novelty of the occasion. Country parties actually picnicked in the open air, crowds having brought provisions in large baskets. Numbers of the working people received holidays, and through the generosity, and at the expense, of their employers, visited the Exhibition. Eight hundred agricultural laborers, in their peasant's attire and decorated with rosettes of colored ribbons, assembled from districts in Surrey and Sussex, and went to London by special train, conducted by their
CONCERT IN THE MAIN BUILDING—VIEW OF THE CENTRAL TRANSCEPT, LOOKING SOUTH.
clegemens. As has been the case with the Centennial Exposition, numerous large firms in the north of England sent the people of their establishments to view the Exhibition in Hyde Park. An eminent agricultural implement maker in Suffolk sent all his people in two hired vessels, provided with sleeping-beds, cooking apparatus and every comfort. These vessels, drawn up to the wharf at Westminster, furnished homes to the excursionists during their stay in London, and strict rules were enforced as to returning to the vessels at night. Several admirable plans were arranged by gentlemen of fortune for affording their dependents an opportunity of sharing the festivals of the year. One, in particular, organized by the Duke of Northumberland, and conducted at his expense, provided, by printed directions, for the employment of each day and hour, so that the 150 persons who availed themselves of this guidance were able to see in one week most of the principal objects of attraction in the metropolis. Nearly 41,000 school children visited the exhibition, of whom 2,700 were in the building in one day.

This system and general sanction of the undertaking by employers, with the gradual increase in the number of general visitors, affected, of course, in a remarkable degree the railways throughout Great Britain. Trains containing 1,000 persons were common. Trains containing 2,000 and 3,000 were not infrequent, and one immense train from Bristol brought 5,000 persons. The total receipts of the railways having their termini in London, are said to have been £700,000 more during the Exhibition than the corresponding receipts of the previous year. To meet the want of this army of visitors, a great number of guides, hand-books, etc., of the great Exhibition were brought out, as has been the case in Philadelphia, and these of London met with remarkable success, as have our own. Several curious calculations were made on the sale of the official catalogues. One was, that if all the editions had been con- signed in one vertical column to the Pacific Ocean, the depth of which is estimated at about six thousand feet, the last edition would still have formed a handy peak, rising to the height of Chimborazo or Cotopaxi, or eighteen thousand feet above the level of the sea. Another very abstract calculation was to the effect that if the whole number of catalogues sold had been raised into a vertical pile, it would have exceeded the height of St. Paul's Cathedral fifty times. It was further discovered...
Committee amounted to 37,000. During the twenty-four weeks of the Exhibition more than 4,000,000 of persons visited the building, the number rising immensely toward the close after some previous fluctuation. The opening month did not bring the amount of provincial and foreign visitors expected, and at the end of May the price of admission was lowered, when the attendance was greatly increased. The daily average during May was upwards of 10,000, but by the end of July the average had increased to upwards 20,000, and the entire mean of the daily average was 43,941, the highest number of admissions being in the last week of the Exhibition, when about 518,277 persons visited it. The daily average for that week was 86,379. It is estimated that, allowing for a fair average of visits to each person, there were actually upwards of 3,000,000 of different visitors to the Great Exhibition of 1851 during its existence. As some guide for judgment concerning the Centennial Exposition it may be remarked that, from the opening in London on the first of May, 1851, until the middle of June, the number steadily rose; then somewhat abated, but as the closing period approached, the concourse became as no occasion had previously witnessed, the four last shooting days, October 6, 7, 8 and 10, presenting an average of 100,000 per day. Some interesting figures are given of the provisions consumed at the several refreshment stalls within the Exhibition, as follows: Bread, 52,000 loaves; small loaves, rolls, and biscuits, 320,000; plain buns, 800,000; Bath buns, 720,000; cakes, 220,000; cakes sold by the pound, 50,000 pounds; meat and rolls, 80,000; ham, 70,000 pounds; beef, tongue, etc., 200,000 pounds; rough ice, 300,000 pounds; salt, 8,000 pounds; milk and cream, 65,000 quarts; tea, coffee and chocolate, 21,000 pounds; lemons, soda-water and ginger-beer, 1,500,000 bottles. The Exhibition had its own post-office, electric tele-

![Contest of the Champion Mowing and Reaping Machines](image1)

**FIELD HEADQUARTERS OF THE CHAMPION MOWING AND REAPING MACHINES.**

**COMPETITIVE TRIALS OF THE CHAMPION MOWING AND REAPING MACHINES.**

**THE CHAMPION REAPING MACHINE IN OPERATION IN THE WHEAT-FIELD AT SCHENCK'S FARM, AULTON, PA., JULY 9TH.**

**THE CHAMPION MOWING MACHINE FOR THE SUPREMACY OVER ALL OTHER MOWERS, AT EDDINGTON, PA., JUNE 27TH.**

**CONTEST OF THE CHAMPION MOWING MACHINE FOR THE SUPREMACY OVER ALL OTHER MOWERS, AT EDDINGTON, PA., JUNE 27TH.**

**HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION. 123**

**GRAPHS AND GRINDERS BANK, ITS LITTLE ARMY OF POLICE, ITS COFFEE AND CAFE AT THE COMPETITIVE TRIALS OF THE CHAMPION MOWING AND REAPING MACHINES.**

There were upwards of 900 persons in official employ, and exclusive of these, 264 attendants at the refreshment stalls, and about 1,000 exhibitors' attendants. The highest temperature was on the 26th of June, when at 4 p.m. the thermometer reached 97 degrees. The glass ends of the building at the entrance were removed on the 2d of July, when the thermometer came down from 74.4 to 66.6. After that 73.4 was about the maximum. The number of exhibitors in the London Exhibition of 1851 was about seventeen thousand. There were thirty-four juries, each consisting of an equal number of British subjects.
and foreign, empowered to call in the aid of associ¬
extion, who acted as advisers only, without a vote. Each jury had its own chairman, deputy chairman, and reporter. The chairmen of several juries con¬
curred in the determination of the conditions upon which the different prizes should be awarded. Two medals were awarded; one, a prize medal, being given wherever a certain standard of excellence in production and workmanship had been attained; the other being conferred for some improvement in the value of an invention or applica¬
tion. The former medal was awarded by the juries; the latter by the council of chairmen upon recom¬
mandation of the juries. The number of prize medals awarded was 2,918; the number of council medals 170; the total number, including a very extensive list of honorable mentions, was 5,084. Of that gross number, 5,080 distinctions were granted to foreign exhibitors, and 2,039 to exhibitors from Great Britain.

This delineation of the statistics, and otherwise, results of the first great International Exhibition a quarter of a century since, will furnish food for in¬
teresting and instructive reflection as to the applica¬
tion of past experience to the situation in Philadel¬
phia. It is not unlikely that the great increase in the business of the London Exhibition, noticed as having occurred during the last three months of its existence, will be paralleled in the history of our own Cen¬
tennial.

MONUMENT TO JOHN WITHERSPOON.

Concerning the statue to the memory of John Witherspoon, D.D., LL.D., the corner stone of which was laid November 16th, 1875, the following will be per¬
tinent. Dr. Witherspoon was born in Scotland, Febru¬
ary 5th, 1722, and died in Princeton, N. J., September
15th, 1794. He is chiefly known as President of Princeton
College in 1768, and as one of the signers of the Declara¬
tion of Independence. It is also said that he was a lineal
descendant, on the mother's side, of John Ivnox.

In 1745 was ordained minister. He was present as a specta¬
tor at the Battle of Falkirk, January 17th, 1746, and was
then prisoner, but was released after a short confinement. In 1776 Dr. Witherspoon was a member of the Provi¬
cial Congress of New Jersey, and of the Con¬
}
Song of the Centennial

BY JOAQUIN MILLER

The Mindred Sings:

1. Peace on earth and harvest time!
   Hail the day, but heal the scars!
   Heavens blue, yon banniered stars
   Blending in the far sublime,
   Sing Peace on earth and harvest time!

2. Peal the cannon! clang the bell!
   Wave the banniers! Bow and pray.
   Turn in gratitude to-day
   To mighty men who fought and fell—
   To Him who doeth all things well.

3. Peace on earth and harvest time!
   The farmer sings; the battle-field
   Bears on her breast a gleaming shield
   Of corn that clangs in rippled rhyme—
   Lo! peace on earth and harvest time!
IV.

"The heralded soil
Of the Arab Sheikh, that defies control."

Order, pointing to the Flags:

1. You stars stand sentry at the door of dawn; You bars break eclipses. Kings in vain Shall rave and thunder at freedom's fane, And the years shall be yours while the eons roll; But thunder and threaten where the black storms run; And cover the world. Exult in the sun, Curve as the waves curve, wild and free.

2. When the good shepherds studied the stars in a dream, O glitter bright harvest of stars and gleam! And the years shall be yours while the eons roll; And flutter your pinions from shore to shore.

3. O sweet, brave men, is the feast in store, And all is well and the world is fair
And a brave old world than ever before; But the great, grand things of the vast West land, That strife on the border; but this the reward!

4. The Ranger:

"I'm one of them fellows fought with ole Hood. I reckon, by golly, ye might reckon. Them lean, ragged Rangers. . . . Not 'ligiously good. They'd smoke, and the like. So? Then I speak They've wip out a leek bout that tussle with Hood.

The Ranger:

"What? What do you think of you? Lord! That stand you've, a long blue line we blazed red hell. Then Hood gave a whoop, and down on the blazes; Then back rolled the gray'un, then, God, sich a yell! And, cats and black dogs! it was hot then for you's

The Ranger:

"Hasty & hot then for you'n's. Back rolled the gray'un, then, God, sich a yell! And, cats and black dogs! it was hot then for you's

The Ranger:

"My hie! my mighty ride is, My hie! my hie with wings!"

XII.

My dark-brow'd columns of Ocehro
I bring you. Weird levels of shadowy land, Lo! endless line upon either hand. The moonstruck red men come and go; They gallop the watered and wood-locked land Below while columns and columns come and go. That round and top to the arch of the skies. The red man is looking his lost. He dies! The stars in shining his banners. The plume Is fertile from blood, and will bloom again.
Is shaking the earth with his majesty. As it whips in the air. His black hoof taps As his steed beats the air with his black bare feet. His black eyes blaze. His swift tail snaps His vast mane tumbles with gathering strength. His high shoulders heave and his dark brows gloom His horns fall a-rest. He stretches his length. the buffalo bull.

—

I bring you the red man. Nay! I bring but the bocking ghosts of the warriors that were. We stood on the mountain of fire. The air Was heavy with shadows. A ghostly king. Stretched forth a red hand to the peaks of snow, Saying, “These are my monument. Those are mine, Through ages that follow, to threaten and shine And recall my achievements. The red man must go, But Shasta remains.” He turned from his post, And moved down the lead like a shadowy ghost.

—

Despite not his story. The lasts of his race Once stood in the twilight of wood, and told Of the melting of stars and the making of gold, As he gathered his blanket and looked in my face; “In the days of my fathers, my mother, the earth, “The flames touched heaven, and then swept through And melted a star into rain till it fell And scattered a shower of shot as of hail, And saved the land as your arrows do. Ay! Sowed it with death. Hi! Listen to me: The earth lay still lay in her lodge at morn, And the flames drove back, for the moon was been; But, oh, the plague as they rode on the sea For the star that melted had made the gold That led the Saxon to our last stronghold.”

—

I bring from the mighty unsown domain The Pino palms that ran Mexico. I bring you black steeds that do wheel and blow In storms and unbridled along the plains. I bring you the rains that wrestle with Time, The gray Casse Grande that rise sublime, From burning red sands where the savage roams; A homeless people and peopleless homes! The mild-crested Ateee, his flocks of snow, his arts of three thousand years ago.

—

I bring the Sierras, where the sunlight like gold Sifts down through depression and high howling wood Behold the Vaquero! How dashing and bold In his broad sombrero. The wild steed neighs to his mates in the wind; He drowns his hand in his flood of mane; He rides. As he rides you may hear him sing:

“Up! up through the clouds, to the turbulent height Of the lone miner’s town. Up, up through the night The brave maus clamber in, and they cling. And you hear him shout, as you hear him sing:

The Menoer songs:

“Up! Up! unha! unha, curra, Senorita, monte, faro— Nights must be, But lights may burn Oh, hide for me, For I return. "KI! Muchacho! Yaup! Lolita! Sene one’s waiting, Scorioro— Nights must be, And storms must blow, But love fears neither Night nor snow.”

—

I bring you the river of earth that divide: The wide middle-world; and the sun they throw; The early levitation there that rides The ended swift waters; that turns upon His head as a strong man turns on his heel. My whole soul thrills as I see the king At wheel or fire. His arms are bare. His breast is opened. It is black with hair And the smoke of battle. Behold, I bring This man to the front, and I crown him king.

—

A new and black brother, half troubadour, A stray piece of midnight, comin’ prancing on de sky. La! beauty and valor! The song of the shore, The “Hail Columbia!” falls faint and far. We come upon night and her settled star. The thousand bright banners have dimmed to a speck.
The black man hapt mounted a keg. From
his throne
He thumps his banjo. Come! let us alone.

A song sounds up from the deeps of the world;

The Pfegro sings:

"Gwine down to de Quaker ball,
We white folks and de niggers all,
An' camp upon de battle-ground,
Lots o' time an' lots o' tin,
Dully boy, wid hat bent in,
To dat ole Pensi-quaker town,
For I kin shake a heel an' shout.

* * Gwine down to de Quaker ball,
And made or unmade the monarchs to be,
And girdled the earth with golden estate,
In this was she nourished—grow
A handful of sand that sinewy men
bring you for Commerce a handful cf

From the salt-flood floor
Thou shall plunder plate and chalice,
Where the busy gnomes abound;
We shall come, like Greeks from Troy,
We shall rise with shouts of joy,
We shall pillage castle, palace,
And tear the wounds agape again?

"Wc are fighting underground.
Now a thud, a smell of powder
There is clash of pick and tine.
There is clash of pick and mine.
There L movement in the mine.
We are battling with the gnomes.
"We shall come, like Greeks from Troy,
From the battle underground."

Order to the Pfegro:

Oh, wondrous tho wealth, prodigious the
powers!
Unbound tho dominion, and matchless the
loos
And this the inheritance! This, then, is your
home,
Raised down, as you stars are reached down, from above.
Then rise in your places. Rise up! Let us take
A great oath together as we gather us
here.
At the end and beginning of an hundred
year,
For the love of Freedom, for Liberty's
sake!
To hand the Republic on down, undefiled.

HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

XXV.
The past is before us. Its lessons are wise:
The cycles roll by, and beckon, and cry—
"Lo! there fell Babylon; fell, eaten away
From the aim to the darkness of night.

XXVI.
Oh, let us live pure in the flush-side of life;
Be patient in toil as the ancient years roll,
Oh, let us strive too much in the strife,
And build ambition and invoke control.
Come, turn us from luxury, bash down the
walls.

XXVII.
The oceans life in segments
The thousand wonders in the sun,
The ships replace the battle-tales,
The boundless tessell top and win.
The weighing sight, the bugle's blast
These be stories of the past.

xxv.
The earth has healed her wounded breast.
The caynous place the field no more;
The heroes rest! Oh, let them rest.
In peace along a wonderful shore!
They fought for peace, for peace they fell;
They sleep in peace, and all is well.

The fields forget the battle fought.
The trenches were in golden grain
Shall we neglect the lessons taught?
And lose the wounds weeps again?
Sweet Mother Nature, move the land,
And heal her wounds with gentle hand.

Let a peep on earth: Lo! green and gold,
Lo! rich abundance, fat increase,
And valleys clothed in sheen of gold.
Oh, rise and sing a song of peace!
For Theoses rounds the land no more,
And Jesus rests with rested door.

xxvi.
"Wc are fighting underground.
Now a thud, a smell of powder—
Louder now, and—louder, louder
Till the fires be dealt with sound.
We are battling with the gnomes.
We have gripped them in their homes,
We are blasting underground.

"We shall come, like Greeks from Troy,
From the battle underground."

"A new and black brother, half troubadour,
Stray piece of midnight comes grinning on deck,''

"Stoga boots an' stove-pipe hat,
A new and black brother, half troubadour,
"Lo! rock-rent Nevada! The heaved land is sown
Embossed in chased silver. Yonder was thrown
With cinder and boulders. 'Tis the torn battle-field
Of the Titans of Saturn. Here "ell the shield
Of the Titans of Saturn. Here "ell the shield
The steel in the heart of the ribbed earth hurled,
"To dat ole Pensi-quaker town,
For I kin shake a heel an' shout.

"Stoga boots an' stove-pipe hat,
A new and black brother, half troubadour,
Stray piece of midnight comes grinning on deck,''

"Lo! peace on earth,"
In CONGRESS, July 4, 1776

The unanimous Declaration of the thirteen united States of America.

When in the Course of human Events, it becomes necessary for one People to dissolve the political Bands which have connected them with another, and to assume among the Family of Nations, the Station of Independent States, it is their Right to oblige themselves to this Course, and it is their Duty to try to effect it, and per chance to carry it into Execution.

We hold these Truths to be self-evident, that all Men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty, and the Pursuit of Happiness.

That to secure these Rights, Governments are instituted among Men, deriving theirjustpower from the Consent of the Governed. That whenever any Government becomes destructive of these Ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such Principles andOrganizations as their Wisdom shall direct.

We, therefore, the Representatives of the United States of America, in General Congress, Assembled, appealing to the Supreme Judge of the world for the Rectitude of our Intentions, do, in the Name, and in Behalf of the United States, and in the Name of the People thereof, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are Absolved from all Allegiances to the British Crown, and that all Political Connections between them and the State of Great Britain are, and ought to be, totally dissolved.

And for the support of this Declaration, with a firm reliance on the protection of Divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor.
AGRICULTURAL HALL.

(Continued from page 117.)

JAPAN.

The southwest corner of the Agricultural Building is devoted to Japan. This department, beginning with an exhibit of tobacco, in leaf, pressed and cut, is followed by a frame of illustrations done in colors by hand, presenting is made illustrating the manufacture of silk in cocoons and reel. A number of hides are displayed, dressed with the fur, presenting specimens of some twenty different animals. From the province of Tokonai there is a small exhibit of fish; and from that of Satama an exhibit of cotton in a raw state and in all stages of preparation. A display of hemp, ramie, jute and China grass fibers completes this portion of the Japanese department. A very pretty exhibit is made of the different kinds of native dye-woods, number-
NORWAY.

The department of Norway is situated immediately behind that of Brazil, and its exhibits are presented in an ornamental shape, the cases containing the different articles being very prettily constructed and artistically decorated. In the centre is quite a show of confectionery, bottles of punch and liqueurs. Next to this is an exhibit of native woods, showing sections of trunks of trees, planks, lathes, staves, corners, etc. Behind this is a display of genius, stuffed birds, canned meats, Norwegian game ale, sides, and condensed milk. The display of pale ale of various manufactories is quite large. The Christiania Preserving Company exhibits a large number of specimens of preserved meat, poultry, game, fish, soup meats, etc. There is one case devoted to tobacco and cigars, and several to aqua vitae and other preparations of spirits. One corner of the country is represented by a stuffed figure presenting a passenger on a reindeer-sledge, a man in life-size, being heavily coated and wrapped in furs, and a reindeer rather undersized, in a very natural position. But decidedly the most interesting portion of the Norwegian display is comprised in the exhibition of fish and of fisheries. This is quite in the northwest corner of the building, and occupies a space of about forty feet square. In this are a collection of glass jars exhibiting specimens of the different fish native to the country, models of some larger specimens, models of fishing-boats, boxes and jars containing preserved fish, and including red herrings, cods, haddock, white herrings, fish-oil, fish-roe, salted and dried cod, eysters, etc. There are also exhibited fishing-gear, seines, fishing-oil, preserved salmon, lobsters, etc. A Norwegian fishing-net used in the distant Arctic waters is also displayed. There is several specimens of leather and belting, one exhibit of hitter, and one of preserved old cheese. Fish greens and Norwegian salted herring are also exhibited, and, in addition to the models of fishing-boats, a model of a fisherman’s hat. Besides these, there is a large collection of fishing-tackle, fish-hooks, lines, and the like, the largest species, model of an ice-hole, salt herrings in boxes. In fact, a large and most complete and instructive collection of articles, illustrating one of the most important industries of Norway.

PORTUGAL.

A short distance from the department last described, a space of about twenty-five feet square is given up to exhibits of India rubber, including the various products, including the rubber-tree in several premature states, and exhibits from Guayaquil, Panama, Carthagena, Honduras and other South and Central American countries, besides specimens from Mexico, Madagascar, Mozambique, and the western colonies of Africa, Assam, East Indies, etc.

The Portuguese exhibition is extensive and varied. Naturally it is present in its chief force in its display of wines: muscatel, grape, port, etc. Besides the wines, there are considerable exhibits of preserves, syrups, etc., after which come the exhibiting fruits and vegetables, comprising a thousand glass jars of various sizes and kinds, exhibiting a very handsome and complete display of the agricultural products. The display of canned fruits and vegetables is also unexpectedly large and full, and covers prizes all imaginable articles in this line. There is also a considerable exhibit of cheeses, and a very full exhibit of olives, as also of ingenious nuts, dried fruits, honey and biscuits. The exhibition of confectionery is quite showy, including dried fruits, candles and preserves of various kinds. The Portuguese exhibition shows with an exhibit of hides and a full representation of native seals, in bottles. But the space allotted to Portugal and filled by that country does not end here. On the southern wall of the building, cast of the nave, and on a line with the Japanese department, is a very full display of fishery materials, arranged in glass vases, and including the products of hemp, flax, wool, cotton and silk in cocoons and skeins. Next to this is a long line of bottles, many hundreds in number, containing exhibits in olive oil. Finishing these exhibits are those of the various Portuguese colonies, including Goa, Mozambique, St. Thomas, Princep, Cape Verde, Mexico. These exhibits include the production of the countries specified, comprising specimens of native woods, gums, graine, seeds, nuts, and tobacco. A trophy of arms, axes, spears, jacinthes, clubs, etc., presents a picturesque appearance. A number of cains, preserved fruits and vegetables, and a specimen of a gigantic fungus growth, complete this department.

SPAIN.

The department of Spain is next to that of Portugal, and includes also the various colonies; the West Indies Islands, Philippine Islands, etc. The spectacle at once struck with the largeness and wealth of this department. Naturally, the display of tobacco in its various forms, and particularly cigars of the finest manufacture, is large and imposing. This would be expected, but the surprising feature of the Spanish department is the extent of exhibits in unexpected directions; as, for instance, in the matter of grains and into the display for samples anything above the same character in the entire exhibition. Next, that of fibres it is no less complete, the exhibits showing unusual care and taste in their selection and display. In the products of olive, both in the fruits themselves and in the oil, is a full and handsome representation. Wines and liquors are represented to a considerable extent, although not in comparison with those of Portugal. But it is stated that, no catalogue having been prepared of the Spanish department, the investigator is left to his own resources in examining it.

BRAZIL.

Immediately behind Spain, and extending to the west wall of the building, is the department of Brazil, whose exhibits consist of a number of agricultural machines and implements, including the cotton-matting machine, winnowing and setting-machine, square-rigged boat, etc. Besides these is a considerable display of soap, including two large cases of Castile soap, not one in a frame, are specimens of sealing-wax, artistically arranged; also a case containing samples of Portland cement, and some very beautiful specimens of cocoons, raw and finished silk. Specimens of uncolored and colored samples of pottery come next, and in the centre, a curious little rock-formation is left with a miscellaneous collection of domestic articles in use in Brazil, including baskets, flower-stands, curiosities, dances, brushes, toys, musical instruments, chinaware, religious paintings on panel, and a great many other articles not possible to describe. A large case containing samples of jute, flax, hemp, cotton and silk, with plates, sculptures of copper, and other curiosities, mostly presented in glass jars. Next to this is a case specially devoted to an exhibit of fruits of Brazil, and includes a very beautiful exhibit of preserved best-seed sugar. Then comes a case containing chocolate and other confections, preserved fruits, nuts, and candies, etc. Next, another case with exhibits of sugar in its various forms. In these exhibits last mentioned are a number of cases in which is displayed tobacco in various forms, the well-known Brazilian cigarettes being presented in a long case. The coffee is also exhibited, and appears of sufficiently good quality. Following these is a case containing wax, candles and specimens of the imitation fruits of Brazil, and various samples of manufacture in cloisonne and painted glass. A large case of imitators and extracts most attracts our attention, beside which is another containing confectionery and cakes. We then come upon an exhibit of preserved samples of various fur skins, and including alpaca, lambs’ wool and cottons. The display of wool and flaxen material is very large, and includes a few samples from most of the wool-growing districts of Brazil. There are here a number of beautiful pieces of silk manufactured from the cocoons of various kinds, woven up to skeins of raw silk, and exhibiting in size and form incomparable. In the display of the wool and flax materials, that of the Russian department may be considered one of the chief features of the agricultural exhibition of that country.

Next to this, perhaps, the exhibits of grain, seeds and especially the most extensive and representative. Nearly in the centre of the Russian department is a group of trunks or boxes, a kind of collection peculiarly arranged by the Russians, being made of wood and wool, those of the same form being considerably larger than the Saratoga trunks. This peculiar style of box, or chest, as it is made by the Russians in basket-
work, but considerably more in very pretty confections in a birch box; a few specimens of native woods in the form of boards, carved with the lark, and labels three ounces, with the name of the wood, are to be seen in a case facing the end of the Spanish department, next to which is a case containing artificial honey and honeycomb, and next to that a beehive. Russia furnishes a very full show of preserved fruits and berries, dried, including strawberries, wheelberries, raspberries, etc., besides which are some specimens of coffee in large glass jars, dried peas, lentils, rice, edam-nuts, etc., and Spanish almonds, filberts, pine-nuts, more preserved fruits and insects.

This brings us to the display of caused meats, fish, etc., and of distilled bitters, bignares, wines, balsam, etc., to which may be added mention of two cases which occur here, containing samples of leaf tobacco, with two cases containing specimens of lapping, wool-dope, rope, and other fabrics in felting, with a few scarce in fancy colored materials.

Among the forest products are specimens of various kinds of trees growing in the forests and steppe of Russia. Samples of birchwood, linden, and cedar comb galleries, willow-turb for tanning skins, fir and pine-seeds, and reproductions of sixty-two varieties of apple-trees peculiar to Russia, as is also fig-coffee and chocolate.

The sugar manufactories of Warsaw employ as many as 500 workmen, and whose manufacture is worth over a million of rubles per annum. The tobaco used for manufacture is valued at 1,700,000 rubles per annum. The tobacco mould for these cigarettes is Bess-Arabian, Virginian, Caucasian, Crimean and native. Chiccory is manufactured to a considerable extent in Russia, as is also fig-coffee and chocolate. Monitors of trees growing in the forests and steppes of Russia.

Next are some burr stones for wheat-grinding, and smaller stones—used in agriculture, with samples of toilet sets. The flora of Canada is illustrated by dried specimens in boxes and others in spirits, besides canned fish in a variety. We now come upon the display of New Brunswick woods, arranged upon a high partition, topped with a mouse-head and a pair of snow-shoes, as an appropriate ornament. These woods include forest woods, shrubs, etc., evergreen and deciduous trees indigenous to the province of New Brunswick, used for shipbuilding, constructional, cabinet, and ornamental purposes. These comprise sixty-seven specimens, accompanied with foliage and cone. Victoria and New Westminster, British Colonies, also exhibit cranberries. In Nova Scotia there are six cases of stuffed birds, one pair of caribou, two cariboo heads, two moose -heads, and one black bear. From Ontario there are stuffed birds. Ontario sends ox-tongue, a pair of cariboo heads, two moose -heads, and one black bear. From British Colonies is send an exhibit of iron wire, with samples of toilet sets. The next exhibit is Staffordshire ware, both plain and ornamental. It is quite full enough to give one an adequate idea of the peculiar quality and character of this manufacture. Some of the specimens are exceedingly beautiful, very tastefully ornamented, as in the case, also with samples of toilet sets.

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DANIEL WEBSTER'S PLOW.

DIGEST OF THE CENTENIAL EXPOSITION.

The Historical Register of the Centennial Exposition.

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British Colonies: Victoria, New Zealand, New South Wales, and South Australia.

Victoria displays a large number of specimens of her native woods. New Zealand exhibits specimens of wool, and the South Australia Commissioners at Adelaide send a request, some. ox-handles from South Australia, iron ore, a model of an improved ore-dresser. And we now come to the department of Canada.

The Canadian agricultural exhibition begins with a very full and varied display of grains, beans, peas, etc., in glass jars and boxes under glass. Following this are exhibits of wool, and next is a very interesting collection illustrating the entomology and ornithology of Canada. The flora of Canada is illustrated in dried specimens exhibited in portfolios under glass. Here also is a small exhibit of Canada-manufactured tobacco, canned meats and fish, and an exhibit of Canada salt, next to which is a display of whalebone, oats, wheat, and crinkled wheat flours. The Montreal brewery makes a fine show of ale and porters, and an exhibit of PUBA'S PLASTIC.

THE MARYMONT AFRICAN.

OBJECTIONS OF INTEREST IN AGRICULTURAL HALL.
THE KANSAS AND COLORADO BUILDING.
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

Danish.

Denmark occupies only a single space in the Agricultural Building, its chief agricultural exhibition being in the Main Building. A small space here, lying between Sweden and Norway, contains some exhibits of spirits, beer and bitters, some canned butter, grains, and a model of a milk refrigerator.

Liberia.

Quite a little display is made by the far-off Republic of Liberia, a territory comprising about 600 miles in length of coast line on the West Coast of Africa, and having a population of about 700,000, of whom about 20,000 are emigrants from America. Liberia exports palm oil, palm nuts, arrowroot, coffee, ivory, and sugar, and has sent specimens of all these products to the Exposition. Besides these, there are iron ore, logwood, robes of a native chief, a canoe about fifteen feet long, and hammocks. Quite a thriving trade is done in the building in coffee and palm soap.

Swedish.

The Scandinavian countries are allotted a space in the Agricultural Building on the west side, about one-fourth of the distance from the southern end of the building, with a small space at the extreme northwestern end devoted to a fishery exhibit. The first exhibits to which our attention is drawn consist of glass jars and bags of seeds, and grain, some fishing-nets, and some dried grain in small sheaves. There are also to be seen specimens of flour, and boxes of preserved anchovies. The oyster anchovies, which are to be found here, unlike the common anchovies, are packed with spices, and have not before been exhibited at any International Exhibition. The manufacture was first commenced in 1845. The time of catching extends through only a very short period of Spring and Autumn. The packing is all done by hand. These anchovies are exported from Sweden to Denmark, Germany, Russia, and Finland. The operatives engaged in the manufacture receive—men, thirty cents per day, and women fifteen to seventeen cents per day. The production during 1874 amounted to $1,670 gold. The raw materials used for the production were 6,000 firkins of sprats. The refuse, skin and bones, is composted and used as a fertilizer. Besides

THE STATUE OF “THE FREED SLAVE” IN MEMORIAL HALL.
Wiscosin has full ex¬
blishes in this line. The State of Michigan offers a magnificent display of native
woods, in sections of gigantic trees, in spiceries of timber in the rough and
shoved. Ohio sends white pine lumber, cedar, basswood, and basswoods;
Massachussets offers burlamased lumber for bridges, wharves,
nurseries, and other purposes.
where wood is liable to decay; North Carolina sends
samples of native woods exhibited are sections of tree-farm fields; and Maine
basswood panels; Virginia ground-nuts; New York various
species of alcohol is manufactured from reindeer moss,
and New Orleans southern
moss. The Michigan display is a collective exhibit from
the Michigan State Agri-
cultural College. Pomology is the next subject in order, and this at the present writ-
ing has not been very fully illustrated, but will doubtless be later in the
building. The building has been spe-
cially constructed and de-
oted to the purpose of pomological exhibits. Here present are wax models of apples, pears, and other
fruit from Iowa, cranberries from various portions of New
York, apples from the Michigan Pomological Society; at
Detail, pumpkins from New Orleans, etc.
In agricultural products strictly, the display is, of course,
large and varied. Some exhibits, as is the case in the State
of South Carolina, are the result of experiments in "natural
vegetables, the specimens of native woods exhibited are sections
of oak and basswood, pecans, nuts, grapes, grasses, and the various vegetables exhibited
by the different States, there are also cyphils simple,
with a comprehensive classification of straw-goods from Pennsylvania, field and garden
seeds, grasses and tobacco from the soil-forms of D. Lan-
dy & Son, Philadelphia, the production of their grains, grasses, and Pennsylvania, New Jersey, New York, and Wiscon-
sin. The State of Oregon sends native and cultivated
grasses and grass-seeds, with grains in the shield and in the sack. The State of West Virginia has a collective exhibit,
including grass and agricultural products, tobacco, wheat,
corn, oats, barley and rye. From Georgetown, South Carol-
ina, there is an exhibit of Carolina rice. From our own
establishment in New York there are 200 varieties of potatoes exhibited.
The display of tobacco is really immense, in¬
cluding Perique from New Orleans, plug, seed, and strand
shovng tobacco from Durham, North Carolina, and snuff, cigarr¬
ettes and cigars from all the leading manufactories, and
including all the prominent brands. Birchwood (Vir-
ginia) and Louisville (Kentucky) are largely represented, while the well-known house of Gill & Ad.
of Baltimore, makes a handsome display of smoking and fine-cut chewing
tobacco. The State of New York, especially the
Kerbs & Spies, of New York, have a very
handsome exhibit of cigars, which has been illustrated and described in the previous number of this work. From West Springfield,
Massachusetts, we have ex-
hibits of Connecticut seed-
leaf tobacco, and this, from
Michigan, cigars of ho-
me manufacture. The

United States

Although the agricultural exhibits of the United States
exhibitors occupy fully half of the Agricultural Building,
the American public have been so familiarized with their char-
acters through State and other fairs, that any precise
description of most of the articles would be a work of in-
peregrination in this place, and we shall therefore only refer
to those exhibits generally, and in accordance with the clas-
esification employed in the arrangement of the display.
Beginning with our color and forest products, we have
the fine collection of conifera of the Pacific Coast, illus-
trating the native woods of that territory very fully. North
Carolina, Indiana, Pennsylvania, Iowa, New Jersey and

perch set up on the west side of the house, and in the
observed of all observers. He is perfectly true, although
he has not in the least lost any of his fire, but overlooks
the sale of his photograph and biography, which goes on to a
considerable extent beside him, with entire satisfaction
and expansiveness. Next to "Old Abe," the most interesting
exhibit is that of Ward's Natural Science Establishment of
Rochester, New York, which makes a very fine display of
diapercocococcus, figures, and birds, including the
giraffe, the dragon, meandre, muskrat, grizzly bear, Ameri-
can elk, wild cat, etc., all handsomely preserved and placed
in lifelike positions. From Hennepin, Ill, we have a
small exhibit of animal and vegetable products, of course,
comprising a very large variety of articles, and include exhibits
of fruits from every State, and especially from the Union.
Quite a show is made in gold, gold-sheen, man's first oil, lead
oil, refined beef, steerine and other similar products, chiefly
from New York and Philadelphia. Every man, and
of good American wine was a thing almost
known. The grand article illustrated and described.

is a spade used by a soldier in Washington's
army. The juice ferments and is drawn
off three times the first year, twice the second year, and once
the third year, and always in the January. The
third year the wine is bottled in the month of February, and is not sent for use
until six months later, or about September. In order
to establish the reputation of the Exhi-
bition to appreciate the quality of the wine of Cali-
fornia and to encourage San Francisco manufacturing
establishment has a bud-
lemon, where a half-bottle of
native wine with lunch is served for one dollar.
Agricultural engineering and administration comes next
in the classification. This department includes such ar-
ticles in ditches-machines, stump-pullers and rock-tippers, road-
scrapers, post-hole diggers, rollers, and other similar
machinery, with fertilizers, farm-carts, bee-hives, bird-
enges, winemills, poultry courts, logs and barrows, sugar
evaporators, ornamental iron and broom work, etc. Phila-
delphia and New Jersey exhibit strongly in this line and
New York and Ohio are next in importance as exhibitors.

Under the head, Tilghne and General Management of Farns,
a miscellaneous classification of exhibits is made, including
horse and cattle food, devices for training and educating
horses, food for cage-birds, and a considerable display of
horsefood and nits, and horsehoe machinery. A working
model for making horseshoes by machinery is a notable ex-
hbit and well worthy of examination. In this machine a bar
of malleable iron is passed through two rollers, which act
as automatic followers, being kept in constant pressure on the bar
by an attachment to the acting lever, which, working on a
cone, cuts off the bar just the necessary length of iron to make
one horseshoe. At the moment of cutting off, the bending
tongue eutches the piece cut off and carries it into the first
die, which gives the shape and form to the shoe. It
then passes on to another roll on a shaft called the crossing
shoe, on which is a die, to which the creases are added,
and by means of which the crossing of the shoe is pro-
duced, while at the same time the holes for the nails are
pierced. Here is then a finished shoe for the horse or
male, which is only to be heated and fitted by the local
blacksmith before being used. One great advantage which
this machine possesses is, that any shoe of any shape, size
or pattern can be made upon it. A fluster-cut pattern of
the shoe is carefully taken, and this fluster-cut is used in
stead of the customary wooden pattern for making the shoe
mold in which the iron die is to be cut. As soon as the
horsehoe comes from the second die (plenty of water al-
dropping from the machine), it is carried off to the
storehouse on an endless chain, and about the time it
arrives there is comparatively cool. This completes our
examination of the United States department and of
the Agricultural Building.

In many respects the American exhibits in this building
best express the progress of the United States in the past
decades. We have indeed been a very practical people.
Indeed, it is only within a few years that we have, to any
great degree, cultivated esthetic tastes and begun to make
our mark in the world of art. It is therefore that our ad-
avancement in these directions, which are generally grouped

together in our display in the Agricultural Building, is
actually a fair exponent of our real progress. As already
remarked, we have met with but little competition at Phila-
delphia in the art of agriculture; and, doubtless, this
is because the means for such competition do not exist.

EXHIBITS OF FISHING CRAFT IN AGRICULTURAL HALL.
Agricultural Statistics

United States.

There is almost no country on the face of the earth so admirably adapted for agricultural purposes as the United States. The area of the country in 1807 was 1,950,740,480 acres. This is exclusive of the Territory of Alaska, which in itself comprises 576,000,000 of acres. The mountain ranges, the Appalachian chain toward the east, the Rocky Mountains in the centre, and the Sierra Nevada in the west, divide the United States into four great regions: the Atlantic Slope, the basin of the Missouri and Missouri, the country between the Rocky Mountains and the Sierra Nevada, and the Pacific Slope. The river of the United States are of vast magnitude and importance. Of those flowing east and south, the principal are the Mississippi and Missouri Rivers. The coast-line on the eastern coast, that of Sitka ranging at times as high as 800 miles. Of course in a country extending through 24 degrees of latitude and nearly 120 of longitude, the climate varies considerably. In the north, along the British frontiers, the winters are severe, and as far south as Pennsylvania and New Jersey the thermometer falls below zero. In the southern parts of the United States, the Summers are very hot. The climate of Great Britain is mild and equable in a remarkable degree. The Winters are considerably warmer and the Summers cooler than in any other place of equal latitude. The mean temperature of England is 49.5 degrees. Very few species of plants or animals are peculiar to Great Britain. The flora resembles that of Germany. The soil of Great Britain is almost exclusively devoted to the production of bread-stuffs, and grasses, etc., as feed for domestic animals. The total extent of the land returned in 1872 under all kinds of culture: Spring wheat, 112,549,733 bushels; Winter wheat, 175,195,893 bushels; Indian corn, 70,044,549 bushels; rice, 73,659,921 pounds; tobacco, 206,753,341 pounds; cotton, 3,011,996 bales; Irish potatoes, 143,337,673 bushels; wine, 1,001,369 gallons; hay, 27,150,048 tons; wool, 300,822,887 pounds; and sugar from cane, 87,043 long hogsheads. Of dairy products there are made in round numbers, 514,000,000 pounds of butter, and 26,000,000 pounds of cheese. The value of such products (1870), in round numbers, is $336,878,429; of live-stock, $1,525,276,457; total estimated value of all farm productions, $2,447,538,658; the aggregate value of all the minerals and metals obtained in the United Kingdom in 1874 was £67,834,313. The climate of Great Britain is mild and equable in a remarkable degree. The Winters are considerably warmer and the Summers cooler than in any other place of equal latitude. 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New Zealand.

The total area of the British colony of New Zealand is about 60,000 acres. It consists of three principal islands—North, South, and Stewart Islands, and several small islands, including Chatham Island and the Auckland Islands. The mountains are mostly covered with evergreen forests, but bare spots occur, and occasionally with tressless, grassy plains. Extensive and rich valleys and sheltered bays abound in the North Island and in the east of the South Island, and there are extensive plains adapted for agriculture and cattle-breeding. Water and water-power are found in great abundance.

The climate is very various; in the northern districts, which lie between 32° and 21° lat., the Summer heat occasionally rises to 120 degrees. At Sydney, the mean temperature of the year is about 65 degrees. The Summer heat is from 65 to 80 degrees, although it occasionally rises higher. In 1875 there were 1,011,776 head of cattle, 11,704,853 sheep, 123,921 pigs. In the year 1874 the value of the yield of gold was $7,526,655, the average price of gold, exclusive of specie, was £4,053,288. Victoria had, in 1874, 346,691 horses, 346,691 sheep, 22,872,828 sheep, 856,609 honied cattle, 346,691 horses, and 219,958 pigs. The total area of land under cultivation was estimated at £786,152. In 1874, 1,011,776 head of cattle, and 1,788,800 acres of land were fit to produce all the grain products of Europe. Immense tracts of land, admirably suited for cultivation, are found in great abundance in the colony. Its streams are short, and not numerous. Some of the rivers have an area of not less than 50,000,000 acres, and receive as tributaries several large streams flowing for hundreds of miles from the north-west, west, and south-western parts of the interior. The banks of the rivers are usually well suited for cultivation, many in places containing deposits of gold. Small islands of great beauty and fertility. Vast plains from 60 to 80 miles wide, in the course of construction. In 1874 there were 4,464 miles of telegraph wires.

The 1 sinks of the colony consisted in 1874 of 69,838 horses, 494,947 cattle, 11,704,828 sheep, 123,921 pigs. In the year 1874 the value of the yield of gold was $7,526,655, the average yield of the gold-fields since 1862 having been about $11,000,000 per annum. The principal product of the colony is wool, the export of which in 1874 was valued at $14,173,472.

Victoria.

The British colony of Victoria comprises the southeast corner of Australia, where its small area projects furthest into the cool southern latitudes. The area of the colony is 50,466,730 acres. The climate is healthful and agreeable. The average temperature at Melbourne is 57.6 degrees—about the same as that of Naples, Nice, and Madrid. The usual Summer heat is from 65 to 80 degrees, although it occasionally rises higher. In 1875 there were 1,011,776 acres under crops of wheat, oats, barley, potatoes, and forage; the total number of horses was 180,594; milk cows, 314,137; horned cattle, 717,230; sheep, 11,221,290; pigs, 137,911. The manufacturing of Victoria employed 23,000 persons, and the number 23 work in the gold-fields. December 31, 1874, was 45,151. The total exports of wool in 1874 were valued at $3,773,461. The export of gold, exclusive of specie, was $4,053,288. Victoria had, in 1875, 1,011,776 miles of railroad open for traffic, and 427 more in the course of construction. In 1874 there were 4,464 miles of telegraph wires.

New South Wales.

The total area of New South Wales is 296,939,070 acres. This colony extends over 11 degrees of latitude, and its climate is very various; in the northern districts, which are warmest, its tropical or Summer heat occasionally rises to 120 degrees. At Sydney, the mean temperature of the year is about 65 degrees. The Summer heat is from 65 to 80 degrees, although it occasionally rises higher. In 1875 there were 1,011,776 head of cattle, 11,704,853 sheep, 123,921 pigs. In the year 1874 the value of the yield of gold was $7,526,655, the average price of gold, exclusive of specie, was £4,053,288. Victoria had, in 1874, 346,691 horses, 346,691 sheep, 22,872,828 sheep, 856,609 honied cattle, 346,691 horses, and 219,958 pigs. The total area of land under cultivation was estimated at £786,152. In 1874 there were 4,464 miles of telegraph wires.
Atlantic. Its area is 128,070,000 acres. The mean temperature is bounded by the Indian Ocean, and on the west by the highly esteemed as rugs, etc. The chief industries are which are all valuable for tanning purposes, the fur being which it is divided by the Orange River. On the south it kangaroo, wallaby, opossum, and bandicoot, the skins of extensively cultivated. The principal animals nro the white-gum, Other useful woods nre the acacia, black wood, myrtle, attention. The principal timber tr(>es of Tasmania are 1874 amount*si to export of this article during the year was confined to gold, most of the wool, tin, ore, and raw cotton. The yield of coal in 1871 was 5,000,000 tons; of iron ore, 129,000; of gold, 23,000 ounces; of silver, 70,000 ounces; of crude petroleum, 13,000,000 gallons — all in round numbers. The statistics of agriculture are as follows: "Wheat, 17,000,000 bushels; oats, 42,000,000 bushels; hay, 6,000,000 tons; buckwheat, 6,000,000 bushels; corn, 3,000,000 bushels; potatoes, 48,000,000 bushels; turnips, 25,000,000, being the principal crop of fur are 500,000 muskrats, 150,000 minks, 50,000 beavers, 20,000 of moose, cariboo and deer, 18,000 martens, 37,000 seals, 25,000,000 bushels. The principal forest-tree3 are the chestnut and birch in the mountains, the oak, and both industries are reported to be rapidly advancing. At the end of 1873 there were 9,663 acres under cotton, which is product>d for the mania in 1874 was 23,208, The produce of wool in 1874 was valued at almost half oattlo 110,450, and sheep, 100,000,000. The production of muskrats, 0,000 otters, and 2,500 bears. In manufac-duction of the same year there were about 150 iron mines in operation. Other metals are worked, but to little advantage. The annual produce of salt is about $1,250,000; and from its quarries of granite and free-stone, marbles, sands, lithographic-stones, millstones, etc., France derives about $8,000,000 annually. The value of the chief products of French industry is as follows (annual): Linen fabrics, $20,000,000; cotton fabrics, $120,000,000; woolen fabrics, $1,000,000; silk fabrics, $300,000,000; mixed fabrics, $60,000,000; jewelry, watchmaking, $7,000,000; gilt wares, $2,000,000; minerals, salt, etc., $1,500,000,000; articles of food, as sugar, wines, etc., $73,000,000; skins, leather, oils, tobacco, $110,000,000; beeswax, manu¬fique, etc., $6,000,000; chemical products, $16,000,000; ceramic arts, $15,000,000; paper, printing, $12,000,000; forests,
SWEDISH CHARACTER GROUPS IN THE MAIN BUILDING.
Germany. 

The area of Germany is estimated at 133,129,000 acres. The country 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; and, second, a vast, sandy plain, which extends from the centre of the empire north to the German Ocean, and which includes about 62,000,000 acres of land. Germany is drained by the Danube, the Rhine, the Weser, the Elbe, the Oder, and the Vistula. Numerous lakes occur throughout the country, but none of great size, but the canals are both frequent and important. Mineral springs are common, and many of them are valuable. The climate of Germany is quite agreeable, the mean annual temperature varying only between 43 deg at Sonnenberg, and 48 deg. at Frankfurt-on-the-Main. Germany is rich in mineral products, among which the most important are silver, iron, salt, and coal. The number of persons employed in mining operations in Germany in 1870 was 264,653; the yield of the different minerals was: Coal, 35,000,000 tons; iron ore, 3,000,000 tons; zinc, lead, and copper, 700,000 tons. The value of the leading products of industries in metals was about 820,000,000 florins.

The vegetable products of Germany include all the ordinary cereals, which are largely imported. Hemp and flax are also important products, while the vine is a still greater element of the wealth of the country, being cultivated chiefly in the districts watered by the Danube, Rhine, Main, Necker, and Moselle rivers. The hops of Bavaria have a high reputation, and the chicory grown in that district is also of great value. The value of the vegetable products of Germany is about 2,000,000,000 florins.

Of the fishery productions of Germany, the most important are mackerel, sardines, herring, cod, and haddock. The total value of the fishery productions of Germany was about 10,500,000 florins in 1874.

Austria-Hungary. 

The Empire of Austria and Kingdom of Hungary combined, and of which Francis Joseph I. is at once Emperor and King, occupy an area of 154,318,729 acres. Of this three-fourths are mountains or lofty, being traversed by three mountain chains, viz.: the Alps, Carpathions, and Sudeten. The chief plains of the Austrian Empire are the great plains of Hungary, which these in the eastern part are traversed by the Danube and the Theiss—and the plains of Galicia. The leading rivers having navigable tributaries are the Danube, the Vistula, the Elbe, and the Niemen. The climate of Austria is generally warm, but from the extent and diversity of surface it presents great variety. In the warm southern regions, rice, olives, oranges and lemons ripen, and wine and maize are produced anywhere. In the middle temperate region the vine and maize thrive to perfection. In the northern portion grain, fruit, flax, and hemp are raised successfully. The mean temperatures range between 44 deg at Lemberg and 35 deg at Trieste. In its rice products Austria is one of the most favored countries of Europe, and its mineral wealth is not surpassed by any other European country; it is only recently that Russia has exceeded it in the production of gold and silver. Except platina, none of the useful metals are wanting. Gold is found chiefly in Hungary and Transylvania; quicksilver in Iberia, Hungary, Sisira, etc.; tin in Bohemia alone, copper in many districts, zinc in Cracow and Carinthia, lead in Carinthia, iron in almost every province of the empire. Of metals and minerals there were produced in Austria in 1867: Coal, 1,080,000,000 cwt.; iron, 5,000,000 cwt.; copper, 47,000 cwt., etc. Many gems are found in various parts of the empire, including the opal, garnet, cornelian, agate, beryl, jasper, ruby, topaz, amethyst, etc. The number of telegraph wires 89,646 miles. The annual product of rock-salt is about 3,000,000 cwt., and that from salt springs as about so much more. Sixteen hundred mineral springs are enumerated, some of them of European reputation. The vegetable productions are exceedingly various. Grain of all kinds is 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 steals first, yielding not only the finest quality of wine, but four-fifths the amount of the whole produce of the empire. The average entire product of the empire is about 490,000,000 gallons. Flax is cultivated almost universally, and while hemp in a number of districts. Tobacco is raised in great quantities, particularly in the Banat, but not enough for the consumption. Potatoes have been lately cultivated successfully in Dalmatia. Austria produces about a quarter of a million of silk cocoons annually. The silk trade is very extensive in the Tyrol.

In 1851 the number of horses in Austria was estimated at 3,300,000; cattle, 10,410,484; sheep, 16,801,545; goats, 29,000,000; pigs, 9,000,000. The wool crop for 1869 amounted to 27,500 tons. The average potato crop amounts to 90,000,000 bushels; the annual value of the silk industry is about 60,000,000 florins; the silk wool secures about 19,000,000 florins. The length of railways measured in 1871 about 13,310 English miles, and the telegraph wires 89,646 miles. 

Magyar adheres to his primitive husbandry; the German districts. Tobacco is raised in great quantities, particularly in the Banat, but not enough for the consumption. Potatoes have been lately cultivated successfully in Dalmatia. Austria produces about a quarter of a million of silk cocoons annually. The silk trade is very extensive in the Tyrol. 

The Kingdom of the Netherlands has an area of 8,721,260 acres. The land is generally low, much of it being under the level of the sea, rivers, and canals, especially in North and South Holland, Zealand, the southern part of Gelderland and Friesland. Along the west coast
the lowlands are protected from the sea by a line of sand-dunes, and onshore, where that natural defense is wanting, strong dikes have been constructed to keep back the waters, and these are maintained at great expense, under the direction of special engineers who have charge of them. A hilly district stretches from Prussia through the eastern part of Utrecht into the country between the Mass and the Waal. This tract is of a light sandy soil, and well watered.

The greater portion of the north is very fertile, the lowlands and Zeeland being adapted for pasture and cattle, and the light soil for cereals and fruits. The chief rivers are the Blance, Mass and Scheldt, which have also important branch streams. Waterways are more numerous than in any other European country, the immense tracts of madow land being drained by large canals and cut in all directions by smaller ones for drainage and communication.

The climate of the Netherlands is variable, chilly cold often succeeding high temperature, inducing various forms of fever and agues. In Summer the thermometer sometimes rises above 80 °F., and even to 90 °F., in the shade, and a Winter of great severity usually occurs every five years.

The farms are generally small and well cultivated. The chief products are wheat and barley, and cattle, sheep and pigs reared and extensively made, and cheese. In North Holland butter and cheese are extensively made, and cattle, sheep and pigs reared and cheese. The chief fruits are apples, pears, plums, cherries, and strawberries. The climate of the Netherlands is mild in Winter, chilly cold often succeeding high temperature, inducing various forms of fever and agues. In Summer the thermometer sometimes rises above 80 °F., and even to 90 °F., in the shade, and a Winter of great severity usually occurs every five years.

The chief products are wheat and barley, and cattle, sheep and pigs reared and cheese.
fourth of the whole surface, the birch, fir, pines and beech being of great importance, not only for the timber, turp and pitch which they yield, but also for their supply of charcoal and firewood. The common fruits—apple and pear—grow as far north as 60 deg.

Cranberries and other berries abound in all parts of the country. In 1879 there were in Sweden 428,446 horses, 1,063,800 booted cattle, 1,790,000 sheep and goats, and 394,245 swine.

At the end of September, 1876, the total length of railways open for traffic was 2,237 English miles. All the telegraphs, with the exception of those of private companies, belong to the State, the total length being 10,989 English miles.

The area of Norway and Sweden is about equal to that of New York, comprising 77,938,560 acres. Only 1.6 per cent. of the whole area can be cultivated, natural pastures occupying about 15 per cent., forests about 20.2.10 per cent., mountains, glaciers, lakes, rivers, etc., about 37.6 per cent. The whole of the Peninsula consists of a connected mountain mass, which, in the southern and western parts of Norway, constitutes a continuous tract of rocky highlands, with deep defiles dipping into the sea, and here and there broken by narrow tracts of arable land.

The peculiar physical character of Norway necessarily gives rise to great varieties of climate. The influence of the sea and the Gulf Stream, and the penetration into the interior of deep inlets, greatly modify the severity of the climate of the western shores. In Norway Proper, the Winters are a rude and cold, and the Summers, which rapidly follow the melting of the snows in the months of April and May, are warm and pleasant.

The principal cereals cultivated are oats, barley, corn, rye and wheat. The yearly produce is about 11,100,000 bushels, besides 12,000,000 bushels of potatoes. The value of the largest 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 of them are imported.

The forests cover more than one-fifth of the area. They supply considerable quantities of timber, the average annual export of these being 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 valuable articles of home consumption, but, at the same time, prove one of the most profitable sources of foreign exportation.

Fish are caught in almost every stream and lake of the interior, as well as in the fronds of the coast, and in the bays and channels which encircle the numerous islands about the long sea line of Norway. These fisheries are principally cod and herring, codfish and seal-salmon are exported to Spain and Italy, herring to the Baltic ports.

The principal articles of exports were, in 1873: the productions of the fisheries, $11,600,000; of forestry, $83,800,000; of agriculture and cattle-breeding, $1,300,000; metals and minerals, $1,800,000.

Norway had, in 1876, 150,000 horses, 500,000 oxen and cows, 1,740,000 sheep and goats, 110,000 pigs, and 102,000 reindeer. The value of the annual product is about $25,000,000.

Norway has 301 miles of railways, and 147 miles of canals.

ITALY.

The superficial area of Italy is 52,113,280 acres, of which 57,542,740 acres are productive soil. The physical aspect presented by the surface 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 Venetia, bounded on the northwest and partly on the south by different Alpine ranges.

Throughout Central Italy there is an intermixture of hill and plain. The great Apennine chain gives a picturesque irregularity to the country, in the highland districts of Naples reaching an appearance of savage grandeur.

Along the extensive coast plains, as well as in the sub-Apennine valleys, a brilliant flora and vegetation impart a noble character of beauty to the scenery. The great plains of Italy are those of Lombardy, of Piedmont, the Venetian Plain, the plain of the Roman Legations, the plain of the Campo Felice, on which stands Rome, the Apulian Plain, and the long, narrow Neapolitan Plain 600 miles in length and 24 in breadth, stretching along the Gulf of Tarentum.

The great majority of the rivers of Italy are only navigable for small boats or barges. By far the most important is the Po, which rises on the borders of France, flows into the Adriatic, and has numerous tributaries.

The canal system of Italy is most extensive in the north. Two principal canals in Lombardy subdivide to the irrigation of the plains and to the purposes of commercial communication, contributing in no small degree to the prosperity of the district. Venice comprises 265 navigable and 40 minor canals. Piedmont is intersected by 303 canals, extending over a length of about 1,000 miles. This system of water-communication was only carried to a high degree of efficiency in Italy, and is of inestimable service in the agricultural districts.

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, hospitable, and frequently severe in Winters. In the centre it assumes a more genial and sunny character, while the coast of the southern extremity is almost of a tropical intensity. The drawbacks of Italy’s climate are the tornadoes or mountain wind, which affects all nature at seasons along the western coast; and the malaria ornoxious miasmata which issues from the spaces of Tuscania, the pontine marshes of the Venetian lagoons, generating pestilential fevers and yellow diseases. The mean annual temperature of the country ranges between 55 and 60 degrees.

Simple products of Italy are corn, wine, 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 the area of the kingdom capable of production are cultivated, and that the rest lies waste. Of olive and grape products the best are grown in and largely exported. The use of wines and vine discoveries are considerable. The Mediterranean furnishes immense quantities of tunny-fish, anchovies, sardines and mackerel.

The total length of railways open for traffic in 1874 was 4,057 English miles.

The lines of telegraph lines were 12,922 English miles.

JAPAN.

Japan proper comprises four large islands, viz.: Nipon (the Japanese mainland), Slikok, Kiusiu and Yesso.

The empire, however, includes about 3,800 small islands and islets, besides four large atolls, which are so adjoining of volcanic origin, that part of the Pacific on which they rest being affected by volcanic action, earthquakes occurring very frequently in Japan, although certain parts of the country are exempt. Japan has been called the “Land of Mountains”; but although these are very numerous, and many volcanic, they are of moderate elevation, and merely attain the status of perpetual snow. Volcanically is of moderate elevation, with fertile valleys, picturesque landscapes, and a coast inhabited with magnificent and commodious harbors.

The soil is productive, rich in mineral wealth, and teeming with every variety of agricultural produce.

June, July and August are the months of rain in Japan, this sometimes descending in torrents. The months of October and November are pleasant and genial. The Summers are very hot, and the Winters in the northern parts extremely cold, the thermometer falling to 96 below zero in the former, and sinking to 15 below in the latter season. Hurricanes and waterspouts are frequent, and about the changes of the monsoons, typhoons and equinoctial gales frequently sweep the seas.

The country is rich in minerals, gold, silver, iron, sulphur, and especially copper, abounding. There are also large quantities of coal.

Amongst the most remarkable of the vegetable productions is the com-ba-tree, the barberry or barberry, the paper umbelley-tree, and the tobacco-plant and the rice-plant. The principal manufactures are those of silk and cotton.

The first line of railway from Yokohama to Yedo, 17 miles long, was opened for traffic on the 12th of June, 1875. Since that time 29 more miles of road have been opened, and 37

The Great Exhibition of the United States, in the Main Building.
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

CHARACTER SKETCHES IN MEMORIAL HALL AND THE ANNEX.
THE RUSSIAN BRONZES IN THE MAIN BUILDING.


THE RUSSIAN BRONZES IN THE MAIN BUILDING.
are in process of construction. The length of telegraph lines open or in construction was 1,725 miles in 1873, and 3,516 in 1874.

Brazil.
The area of Brazil is 1,984,000,000 acres, while her coast line is nearly 4,900 miles in length. Much of the territory island is covered with mountains. The country is watered by a number of rivers, particularly in the north and south. The Amazon, Rio Negro and Madeira are the principal of these.

The soil is varied, and it is rich with productions of all kinds. Its arboreal vegetation, in particular, surpasses that of the rest of the world. In 1867 there were exhibited in her gardens 397 miles of rail¬

way open for traffic. There were others of an aggregate length of 597 miles in course of construction at the end of June, 1874. At the beginning of the year 1873 the telegraph lines extended to the length of 1,375 miles.

Argentina Republic.
This Confederation, formed by a federal union of fourteen Provinces and three large Territories, covers an almost unbroken plain with an area of 768,000,000 acres. The wheat production of the republic is estimated at about 10,000,000 bushels per annum. Besides these products, the wine and olive are cultivated to a limited extent in the southern provinces. Rice is an important article of cultivation in several provinces, and is easily raised anywhere in the empire. In 1871 the value of the coffee exported was $24,000,000, Four-fifths of the coffee was produced in Brazil. Bahia and Pernambuco are the great cane-growing provinces, and sugar-refin¬

ing is earned on extensively there. In 1870 and 1871 the producer cut the total length of 714 English miles open for traffic. There were others of an aggregate length of 597 miles in course of construction at the end of June, 1874. At the beginning of the year 1873 the telegraph lines extended to the length of 1,375 miles.

Liberia.
The Republic of Liberia, which makes quite an enter¬
prising display in the Agricultural Building, is situated on the St. Paul's River, which empties into the sea about 150 miles from its mouth. The climate is uniformly sultry and moist, and the thermometer ranges between 73 and 82 deg. as the highest points.

The manufacture of palm-oil, soap and indigo has only recently been commenced in Liberia, and the introduction of improved and patented machinery, and of a steamer on the St. Paul's River, have stimulated both the produc¬

tion and transportation of articles for export.

Spain.
The Kingdom of Spain occupies an area of 125,650,000 acres, including the Balearic and the Canary Islands. Its immense plateau occupies the central regions of Spain, rising to the height of 2,000 to 3,000 feet, and comprising upward of 90,000 square miles, or about half the entire area of the country.

Numerous ranges of mountains, including the Pyrenees, the Sierra Morena, the Sierra Nevada, and others, break the country in different directions.

The climate, owing to the superficial configuration, is exceedingly varied. In the northwest provinces it is damp and rainy during the greater part of the year. At Madrid Winters occur of great severity, while the south and east provinces are warm in Winter and exposed to almost tropic heat in Summer.

The vast mountains of the country, affording for the most part only scanty crops of herbage, are utilized as pasture grounds, and divided into large farms; but in the warm plains, especially where water is abundant, the farms are smaller.

A great advance has been made in the department of the agricultural and mineral resources of Spain within the last ten years, and chiefly in mining. Lead, copper and tin ore are abundant; there are large deposits of good coal and iron ore. The quicksilver mines of Almaden have been long celebrated and are still worked.

The principal exports are wine, dried fruits, flour, green fruits, olive oil, wool, grain, cork, seeds and salt.

The length of railways in operation in January, 1875, was 5,810 English miles, and 1,264 miles in course of construction. The length of telegraph wire on the 1st of January, 1875 was 16,950 miles.

Footnote.
The area of Portugal, including its tender appendages, is 23,900,400 acres. Its principal mountain ranges and rivers are, with few exceptions, mere western prolongations

of the production of its most important staples. It is believed that with a sufficient labor system cotton could be produced in Brazil in successful competition with the whole world.

The tea plant of China has been introduced, but hitherto with indifferent success.

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The area of Brazil is 1,984,000,000 acres, while her coast line is nearly 4,900 miles in length. Much of the territory island is covered with mountains. The country is watered by a number of rivers, particularly in the north and south. The Amazon, Rio Negro and Madeira are the principal of these.

The soil is varied, and it is rich with productions of all kinds. Its arboreal vegetation, in particular, surpasses that of the rest of the world. In 1867 there were exhibited in her gardens 397 miles of rail¬

way open for traffic. There were others of an aggregate length of 597 miles in course of construction at the end of June, 1874. At the beginning of the year 1873 the telegraph lines extended to the length of 1,375 miles.

Argentina Republic.
This Confederation, formed by a federal union of fourteen Provinces and three large Territories, covers an almost unbroken plain with an area of 768,000,000 acres. The wheat production of the republic is estimated at about 10,000,000 bushels per annum. Besides these products, the wine and olive are cultivated to a limited extent in the southern provinces. Rice is an important article of cultivation in several provinces, and is easily raised anywhere in the empire. In 1871 the value of the coffee exported was $24,000,000. Four-fifths of the coffee was produced in Brazil. Bahia and Pernambuco are the great cane-growing provinces, and sugar-refin¬

ing is earned on extensively there. In 1870 and 1871 the producer cut the total length of 714 English miles open for traffic. There were others of an aggregate length of 597 miles in course of construction at the end of June, 1874. At the beginning of the year 1873 the telegraph lines extended to the length of 1,375 miles.

Liberia.
The Republic of Liberia, which makes quite an enter¬
prising display in the Agricultural Building, is situated on the St. Paul's River, which empties into the sea about 150 miles from its mouth. The climate is uniformly sultry and moist, and the thermometer ranges between 73 and 82 deg. as the highest points.

The manufacture of palm-oil, soap and indigo has only recently been commenced in Liberia, and the introduction of improved and patented machinery, and of a steamer on the St. Paul's River, have stimulated both the produc¬

tion and transportation of articles for export.

Spain.
The Kingdom of Spain occupies an area of 125,650,000 acres, including the Balearic and the Canary Islands. Its immense plateau occupies the central regions of Spain, rising to the height of 2,000 to 3,000 feet, and comprising upward of 90,000 square miles, or about half the entire area of the country.

Numerous ranges of mountains, including the Pyrenees, the Sierra Morena, the Sierra Nevada, and others, break the country in different directions.

The climate, owing to the superficial configuration, is exceedingly varied. In the northwest provinces it is damp and rainy during the greater part of the year. At Madrid Winters occur of great severity, while the south and east provinces are warm in Winter and exposed to almost tropic heat in Summer.

The vast mountains of the country, affording for the most part only scanty crops of herbage, are utilized as pasture grounds, and divided into large farms; but in the warm plains, especially where water is abundant, the farms are smaller.

A great advance has been made in the department of the agricultural and mineral resources of Spain within the last ten years, and chiefly in mining. Lead, copper and tin ore are abundant; there are large deposits of good coal and iron ore. The quicksilver mines of Almaden have been long celebrated and are still worked.

The principal exports are wine, dried fruits, flour, green fruits, olive oil, wool, grain, cork, seeds and salt.

The length of railways in operation in January, 1875, was 5,810 English miles, and 1,264 miles in course of construction. The length of telegraph wire on the 1st of January, 1875 was 16,950 miles.

Footnote.
The area of Portugal, including its tender appendages, is 23,900,400 acres. Its principal mountain ranges and rivers are, with few exceptions, mere western prolongations
acres. European Russia consists of a vast plain bordered by hilly ranges from the Carpathian Mountains. The plain of Russian districts in the southwest of Russia, between the Vistula and the Pruth, are covered by soil that is generally rich, but agriculture is nearly everywhere neglected, being scarcely made subservient to the wants of the population.

The natural products correspond to the diversity of the physical and climatic conditions; for while barley, oats, and wheat, maize, flax, and hemp are grown in the more elevated tracts, rice is cultivated in the low lands, the oak 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 mean annual temperature at Lisbon is 58 degrees. There are about 30,000,000 head of cattle in Russia, 18,000,000 horses, 10,000,000 sheep, of which upward of 1,000,000 are of the fine merino. Besides these animals, there are camels in the south of Russia, reindeer in the north, and hogs and poultry are everywhere abundant.

The Empire of Russia, extending over a large portion of the northern regions of the globe, includes 2,065,800,000 acres. European Russia consists of a vast plain bordered with mountains. The districts in the southeast of Russia, between the Vistula and the Dnieper, are covered by lofty ranges from the Carpathian Mountains. The plains of European Russia naturally divide 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 Urals Carpathian table-land; and the southern between the left Carpathian table-land and the Black and Caspian Seas.

The soil of the northern zone is sandy, and the climate inclement. In the middle part of the marine zone the soil is partly heavy, covered with mold, and toward the north sunny. Beyond the Oka luxuriant meadows abound, and on the east beyond the Velya, this tract forms an extensive valley, covered with a thick layer of mold and abundance of woods. The southern zone consists of steppes extending along the shores of the Black and Caspian Seas.

The mean temperature varies between 22 and 58 degrees. The climate is in general healthy. Russia is an eminently agricultural country, although only a comparatively small portion is under cultivation. The system of husbandry in practice is what has already been described as the three-fallow system. In the south and southeast, however, a system of agriculture peculiar in Russia is in operation, called the fallow system, which consists in raising three or four consecutive crops on the same land, and afterward allowing it to lie fallow for five or six years, after which it begins to grow feather-grass, which is considered a token of returning fertility. The chief cereals are wheat, barley, and oats. Backwheat and rye are grown in the south, and from these—especially from rye—a huge quantity of flour 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, being used not only for food, but for purposes of fuel and rural manufacture. There are annually obtained by evaporation.

The cultivation of the vine and the olive are almost the only crops of vegetable produce. Tobacco crops cover about 36,000 acres. Beet root and maize are also cultivated, and their great fruitfulness present a great contrast to the barren land; and the southern districts to those which are destitute of wood. The cultivation of potatoes is also very extensive. Rice is cultivated in the low lands, the oak 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 mean annual temperature at Lisbon is 58 degrees. There are about 30,000,000 head of cattle in Russia, 18,000,000 horses, 10,000,000 sheep, of which upward of 1,000,000 are of the fine merino. Besides these animals, there are camels in the south of Russia, reindeer in the north, and hogs and poultry are everywhere abundant.

The fisheries of the Caspian and Black Seas and the Sea of Azov and their tributaries are important. The herrings, codfish 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. Silk worms are reared chiefly in the Caucasus. The total length of railways at the end of the year 1874 was 12,055 English miles. The length of telegraph wires was 58,675 miles.

AMERICAN RAILROAD FREIGHT BUILDING.

Norton of the Avenue of the Republic, and east of the Photographic Hall, stands a building in which is fully illustrated the American system of fast freight lines. It is in a retired situation, hedged around by the wire fences of the narrow-gauge railroad, and therefore conveys the notice of many visitors, but it contains one of the most interesting exhibits on the grounds. The building is 45 ft. long by 22 ft. wide, with two wings, each 12 ft. long and 10 ft. wide. It is filled with models giving an excellent idea of the mode of obtaining and shipping petroleum, and of transporting and handling grain and other freight.

The building has the general appearance of an ordinary railroad freight-depot—in miniature, of course, when compared with the mammoth edifices of our giant railroad corporations, but still retaining that look of practicability and substantiality which characterizes such structures. Much of the material employed in the building will hereafter be used in our construction.

In the center of the building a shed or counter extends entirely around the walls, on which the ingenious models are arranged. On the counter lines of railroad-tracks are laid, over which miniature cars and engines, fully illustrating the methods of boarding, unloading, weighing and transporting freights.

The Empire Transportation Company's grain-elevator at Erie, Pennsylvania, is represented by a working model that stands in the northeastern corner of the building. This model is about 6 ft. long, 6 ft. high, and 4 ft. deep. The building owns large elevators at Erie, the largest of which has a capacity of 250,000 bushels in 47 bins, and a transfer capacity of 100,000 bushels in each 24 hours. The one taken as a model has an aggregate storage capacity of 100,000 bushels of grain in 31 separate bins, and a transfer capacity of 75,000 bushels. A 9 ft. long representation of the lake propeller Jasper, which is an iron screw steamer of 1,420 tons freight capacity, and accommodations for 190
THE SCHUYLKILL RIVER RACECOURSE, SELECTED FOR THE INTERNATIONAL ROWING MATCHES.
first-class and 500 immigrant passengers, can be seen at the
wharf of the model elevator. From the hold of the vessel
the little elevator lifts its cargo of flaxseed (representing
wheat), and transfers it into the freight-cars on the track
alongside. Near by is a Fairbanks's railroad scale, on which
the cars are weighed before and after being loaded. Fur¬
ther along the track is also a working model of a railroad
track scale, with a "dead-rail" running over it continually
without affecting the running portions. At the other end
of the counter is shown the method of transporting, hand¬
ling and storing grain at tide-water. Here is a model of
the Pennsylvania Railroad Company's freight-depot at
Pier 38, North River, New York. Barges for transferring
trains of freight-cars, the wharves, buildings for storage,
and appliances for handling grain, are all represented.
In the east wing of the building are models showing the
method of obtaining and shipping petroleum. The oil is
pumped from the well into wooden tanks, from which it
is pumped or allowed to flow into large storage tanks situated
at points conveniently situated for collecting the oil from
a number of wells. From these tanks pumps force the oil
through "pipeline" to iron tanks, on the line of the rail¬
road. These tanks are raised a sufficient distance above the
level of the track to permit the oil to run from them into
iron cars. The model tank cars are beautifully nickel-
plated. The originals consist of a wrought-iron boiler on
trucks, each having a capacity of 3,000 gallons. The
boiler is fitted with a man-hole, expansion dome, valves, etc.
These tanks, as well as the pipe-lines, have to be con¬
structed of the best materials and in the most workmanlike
manner, to prevent leakage, as there are few liquids so
difficult to hold in any receptacle as petroleum and its
products.
A model of an oil-depot at Communipaw is also given,
showing the extensive works provided for the storage of
barreled oil, and illustrating the manner of unloading
bulk-oil from the tank-cars and loading it into bulk-boats,
which carry from 48,000 to 50,000 gallons, or from 1,000
to 1,500 bales each, by means of the boats between the
refineries and the yards. Large iron tanks are sunk in the
ground beneath the level of the railroad tracks. Between
the rails runs a trough, which leads to the tanks. The
train of oil tank-cars is run over the troughs, and on the
valves on the bottom of the cars being opened, the oil is
allowed to run into the trough, and thence to the under¬
ground tanks. From here it is pumped into large tanks
above ground, from which it runs through hose into the
hoses of the bulk-barges which carry it to the refineries.
In the western wing of the building is another working
model, 10 by 12 ft. in dimensions, by which is illustrated
the method of obtaining and shipping petroleum.
It shows a hilly country with a creek flowing through
the centre, and flowing and pumping wells around it—the
later provided with a model pump at work pumping crude
oil, the former discharging a stream of petroleum into a
tank. A well is also shown in process of boring, display¬
ing the derricks, engines, tools, etc. In another place men
are seen erecting a derrick for boring a well. There is also
exhibited a blacksmith's shop, with men at work repairing
tools, etc. In the front portion is shown the railroad

THE FIRST HEAT OF FOURLS.—ATLANTIC, N. Y. CITY, FIRST; BEAVERTOWN, ALBANY, N. Y., SECOND; YALE COLLEGE, NEW HAVEN, CONN., THIRD.

OPENING RACES OF THE REGATTA OF THE NATIONAL-AMATEUR ASSOCIATION, ON THE SCHUACKILL RIVER, AUGUST 22d.
MODEL OF THE EXCAVATIONS AT HELL GATE HALLETT'S POINT, OPPOSITE NEW YORK CITY, EXHIBITED IN THE UNITED STATES GOVERNMENT BUILDING.
samples of ear-wheels made by different specification of oil in barrels, lumber, railroad cotton, etc.; the ruck-car for the transportation of grain, flour, backed meats, wool, the material from which they are made. Various shapes, to show the excellence of bent cold into manufacturers; also axles is a complete freight track, full size, mens of the equipment of ears. All the exhibition of the car. There are also on a map of a line of levels through a map and profile of the Atlantic and Pacific routes between a few inch long, of men employed in various work on the oil-wells and buildings. All the portions of this model work perfectly by means of a small steam engine. In addition to the working models above described, there are shown specimens of the equipment of ears, There is a complete freight track, full size, and samples of ear-wheels made by different manufacturers; also axles bent cold into various shapes, to show the excellence of the material from which they are made. There are also complete models of ears; the box or house-car for the transportation of grain, flour, backed meats, wool, cotton, etc., the rock-car for the transportation of oil in barrels, lumber, raw iron, iron pipe, road, and similar heavy freight; the flat or gondola car for the movement of heavy stone blocks, iron castings, etc.; and the butter and egg car, which is a boxcar with double-lined top, bottom and sides, and an ice-box in each car for refrigerating the contents of the car. There are also on exhibition models of couplers, frames, and breast-plates, springs, nuts, bolts, etc., some of the latter being full-sized specimens. The roll space above the counter is occupied on one side with an outline map showing some of the principal rail and water routes between the Atlantic and Pacific coasts. There is also a map of the pipe-line system of Western Pennsylvania, a map and profile of a line of levels through Butler, Clarion, and Armstrong Counties, and a large number of photographs. As an annex, and adjacent to the Main Building, several hundred feet of railway have been laid, on which a handsome working model of a locomotive engine, one-fourth size, drives a train of similar proportioned model freight-cars. A neat, ornamental shed protects the engine and train when not in service. The locomotive is a beautiful piece of steam machinery, complete in every portion, and works perfectly.

INTERNATIONAL REGATTA.

The boating season on the Schuylkill River opened on the 23d of August, by the Annual Regatta of the National Amateur Association, the course being from the Falls Bridge to Rockland Landing, just above the Reading Railroad Bridge, a distance of exactly a mile and a half, as measured on the ice. The course is a beautiful one, so far as picturesque scenery is concerned, and it has the special merit of lying low down in a valley, sheltered from the wind by bold banks, so that the water is seldom disturbed. Its defects are a bend in the last half-mile, and the narrowness of the stream—the latter making it unsafe to start more than three four-oared shells at once. Where there are a number of competing crews, it is, therefore, necessary to row in heats, the winning crew in each heat alone having place in the final decisive contest.

In the Amateur races the Atlantics won the first heat and the Colombias the second, placing them both in the final heat, which was pulled between them in the 24th, when the Colombias won the heat. These preliminary races having won, the next event in order was the International Rowing Regatta—four oars—the first ever held, which commenced on the 28th. The following is a list of the crews and positions, the latter being drawn for by lot, and forming the programme for the first day:

**First Heat, 2:45 p. m.—** Eureka Boat Club, Newark, N. J.; Argonaut Rowing Association, Roger's Point, N. J.; and Dublin University Boat Club.

**Second Heat, 3:00 p. m.—** Columbia Boat Club, New York; Elizabeth Boat Club, Portsmorthy, Vt.; Quaker City Boat Club, Philadelphia.

**Third Heat, 3:30 p. m.—** Beaver Rowing Club, Albany, N. Y.; Faber Boat Club, Burlington, N. C.; Delaware River Boat Club, Allentown, Pa.

**Fourth Heat, 4:00 p. m.—** Eureka Boat Club, Newark, N. J.; Argenauts Rowing Association, Philadelphia; Watkins Boat Club, Philadelphia; Malta Boat Club, Philadelphia.

**Fifth Heat, 5:15 p. m.—** London Rowing Club; Northwestern Rowing Club, Chicago; Atalanta Boat Club, New York.

**Sixth Heat, 6:00 p. m.—** First Trinity College Crew, Cambridge, England; Owosso Club, Burlington, New Jersey.

In the seven heats seventeen crews took part, three having withdrawn. The weather was delightful, and crowds were assembled to view the contests. The result of the first heat was: Eureka 9:28, Dublin 9:36; Argonauts 9:42; of the second, Vespores 9:43, Crescendo 9:46; third heat, Columbus 9:11, Elizabeth 9:20; fourth heat, Beaverwyks 9:14; fifth heat, Watkins 9:14. In the sixth heat the London Rowing Club, said to be the best amateur crew in English waters, was entered to pull against the best two American crews, one of which, however, the Atlantics, withdrew at the last moment on account of the illness of one of the men, leaving only the Northwestern crew of Chicago, holder of the American championship, to race with the great London four. This was a tremendous race in speed, power, and intense interest. It was won by the London crew: time, London, 8:55; Northwesterns, 8:50. In the seventh and closing heat, the Cambridge University Crew of England were matched with a raw club from Boston, New Jersey, and beaten easily. The time was Cambridge, 9:06; Owosso, 9:54.
GROUND PLAN
OF
THE CENTENNIAL EXPOSITION.

FAIRMOUNT PARK, PHILA.

INCLUDING SITES OF ALL THE BUILDINGS, IMES, FOUNTAINS, MONUMENTS, AND OTHER POINTS OF INTEREST.
London Rowing Club.

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<tr>
<th>Name</th>
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<tr>
<td>Bow, R. Labatt</td>
<td>22</td>
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<tr>
<td>No. 2, G. Gulston</td>
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<td>5.12</td>
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<td>No. 3, A. Trower</td>
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<td>Stroke, J. Howell</td>
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Dublin University Club.

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<td>Bow, P. M. Ferguson</td>
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<td>No. 2, G. H. Hickson</td>
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<td>No. 3, G. Barrington</td>
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<td>Stroke, Croker Barrington</td>
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Oneida Crew, Burlington, N. J.

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<td>No. 3, F. G. Waddington</td>
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<td>Stroke, H. Pearson</td>
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On the second “International” day, the first heat was won by the Beaverwycks: time, Beaverwycks, 9:07; Eurekas, 9:13. In the next heat, the Columbias, who were to have pulled, drew out of the race, having the

English oarsmen did not hesitate to say that the Schuylkill was the best water they had ever rowed in. And so the third day was ushered in amid a general feeling of satisfaction, to which the fact that now was to occur one of the most interesting of all the events did not fail to add its quota of interest.

The single-scull heats did not attract much attention throughout the regatta, and least of all on this third day. But when the Watkins crew rowed against the Cambridge (Trinity) boys. In this heat Cambridge stopped rowing, one of her men being taken ill, and Watkins rowed on to the finish, making time, 9:01.1, beating their own time of the day before.

The last and greatest race of the day, and, in fact, the greatest of all the four-oared contests, brought Yale in competition with the splendid London crew. The race was magnificently rowed, though considerable dissatisfaction was felt with the London crew for using a system of jockeying, which, although allowable by the strict rules, was not

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THE JURY OF ASSESSMENT TO INSPECT THE WINE VAULTS OF AGRICULTURAL HALL.

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<td>Mann</td>
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Yale Crew.

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<td>H. H. Kellogg</td>
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<td>M. M. Collins</td>
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<tr>
<td>Frederick Wood</td>
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The single-scull heats did not attract much attention throughout the regatta, and least of all on this third day. But when the Watkins fours-oars put in an appearance and pulled down to the start, followed by the Lombermen and the Beaverwycks, a dense crowd had collected, and every-

THE JURY OF ASSESSMENT TO INSPECT THE WINE VAULTS OF AGRICULTURAL HALL.

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THE INTERNATIONAL FOUR-OARED REGATTAS ON THE SCHUYLKILL RIVER.
THE CANADIAN LUMBER EXHIBIT

The Canadian lumber exhibit was one of the most interesting and attractive sections of the exposition. The Canadian lumbermen had prepared an exhibit that was a fine display of their products, and it was a great success. The exhibit was divided into several sections, each representing a different type of lumber. The sections included hard woods, soft woods, and glued laminated timber. The exhibit was well organized and presented in a manner that made it easy for visitors to understand the different types of lumber and their uses. The Canadian lumber exhibit was a great success, and it helped to promote the sale of Canadian lumber in the United States.

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CURIOSITIES IN THE CHINESE DEPARTMENT IN THE MAIN BUILDING.
of carpet-waving machines, presented over by ladies, and where the processes in this manufacture may be duly witnessed, in the exposition. Quite a number of labor-saving machines of women's invention are displayed near those, most of them being for domestic use. The engine which runs the machines for carpet-waving, as well as others for spinning cotton and manufacturing worsted, is managed by a woman engineer—certainly an anomaly in mechanics. A life-preserving mattress, invented by a lady from the State of Rhode Island, is an important exhibit. There are several dolls exhibited, with doll-dresses and decorative articles, and a large number of children's garments, exquisitely embroidered and bordered with franges and tassels, etc. This collection, illustrative of woman's work, has been deemed by many writers, yet on careful inspection it displays very much that is worthy of the highest commendation, and in its entirety will compare favorably with any other special exhibition on the grounds. It should be considered with regard to it that the entire effort was only commenced at a very late period, and that it was prosecuted by the women under a good many disadvantages without outside assistance.

Among the foreign countries contributing to the collection in this building besides Brazil, is Japan, which furnished a number of very beautiful and interesting articles, and several exhibits in painted ware placed on the walls. There are also exhibits from the Scandinavian countries, and a large and very fine one from Canada, containing among other articles a number of very carefully and beautifully made models of public institutions, charitable and other, in the Dominion. The novel and seemingly important improvement in the manufacture of women's underwear is exhibited here, the design being to remove the weight of the clothing from the hips and suspend it on the shoulders. The idea has been here before explained in public at certain women's meetings in New York and Boston, and is considered by the medical faculty very important in its application to health. Another interesting exhibit in this connection is that of a number of articles used in electro-magnetic treatment for chronic diseases, and which are exhibited by Mrs. Elizabeth A. Brach, a pioneer of a quarter of a century ago in the scientific treatment of diseases by electricity.

The "Kindergarten.

Close by the Women's Pavilion, and forming, as it were, an annex of that building, is a little cottage, where are housed, under the auspices of the Women's department, actual models of education in the infant school system of Froebel, termed the "Kindergarten." Here the system is developed, and can be seen on certain days of the week, representing its working with eighteen little children from three to six years of age, taken from the "Northern Home for Friendless Children." The business of this school is conducted by Miss Burritt, the furniture and material being contributed by Mr. Steiger, of New York. Miss Burritt commenced her labors in this direction last Winter in the Northern Home for Friendless Children of Philadelphia, and by the suggestion of Mrs. Gillespie, the head of the women's movement, the sum of $1,500 raised by the Rhode Island committee of the women's building, was devoted to the erection of this little cottage. Here these little children go through the regular daily exercises of the Kindergarten system, and to those who may be interested in the novel and beautiful features of a child's education nothing can be more charming than a visit to this school. Friederich Froebel introduced this new method of teaching into his native country of Germany in 1837, giving it the name of Kindergarten (children's garden), certainly a most happy effort at nomenclature. The idea evolves a large, well-ventilated, well-lighted and pleasant room, opening upon a garden where should be combined a playground for general enjoyment, a large garden-plot, and smaller plots for each child old enough to cultivate one. Here the little ones should be taught to plant and cultivate flowers, useful vegetables, and even trees, and to surround these with such birds as encourage a kindly treatment, which can be brought to make their home their own. Usually from three to five hours are passed in these gardens. Froebel's system did not contemplate corporal punishment, extrafine a game or from the garden being considered sufficiently severe treatment. He devised a number of games and exercises for use in his course of instruction, and also six "gifts," which are now used in the kindergarten. These gifts consist of soft balls of different colors—white, with strings attached to them—cubes, cylinders, wooden balls, cubes divided for the construction of buildings and other objects, and many others which are being intended to convey the meaning of form, color, size, motion, individual and other qualities to the infant mind.

Froebel died in 1852. During his life more than fifty kindergartens were established in Germany, Belgium, and Switzerland. Although no government has yet introduced the system in the public schools in the United States, these schools have become quite numerous in New York, Washington, Philadelphia and Boston. Miss F. E. Burritt has written a book of the same title, perhaps more instrumental than any other in popularizing it. It is likely that the exhibition of the Kindergarten at the Centennial will introduce the system into many cities where it is at present unknown.

The Brewers' Building.

The Brewers' Building stands in the extreme north-eastern corner of the grounds, being the east extension of Agricultural Hall. The structure is 96 feet wide by 272 feet long, with a centre tower rising an elevation of 60 feet, and wings of 28 feet. In addition to the main building, a large hall has been provided for the storage of malt liquors for exhibition and competition, 75 feet by 90, with double walls, the exterior being divided into three compartments. One compartment 35 by 80 feet, is for the storage of malt liquor; another of the same dimensions is for malt liquor on draft, and the centre compartment, 35 feet wide, over which is an ice-box to hold four feet in depth of ice, for the storage of lager beer. The uniform temperature for the middle compartment is 45 deg., and of the two side compartments 56 deg. In the centre of the building is a brewery in operation, and near it are models, one representing a brewery in the ancient time, and the other one of more modern style. Forming the mechanism of brewing as exemplified in this building are a large copper tin, immense wooden vats, with all the machinery, pipes, pumps, etc., attached, which usually apply to the manufacture. Arranged in different parts of the building are exhibits of the different kinds of mechanisms used by the brewer, including patent vats, the storage of malt liquor in bulk, and the storage of pure beer. The uniform temperature for the middle compartment is 45 deg., and of the two side compartments 56 deg. In the centre of the building is a brewery in operation, and near it are models, one representing a brewery in the ancient time, and the other one of more modern style. Forming the mechanism of brewing as exemplified in this building are a large copper tin, immense wooden vats, with all the machinery.
Having been largely engaged in the railroad business, the war, at first as a private soldier in the 2d Ohio Infantry, and afterward fermented with yeast to produce the small quantity of alcohol it contains and to give it life. Lager beer yielding, next to potatoes and tobacco, the highest value per acre, and being the seventh agricultural staple article of the country, and nearly $7,000,000 higher in value than tobacco. Of hops, the last agricultural census reports a total production in the United States of 25,456,929 pounds.

From the arboretum, the brewer obtains his oak, cedar, and pine for bung-wars, etc. and other timber for building purposes. The business of the maltster, supplying malt to the brewers, is extremely large, employing a capital of about $14,000,000, and having under operation nearly 400 malthouses, valued at more than $1,000,000, employing 2,500 men, whose annual wages amount to more than $1,080,000.

The entire capital invested in breweries is about $16,000,000, whose annual wages amount to nearly $7,000,000.

Special offices in the Bureau of Transportation: Installation, Agriculture, Horticulture, Awards, and the Press department.

The number of men employed in breweries and malthouses is about 13,500, whose annual wages amount to nearly $7,000,000. The process of making beer is described as follows: "A certain quantity of malt-barley is taken and ground. It is then mashed with hot water, the sweet liquor or wort extracted, a proper amount of hops being added. The whole is then boiled until preserving quality, as well as the aromas of the hops, is obtained. It is then allowed to cool, and afterward fermented with yeast to produce the small quantity of alcohol it contains and to give it life. Larger beer contains 91 per cent. water, 5 per cent. malt extract, 31 per cent. alcohol, the remainder being carbonic acid, etc. It is said that from 40 barrels of fresh bread, weighing two pounds each, alcohol equal to one bottle of port-wine may be extracted.

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RELICS AND CURiosITIES IN THE PERUVIAN AND ARGENTINE DEPARTMENTS, IN THE MAIN BUILDING.
Awards. The position involves no common requirements: The responsibility of chief of the International Jury of Awards, comprising 225 individuals-half Americans and half Europeans-will be at once conceded. For this position probably no one and eligible person could have been selected than General Walker. Born in Boston, July 24, 1840, he graduated twenty years later from Amherst College with high honors. After studying law for a few months, he entered the army in 1861, and served until 1865, during the last two years as Assistant Adjutant-General. At different times he was upon the staff of Generals Couch, Warren, and Sedgwick. For the next two years General Walker was employed as classical instructor at Willington Seminary, Mass., and during the year 1868 was connected with the editorial staff of the Springfield Republican. In the following year General Walker was appointed chief of the Bureau of Statistics; in 1870 he superintended the census, and in 1873 was Commissioner of Indian Affairs, in addition to the last-named position. In 1877 he accepted the professorship of political economy and history in the Sheffield Scientific School of Metallurgy, retaining the office of superintendent of the census without salary. General Walker has published three quarto volumes toward the ninth census, and is the author and compiler of numerous other important statistical works, his "Statistics of the highest grade in its line. General Walker has been particularly the case in Europe, where these illustrations have been widely circulated.

General Norton has had charge of the issue of all the tickets to the Press, and his kind and courteous management of this rather onerous duty has secured for him many friends.

Our illustrations.

Model of the excavations at Hell Gate, N. Y.

In our description of the United States Government Building we made some allusion to the model there exhibited, representing the excavations recently presented at that spot so dangerous to navigation known as "Hell Gate," off Hallett's Point, and opposite New York city. A more extended description of our illustration of this model will be in order.

The scale of the model is 12 feet to the inch, the model being made of plaster, and topographical correctly. It is believed that it will provide in such a manner as to show at once the surface, the surroundings of the land and water, and the submarine excavations, covering an area of nearly three acres. The arrangements made by General Norton to surmount the engineering difficulties which presented themselves in undertaking the enterprise of blasting out this enormous mass of solid rock were: First, he built the coffer, as represented in the illustration, designed to exclude the water; next, a shaft was sunk, tunnels from which extended in radial lines, these being crossed at right angles, by having at the points of action natural pillars of solid rock, of which there were 172, each eight feet square, but varying in height between 10 and 20 feet. All the tunnels between these piles were then cleared out, and in the surface of the rock 3,880 holes, ranging in depth from 3 to 11 feet, of the uniform diameter of 3 inches, were bored in an upward direction. In these holes were to be placed the explosive materials—lymanite where the rock was hardest, and vulcan powder where it was easiest to blast—in the explosion of which the grand result was to culminate. As the floor tunnels sloped upward from a depth of 32 to 40 feet of the uniform diameter of 3 inches, were bored in an upward direction. In these holes were to be placed the explosive materials—lymanite where the rock was hardest, and vulcan powder where it was easiest to blast—in the explosion of which the grand result was to culminate. As the floor tunnels sloped upward from a depth of 32 to 40 feet, and the depth of the water required for navigation is only 25 feet at mean low water, sufficient room would be furnished, after the explosion and the subsequent dredging, for the largest ships known on the voyage to and from Europe. It is estimated that there were about 70,000 cubic yards of rock to be exploded, each charge being expected to break up about 20 cubic yards. The whole was to be exploded by means of about 200 of Grove's and other mechanical devices, but without the use of nails, screws, or pins. The whole is expertly engineered, and its price, $800, is certainly not unreasonable when the time and labor of its construction are taken into consideration.

A bronze vase of porcelain, and standing 21 feet in height, is the next object which we illustrate. The design is quaint, the bowl being supported on the backs of three water-hens, each standing on a pelibled vessel of bronze. This vase is said to be over 1,000 years old, and its price is $1,250.

A bamboo reclining-chair is another curiosity. The back is movable at will, and various devices for the convenience of the occupant exist in this peculiar piece of furniture.

A figure two feet in height, carved in iron-wood, is worth noticing. It represents a man standing on a tree-stump, clinging to it with both hands. This piece of carving is executed very carefully, and is cheap at $40. A set of wood carvings represents a procession supposed to be accompanying a Mandarin, or high-caste Chinaman, who is at the rear, being carried in a sedan-chair by four coolies. The procession includes men carrying flags, drawn swords, musical instruments, etc. An archet bedstead is shown, in which the support for a mattress is woven of cords made from the inner bark of a native tree, and covered with rattan. Boating on the ends of the bed, and completely

Japanese Department—the Grasshopper Screen, in the Main Building.

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covering the whole, is an arched canopy, whereas a wooden framework, elaborately carved, supports a silk gauze cover, care¬
fully painted with various figures. Other interesting objects are two finely carved ivory flower-boxes and a bronze figure, supposed to resemble a hibiscus species of the dog, and of the kind of artwork executed in China over fifteen hundred years ago. Other smaller articles in bronze and por¬
terain need no particular description.

Swedish Character Groups.

There is perhaps no special class of articles exhibited in the Main Building which has been more generously inspected than the groups of life-size figures ex¬
hibited in the Swedish Department. These figures illustrate present life in Sweden. They are the work of a noted Swedish sculp¬
tor,—Professor Torell,—of the Royal Academy of Fine Arts in Stockholm. The coloring and contouring of these figures are admirably true to life, and their grouping and attitudes artistic, and at the same time natural. The peculiar scene about the little cradle of the dead baby attracts special attention. The grouping which illustrates the old-time play of pulling a flower to pieces with some such refrain as "He loves me, he loves me not," etc.—
reminiscent of Marguerite and Faust, by the way,—will be found in the Women's Pavilion.

Ink Exhibits of Thaddeus Davids & Co.

A very interesting and characteristic display of stationery, and chiefly of ink, mucilage, sealing-wax, etc., is made by the great house of Thaddeus Davids & Co., of Newark, N. J., Messrs. William H. lurk exhibited in this department, by reference to a theory of Loving, presented in the following words: "That, as the slave is, in this instance, supposed to be the highest embodiment of the feelings of all other classes, it was necessary to express this by intensifying the effect. Viewed in this light, the height of the chest, although not strictly in accordance with anatomical truth, is justified in an artistic sense."

Swiss Expositions.

The exhibition of brasses by Felix Cepina, of St. Peterburg, should be carefully inspected. They range from a representa¬
tion of a Cossack standing on his horse's mane, after having just slaughtered a Thiep. The second figure is a Cossack standing in his stirrups, string backward, designed to display the remarkable horsemanship of this peculiar race. Next is a Cossack drawn by two horses, while hungry wolves watch them from the rear. The next is a single figure of a horseman, mounted on the back. The "Wild Boar" is mother, which represents a boy milking a mare, while the kid bares his clenched teeth at the back. Still another shows a Russian falconer, riding on his horse and letting loose a falcon from his hand.

The Silver GVamer.

The silverware exhibit in Machinery Hall represents the progress of silk from the cocoon to the finished thread, displayed in the Brazilian Department of this portion of the Exhibition, and ornamented under the auspices of the Imperial Agricultural Institute at Rio Janeiro. The moth of the silkworm is about as much long, of a pale yellow color, and the cocoons are inmate, and after a few hours after depositing their eggs, which are about the size of a mustard seed. In warm, dry weather the eggs emerge from these in a few days, and immediately begin to eat ravemously. When full grown they are three inches long, of a light green color. The product of an ounce of eggs is used to eat upward of 1,200 pounds of mulberry-leaves, and furnish 120 pounds of cocoons. The various processes by which the silk is obtained from the cocoons, and the manner in which they are cared for, the sorrows, are exhibited in our illustrations.


The railroad route to Philadelphia, which opened on May 1st, is known as the Delaware, Lackawanna and, has become quite popular during the Centennial exhibition, and will undoubtedly gain sufficient favor in the present year which are identified with the situation. The attitude is impressive and full of vital force. The face shows exhilaration and joy in a high degree. It having been com¬
plained that the marked pretension of the chest in the figure is anatomically in¬
correct, the objection has been answered in the catalogue of the Austrian Art Depart¬
mnt, presented in the present case in the following words: "That, as the slave is, in this instance, supposed to be the highest embodiment of the feelings of all other classes, it was necessary to express this by intensifying the effect. Viewed in this light, the height of the chest, although not strictly in accordance with anatomical truth, is justified in an artistic sense."
to become permanently successful. This road is graded throughout for a double track, has substantial iron bridges, and is laid with steel rails and stone ballast. Its stock comprises new and powerful engines, comfortable and conveniences cars, finished with all due elegance, and, in fact, all the appliances which modern art and science have made available for railway uses.

Our illustration presents a view of the bridge at Yardleyville, New Jersey, which is one of the engineering triumphs of the country. This bridge, with its approaches, is 4,000 feet long, and was built by the North Pennsylvania and the Delaware and Bound Brook Railroad Companies, the dividing line being the middle of the Delaware river. It first crosses the Belvidere division of the Pennsylvania Railroad and the Raritan Canal b paperwork, which is here 72 feet, by means of two 60-foot spans, and by a drawspan of 182 feet, all made of wrought iron, and measuring 19 feet between the trestles. Beyond these, extending westward to a distance of 622 feet, is a timber trestle, the bridge in turn being 1,448 feet long, supported on eight sandstone, ashlar pillars, and two abutment piers of combined ashlar and rubble. Six of the piers are in the river, the rest on a solid embankment substratum.

The distance from rail to low water is 72 feet. The nine principal spans of the bridge are made up in measure in length as follows, from the pier centres, and commence at the eastern bank, viz.: One abutment span of 60 feet, one span of 186 feet, five spans of 200 feet each, one span of 130 feet, and one abutment span of 60 feet. These are entirely constructed of wrought iron, the choicest being made of angle iron, riveted and latticed. The floor system is made of built-up beams, tied together longitudinally by a series of built beams under each rail, and over the centre of each truss.

This bridge, however, although a remarkable feat in railway engineering, is but one feature of the road, which offers many others of convenience and pleasant attribute both as regards the construction of the road itself and the advantages of its scenery. The Bound Brook Line starts from the foot of Liberty Street, North River, N. Y., the passenger crossing the Hudson River upon one of the Central Railroad Company's steamers, and comfortable ferry-boats, and being landed at the Jersey Central Station, where the Philadelphia train is in waiting.

The first six miles of road over which he passes skirt the western shore of the bay, and offer very pleasing scenery all throughout.

HOPewell, the next Jersey town, that Washington wrote and issued his farewell address to the American Army in 1783. Crossing Stony Brook, the road enters Pleasant Valley, passes through Pennington, and so onto Yardleyville, a short-distance above which town Washington crossed the Delaware on the memorable Christmas in 1776, to attack the British in Trenton, the spires of which city can be seen quite plainly from the railroad bridge.

This bridge, which we have already described, was commenced December 1st, 1874, and a train passed over it January 10th, 1876. The scenery here is very charming, and interesting to one thoroughly acquainted with its history during the period of the Revolution. It was at Rock Hill, a few miles southeast of Washington, that he received his first patron. They are manufactured at Springfield, Ohio, at the factories of Warder, Mitchell & Co., the "Champion" Machine Company, and Whiteley, Tinker and Kelly, where nearly 40,000 were produced for the centennial year. The factories cover thirteen acres, and give employment to 2,500 operatives. One of the severe contests was to cut rolled grass, and the "Champion" success-fully cut the rolled grass from the heavy rain-storm of the plain, and the advantages of its scenery.

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implement of warfare and husbandry; alphabetical letters, coins, medals, illustrations and monuments, obelisks and the brass age; scenes depicting the progress of invention and hieroglyphics; evidences of the stone age, the iron age and the duration of their authority; the area and population distinguishing characteristics of eminent men; the names and each event in history, but the relation of one to another. The actual number of dogs recorded in the catalogue was 537, a large majority being English and Irish setters. They are displayed to those in point of walking horses, match teams, ponies, nine long sheds, with double rows of dogs, hounds and beagles, still less greyhounds, two or three Shorthairs, spaniels and mastiffs, three or four St. Bernards, a few Newfoundland dogs, half a dozen Siberian dogs, and many Dalmatian or cosmology, Panterian or Spitz dogs, and puddles, made up the general classification.

To the outside observer there were so many setters, that the variety seemed less than it really was; yet the exhibition, as certainly the largest ever held in this country, should be considered a successful one. Some of the dogs bear a very high valuation, certain Irish setters of extraordinary blood being held at 200 guineas in gold.

The entries of horses comprised 275, of which 143 were from the United States, and the balance from Canada; of the former were two stallions, four foals, six by the United States; one by Canada; trotting stallions, and mares, by the United States and Canada; the remaining portion of the American exhibits included Percheron stallions and mares, Clydesdale stallions and mares, roadster stallions and mares, carriage stallions, carriage mares, and match teams. This portion of the exhibition was from 4,000 to 5,000 persons daily during its continuance.

Nearly all the Canadian horses, so-called, were imported from England or Scotland, or were the immediate progeny of imported stock, Canada producing no important distinctive breed. One of the imported stallions, Marquis, weighed 2,200 pounds, and another, Royal Tom, weighed about 2,900. Among the racehorses was one said to have been bred by Mr. Howland being the same which he exhibited at the Vienna Exposition. Of the American photographs, perhaps those of Viewmatics of Philadelphia, photographer. There is a collection of Daguerreotypes, 25 years old, exhibited by a St. Louis photographer. Another exhibit is of character photographs, representing the seven ages of man; also laughing and crying babies, these being from Cincinnati. There are portraits of Indians, views of Yellowstone Park, stereoscopic views of the Yosemite Valley, views of the Ohio and Mississippi, original designs of ferns, feathers, and mosses; etchings; glass embossing-press; and a very interesting collection, from a Philadelphia photographer, of illustrations of photographic transparencies for door and window decoration, microscopic photographs for charm, and many others.

There are also exhibits of articles used in photography, including the dark tent, presentation, in selected cases, specimens of albuminoid and other papers, Kodak stereoscope, camera obscura, and other apparatus, scientific and practical, by the famous Kentucky horse, Lexington.

Among the American exhibits, Mr. Biddle and Hendee, of San Francisco; Mr. T. S. Swift, Austin, Texas; Mr. Howland, of New York; Mr. A. P. Slocomb, of Washington; Mr. Biddle and Hendee, of Philadelphia, and others.

The exhibits of Mr. Biddle and Hendee are particularly worth the attention of the photographic public, and among many others, portrait, scenery, views, views of cities, and of other cities.

Owing to the unusually large number of dogs and horses opened at the Live Stock Exhibition Grounds on Belmont Avenue, a short distance from the Centennial Grounds proper, on side walls, forming alcoves for exhibition purposes. It is of ample size and elegantly arranged, and on the walls are specimens of photographic art from nearly every country where the art is practiced.

Horses and dogs exhibited in all of which is American, the remainder comprising specimens from London, Manchester, Leeds, Dublin, Tumbidge Wells, Lancing, Lyme, Aberdeen, Cardiff, and other places in Great Britain, Montreal, Kingston, Toronto in Canada, and Paris, St. Petersburg, Berlin, Cobenzl, Vienna, Carlsruhe, Mainz, Brumen, Munich, Frankfurt, Yzers, Geneva, Bernach, Brussels, Hamburg, Weimar, Christiana, Ghent, Stockholm, Upsala, Warsaw and Nice, on the continent of Europe; also from Japan and from Rome and Paris, Aix and Bordeaux, in South America. American contributions include all the most noted photographers in New York, Philadelphia, Brooklyn, San Francisco, Baltimore, Washington, Cleveland, Olney, Rockford, N. Y.; Boston, Cincinnati, Chagrin, Holton, Montana; and other cities. Besides the ordinary photographic apparatus and views which are exhibited, there are articles which may be termed the curiosities of photography, some of which are photographic in petticoat, oil, canvas, photographic transparencies for magic lanterns, graphoscopes, gyro-photographs of polaroids, etc. There is a collection of Daguerreotypes, 25 years old, exhibited by a St. Louis photographer. Another exhibit is of character photographs, representing the seven ages of man; also laughing and crying babies, these being from Cincinnati. There are portraits of Indians, views of Yellowstone Park, stereoscopic views of the Yosemite Valley, views of the Ohio and Mississippi, original designs of ferns, feathers, and mosses; etchings; glass embossing-press; and a very interesting collection, from a Philadelphia photographer, of illustrations of photographic transparencies for door and window decoration, microscopic photographs for charm, and many others.

There are also exhibits of articles used in photography, including the dark tent, presentation, in selected cases, specimens of albuminoid and other papers, Kodak stereoscope, camera obscura, and other apparatus, scientific and practical, by the famous Kentucky horse, Lexington.

Among the American exhibits, Mr. Biddle and Hendee, of San Francisco; Mr. T. S. Swift, Austin, Texas; Mr. Howland, of New York; Mr. A. P. Slocomb, of Washington; Mr. Biddle and Hendee, of Philadelphia, and others.

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boiler is double-riveted, and has a shell three-eighths of an inch thick, cast-iron boiler, with a capacity of 135 exhibits, of which about 40 are foreign, the remainder American, is exhibited in this building. There are also exhibits of refrigerators, coffee-mills, house-furnishing, including some very fine exhibits of carriage mountings in silver, copper, and gold plate. The basket-work and violin-case comprise baskets, cradles, work-stools, etc.

The curiosities and other vehicles displayed include about 150 exhibits, of which about 40 are foreign, the remainder being from all parts of the United States. Of these latter, there are pleasure-carriages, coaches, landau-bacches, phaetons, coupes, coaches, family, park and sedan-carriages, road-wagons, buggies, track-magnets, broughams, top-wagons, dog-carts, and even velocipede. Brewer makes a fine show, including a while, the two locomotive engines which were exhibited on this road, the former being the "Grasshopper", engine, and engine No. 600, which has been selected for trial within five months, specifying that it shall be capable of hauling a passenger-train of six cars, including one Pullman car, up a grade of 116 feet to the mile, at a speed of 18 miles per hour, without the assistance of a helper. No better means of comparing locomotive engines of the present and future could have been devised than in this very interesting exhibit.
The Vienna Bakery, on the Centennial Grounds.

Car Company, one and two-horse street-cars, and a large number of exhibits in our material and mechanism, including Patent Phaeton, Hooker-springs, couplings and lubricators, bell-punches and false registers, ventilating apparatus, hubs for wheels, etc. Finally, a Philadelphia home exhibit a model of an ice-boat.

Among the foreign exhibits, those of Great Britain are the most numerous and the most interesting. They come from London, Newcastle, Manchester, Leamington and Corby, and include kymnade, manure-carts, couple, kymade, park and road cars, phaetons, Wheatsheaf carts, four-in-hand drags, gig, chaise-longue, wagonette, dog-cart, and, finally, a stable's preventer, and two exhibits of bicycles.

Russia exhibits a Victoria from St. Petersburg, and a Ansley from Warsaw, also a traveling wagon and sledge with rails from Moscow, besides several exhibits of harnesses. Canada sends a cab, phaeton, bagnettes, landaulet, double and other sleighs, including cutter and adjustable-back seat. From Berlin are sent a panel of state room, from Vienna a wagon, with harness and saddlery; and from Germany, material, including sales, springs, etc.

John Robertson, of Sydney, New South Wales, makes the only wagon exhibit from that country. It is a Concord box, with new front, the wood-work and iron-work being of New South Wales timber.

Among this collection there are certain noticeable exhibits which we will indicate. One of these is a ladies' brougham, lined with rich green satin. In the front portion is a toilet-case of local granite, and resembling mirrors so arranged that the whole can be drawn in out of sight. A light sleigh is shown, weighing only 80 lbs. It is in dark green velvet plush, and is intended for but one person. It is also fitted up with toilet-rooms with a number of handsome mirrors.

The exhibits of the Pullman Palace Car Company comprises two very handsome cars, combining all the comforts and conveniences for which they are famous. A feature of the highly ornamental decoration of these consists of inlaid work of bouquets of flowers, made of pieces of wood stained dark-green and gold. The ceilings are inlaid with different woods, and the car is lighted from the top by electric lights, along the dashboard. The windows are hung with crimson, blue and gold. The car is divided into sections, to be used as dining-rooms, music-rooms, etc. Finally, a child's perambulator, a banc, wagonette, dog-cart, and, lastly, a splendid mirror, and a two-horse street-car.

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THE STATE BUILDINGS.

ARKANSAS BUILDING.

The Arkansas Building lies west of that of Maryland. It is large, and contains much that is interesting. On the east and west of the entrance, ranges of corn, beans, barley, oats, dried fruits, etc., are on exhibition. The foot-stalks are all of the best variety, and have been selected from the finest in the State. The corn is shown in large quantities, and is exhibited in a glass case in the lobby of the building. The potatoes are also very fine, and are exhibited in the same way. The wheat is shown in the same manner, and is very fine. The beans are also well exhibited, and are shown in a glass case in the lobby of the building. The corn is shown in large quantities, and is exhibited in a glass case in the lobby of the building. The potatoes are also very fine, and are exhibited in the same way. The wheat is shown in the same manner, and is very fine. The beans are also well exhibited, and are shown in a glass case in the lobby of the building.

The exhibit from an inventor of Lincoln, Ill., illustrates the working of a new invention for coupling cars. It consists of a model of a train of cars, the coupling being done without the necessity, on the part of the locomotive, of getting between the cars. The coupling apparatus consists of heavy steel draw-tubes with hooks, which, when these cars come together, run into a square hook in the iron half-moon on the end of each of the cars. If it is so desired, by means of a very simple arrangement, the apparatus can be thrown out of gear, and in such a case, when the cars come together they will not couple. No springs are used, and the mechanism is at once simple and ingenious.

THE AMERICAN RESTAURANT, ON THE CENTENNIAL GROUNDS.
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

CONSTRUCTED BUILDINGS.

The large hall of this building, used as a general reception-room, contains a fine old-fashioned fire-place, surrounded with painted tiles. Above the mantel is the gun which General Putnam is said to have killed the wolf, beside the portrait of Putnam himself. On the mantel is a portrait of Governor Ingersoll. There is an old-fashioned clock, and a sideboard with specimens of silverware made in the State, also manufactured in the State. In one corner is a blue banner, containing the names of the Presidents, the letters being cut out of wood from the famous Charter Oak; and in the opposite corner is the coat-of-arms of Great Britain, which hung above the chair of the Speaker of the House of Representatives. In addition to this is a section of the Charter Oak, and a wooden ham and wooden nutmegs of the same tree. Near the fire-place is a spinning-wheel.

JERSEY STATE BUILDING.

This consists of three sections. One of these is used as a general reception-room, and contains, in addition to slabs of native woods, a chair made of 100 pieces of wood from Elkhart County. Back of this is a lady's reception-room, and contains a register. In the rear of the hall is a post-office and parcel-office, and near it a small room where parcels, etc., may be left.

Massachusetts State Building.

This is quite near the large building of the New York Slate and Oyster Company. The construction of this building has already been described. The wainscoting is of unstained wood, and the rafters supporting the roof are left unclosed. The walls are ornamented by natural curiosities, and the inner walls made of finely polished specimens of pine, some of which are quite beautiful, both in color and in markings. Hanging baskets, valued specimens and moss-rooms complete the ornamental features of this characteristic structure.

WEST VIRGINIA BUILDING.

This is quite near the last-mentioned building, lying on the eastern slope of George's Hill. It covers about four times as much ground as that of the Mississippi Building, and like that, is composed entirely of wood representing many native varieties. All about the ground surrounding it are large blocks of black bass, California salmon and trout, arranged annually and placed in the rivers of Maryland. Near by is a model of a Fishing House, with eels, boats, etc.

Arranged about the hall are cabinets containing specimens found in the Chesapeake and tributary waters. There is also a very beautiful collection of minerals, bauxite marble, varieties of wood, and large pieces of coal. At each end of the hall is the entrance to the State, and on the walls are portraits of personages prominently identified with the history of Maryland, contributed by the Maryland Historical Society. Among these are Charles Carroll, of Carrollton, Samuel Chase, William Packer, Baron de Kalb, members of the Calvert family, and others. The first room on the left is an office, and contains a register. A piece of wood painted so as to closely resemble marble is here exhibited. In the adjoining room is a belt made of wampum by the Indians, and casts of the axes of Penn and Lord Baltimore, as cut on the boundary stones of Mason and Dixon's Line, and a grant of land in Baltimore County to the Taylor family, by Lord Baltimore.

EXHIBIT OF THE NEW YORK STATE DOCKING COMPANY.

Thousands of black bass, California salmon and trout are hatched annually and placed in the rivers of Maryland. Near by is a model of a Fishing House, with eels, boats, etc.

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CENTENNIAL RIFLE MATCH AT CREEDEMOOR—THE FIRST DAY'S COMBINED PRACTICE OF THE FOREIGN AND AMERICAN TEAMS, SEPTEMBER 6th, 1876.
specimens illustrating the timber production of the State, also iron and copper ores, specimens of petroleum, wines, agricultural products, limestones, marble, woodwork in ax handles, crockery manufactured at Wheeling, potter's clay, black flint, fire-clay, yellow ochre, mill-stone rock, etc. There is also a shield exhibited by George B. Crawford, of Wellsburg, which is made of a number of pieces of wood, to show the great variety of timber in Berks County. It bears on its surface, cut in the wood, the names of the forest rooms, and ladies' parlors. In the latter are portraits of the survivors of Perry's victory on Lake Erie, framed with wood from the ship St. Lawrence. An extension is occupied as a reading-room, and contains files of the Ohio newspapers, register, etc.

ILLINOIS STATE BUILDING.
The building erected by the State of Illinois for the headquarters of the Illinois Commissioners to the Centennial Exposition lies between the Maryland and Ohio Buildings. It has not erected any building, but has a large tent on the ground in which she exhibits some very fine specimens of iron ores, coals and marbles of that section of the country. This tent lies between the Maryland and Ohio Buildings.

Iowa displays some woven work representing 'Henry the Fourth on Shrewsbury Plain,' a 'Madonna,' 'Abraham and Hagar,' and 'Rebecca and Eliezer.'

The Rhode Island Building is also intended simply as a shelter for the exhibits of Rhode Island, but will probably be occupied by the Peace and Commerce Society.


THE INTERNATIONAL RIFLE MATCH AT CREEDMOOR—THE FIRST DAY'S SHOOTING, SEPTEMBER 11th.

THE OHIO STATE BUILDING.
This State has erected a structure partly of stone, partly of wood. There are rooms on both sides of the central hall, occupied respectively as a general office, Commissariat breeding, and offices for the accommodation of residents visiting the Exposition.

The remainder of the States have erected buildings, most of which are simply for the accommodation of residents visiting the Exposition.
and should have been in Memorial Hall. The New York Building contains a register, furnishes unlimited supplies of stationery to visitors, and has a post-office.

The California Building comprises one large room, handsomely finished, and in which are represented the native growths of wood, by long panels of each species fitted into the walls. In the rear of this apartment is a room devoted to the use of the State Commissioners.

The Pennsylvania Building is designed to afford reception-rooms and a rendezvous for Pennsylvanians. Above the doorway is a Keystone in gold, with the word "Pennsylvania" in black letters.

Delaware uses her State Building as a rendezvous, and offers files of the Delaware papers and a register. 

New Hampshire has a reception-hall where a register is kept, and the walls are hung with views of New Hampshire scenery.

The Michigan Building is used solely as headquarters.

The Wisconsin Building contains a portrait of Joseph Crete, who died at Portage City, in 1866, and who is said to have been 111 years old; also a portrait of a squaw, who is said to have reached the astonishing age of 160 years.

Iowa and her Agricultural Exhibits.

The State of Iowa is nearly rectangular in its form, its breadth from east to west being about 300 miles, and its length from north to south a little over 200 miles. Its most prominent cities are Davenport, Dubuque, Muscatine, and Keokuk, on the Mississippi, and Council Bluffs and Sioux City on the Missouri. The area of the State is about 35,000,000 acres.

Iowa possesses an almost uniform altitude, having no mountainous elevations. The most striking feature of its topography is the predominance of prairies. Timber is scarce, being only found skirting the streams on the bottom-lands; where, in many parts of the State, are to be found elm, linden, poplar, as, black walnut and white oak trees. The climate is mild and healthful; in the northern counties, bordering on Minnesota, the Winters are occasionally very severe. The soil of this State is unsurpassed for richness and fertility; 95 per cent, of it is said to be tillable.

So much for the general characteristics of the Hawkeye State. A special feature of the display of Iowa in Agricultural Hall consists of specimens of its soil. These are inclosed in glass tubes, each six feet deep, taken from a number of counties in the State. Thirty-five counties are represented, and it is said that one of these specimens has been selected by the Swedish Commission to be forwarded to Sweden as a sample of the agricultural district where so many of her people have found a home.

The great staple crop of Iowa is Indian corn, of which
the yield last year amounted to more than 136,000,000 bushels. A most interesting display is the magnificent geological collection in wax, embracing over one thousand specimens of more than three hundred varieties of fruit, which are seen in the Agricultural Building. Specimens of the actual fruits will be displayed in the Fall botanical exhibition. Two hundred of these cases have been secured by the Japanese Commission, and will be sent to Japan at the close of the Exhibition. Of corn there are 74 varieties shown; of wheat, rye, oats and barley, 80; 30 of grass and field seeds; 200 of vegetable seeds; 50 kinds of grass on the stalk; and 60 or 70 varieties of timber seeds.

All these exhibits are from one farm, and are intended as a sample of what may be grown on any farm in the State.

Iowa took the first prize given by the Butter and Cheese Association, and 8,000 pounds a week of this butter are shipped to Philadelphia. An exhibit which is a curiosity is the Butter and Cheese Association ; this department.

Iowa also sends several samples of its coal, which is practicably inexhaustible, underlying, as is computed, four million acres of the State.

Samples of building-stones, and relics of the mound-builders, complete the mineral and archæological display of Iowa.

twelve years prior to the Centennial Exhibition he had been at the head of certain important geological works connected with the Post-Office Department. He is also a practical, scientific man, and in 1871 first put into operation in Spain the application of photography to printing, reproducing by this method the first edition of Cervantes's "Don Quixote," which was published in 1605. This photograph reproduction received an award in Vienna and also in Philadelphia. In 1873 Colonel Fabra was a member of the jury of the Vienna Exhibition. At the time of his appointment to the Commission at Philadelphia he filled in Barcelona the position of President of the Industrial Section of the "Junta Provincial, and was chief of the "Ateneo Barcelonés.

Colonel Fabra was distinguished while in this country by the energy and seriousness with which he acquainted himself with the manners and customs of the people, and by the industry and business-like character of his administration. He traveled over a considerable portion of the country, employing his leisure time in this summer, the better to inform himself concerning our chief cities and towns and their inhabitants. In one of his journeys he visited the city of Toledo, Ohio, and in the course of his stay there called up at the office of the Toledo Blade, a journal chiefly known to the American public as being the original source of the humorous writings of Mr. D. R. Locke (Petroleum V. Nasby), who was at one time its editor, and is still a regular contributor. Colonel Fabra was impressed with the title of the "Blade," and after his visit to the office, and in consideration of the compliment paid to his own country by the selection of this title, he presented to the paper a genuine "Toledo blade," a magnificent weapon of the finest quality and workmanship, and the genuine production of the celebrated city whose name it bears. We give an illustration of this sword, whose description is as follows: Its form is of the double-edge pattern commonly seen in medieval pictures. At the hilt the blade is one and three-quarter inches wide, and a quarter of an inch thick, and in cross-section symmetrical to a sharp point. It is intended mostly for thrusting, but can be used with terrible effect as a broadsword. The length of the blade from hilt to point is 43 inches. Near the hilt the blade is only half an inch thick, and bears the means of handling the weapon, and makes the length altogether 65 inches, or more than four and a half feet. Although so large and long, so skillfully is it made that it can be poised and wielded with the greatest ease. The scabbard is of the finest Cordova leather, the tip and mouth-piece of fine steel, inlaid with gold. Accompanying

THE AMERICAN TEAM.
this gift was a letter addressed to the editor of the Toledo Blade, written in Spanish, and which, translated, reads as follows:

"I have had the honor to forward to the Director-General of the International Exhibition the following resignation:

"The French of the United States of America, he spontaneously and without exception, with a generosity and a generosity of all encomium, held only expressions of sympathy and envy for the Spanish position of the International Exhibition. Therefore, desiring to bear to the entire press a testimonial of my apprecia-
tion and affection, I have selected for the representation the Toledo Blade, an account of the name it bears, and the splendour
ce where is published, as a representative, and have transmitted and presented, in the name of Spain, one of the best of the Toledo
awards shown at the International Exhibition, a noble offering symbolic and ready of the com-
fluence inspired by the high and wise institution at which it is dedicated, but also the humana
and temper of our architecture, and dedicates you many years.

"Francisco Lopez Fabia,

"Royal Governor of Spain.

"After that of the Damascus blades, the ancestral manufacture of Toledo is the most
renowned in the world. It is probable
that this manufacture was introduced into Spain by Arabs at the time of their con-
quest of the country, they having secret in the art of forging steel which are as
much a mystery to-day as ever. Indeed,
though attempts were made to remove the manufacture from Toledo to Seville, the
same processes which were employed at
Toledo failed there to produce the same
name, and for want of a better explanation of the cause of the failure, it was attributed
to some peculiar excellence of the water in the Toros in which those of the Guadalquivir were lacking. Swords are
still made of as good qualities as ever.

"Marvelous stories are told of these blades. In ancient times so sharp were they that they could cut a silk handkerchief in two as it was thrown in the air; while in recent times iron blades have been forged along their edge, and such was their exquisite temper that they could be tied into a knot, or rolled up like a watch-chain. The
latter statement is undoubtedly true, since visitors at the
Exhibition, a few months before those blades as rolled up and packed inside of a circular hole in a block.

THE SPANISH BUILDING.

The Spanish Government Building is about 100 by 80 ft.
in dimensions, and is devoted to the exhibition of articles representative of the Government works of Spain and its
colonies, with other exhibits illustrating the advancement of the different phases of education. One side of the building is devoted entirely to a large collection of books, architectural designs and photographs, framed maps, charts, plans, etc. The collection of books is largely representa-
tive of recent science and industry, with drawings of details of architecture, in stone, brick and iron; and also elevations, plans and sections of lighthouses.

The Specimens of the different countries may be also seen in this
building. A rich display of the celebrated sword-blades of Toledo is to be seen here, as also a fine collection of
engineering and other mathematical instruments. A number of instruments of the natives of the Spanish
colonial countries may be also seen in this building. The collection of models includes also those of bridges and
aqueducts, as well as quite a number of reproductions in
other similar material, illustrating the sub-
ject of anatomy. The walls all about are
hung with photographs and maps in large numbers. A few models of bits, some with iron snails from the Philippine Islands, stand on a table near the centre of the hall. The display includes also various models of bridges, sections of engineering-work, etc. One of the pictures shows the side elevation of the stone bridge over the Seine, at Pontalba-June. Near this is a picture of the picturesque of the Bouquevillon. Unique in engineering is a model of the same, on the scale of one-twenty-fifth of the actual size. It represents the first four arches of the viaduct on the left bank. This model contains with double main arches springing from the same pier, and above the upper one a smaller span, sustaining the water-
ways. On each side of the structure there is a little railroad. The entire structure is faced with ashlar masonry, and the bridges are semicircular. On the east ends are plans, elevations, and details of the noto
harbours of Marseilles, Bordeaux, St. Jean de Luz, and also elevations, plans and sections of lighthouses. A fine view of the city of Marseilles is given, showing the public dry-docks, breakwater, and other works; a view of

AUSTRIAN EXHIBIT OF ORNAMENTAL LEATHER.

The Austrians compete fairly with the French in the manufacture of numerous little articles of stationery and personal ornament, among which these manufactured in leather are esteemed special attention, as exhibited in highly ornamented portfolios in the Austrian Department of Main Building. This manufacture included portable writing-desks of great variety, pocket watch-cases, traveling embossers, fountain pens, and numerous other fancy articles in leather. One of the most curious of this class is a picture which was produced in 1875, ten thousand three hundred
numbers, each of which includes a selection of separate works, contributed by publishers and authors, besides the institutions and Government departments.

AUSTRIAN EXHIBITION.

Quite a variety of curios exhibits are made in decoration, including an inlaid table from Oberg and a specimen of marquetry in wood from Madrid.

Of the exhibits of works, quite a number are from the Island of Cuba, including treetoows, ornamental-woods, etc. Those from
Spain comprise cork, pine, yew, oak, etc.

ITALIAN CHAIRS.

Vernons to the curiosity annex to the Main Building will have noticed the two peculiar-looking cabs exhibited by the Kingdom of Italy. These chairs or chairs were somewhat like the "B slammed" cabs of the same country, but different from it in certain
particulars. The specimens exhibited were constructed of the finest materials, and in their lattices, drapery and other ornamentation were made with rare regard to beaux as well as to service.

FRENCH GOVERNMENT BUILDING.

A letter to the west of Memorial Hall annex is a build-
ing erected by the French Government, and devoted to its contents to a display of models, charts, etc., illustrating the
progress of engineering and important Government struc-
tures in France. The building itself is made of a framework of iron, with iron girders and rafters, and the walls filled in with brick. Some ornamentation has been made by the arrangement of black-faced bricks in diamond shapes. On each side of the entrance on the south front the wall is made of ornamental tile, in white, blue and green, arranged in figures.

Entering the vestibule, we find it paved with encaustic tile, arranged in a square pattern. In this vestibule are two lighthouse lanterns. The one on the left-hand corner is a lighthouse lantern, having a gilded dome, with colored lights, and giving a light of different colors, as so as to present the bearing to a vessel. In the left-hand corner is an electric light, with Franklin glass.

The interior of the building is one large hall, of which the sides and ceiling are paneled and elaborately painted. The centre of the roof, and from end to end, for a width of eighteen feet, is open, the canvas covering being painted in square panel-work designs. At the north end, facing the vestibule or entrance, is a large map of France, showing public roads and railways, and public works, including large cities, with which principal points are marked with brass-
headed nails. This is in a massive frame, and surrounded by a trophy of relics, maps, plans, and conceptions of important public works, harbours, etc., with drawings of details of construction well arranged about the main hall, showing railways, iron and stone bridges, sections of engineering-work, etc. One of the pictures shows the side elevation of the stone bridge over the Seine, at Pontalba-June. Near this is a picture of the picturesque of the Bouquevillon. Unique in engineering is a model of the same, on the scale of one-twenty-fifth of the actual size. It represents the first four arches of the viaduct on the left bank. This model contains with double main arches springing from the same pier, and above the upper one a smaller span, sustaining the water-
ways. On each side of the structure there is a little railroad. The entire structure is faced with ashlar masonry, and the bridges are semicircular. On the west ends are plans, elevations, and details of the noto
harbours of Marseilles, Bordeaux, St. Jean de Luz, and also elevations, plans and sections of lighthouses. A fine view of the city of Marseilles is given, showing the public dry-docks, breakwater, and other works; a view of

"HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION."
The bridge of Tarascon, over the Rhone, on the Lyons and Marseille Railway, is finely modeled. This is an iron bridge, structure built entirely of masonry, with stone parapets.

The abutments are of massive masonry, with semicircular arches of semicircular form. And the superstructure has a broad arch of five centres, containing the waterway, about 100 feet in length. There is a smaller model of this viaduct, having a roadway beneath is spanned by one arch, of two iron trestle piers of a semicircular form, and the superstructure has a broad roadway, though below the roadway of the bridge.

The manner of placing the stones is clearly defined. The bridge of Arcole is shown in a beautiful model, made to a scale of one-twentieth natural size. This bridge, which is of iron, is of a very handsome design, and has a single broad span. The roadway is supported by twelve massive, stone blocks, and on each end of the bridge there is a broad roadway, though below the roadway of the bridge.

On two long tables, running the entire length of the hall, are a number of remarkably fine exhibits of models of bridges and other public works. Commencing on the right, as you go in, is a massive model representing a part of the viaduct of Beaugerard, in process of construction, and also representing the various machinery used to assist in raising and placing the heavy stones and other material. The whole is made to a scale of one-tenth actual size. From the surface of the ground springs a massive-looking trestle, which sustains a broad roadway, though below the roadway of the bridge.

Here is a plan of the immense depot at Orleans, and above, a number of views of lighthouses on the French coast. On two long tables, running the entire length of the hall, are a number of remarkably fine exhibits of models of bridges and other public works. Commencing on the right, as you go in, is a massive model representing a part of the viaduct of Beaugerard, in process of construction, and also representing the various machinery used to assist in raising and placing the heavy stones and other material. The whole is made to a scale of one-tenth actual size. From the surface of the ground springs a massive-looking trestle, which sustains a broad roadway, though below the roadway of the bridge.

Here are also three arches of the viaduct of Dinan, made in stone and iron, and also of stone, the piers being iron in section, of some of the principal lighthouses, selected to show the various constructions in stone and iron, and also a fine model of the pier of Marseilles, showing the public buildings erected along the shore, the extensive system of dry-docks, having models of ships within them, as also in the main docks, and the roads and tramways. Here, too, are five models of different styles of boats, some with beacons, and one with a bell made of cork-work. There are also specimens of different kinds of oil-lamps used in the lighthouses, and the model of an iron buoy-boat, with bell and beacon.

We have already given a description of Memorial Hall on page 89, and a view of the building on page 97. The universal critical verdict upon this building places it in the front rank, architecturally, among the same class of structures existing in this country. Erected at a cost of a million and a half dollars, with the design to afford a permanent art repository for the City of Philadelphia, Memorial Hall is at once the most interesting exhibition of the American art in structure, and the most marked and emphatic illustration of the liberty of the city it adorns, and the State to whose generosity, conjointly with that of Philadelphia, it owes its existence.

The architect of Memorial Hall is Mr. H.J. Schwalmann, in the installation plan of this building, the corridor from the front and rear entrances is devoted chiefly to the statue of the Blessed Virgin, the State to whose generosity, conjointly with that of Philadelphia, it owes its existence.

On this table are models of large ships and vessels, and a model of a reservoir for the supply of water to the town of St. Etienne; sections of two funnels of the same, with machinery; also a look of the pier of Dunkirk, with gates and iron swinging-bridges, gates to the boats, and swing-valves. There are also two large models of a swing-bridge at Brest, and the model of a canal bridge over the Elbe.
VISIT OF THE GRAND COMMANDERY OF THE UNITED STATES KNIGHTS TEMPLARS TO THE EXPOSITION — THE COLUMN PASSING THE MASONIC TEMPLE IN BROAD STREET, PHILADELPHIA.
the Anan, are three rooms communicating, devoted to
Italian exhibits, and comprising one of the most interesting
features of the exhibition. They consist of a collection of
archaeological curiosities, exhibited by Mr. Alessandro
Castellani.
In the first room is a rare collection of antique marbles,
comprising among which are the "Italian Bucchero," a
figure of heroic size, which was found near Naples. "Spinario," a Greek statue of the school of Phidias, with the
heads of Sappho, Thetis, Alexander and Persius, the
latter of the school of Phidias, with the Emperor Augustus,
and statues of Cupid and Psyche, the last two being in
the school of Donatello, are here. In the same room are to be
twelve toilet-stands in bronze, some engraved with early
Roman legends, those having been found in the
province of Palermo.
In the second room is a remarkable and highly interest¬
ing collection of majolica ware, comprising 150 pieces,
arranged in chronological order. Of these, a few large
pieces in dark blue and gray, the work of the Ambos, appear
to have been handed down from the twelfth century. Above
these are some fine specimens presenting "lustre" marks
of clay. Next we notice the Della Robbia ware of the
fifteenth century—the manufacture of Leo and Andrea
Robbia, who, it is supposed, were the first to discover and
practice the art of tin-glazing. These two were uncle and
nebup, and are said to have been equal in point of excel¬
lence of workmanship; their work consisting chiefly of
curious modillions and bas-reliefs of white glass. These modillions were used in the exterior decoration of churches and public buildings. Some idea of the
durability of this material may be obtained from the base of
the terra-cotta modillon, eleven feet in diameter, which was
fixed in an exterior wall in the vicinity of Florence fifty
years before the discovery of America, after having endured the
climatic influences of four centuries, was found to retain
all its original beauty, brilliant color and fine appear¬
ance. This ware is now extremely rare, but several speci¬
mens are to be seen in this collection. Of these, perhaps
the most characteristic is a bas-relief representing the
Virgin in an attitude of adoration. On a groundwork
of deep blue, the Madonna is presented kneeling before the
infant Christ, with the Deity in a group overhead. The
features of the lost article have been antedated all others extant. Among the Faenza speci¬
mens are some very beautiful pieces. A characteristic of
this ware is the artistic blending of different shades of blue.
On a ground-work of antique blue is traced a delicate scroll
work, formed of a series of lines and a bluish-white, and in
the centre is usually to be found a coat-of-arms or some other
subject.
Among the exhibits of majolica are found specimens of the
famous lustre of the Della Robbia, by Gregorio Anzilotti.
This is a most interesting collection, representing as it does
one of the lost arts of Italy. The manufacture was short¬
lived, extending only over the period between 1520 and
1580, when the secret died with its inventor. The charm of this work consists in its brilliant play of color,
which almost seems to change as one looks upon it. The
subjects are scriptural and mythological, but there are also
plates which in those days were purchased as love-gifts.

NEW YORK DAY, SEPTEMBER 12th—GOVERNOR TILDEN'S RECEPTION IN THE NEW YORK STATE BUILDING.

On one of this class there is a heart pierced through with
Captial arrows, encircled with pits of flame, having above it
a series of glazed bases. The design of Urbino, of the
fifteenth and sixteenth centuries, show traces of the
school of Raphael.
A very valuable piece in this collection is a plate on
which is painted the portrait of Charles the Fifth of Spain,
the work of one of the best artists of the manufacturer,
Antonio Fantoni. On the acquisition of the Duchy of
Urbino into the Papal dominion, this factory was removed
to Rome. The best artists, however, failed to follow, and
the result was a visible decline in the style of workman¬
ship, as is shown by some pieces of this ware which were
manufactured after the removal of the factory to Rome, and
in which there is a marked inferiority in drawing and
finish.
The Abruzzo majolica brings us to the seventeenth and
eighteenth centuries. A number of pieces of this class are
now in a glass case in the centre of the room. Among those are
be especially mentioned a piece resembling a Greek vase,
this having formed part of a branch placed on a Greek vase,
this having formed part of a branch placed on a Greek vase,
this having formed part of a branch placed on a Greek vase.
"NEW YORK DAY," SEPTEMBER 21ST—REVIEW OF THE NEW YORK CITY POLICE BY GOVERNOR TILDEN.
THE INTERNATIONAL LIVE STOCK EXHIBITION IN THE EXPOSITION STOCK-YARD—THE AFTERNOON CAVALCADE.
for the purpose of identifying property in the slave, there is a metal plaque, which bears a Latin inscription, which, translated, reads: "Take me, and keep me and send me back to the farm of Maximian, the anti-

crusaders of the eleventh, twelfth and thirteenth centuries; collections of cupellated and uncupellated gold ornaments of the Lombard style in the seventh century; near these are other cases, in which are between the earliest Tyrrhenian period and the end of the sixteenth century. Near these are other cases, in which are rings of gold, silver, amber, etc., including cameos, representing the art in this direction. More than twenty centuries. Conspicuous among these is a case of engraved gems from Nurnov and Peroupelis, with others, including cameos, representing the art in this direc-
tion of Etruria and Greece; and illustrating its rise, progress and decline in those countries from its earliest inception to the fifth century of the Christian era. Opposite this case is one in which are rings of gold, silver, amber, bronze, glass, stone and ivory, representing the interval between the earliest Tyrrhenian period and the end of the sixteenth century. Near these are other cases, in which are seen bronze and silver ornaments which were used by the Crusaders of the eleventh, twelfth and thirteenth centuries; gold ornaments of the Lombard style in the seventh century; collections of cupellated and uncupellated gold ornaments of Etruria, 700 years before Christ. In this collection there is a metal plaque, which bears a Latin inscription, which, translated, reads: "Take me, and keep me and send me back to the farm of Maximian, the anti-

octagonal in shape, studded with pearls, sapphires and rubies.

In Gallery K, in the southwest corner of Memorial Hall, is a collection bequested by Pope Pius IX. It includes three pieces in mosaic, the first a basin of Florence, the second a Mosaic, and the third a mosaic of Baphne's "Madonna di Poggio." Besides these there is a piece of tapestry representing the martyrdom of St. Agnes.

THE UNITED STATES.

The American pictures in Memorial Hall are divided between the Central Gallery, Gallery C, and Galleries X, Y and Z. On entering the long hall at the left, called Gallery C, one first notices Rothermel's extensive canvas of the "Battle of Gettysburg." This picture has been the object of considerable sequestration; and not a little hostile criticism on the part of the Press; yet it is perhaps the best picture that Rothermel ever painted, and certainly seen under advantageous circumstances, or at least from the proper point of view to award distance, it is not by any means an un controversial battle-piece. The composition is not being (No. 165) "The Winning Yacht," and the other (No. 355) "Moonlight in New York Bay." J. H. Beard is represen-
ting by several of the earlier American artists, beginning with the "Arabian" of Vanderly (No. 150), and including Thomas Sully's portrait of his wife (100) and "Kenilworth Castle" (210), by Cole. Many of the best of our later artists are represented here, and generally in credible works.

Here, for instance, is Eastman Johnson's "Catching this Bee" (143). It is a charming portrait of Shakespeare, by William Pope, taken after the wax mask which was sup-
poded to have been made from the face of the dramatist after death. This is numbered 154. Edward Moran has two pictures, both of strictly American interest, the one being (No. 165) "The Winning Yacht," and the other (No. 355) "Moonlight in New York Bay." J. H. Beard is represen-
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"BLIND MAN'S DEFF."

"THE FIRST BEEP."

"THE ORPHAN."

"THE FORCED PRAYER."

THE STATUARY IN THE ART GALLERIES.
Near this is a pleasing landscape by James M. Hart (236), "A Summer Memory of Berkshire," the property of the He-

pabian church in the Governor-

ship of the State of New York, Mr. E. D. Moun.

This is a small pastoral, so

stamped with the peculiar atmosph-

ere of Western Massachusetts in Summer that it

could be readily picked out from a hun-

tred works or having been painted in that sec-

ion. No. 239 is a portrait of Hackett

as "Rip Van Winkle," by Henry Inman,

now which is F. A. Bridgeman's "Theo

ban Story-teller" (258). This last-named print-

ing represents the interior of a Turkish

harem. Into the dull life of the women

there now has crept a ray of light.

The story-teller—a fantastically-dressed Natan

woman—has arrived, and, seated in a

spare in which a fountain plays, has com-

menced a recital. In one corner, upon a

divan, near a low, latticed window, sits a

beautiful woman over an embroidery-frame, and

is listening intently; another has

thrown herself back in luxuriou

sofa on a couch, drinking in with parted

lips and moistened eyes the

poetic legend

told by the mysterious woman.

On the

right, on another divan, is a group

of beauties, one robed in green-and-white, hol-

ding a rose to her lips, a second

fondling her child, and a third apparently off into
dreamland.

Close by McEntee's picture hangs David

Johnson's "Old Man of the Mountain,

Franconia Notch, N. H." (221), a faithful

work as

having been painted in that

spot. The picture shows

background are handled.

the

a

cell near a grated window, which is higher

in a prin-

cell near a grated window, which is higher.

He supports himself

by holding on with one hand to the grate-bars of the window. The simple

story is told pathetically and with true art.

No. 186, "Fishing-boats of the Adriatic,

by Sanford R. Gifford, displays the pe-

culiar charm of the wonderful sea, with its

fringes of high and rugged mountains, its

delicate effects of color, and its fleet of

boats with stained and painted sails. Among

Wakeman's exhibits is "Gulliver in Lil-

put" (156), a picture which was exhibited at the National Academy of Design, N. Y.,

some years ago.

Mr. J. B. Irving is represented by "The

End of the Game," a clever work, which

presents this artist in his best manner (257).

Bierstadt exhibits the "Settlement of Cal-

ifornia, Bay of Monterey, 1770" (257),

Shattuck has a "Lake Champlain" (258),

Sonntag his "Sunset in the Wildernes-

s" (256), Schimmel "The Iron Worker,"

and Irving "Cardinal Wisley and his

Friends" (251).

In the Central Gallery, west, are found

quite a number of works by the Ameri-

can painters, among which "The

other, with her arms folded across the chair, gazes

com-}

c}

enc}

in the still
}

which

the
to the left.

a beautiful

is absolutely faithful to Nature as exhibited

at this season in the Northern States.

Near this is "Spring," by Regis Gignoux

(251), a landscape representing an orchard

close, with low trees laden with blossoms, and

happy, barefooted children straying over the green turf toward a low-cored

wood, fancifully set off by a broken

fence. Near McEntee's picture is R. Swan

Gifford's "Egyptian Fountain" (124). Some

Mohammedans have arrived at a

green spot where two palm-trees struggle

up strangely before the busts of an

artyce wall from which two camels are

drinking. In front of the bench stands

a figure clad in a long red gown and

white turban, and near him two Orientals

silently contemplating the scene in the
distance. The cactus and a few stunted

bushes are all the vegetation exhibited.

In the distance are two travelers mounted on

camels, taking their way toward another

village or foundation.

Just above this hangs one of Edward

Moran's marine pictures, "Minot Ledge

Light" (245). Dr. Haus exhibits a number

of pictures, the chief of these, perhaps,

being his "Moonrise and Sunset" (25). This

shows a headland, low and ragged, of

bare rock, dwarf in color. At a little

distance from it is a single tree, upon

which the sea seems to have beated until

all its freshness and verdure have died

cut of. Before us is the ocean, over

the warm rays of the declining sun, while

the beautiful moon is appear, sun

rounded by a tremendous haze. Distant sails glide

away, looking like ghosts on the horizon.
ent from that of America, being greener and riper. The
faulty, the points of interest being diffused in several
American, although artistically it is by no means up to the
tall tombstones covered with inscriptions. Beneath shady
by a high stone wall, and filled with grass, protected by
"The Strayed Maskers," by Benson (71), is a startling
merrily numbers of
Asliakar."

painted with great care and freedom from conventionality.
The
beautiful falls, Professor King, the geologist of the expedi¬
tion, when they suddenly burst into view with an
of Sulphur Mountain, while at its base is the dark ground
sentinel, distantly outlined against the blight background
of the mountain. It is of such remarkable size,
towers at the brink of the fall. It stands like some gloomy
185}

Another interesting view is that of the Great Falls of

Congress as a National Park. Mr. Moran accompanied
was followed by 3,000 square miles Gang set apart by
the property of Mr. It. L. Stuart, of New York, is well

Another important and interesting picture is that of the

...of which the original oil-paintings are also exhibited.

Aeteon" (1192 and 1194, respectively). The more im¬
portant are "Charity," by Merle (1296); Cor¬
representative exhibition of English paintings has ever been
in England offers a broad contrast frequently to the more
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toured a sister to pieces, after the manner and still not
infringing habit of the sex. This idea of introducing a
"situation" into a picture otherwise only illustrative of
the customs of a people is a happy thought, and in this
instance is well carried out. The last of Elmore's pictures,
"Two Women shall be Grinding at the Mill," a rather
low in tone, harmonizes so consistently with the sentiment
been engraved, but here the coloring, though sombre and
been offered to his inspection by a frozen, miserable
wretch, who has evidently passed through that pleasant
anchor. A policeman, with lantern open, stands in the
centre of the composition examining a paper which has
carefully and strongly painted, and are excellent speci-
men of this class of marine subjects. Further, they are
imbued with vitality, and full of the representative quali-
ties which they should contain—the one expressing a
graphic and comprehensive fact of general human inter-
est, the other a meditative incident of the most marked
and striking character—a rescue from shipwreck.
Frith's well-known picture, "The Railway Station,"
haunts in this room (48), but is not altogether an attractive
work, and is one of those paintings which most certainly
owe their fame and popularity to the engraver. Besides
Frith's picture is one by S. Luke Fildes, "Applicants for
Assistance to a Casual Ward," before which we may properly
pause for some degree of analysis. This, too, has
been engraved, but here the coloring, though sombre and
low in tone, harmonizes so consistently with the sentiment
of the subject, that we find nothing lacking in that, while
the composition and the delineation of individual charac-
teristics are deserving of the most favorable criticism. By
those who have read Greenwood's "Experiences of a
London Clerk," or induced by any one thoroughly
acquainted with Dickens's writings, this painting will be at
once understood and appreciated. In the shadow of the
cold, sleety night, a line of frozen and frozen creatures
waits before the door of the Casual Ward of a London
"Union," or temporary poor lodging, each one striving,
with such patience as is practicable, for shelter for a
moment of physical pain and mental anguish, in view of the
possible respite near them—if the ward be not over-
crowded. Here is poverty in its most sorrowful as well
as its most dismal shape. Honest, decent poverty, as
well as besotted and degraded poverty, both dependent
upon the same fragile hope—the same distant sheet-
anchor. A policeman, with lantern open, stands in the
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waits before the door of the Casual Ward of a London
"Union," or temporary poor lodging, each one striving,
with such patience as is practicable, for shelter for a
moment of physical pain and mental anguish, in view of the
possible respite near them—if the ward be not over-
crowded. Here is poverty in its most sorrowful as well
as its most dismal shape. Honest, decent poverty, as
well as besotted and degraded poverty, both dependent
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Leighton, each wildly differing from the other in character, next attract our attention. The "Shade of a Rose's Hair, Danumcum" (97); and "Eastern Singer Scaring Birds in the Harvest-Time—Moonrise" (98). This brings us round to Ceo. II. Be they what they will, the artists of this room by four works. Two of these (89, 90) are named "The Sick Monkey" and "The Traveled Monkey"; the other two are named "The Sick Monkey" and "The Traveled Monkey," which may be properly examined in connection with the portrait of the artist in the first made its appearance, and is a representation of a large painting, representing a little child walking along a country road, and carrying on her arm a basket of wild flowers. It is a pretty subject, simple and nicely treated. "Circe and the Companions of Ulysses" (31), which has only recently been engraved. Circe was a sorceress who lived in the island of Sigea. When Ulysses landed there, she sits, clasping her knees and regarding them. Each individual hog of the drove has a personality, and one can fairly appreciate the human feelings of passionate attraction, fear and shame which seem to express themselves in the attitudes and movements of the human creatures who have been thus transformed into these disgusting beasts, yet without being relieved of their human souls. This is a quite extraordinary work, and will repay study. One other painting by Rice in the collection is called "War-Time" (152). Other works in this gallery which should not be passed without notice are Wycherley's "The Death of Buckingham" (109); "Julian the Abarisian" by Constable; a "Interior of a Jew's House, Damascus" (96, 97); and "Eastern Slinger Scaring Birds in the Harvest-Time—Moonrise" (98). This brings us round to Ceo. II. Be they what they will, the artists of this room by four works. Two of these (89, 90) are named "The Sick Monkey" and "The Traveled Monkey"; the other two are named "The Sick Monkey" and "The Traveled Monkey," which may be properly examined in connection with the portrait of the artist in the first made its appearance, and is a representation of a large painting, representing a little child walking along a country road, and carrying on her arm a basket of wild flowers. It is a pretty subject, simple and nicely treated. 

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"Little Sunshine" (16), painted by H. H. Huntley, is a large painting, representing a little child walking along a country road, and carrying on her arm a basket of wild flowers. It is a pretty subject, simple and nicely treated. "Circe and the Companions of Ulysses" (31), which has only recently been engraved. Circe was a sorceress who lived in the island of Sigea. When Ulysses landed there, he discovered that his keeper disputes the question of passage—money. She has gathered daisies on her way, and her garden in the foreground, occupied with impressions of family ties, and displaying these in pleasant little passages of affection, is seen by the stately and childless lady of the inner passing by in the distance—and thus the intention of the picture is solved. 

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represent the heroine seated in a chair before her mirror, immediately after her first preparations for retiring. The figure is carefully drawn, and the expression of languid repose is well put. "Bath Father and Mother" (43), by Thomas Faed, is a picture of eloquent pathetic sentiment. The old cobbler drawing a glove on the lap of his little motherless child, in preparation for her departure for school, conveys in his own personality, as depicted by this artist, the full meaning of the situation. The little child herself looks on, half amused and half surprised, at the clumsy though tender efforts of the father to supply by his devotion the attentions of the one who is lost. Three little schoolfellows, who have come to accompany her, stand a little behind the principal figures, and seem to appreciate the position of things. A little boy upon a stool holds a puppet in his lap, while a bright-eyed, rough-looking terror sits beside him. The compliment of rude accessories about the cobbler's shop appropriately complete the details of this very interesting work. "Out in the Cold" (109), by J. MacWhirter, represents a donkey shut out in the snow, and is well known by engravings. "In Memoriam" (158), by Mrs. M. E. Staples, is one of the most elaborate of the smaller pictures in the collection. A young maiden clad in black silk and lace, in an old-fashioned style, with blonde hair looped up with a black velvet band, is represented pressing her lips to a name carved in the bark of a big cherry-tree, whose stem her arm can only half encircle. The caressing attitude in the faces of the group, and in the easy of expression in the faces of the group, and in the easy

husban household. The whole is presented. "Young England" (14), by A. D. Tipp, represents a little country lad, apparently of one of the Lake counties of England, who, in his rustic health and purposeful face, is a fair type of the characteristics of his race. "Winter" (27), by J. M. Jopling, is the picture of a pretty little serious, and a little careworn, face, charmingly lifelike, and presenting a purity of color and richness of tone quite equal to oil-painting. Another picture by the same artist, entitled "Flossy" (26), is a delicious little presentment of a child in full ball array, sitting in a rocking-chair, and holding in her arms a pet dog. She is apparently waiting for, or has just returned from, some festivity. One of the larger pictures in the collection is by Sir John Gilbert (14), and is entitled, "The Death of Dunstan" (30), which represents a scene full of gloomy force. George Cattermole is represented by one picture, "The Edge of the World" (65), which effectively illustrates the peculiar powers of this artist as a historical painter. Perhaps the best landscapes in this part of the Exhibition is by A. C. Newton, entitled "Mountain Gloam, Glenridding." (35) It represents a scene of reed or reed in the mountains, full of atmospheric shadows, and appreciated with a savage loverwhich fully rectifies it to the sense.

Pauli well in front of a rustic cottage, where, accompanied by a

lady, and surrounded by a group of children, they recall the days when Music, heavenly maid, was young." It is to be said that they do not impress one as possessing extraordinary merit, although certainly none of them are
very bad, while a few are quite up to the ordinary standard of the Exhibition. "Rich Forest" (11 B), by Edward Bergh, is cleverly painted. "Market Day in Dusseldorf" (20 A) is quite as good a representation as such pictures generally are. "A Mother's Grief," by Miss W. Leger-Bohan (39), represents a young mother weeping over her dead infant, and is an excellent work. The simple pose of the mourner, her knees before the cradle of the dead child is full of pathos. Much care is exhibited in this work in the painting of the tapestry and associated furniture, scenic, rug, etc., in the apartments represented. A clever bit of coloring is seen in a small female head, entitled "Young Girl with Grapes" (54 A), by Miss Sophia Ribbing, of London. The largest and most prominent picture in the gallery, and one also very meritorious in its execution, is Reh elt's "Burning of the Royal Palace in Stockholm during the Year of Charles XII." (28). The lurid and intense light of the inhabitants of the Palace before the hastening flames is represented with marked fidelity to what we may imagine, must have been the situation. The massive carved work, which is all that can be seen through the smoke and glare, is carefully executed in all its details. Particular attention should be paid to this picture to the examination of the detailed and texture in the garments of the different individuals. "In the Spring" (41), by C. E. Skanberg, is a landscape with two figures representing a gentleman and lady walking through a forest. This work is executed with greater breadth than is altogether customary in landscape work. The subdued effects of light, filtering, as it were, through the dense foliage, is artistically contrasted with the deep shadows beneath. Another landscape by Edward Bergh (11 C), represents a Swedish waterfall with a mill and rustic bridge. This picture presents very decided marks of talent. The tumbled walls of the fall are represented with a most just idea of their natural appearance. The distance is well marked, and such foliage and grass as are seen are carefully painted. This picture shows how much the artist has gained in the working of a rock in the middle distance, and the swiftly-flying storm clouds above, are excellently represented.

SPAIN.

The Spanish collection in Memorial Hall is contained in the gallery with that of Sweden, and includes: "The Wounded Bullfighter" (plaster) by Nohal, of Barcelona, "The Massacre of the Innocents" in terra-cotta, by Domingo Talarn, and forty-four oil-paintings. In the collection, however, there is no representation of the modern school of Spanish art, of which Escourra is the most notable member. These paintings are full of interest, including, as they do, a veritable Murillo, a genuine Velasquez, and several large compositions of decided merit and interest. One of the most remarkable works in this gallery is by A. Vera, and is entitled "Burial of San Lorenzo at Rome" (40 L), and is the property of the Museum of Fine Arts of Madrid. The corpse of the dead saint is painted with an excessive of accuracy in the representation of the folds which is quite startling. "David's Victory over Goliath" (50 A), by Lucas Jordan, is the work of a renowned artist, and possesses merits peculiar to this master. "The Landing of Columbus," by D. Puchol (49), is a rather theatrical representation of the event it illustrates, but depicts the generally accepted popular version. The "Velasquez" (29), is a portrait, and is the property of the Countess Antonia Du Mann. As we seldom see a painting by this artist, it is not easy to criticise it in regard to his customary work. It is certain, however, that it possesses all the marks of genius in portraiture which are commonly attributed to Velasquez, with those special qualities of coloring which were peculiar to him. In landscapes—\(1\) which can be compared favorably with those of other countries represented in the Exhibition—is a painting by D. Carbó Rico (44 D), and is entitled "Reminiscences of the Pyrenees." While it presents a luxurious growth of verdure and foliage, carefully painted, there is a sympathy and force in the combination, and a purity of tone and atmospheric effect which are eminently creditable. The scene represents the mountains in the distance, and in the foreground the black wall of a dwelling, encompassed in foliage, beside which is a massive bridge over a single arch, the road crossing which is apparently a highway. A single figure leaning over the frail railing of the bridge is the only living witness to the fine lace of the broad collar and about the neck of the mourner on her knees before the cradle of the dead infant, and is an excellent work. The simple pose of the mourner, her knees before the cradle of the dead child is full of pathos. Much care is exhibited in this work in the painting of the tapestry and associated furniture, scenic, rug, etc., in the apartments represented. A clever bit of coloring is seen in a small female head, entitled "Young Girl with Grapes" (54 A), by Miss Sophia Ribbing, of London. The largest and most prominent picture in the gallery, and one also very meritorious in its execution, is Reh elt's "Burning of the Royal Palace in Stockholm during the Year of Charles XII." (28). The lurid and intense light of the inhabitants of the Palace before the hastening flames is represented with marked fidelity to what we may imagine, must have been the situation. The massive carved work, which is all that can be seen through the smoke and glare, is carefully executed in all its details. Particular attention should be paid to this picture to the examination of the detailed and texture in the garments of the different individuals. "In the Spring" (41), by C. E. Skanberg, is a landscape with two figures representing a gentleman and lady walking through a forest. This work is executed with greater breadth than is altogether customary in landscape work. The subdued effects of light, filtering, as it were, through the dense foliage, is artistically contrasted with the deep shadows beneath. Another landscape by Edward Bergh (11 C), represents a Swedish waterfall with a mill and rustic bridge. This picture presents very decided marks of talent. The tumbled walls of the fall are represented with a most just idea of their natural appearance. The distance is well marked, and such foliage and grass as are seen are carefully painted. This picture shows how much the artist has gained in the working of a rock in the middle distance, and the swiftly-flying storm clouds above, are excellently represented.

FRANCE.

The collection of French paintings in Memorial Hall is only representative in one particular—that is, of names of which no one, in this country, at least, has ever heard. There are, in fact, but one or two artists in the entire collection whose names are known to American picture-buyers, who in the Paris market are certainly the most liberal and the most frequent of any in the world. If it has been to introduce to our notice artists little known, this method of collecting the exhibition offered may be considered to have been politic, or rather would have been, had the selection been of a tempting character; but, instead of there is not a single great picture in the entire French collection, there is little to be said for it on this score. Neither the present generation of French artists of reputation nor the past is here illustrated. Not Ménageot, nor Félix, nor Rossini, nor Delaroché, nor Honoré-Verdet—are any of these here; but no matter, in fact, to represent the better art-work of France. Meanwhile, all of this being true, and this being our complete judgment with regard to the collection as a whole, there are, nevertheless, a number of pictures which are interesting, and some of which present to us artists whose works are known.

Beginning with the central gallery, cost, we first note No. 2, by Lowell, "A Nobleman—King of Louis XIII." The picture in this is carefully painted, the costume being elaborate, and delineated with every attention to detail, as witness the fine lace of the broad collar and about the waist. A collection of swords, and small arms, helmets, etc., engraved and damascened, is presented upon the table, which is all the furniture of the room. These articles, as well as the elaborate cloth with which the Table, are also painted with due precision. "Norm—Entrance to the Harbour of Boulogne," by Veron (6), is successful in expressing by broad, general effects, rather than in minute detail, the situation suggested. The figures on the long pier projecting out into the water are very cleverly portrayed. In "Floral Offerings to the Holy Mother, Naples," by C. L. Blanc (5), there is some very excellent work, the faces being expressive and lifelike. "Mehedelby," by Peyra Pernin (8), a solitary figure of a woman standing on the margin of a pool in the shade of twilight. The sentiment and coloring of this painting are of a better character than
is the drawing, which, to say the least, is not exact. "Evening in the Harbor of Venice" (12), by A. Rosier, a moonlight scene, with the palace of St. Mark on the right, a large ship at anchor, and a solitary gondola gliding across the reflection of the moon on the scarcely-ruffled waters. F. A. Bartholdi exhibits two pictures of American subjects (11, 15), "Old California" and "New California." In one we have represented a group engaged in washing for gold. All about the scenery is black and dismal, the passionate artist of No. 8, already noticed, contributes another work entitled "Antique Dance" (16). In this a group of nude females are represented in salubrious attitudes, one of these having fallen to the earth either by reason of the eccentricity or the rapidity of her movements. There is good execution in the work, but naivete of expression, and that of so serious a nature as to mar the general effect. Michel exhibits a painting entitled "Decameron" (21), the scene and costume being Italian of the period of Boccaccio. A young man is apparently declaiming to an interested gathering of listeners some of the interesting tales of the great story-teller. Hamerton has a capital picture of a girl feeding hens (14); the time is Winter and the ground snow-clad. Everything in this work is carefully and well done, from the peasant girl in her wooden-slioes to the poultry about her, the trampled snow and generally dismal wintriness of the scene. Antigua contributes a work entitled "The Shipwrecked" (25), in which with exceeding force and concentration of purpose he has, as it were, fastened the central interest which hangs about wrecked ships picture by T. Gibe, entitled "Studying" (40), is a small grave picture of the school of Meissonier, and is painted with care and skill, "Helene at the Fountain," by A. Maighan (38), represents the partially nude figure of a girl seated on the brink of a fountain basin, having beside her a little repast of fruit and wine, and engaged in watching the magnificent peacock standing before her. F. M. Leyendecker, one of the few names in the collection at all familiar to us, is represented by a picture, "Still Life"—game-birds hang against the wall. The chief collection of French pictures is contained in Gallery E, a large room used to symbolize the general efforts of the gold-seekers to gather it from the washings of the auriferous earth. In the companion picture we have what is possibly the same party, now extensive farmers, whose grain covers the land to the distant foot-hills, and about whose life is to be witnessed the contrast furnished by calm, domestic serenity, in place of the concentrated anxiety for gold depicted in the former picture. Both these works are more notable for their expression than for their execution, although there is some good work in both, the landscape rather than the figures. The...
next-adjoning the central gallery, Schoreck's "Sheep in a "Snow-storm" and "Sheep on the Heath" (44, 45), two companion pictures, are specimens quite up to the usual mark of the work of this excellent artist. Between these apparently on the Inach at some watering-place. The face lar actress of the Théatre Français, Paris, on horseback, is a large canvas representing Mile. Croizette, the popu¬traits. "Visiting the Confessor," by Palliere (42), repre¬the mise easy. The horse is well drawn, and the whole being apparently the arrest of a cavalier by an officer there is much care and attention to detail noticeable in the blonde, half dressed, is represented trying the effect of I>carls in her yellow hair. The flesh is well painted, and the foot of a staircase, holding in her extended hand a large figure subjects, the centre one representing Penelope of for her lover, while sitting beneath a bust of the monarch the figure of Uria rash runs this wise this wise which ought to be indicated. The sculptural story of Rizpah runs in this wise: The Gibeonites, having seen their brethren slaughtered by Saul, chained for reprisal the lives of his seven sons, to make up the seven sons, in order to gratify this scheme of revenge, David was forced to take the two sons of Rizpah, who had been one of the seven sons. They had been dead at this time forty seven years. But the king took the two sons of Rizpah, the daughter of Ahiah, took sackcloth, and put it upon his flesh, and put to death in the days of har¬of Aiah, took sackcloth, and put it upon his flesh, and put to death in the days of har¬of the sons of Michal, the daughter of Saul, whom she brought up for Ad¬of Barzillai, the Meholathite. The hanging figures of the bodies of her Sons from the church, or other public building, with her lap filled with flowers, soliciting custom. It is, however, a very pleasing picture. An interesting historical picture illustrates an interview of Napoleon I. with Goethe and Wieland. It is beautiful, and the sculptured pillars sustaining the building in which the figures lie are manifestly Egyptian. The work is rich in color, and the figure exquisitely drawn and painted. The subject, however, is not agreeable. "The Flower Market," by Morin (149), is a very good representation of a lovely and charac¬teristic scene in Paris, the various figures and equipages making up an attractive and brilliant spectacle. Dumas—quies "Declamation of Independence, United States of America" (141), is interesting as showing the French idea of our forefathers. The figures of Jefferson and Franklin will be at once recognized. "Basket with Fruit," by Lays (142), is a capital picturesque still life. The grapes, peaches, raspberries, etc., with the leaves of these, are painted to the very life. Gallery I completes the French exhibition in Memorial Hall. On entering this room we are at once struck with the painting called "Salambó" (200), by A. de Coton, which hangs near the door. It represents the life¬size figure of a male nude reclining upon a couch, and amusing herself with a pleasureless amorous or fan¬constricter, which is gambolling about her. The scenery is tropical, and the sculptured pillars sustaining the building in which the figures lie are manifestly Egyptian. The work is rich in color, and the figure exquisitely drawn and painted. The subject, however, is not agreeable. "The Flower Girl," by Glasse (150), represents a young woman fashionably dressed, with a face above the average in intel¬ligence, but who, nevertheless, sits on the stone steps of a church, or other public building, with her lap filled with flowers, soliciting custom. It is, however, a very pleasing picture.

**"Pennsylvania Day"—The Illuminated Fountain on the Lake.**

The sculpture leaves the question of the after-disposi¬tion of the bodies somewhat doubtful, since it is stated therein that only the bones of Saul were collected and buried in the tomb of his fathers. **"King Morwen"** (96), of Lannumis, which hangs over Wrapped in the electric light of the fountain—its effect on the dis¬course of the figures, and the interest of the spectator concentrates easily and forcibly upon the central point—the figure of the dying Cesar. A very charming picture is "Repose." (62), by Perugino—a little graceful fallen asleep amid her shrubbery, her tinkle on one side of her, and a basket of fruit, delicious lunch for the farmers, on the other. The pose is easy and graceful, and the very pretty effect of the light coming through the trees and falling upon the face is accomplished with considerable skill. "The King's Entertainment," by P. C. Cone (75), represents a sick monarch—probably Louis XVI.—assumed into a passing

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**"Pennsylvania Day"—The Illuminated Fountain on the Lake.**

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PRESENTATION OF THE REPORT OF THE JUDGES OF AWARDS IN THE JUDGES' HALL, SEPTEMBER 25TH—GENERAL HAWLEY ANNOUNCING THE AWARDS.
THE BUILDING AND THE EXHIBIT OF THE UNITED STATES LIFE-SAVING SERVICE.
In front of the palace, Dogs and senators vied with each other in getting near her, with the honors due to her rank, conducted her to a throne in the square of St. Mark's, and joined the leading citizens of Venice in offering to her homage and treasures. It is this scene which the painter has selected for his copy.

At the right, Catherine sits elevated on a samphire throne, having near her her women and courtiers. Before her, girls richly dressed offer her offerings of flowers, fruits, and jewelry. Further on arrive visitors on a magnificent barge, drawn by a war's horse and adorned by a background of rich crimson, while before her lighter colors tone down in the face of the picture.

The contrast of rich color are impressive; the queen is surrounded with white and gold, relieved by a background of rich crimson, while before her lighter colors tone down in the face of the picture. The colors are all colossal, and there are forty of them represented. The picture measures about 25 feet by 30. The work of Robert Ross.

"Mill near Malb, South Tyrol" (6), will attract attention as representing a peculiar feature of Tyrolean farm-life and scenery. "Girl with Fruit" (15), by John G. Cox, of Vienna, is quite Telamonesque in the quality of its coloring. Indeed one would think, to look at the entire Austrian collection, that Austrian art owed much to Titian and Giorgione than to any other of the moderns; to pay special female head and bust by Amerling (8), displays some exquisite coloring, but the picture "Bethlehem," by A. Georg, Mayer of Vienna (16), is not satisfactory. It is coarse in expression and lacks sentiment. It is also studied and conventional in drawing. An exquisite little nude work is seen in the "Sleeping Nymph," by Louise Minnaerts (18). In the perfect abandonment of the pose, and in the exceptional fine outlines, and truth to nature in coloring, this picture is a gem. At the "Sun" (23), by Augustus Schadow, presents only a dissolute woman with her feet in the water, and pools of water, with a dull-gray and white sky overhead, yet out of these slight elements the artist has made a picture full of beauty and different shades of yellow and dead-red. The figures are all colossal, and there are forty of them represented. The picture measures about 25 feet by 30. The work of Robert Ross.

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Bimontual and General Hartman. As a historical portrait this work is certainly full of merit, but, as a picture, it is not very important and the representative work in the latest school of German art which this artist presents is certainly not sympathetic. This fact is especially manifest in the "Capitation of Alkmaar" (45), by Count von Harcke of Berlin, which is very hard and wooden, exaggerated, and, as it were, pure sentiment, and is in accordance with the facts of the surrender.

"Picnic in Azio Minor," by Edelstein (98), a very definite improvement on those in artistic merit and in the quality of personal interest. It represents a party of Europeans picnicking in a grove of poplars and cypresses by the shores of the Egeria Sea. These are smiled upon by Greek attendants, and at a little distance are seen a group of Turkish washerwomen in their washday, giving an Oriental character to the scene. This picture is full of fine feeling for color, the shades being warm, and the whole scene vivid and full of atmosphere.

"Broken Flowers," by A. Schleiffert (126), is still further an advance on the last in the qualities which make paintings appeal to the sympathy and the soul. A hoy in a country garden, in front of a large clump of poplars, the upper branches of which are covered with leaves, is seen standing alone among bushes and moss underbrush. His face is turned to the spectator, and the water runs down the eyes, and the entire attitude seems to indicate sorrow and the drawing of the figure is admirable, the color artistic and sympathetic. The hoy's costume, of purple and black, and the gray sky, give a moody effect to the scene, which is most sympathetically rendered. In every particular of artistic harmony, drawing, composition and coloring, this work seems nearly perfect. The expression of sorrow is very well painted, and the hoy's manner is so well drawn that he is a positive figure in this picture and admirable, a palette of tender and sympathetic colors.

"The Environs of Munich" (81), is a agreeable picture of a river and green meadow, the latter dotted with trees, a few white goose visible, with a girl washing them, and above a bright, blue sky, marked with whishtory clouds. This work is quite unlike the ordinary German landscape either of the present or past art period. J. S. von Stieler's "Harvest in Holland" (128), is another worthy landscape, representing a mowing in a whole field during harvest. The colored trees are gathered together, and under the shelter of one of these we see the rear of their maiden repeat. The sky in this picture is admirable painted, a palette of pink and blue being included. In the background is a village. "Tobacco Gatherers," by the same artist (88), presents some fine effects of color. Andreas Achenbach, well known in this country as a Düsseldorf artist, has one picture entitled "A Landscape," by E. von der Heiden (98), is a very characteristic work. No. 129, by Schelhorn, is a picture entitled "Queen Elizabeth Signing the Death-warrant of Mary Queen of Scots." In the treatment of this often-painted subject the artist is quite effective, and through the most simple means the Queen's face is expressive and thoughtful; that of her counselor full of the anguish of the occasion. The artist has idealized Elizabeth quite beyond the historical truth concerning this period of her life. "Luther Intercepted," by Count von Harnech (135), illustrates an incident in the life of the great Reformer, and represents him met with a warning by a mounted knight in armor, while on his journey in a dark wagon, and traveling by a road through the woods. The central point of interest—the figure of Luther—is admirably depicted for sustaining the immediate object of the artist, but beyond this the composition is complicated, and if we may use such an expression, "lumped up." The figures, however, are strongly drawn, and the landscape accessories of trees and vivid green foliage well wrought in. No. 136, "Christ Appearing to Mary Magdalene," by Prof. Flochbott, is a work in which the arrangement of the two figures emphasizes the intention of the artist by means of broad contrasts of light and shade.

"The Last Rehearsal previous to Going to the Singers' Festival" (99), by Ortleib, is a very characteristic work. Though exaggerated somewhat, it will be recognized as portraying a past idea by any one who enters the gallery. "The Christ, clad in a Wooll," by A. Tolkans, who was the master of Gide, and probably the greatest artist Norway has produced, will at once attract the attention of any one who enters the gallery. "A Midsummer Night in Norway," by Franta Bos (4), is a very striking work. Four colored figures, in a room from the hall of Dalskoff, three from Christiana, two from Carlschu, and one—Benedetto—from Paris; lie "Vikings at Sea" (2) being still another work which should be carefully examined.

"Bust of Christ," by Carl Buchna, is another of the many pictures of Christ, clad in a single garment of pure white, is distinct and impressive. The figure of Magdalene at his feet is only subordinate in its importance. This is one of the most worthy pictures in the room.

"Man's Life on the Land," by Xynander (79). The merit of this picture lies only in an admirable treatment of the water and sky, with the effect of strong moonlight breaking through the clouds. Otherwise the work might have for its subject any other water, anywhere, as well as that indicated in the title. A couple of brigs, fully rigged, and under full sail, with snatching-stalls flying, and a solitary pilot-boat, tacking probably to get in shoow, give human interest and commercial life to the scene, which otherwise, with its small waters and gentle-floating clouds, might soon seem void of these elements.

"The Last of the Clan" (66), by Pavlovitch, is another of the many pictures of clas. "Perseus," by G. Goller (2), is a clear heaven, with the flesh paintings of the excellent for color and texture. The sentiment of this picture, in so far as it expresses the idea, is not successful. The drawing is good.

"Departure of Frederick V, from Prague after the Battle of the White Elbe" (121), is a presentation work, in which the composition is theatrical but effective. No. 129, by Schelhorn,
The sunlight from the only window can shine representing the unhappy occupant of a cell seated. “Prisoner,” by Silvanovitch (44), is a small cabinet picture. The artist evidently has an earnest and truthful feeling for Nature in her wilder phases, and has succeeded in portraying those with very marked success. No. 39, by Skirmund, represents “A Festival in the Palazzo Colonna.” “Home,” and represents “A Steamer in Floating Ice,” and is a creditable work. The attention to details of costume and interior decoration in this picture has been careful and studious. Another work by this artist (38) hangs near it, and is suggestively treated. A woman in the lower rank of life holds her infant on her knee with one hand, while the other she threatens the poor little soul, to whom she stands in stead of his lost mother. The landscape works of this collection, “Birch Forest” (19), by Heron Kock, is carefully painted, and is a characteristically representation of this species of forest growth. No. 49, by Lugaris, “Along the Road from Titlis to Abshitz” is a more ambitious work, and presents a realistic scene with decided skill and precision. The statuary of the Russian Department includes four pieces by Zenger, of Warsaw: “The Mother’s First Joy,” “Backfurlous,” “Sophia” (in illustration of the poem by Mickievic), and a bust of marble of the poet Mickievic. Two pieces, by Ryger, of Warsaw, are a “Bust of Washington,” in marble, and a “Bust of Dr. Levitouch,” in plaster-of-paris. These works are all interesting, but not remarkable.

BRUSSELS.

The oil-paintings exhibited by Belgium are contained in the Annex. In Gallery O, Memorial Hall, there is, however, a collection of works in other departments of art which demand consideration. First among these are a dozen pieces of statuary in marble, all of which are clever, and two excellent. These two are (189), “The First Child,” by Frickin, which represents a young mother, seated in her night-shoe, nursing her infant. The sentiment of this work is pleasing, and the execution symmetrical and artistic. No. 190, by the same artist, “The Dream Bone,” represents a little child in the attitude of tasting, with the skirts of its simple garment, a huge boneshovel, which is burning itself among the piles of a charcoal. The steadiness of movement and anxious interest displayed in the child’s attitude and look produce a very pleasing and natural effect. A number of statues in terra-cotto are very clever, especially “The Little Mother” (186), “Winter” (182), “Summer” (188), each of which is admirably balanced in design and exquisite in execution. These are all by Edgardo Conan, Brussels. Here are also several large pieces of artistic brasse—mon, all by Lainost, of Antwerp, and all portraits. A miscellaneous collection of medals and medallions is contained in a frame, and includes several industrial medals awarded by different European countries. In decorated plates there are some sixty pieces, representing, however, only five artists—Dumme, De Mol, Miss Georgette Meunier, Edmond Tauzran and Francois Xavier Vohuaksa, all of Brussels. These represent chiefly mythological scenes, and, to those who are interested in this class of art, will prove attractive. Finally, this room exhibits a complete collection of the photographic representations of the works of the Belgian painter Wattez, donated, exhibited by the Royal Belgian Society for Photography. This collection presents the complete lifetime labors of an artist who, for weird imagination and marked originality of execution, stands entirely alone in the department of the grotesque and the horrible.

THE ART ANNEX.

The arrangement of the Annex to Memorial Hall comprises its subdivision into forty-five rooms or galleries of different sizes. Of these, Numbers 1 to 4, 7, and 19 are devoted to the exhibits of Italy. Numbers 5, 15, 21 and 23 contain the Netherlands collection. Numbers 6, 8, 9, 10, 11, 12, 13, 15, 16, 18, 20, 21, 22, 24, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, and 44 include the pictures exhibited by the United States in this building. Norway, Denmark and Sweden have rooms Numbers 7 and 11; Argentina, Chili and Mexico, rooms 9 and 27; France, Numbers 21, 22, 23, to 28, inclusive, 43 and 45; Belgium, 23, 25, 29, and 41; Spain, 26 and 31; Canada, 26; Portugal and Brazil, 27 and 29.
BRITISH COLONIAL EXHIBITS IN THE MAIN BUILDING.
ITALY.
The principal portion of the Italian exhibits is to be found in room No. 1, and comprises sculpture chiefly. We have already indicated the character of this portion of the contribution of Italy. Here are to be found a large number of those exquisite little figures, illustrating childhood in its various seasons and phases. Here, too, are others whose subjects are of a mythological or quasi-classical character. We will glance briefly at a few of these.

No. 2, "Repentance," by Pietro Bernasconi. In this work the artist has succeeded in expressing in marble the sentiment which forms the subject of his effort. No. 50, "Angelic Love," by Giulio Bergonzoli, Raleigh. The Cleopatra type in this work is decidedly unattractive. Here she stands erect, resting one hand upon the shoulder of a slave, who has flung a piece of some heavy woven fabric beneath her feet, for her to tread upon, Sir Walter a la of a slave, who has flung a piece of some heavy woven fabric beneath her feet, for her to tread upon.

No. 37, "Angelic Love," by Giulio Bergonzoli, Raleigh. The Cleopatra type in this work is decidedly unattractive. Here she stands erect, resting one hand upon the shoulder of a slave, who has flung a piece of some heavy woven fabric beneath her feet, for her to tread upon, Sir Walter a la of a slave, who has flung a piece of some heavy woven fabric beneath her feet, for her to tread upon.

No. 95, by Alberto Gilli, "Arnaldo da Brescia and Pope Adrian IV."

"A Cup of Tea," by Ernesto Giroux.

The collection of paintings in this room includes only a chosen number. No. 105, by Alberti Gilli, "Arnaldo da Brescia and Pope Adrian IV."

"A Cup of Tea," by Ernesto Giroux.

The collection of paintings in this room includes only a chosen number. No. 105, by Alberti Gilli, "Arnaldo da Brescia and Pope Adrian IV."

No. 187, "A Redhead," by Palazzi. This is an interesting picture in the new style. No. 187, "A Redhead," by Palazzi. This is an interesting picture in the new style. No. 187, "A Redhead," by Palazzi. This is an interesting picture in the new style. No. 187, "A Redhead," by Palazzi. This is an interesting picture in the new style.

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**Interior of the Church of the Cathedral of Parma** (194), by Marchesi, is a carefully executed copy of carved wood, wainscoted; with cabinets and beyond. This is a cleverly wrought picture. There are several figures presented, a priest and three children boys in full costume. “A Grandmother’s Admonition” by Cennini (130), is a pretty little domestic scene, charmingly painted. “Dream of a Little Step” (211), by Prof. Guattoli, is a work which will bear close examination so far as the execution is concerned, but in which the intention of the artist is at least doubt. A young girl in masquerade attire appears to have been lured so that the full appreciation of the dangers of a false step.

These rooms—2 and 17—which are formed by a long and narrow hall, immediately facing the southern entrance, contain both paintings and sculpture. In the latter class the works are all of a simple and homely character, the larger number of the subjects being children in various attitudes. One which will have been interesting to American is seen by Prof. Zocchi, of Florence, and is entitled “Benediction Franklins in his Youth” (232). It represents a boy about ten years of age, seated at a rude desk, with a book on his knees, gazing up into the picture. His face is very suitable in a young boy and his expression, “The Alpine Tourists”, (237), is a rather noticeable painting, representing a small boy in a vestry-room, and is a hint of the popular feeling in Italy on Church matters during late years. “The Harpist”, by Mancinelli (405), by D’Amore. It represents two men pointing at the Harp and one of his officers. The subject is vigorously treated.

In the centre of the room is a large subject entitled “The Night of the 1st of October, 1492 ” (357), by Di Chierico, is a large canvas, and is a striking picture. From the last-named apartment we enter the centre of the building. Gallery 18, in which are nine pieces of sculpture. In the centre of the room, on a pedestal, is a large subject entitled “The Night of the 11th of October, 1492 ” (405), by Durazz. It represents two men pointing generally and gazing eagerly in the same direction, the one holding the foot resting on a coil of rope, indicating that they are on shipboard. The two are probably Columbus and one of his officers. The subject is vigorously treated.

“Boy Gathering Grapes” (467) by an unknown artist. This work is admirably developed, the boy being represented seated on a rock, his head thrown back and right hand extended upward, grasping a bunch of grapes, while in the other hand he holds a bunch of newly plucked grapes. The vine and fruit are very carefully sculptured, and the child is admirably modeled. “Silvia” (411), by Barzaghi, a girl half naked, leaning forward and fastening a flower in her hair, taken from a mass of flowers which she holds in her garment gathered about her waist. It is a pretty costume and partly handled.

Gallery No. 4 closes the Italian Exhibition in the Art Apex. Here are some twenty-five or thirty works of sculpture, of which a few deserve special notice. Of these there are but a half a dozen pictures which require notice.
these works may be fairly considered among the best exhibited by recent Italian painters.

Netherlands.

The Netherlands collection is generally a creditable one, and contains some works possessing peculiar merits. "The Whirligig" (50), by Vermeer, represents a poor widow wood-gatherer crossing a field with her apron filled with wood, an infant clinging to her neck and a small child beside her, also laden with faggots. Near her walks an old man, also a fagot-gatherer, leaning upon his entwined stick, and having, evidently, an eye to the charms of the pretty, though poverty-stricken, young woman, with the toddling child beside, glancing at him askance, as though wondering to herself what kind of a stepfather he would make. This work shows the influence of the modern French school, and is handled after its best manner.

No. 52, by W. C. Nuyts, "A Park-horse in the Woods of St. Gatius, Normandy," represents a Winter scene with half a dozen horses standing beneath the eaves of a thatched cottage. Except a rough, wooden-shod peasant, who gives them fodder, there is no other living object to be seen, and the landscape, the ground being covered with snow, and the trees stripped of their foliage, is dreary enough. The horses are well drawn and closely copied after nature. The landscape is excellent, the blank wistfulness of the period being well shown. No. 54, "At Church," by Bisschop, presents a young woman seated in her pew in church, with her attention, however, evidently directed away from the actual proceedings of the service, as she reads her prayer-book before her. The face is well painted, and is full of expression. The texture of the costume is carefully wrought. A sketch of a woman in the background, with her head leaning against a wall, is unnecessary to the picture, and unartistic. "Scene in Kleiheugel" (55), by Koeckhove, presents a street-scene with people loitering about, a wagon laden with hay moving slowly along, occasional trees, a wind-poster in the distance, and on the sides of the street quaint old Dutch houses—all very carefully painted and true to fact. No. 55, "A Moment," by Honcks, represents an incident of a child which has fallen into the water near a bridge, and is being mugged up with pieces of ice in a manner very suggestive of a lengthened future for the unfortunate. A man has, however, leaped to her rescue, and, with the aid of two others in a boat, who hold him with a rope about his middle, is just about grasping the sinking child, furnishing the "critical moment" of the artist. A group of compositional bystanders on the bridge above well displays the attitudes occasioned by such situations. The work is vigorously though accurately treated.

"On the River-side," by Van Everdingen (62), is a pleasing landscape, showing a road running off into the background beneath trees, with the river lying placidly at its side, and a single sail specking the blue and white sky above. No. 67, "After the Storm," by Basts, is an admirable painting, without regard to its title, which has no special reference to the subject. A woman sits in a doorway, with about an inch and a half of sky in sight, which is certainly dark enough to indulge a storm. An older woman, stands beside her with folded arms, leaning against the wall, with a very wretched and hopeless expression on her face, which indicates quite as much of a storm within her. A little child sits beside her on a rude bench, eating. The painting of this picture is careful, and shows full capacity and appreciation. No. 69, by H. A. Van Tirg, entitled "Norwegian Women Bringing Children to be Baptized, and being Welcomed by the Clergyman," represents a baptismal scene, and is particularly interesting, nor specially well painted, though wonderfully good in the representation—as good, indeed, that there are but one or two French artists who could approach it. The subject is simple enough, only a dressing-point—plenty-field with a little patch of dry brush on the left of the foreground, one present woman—digging potatoes, and two others picking them up and transferring them to the basket and upon. In the distance, a church spire gives indication of a village. This is all there is of it, but the artist has so thoroughly imbued his work with genuine and true sentiment, that it is specially worthy of notice. No. 90, by Mrs. Henriette Bonner, entitled "The Last Hope," represents a fleeing hare chased by four dogs, the latter being just in the act of crossing a brook, over which the hay, by means of a basket, has successfully passed. This work is full of life and action, the animals, unlike in any other, involuntarily driven, the incident mentioned being a very perfectly executed painting. No. 111B, by our own artist, Kerman Van Elsen, of New York, in "A Hollow Land" and a "Holland Landscape," and a very charming scene. This artist is to be known, that it is only necessary to mention his work to attract attention to it. No. 112, by Tomlyn, a "Low Country" and a "Winter Scene," representing the "Shoemaker's Hall on the Old Town Hall at Kampen," with an old signal chimney-piece and fire-place, and a carved table in the distance, No. 116 is a "Young Man" after Lalande's "The Cat Pedalling," handsome in the head, and evident skill in the execution. It is clearly given, the delicious cat being particularly well rendered.

In room 123 these sides are given up to four large paintings by Altmann of Amsterdam, painted after Rubens and other masters, but offering nothing of especial merit. "The Nursery" (139), by Aldis, is a pretty little scene, representing two small children watching a cat and her little kittens. Immediately beneath this picture is No. 143, by Eedertsh, called "Recreation," representing several ladies engaged in shooting at a mark, which is particularly noticeable from its being quite unlike in treatment any other painting which we have thus far met with in the Netherlands collection. It is handled in an airy and easy manner, yet with excellent composition. No. 152, by J. C. Van Essen, "A Moment's Rest," deserves passing notice. An old peasant woman, resting her weary homebound way over snow-covered and frozen ground, has stopped for a moment to rest her tired hands, and is seated on a rude bench or leg by the wayside. There is sentiment and quiet dignity in the face of the poor old creature, and enough poetry in it to interest some one who is appreciative, for it is marked "Soeb."
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

The King of Siam's Gift of Gold and Silver to the United States for Exhibition at the Centennial.

We now pass to Gallery 15. No. 4, by H. Kookkoek, of Amsterdam. "Beach on the French Coast," represents a stormy scene, the waves foaming and tossing, and black, lowering clouds flying rapidly across the sky, a schooner beached in the foreground, and a group of people, fishermen and others, engaging in unloading her, while in the distance a second schooner rushes in before the wind under shortened sail. No. 6, by Israels. "The Card-Players," is a large work, full of power, and handled with marked freedom of brush. The players comprise three men sitting about a table with pipes and liquor, while a woman, having a child in her arms, looks aghast at a waggon near by. "Storm on the North Sea" (29), by H. W. Mesdag, is a work which consists of a sea and stormy sky, with a few gulls perceptible. It is a noble picture, and if we were to get at a distance from it of about one hundred and fifty yards, with a spy-glass, we might discover its merits; but the size of the room precludes this, and we fail to see them. "Early Morning" (35), by Apsel. Here the judges stumbled on a good picture. The first faint glimmer of sunrise is making its appearance in the distance, and brightening up the scene, which comprises a forest on one side, and grass and underbrush on the other, with a little-used road between.

The Netherlands collection concludes with a number of:

THE MINERAL ANNEX.—CHINESE DEPARTMENT.

In Gallery No. 16 contains contributions of the American

EMIL THOURON'S "TITIAN V.

highly artistic. It is an admirable specimen of genre

painted in 1873, is one of the

painted himself beneath a rock, which forms a part of an

W. J. Hays, now

sented the picture in

are mingled together in marvelous confusion, yet

of the walls, and a

is in plaster, and the others in

Gifford, Lag

San Giorgio, Venice” (It’d), by S. 11.

Brasil, is also the handling of the drapery. Another piece of

nearth and

Chinamen, who will gain consideration on account of the

and natural

and ("buries a little of the walls, and a

DATED 1873, is one of the

straggling parties of villagers on their way to church,

and moonlight brightening the

of which, “Christ in the Sepulchre.

and composition. Here are some works set forth with a claim for authenticity, which makes one’s

and ("buries a little of the walls, and a

Eastman Johnson’s “Bo-peep” (452), is an allegorical piece,

Ecclesiastic. "The Pilgrims of St. Roch” (496), forming in the gloom of its sky and

Doodle,” is known by the

Kafkas, artists of the Centennial Exhibi¬

tion; “St. Francis in his Cell,” of Murillo; “St.

from cast to west.

ally executed with evident

is represented by a young mother amusing her little

First of such subjects, exaggerated. Those

he will perform on coach-stools by the

performed on coach-stools by the

this last of remarkable

of which, “Christ in the Sepulchre.

and is exeeuted with evident

painted himself beneath a rock, which forms a part of an

to the theatre than either of nature or art. No.

very creditable, as

in a Weary Land,” by Oertel (482), is an allegory is contained. This work covers a large

bees, melons, apples and oranges, bare legs, kids,

and brilliant coloring reminds one rather of a transforma¬

collection, which is the work of Messrs.

and by sea-horses and

and mermen, with flying cupids in the air, and music

inextricable

greatly admired, and is known by every one. “The Jealous

on a throne of shell, drawn by sea-horses and

The Eve of her

and ("buries a little of the walls, and a

are mingled together in marvelous confusion, yet

naked babies, melons, apples and oranges, bare legs, kids,

as the poignant longings of the heart

by the

of nature and art. No.

of such subjects, exaggerated. Those

in the American, and ("buries a little of the walls, and a

and is exeeuted with evident

and is exeeuted with evident

the furniture in the

the story of this unfortunate artist, who committed suicide

Goldau, of Florence, entitled “The West Wind.”

the furniture in the

and moonlight brightening the

from cast to west.

The story of this unfortunate artist, who committed suicide

in a Weary Land,” by Oertel (482), is an allegorical piece,

the second “Abundance of

marvelous confusion, and displaying this artist’s wonderful feeling for

of which, “Christ in the Sepulchre.

The Eve of her

and ("buries a little of the walls, and a

is represented by a young mother amusing her little

in plaster, and the others in

which the artist has exhibited his faculty for coloring to

are mingled together in marvelous confusion, yet

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of which, “Christ in the Sepulchre.

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are mingled together in marvelous confusion, yet

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Society of Painters in Water Colors, of New York. This association has in a few years time to achieve the first rank in water-color paintings, and the works exhibited here are generally a fair exponent of the merits of the artists represented. Gleaning rapidly through the collection, we can only indicate a few of the more particularly noticeable and meritorious works. No. 276, by Louis C. Tiffany, "The Old and New Mosques—Ali Hussein and Sultan El Ternid, Cairo," is a very estimable representation of Oriental architecture. "Racy Life in the East—Gate of the Sub-Treasury, Tangiers" (277), by the same artist, displays the characteristics of the Ottomans in their everyday life, the costumes being carefully portrayed and the grouping easy and life-like. No. 283 is still another Oriental picture but by Samuel Colman, the scene being in Algiers and the subject the "Mosque of Sidi Hallid." Colman has made his mark in this class of paintings and the present work exhibits him at his best. "Necromantically Caught in a Shower" (287), by Geo. H. Boughton, is a capital representation of a French peasant, and a very bright and pleasing little picture. No. 288, by J. O. Eaton, "Out of Moshesh," represents a cuttlefish-headed little-boy of same three or four Steamer's lying fast asleep in his crib. It is a charming little domestic subject, exquisitely treated. "Mount Madison, N. H." (289), by William Hart, is one of the pleasing landscapes peculiar to this artist. "A Scrub Race on the Plains" (290), by James D. Smillie, is a lively and animated picture, in which, however, the horses are not drawn with that accurate signal to epitomize anatomy which might be desired. It is an illustration of the increased excellence put upon water-color pictures of late, as the price of this one is $1,800. "Romans and Juliet" (291), by Alfred Fredericks, of New York, is one of the few figure subjects in the collection which can be commended. Our artists are by no means as successful, as a rule, in figure-painting, as they are in landscape, marine and architectural. Fredericks is, however, an exception to this rule, and the present work, although not one of his best, fairly displays his talent. "The Little Prisoner" is by J. O. Eaton (321). This artist is most successful in treating children, and this work is quite excellent in the manner of its handling. A little dog, cornered behind two chairs, which are tied together, is represented to be mourning its incarceration and screwing the latter end of melancholy and despair in the form of the corner of his little arm, while one hand behind his back displays children's most acmeontoned position, one phase of the changeful temperament of a child. "The Building Wood" (327), by F. Hopkinson Smith, represents an avenue in the midst of a forest vanishing in perspective. In the foreground a still pool of water, and basking unawares a mass of overthrown and moss-covered trunks of trees. This is quite the best work by this artist out of the several in the collection. The foliage and bark of the trees are painted with care and conscientious fidelity to nature. The distance is well presented, and the sense of breadth and expanse is demonstrated most appreciably. "Bene's Back," by F. A. Silva (330), a marine containing the simple elements of rock, sky and water, painted with care and purpose. "Autumn Woods," by A. E. Bellows (332), Mr. Bellows has been as successful in water-color paintings as in his oils in that the work under our notice presents a group of young persons among the underbrush on the outskirts of a forest. The Autumn lines are carefully depicted, and the work is a creditable one. No. 342, "The Ferry," is another one—because containing more life—more intensive specimen by the same artist. William T. Richards exhibits "Paradise, Newport" (343), one of the largest of the water-color paintings exhibited, representing the quaint rural country, painted with that consideration for detail, which is a special part of Mr. Richards's artistic quality. "Gathering Water-Lilies," by A. T. Bricher (347), is quite one of the very best works in the room, if not the best. It represents a tranquil brook, resting, as it would seem, passively, in a pool beneath the shadow of large trees which skirt its side. In the middle distance a boat is shown, from which a girl leans forward to grasp the water-lilies, while another, behind her, holds the paddle with which she propels them through the water. Without the slightest appearance of effort there is artistic power to be seen in this picture. "The Willow Wagon" (349), by A. F. Bellows, is doubtless a reminiscence of his English study and experience. It is a very charming landscape. Nos. 350 and 351 are by R. Swain Gifford. The first illustrates the Arabian Nights ideal of a "Roo's Egg," in which that remarkable event is placed in contrast with oriental humanity, to the manifest disadvantage of the latter. The second picture, that of the "Venetian Companions," presents three gondoliers gliding side by side along the surface of the lagoon, with Venice dimly seen in the distance. "The Old House on the Hill" (360), by Henry Farrer, is a better success than those who saw Mr. Farrer's first efforts in pro-English art would have expected. It is a characteristic and creditable picture. "Evening, Long Island Sound" (375), by Kresseman Van Eline; rich and luminous in color, and ambitious effort, rather different from the customary work of this artist. "Egyptian Twilight" (378), by R. Swain Gifford, is a far better representation of the red merit of Mr. Gifford than are those to which we have just drawn your attention. There is a quiet charm about it, which is explained by his fidelity to its themes. "Sunday Afternoon in New England," by A. F. Bellows (380), is a characteristic portmanteau of a familiar scene. The long village road, overhung by spreading elms, with the old-fashioned church, and the old-fashioned houses, forms a most exact representation of New England village scenery. One of the best of the few marine exhibited is by J. C. Niesl, and is entitled, "On the Gulf of St. Lawrence" (387). Here there is conscientiousness and entirely satisfactory work, and the picture is in all respects attractive. "Columbia's Daughter," by Win. Wallace Scott (389). Here is some exquisite flash-painting, and there is altogether a delicacy and refinement of touch to be seen in this work which makes one wish for more ambitious efforts on the part of the artist. "Bene, Looking Down the Tiber," by Samuel Coleman (397). This picture should also be ranked among the first-class water-colors. There is a breadth of effect, a rich coloration of details, which is highly comprehensive, and well indicates the special merits of this very clever artist.
collection closes with No. 399, 'Safely Landed' by A. F. Bellow. A young girl at the foot of a grand old tree leans forward over the brook beneath her, and with a crew succeeds in rescuing from the water a little boat filled with young, the mother, meanwhile, floating behind her flashing offing and eagerly watching the efforts toward their safety. This is a most charming work, and is an excellent study.

Gallery 16 forms a part of the transverse corridor in the transept, and contains framed specimens of engravings; also a considerable collection of painted china and glassware from the firm of Steele Bros., Philadelphia, from Hinrichs, of New York, and from Gay, of Philadelphia. Some specimens of china artist-sets forming a portion of these exhibits are very artistic, and compare favorably with some of the foreign work in the Main Building.

Gallery No. 20, immediately next to this, contains very much the same class of works as that last mentioned. The decorated china is from Bevington & Co., of Philadelphia, and is more ambitious in design. There is also exhibited a considerable display of electrotype reproductions of medals and bas-reliefs from Augustus Hau, of New York.


Gallery No. 24 contains specimens of bank-note engraving from the National and American Bank Note Companies; also a frame of the collection of notes and bonds of the National and American Bank Note Company; and the collection of very wonderful specimens of steel-pen work, including quite marvelous copies from certain well-known paintings, the whole exhibited a considerable display of electrotype reproductions of medals and bas-reliefs from Augustus Hau, of New York.

Gallery No. 28 contains a large number of paintings, all by Boston artists, of which quite a number need consideration. Nos. 909 and 904, by R. G. Porter, of Boston, entitled 'Portrait' and the 'Hour-Glass' are quite above the ordinary range of American figure-work in merit, and in this room stand out as prominent subjects for consideration. There is evinced in these works a profound feeling for color and texture, the delineation of the latter being remarkable in its fidelity. The face painting is also excellent. The pose of the figures, particularly that of the portrait subject, are very life-like. We confess we have heard of this artist before, but his works should be esteemed highly. Four fish paintings, by W. M. Brackett (867 to 896), depict the progress of angling experience in which the noble king of fish, the salmon, is the victim. The entire course of struggle, from the rise to the catch, is capitalily set forth, there being real animation and vitality presented in the movements of the unhappy fish. "Port of Antwerp" (906), by D. J. Edwell, of Boston, is a work which possesses considerable merit, and is treated with a breadth of understanding of this class of subjects which we do not always find in American artists. No. 919 is a portrait by Elizabeth Booth. This work, however, though not pleasing and too much out of range for good observation, seems to contain elements to indicate in an artist of considerable capacity. "Sleep in Pasture" (924), by T. Robinson, presents these interesting animals in a favorable and natural light. No. 927, by W. E. Norton, "Fog on the Grand Banks." Any one who has experienced the situation shown in this picture, as has the writer of this, will at once appreciate the closeness of the fidelity shown by the artist in the scene represented, which as placed upon the canvas possesses more picture-qualities than might at first be anticipated. Nos. 901, 902, and 903 are portraits by the late Gilbert Stuart of "Fisher Ames," "Judge Story," and "Bishop Cheever." They are interesting solely on account of the name of the artist. "Under the Oaks" (924), by E. M. Reminaher, is quite a startling representation of a grove of old gnarled oaks, beneath which a shepherd watches a small flock of sheep browsing on the slight declivity which leads to a quiet pool in the foreground. These trees are painted with such wonderful closeness to nature as to fairly stand out from the gray-and-white background of the sky as though in relief. "Lake Champlain" (908), by Mrs. S. T. Durrah. There is nothing here to indicate Iake Champlain, or any other large body of water, but there is some good work in it, nevertheless. We will go back for a moment to 891, called the "Empty Nest," and which is by R. M. Stannard, of Boston—a very pleasing picture, and quite up to the high reputation of the artist. "In the Bay of Naples" (881), by F. D. Millet, is too malletic to be either artistic or pleasing. There is no disputing the anatomy and possibly the color, but this is not art. "Isaac of York—Ivanhoe" (895), by Thomas Moran, is an effort at brilliant effects of color which reminds one of Turner gone mad. "Natural Arch at Capri," by W. S. Hubbard; 1847, "Valley of the Rio Vigen, Utah," by Mason; and 1849, "Dream of the Orient," by the same artist; another Turner-esque picture, will all bear examination. 1809, by Thomas Eakins, a portrait, gives evidence of some power, but is so badly hung that it is quite impossible to determine its merit. 1832 and 1849, by Anna M. Lee, Brisby, and more particularly the former, astonish us in the words we have already written concerning this artist. She certainly possesses a skill in the handling of flesh tints and the manipulation of textures which, so far as our knowledge and experience go, is quite unapproached by any other artist in this country. It should be considered that very little credible American art-work has been done in the way of figure-painting. With the exception of Leutz, Huntington, Greene, Eastman Johnson, and a few others, no attempts which bear any special reputation have been made in this direction. It is, therefore, the more credible and the more gratifying to be able to award such high praise as can conscientiously be given in the present instance. The first of her works in this gallery is entitled "A Patriotic Mother"; the other, "Genius of the West," 1854, by P. F. Rothermell, "The Virtuoso," is rather a striking and characteristic picture by an artist whom it is the fashion to every. "Drifting Snow" (1869), by Bonfield. This is a capital work, painted with real feeling, and understandingly. 1872, by Peter Moran, "Settled Rain," is also well painted and characteristic. The sheep, however, very, they do not all look sheepish as they ought. 1875, by Rosenthal, represents a young monk observing the movements of two butterflies which have flown into the window of his cell. There are both good sentiment and good art here. 1870, by J. H. Way, of Baltimore, a pair of panel pictures, representing grapes, are very truthful. In the center of this room is a large piece of sculptures, "Atas," by Randolph Rogers. It represents the cleithrum stooping upon one knee, and holding seated upon the other a beautiful maiden of the period. Both these figures are more of the American...
In the Rhode Island tripe than that with which Asahd might better be classified.

Gallery No. 40 begins with No. 988, by Charles Volkmar, Jr., "The Passing Shower." This is a large landscape, the scene of which is laid near Vicby, France. It is vigorously treated, the foliage being handled with skill, and the cloud effects and resultant shadows being treated with artistic ease. No. 992, by Anna M. Lee, is a portrait of an elderly lady seated in a high-back old-fashioned chair beside a table, on which are cup and saucer, strongly suggestive of tea. One can but see, on examining this work, that it is as excellent a portrait as it is in its artistic workmanship.

The work is strongly individualized, the expression being soulful and earnest. The same elements which go to make up the excellence of Miss Lee's painting exhibited in her other works is observable here. No. 999, by Thomas Hill, "Home of the Eagle," and 1000, Bizenbad's "Mt. Hood, Oregon," are well-known works, and attract attention. No. 1021, by H. Hersey, of Philadelphia, "Norwegian Waterfall in Hallingen," is a large painting full of power, vitality, and conscientiousness. The scene is wild and romantic, its elements, which might well be exaggerated, are held within bounds as to form a truthful and at the same time gratifying picture.

Gallery 42. Over the collection in this room we will draw a veil of respectful concealment—at least so far as names and numbers are concerned. It is only necessary to observe that here are placed the attentions of the Exhibition. It is creditable at once to the good taste of the Art Committee that, being forced to admit this collection by the fiat of their chief, they have wisely placed the responsibility where it belongs, in a screen, contains Gatlin's colored representations of North and South America.

In this room we will consider in the order of their numbers, the works of the American Indians. Among the oil portraits are the work of C. Wilson Pyle, a gentlemanly and tasteful example, of the younger school. No. 178 and 1776, by B. H. Park, of Florence, entitled, "First Secretary," and "Sunshine." Denmark.

Gallery No. 7. This room is at the extreme southeasterly front of the Annex, on the right as you enter from Memorial Hall. Three sides of the apartment are devoted to the paintings contributed by the Kingdom of Norway, and we are particularly true to authors. No. 1, by A. Andersen, of Copenhagen, "Winter Landscape," is well painted. The scene is particularly true to nature. No. 3, by G. Behrens, "The Herd of Goats," has some good work in it. No. 6, by W. Hauser, "Fruit Under an Apple Tree," is chiefly remarkable for its size, though the plums and raspberries are certainly painted with great skill. Nos. 9 and 10, by A. Madsen, "Fox in the Chicken Yard" and "Fox and its Young," are very good specimens of animal painting.

Norway.

Of the Norwegian pictures, No. 15, by Jacobsen, of Desebeld, is a remarkable painting of a "Bird Forest," with a wide road passing through the middle and vanishing in the distance, and two figures in the foreground. "View from Drobak, near Christiania," by Hans Gude (17). The distant hills in this work, and the sky, are well painted. The picture, however, as a whole, does not come up to the reputation of this artist. No. 23, by Knud Baade, "View on the Norwegian Coast," is a wild and romantic scene, seeming almost impossible in its character, but painted methodically and evidently with truth. No. 28, by J. B. Bonnetter, representing a "Sea Fight between the Frigate Le Provenza and the Line-of-battle Ship Jacobo, off Le Île des Anglînes, 20th, September, 1770," English and French men-of-war, is much the best picture in the room and one of the most entertaining in the Exhibition. No. 29, by Otto Sinding, of Munich, "Bath and Beau," is a not unworthy representation of this favorite theme with artists who draw their subjects from the Scriptures. "Flowers" (17), by Frants Boe, shows some exquisite painting and is marked "Sold," and its future owner may congratulate himself on having a very pleasing and able work in this line of art. "Interior of a Monastery," by Vis. Stef. Lurés (52), of Dusseldorf, represents three monks, one of whom, seated, is inspecting a china toy over wine and walnuts, in the discussion of which he has clearly engaged. This is the very strictly gone picture in the collection of Norway. It is painted with such skill and such precision of character that one might wish for other examples from the same hand.

Argentine Republic, Chili, and Mexico.

Gallery No. 9, which is next to the right of the one we have just been considering, is devoted to the works of the Argentine Republic, Chili and Mexico. Among the paintings exhibited by the latter country are several which deserve attention. Quite a large number are religious, allegorical, or otherwise conventional subjects. No. 21, by Clary, represents the death of "Isabel of Portugal," and is a work of an ordinary merit in historical painting. "The Withered Flower," by Ozrama (18), is a very pleasing representation of a young girl standing with crossed hands, observing the broken blossom of a flower in a glass vase before her. The sentiment of this picture is very charming, and it is painted with considerable skill. "The Fisher Boy" (26), by Rodrigo Gutierrez, shows also decided ability. "The Morning Paper" (14), by Gurgollo, is a very carefully executed little cabinet picture, representing a single figure of a man in a dressing-gown, with cigar in mouth, seated in an arm-chair in his library, reading the paper. This work is very small, and its execution is capital. There is flesh-painting in the head and hands which would not do discredit to the skill of Rembrandt himself. "Evil Prescement" (16), by Gonzalez. This is also a small canvas, on which is painted the local and bust of a young girl, who haunts her hand looking out over a window-sill, while she holds a letter which she considers thoughtfully, expressing the presentiment of evil in her countenance and attitude. This is a very charming work, handled with skill and taste. No. 5, "The Birth of Adam," by Figueroa, is a powerful work in many respects. The position is effective, and the two figures are painted with a just conception of the idea which it is desired to have conveyed. "St. Charles" (6), by Salom Fina, is an ambitious work of a religious character, painted evidently with some eager enthusiasm. No. 30, by Escudero, is a "Portrait of Benito Juarez, late President of Mexico," whose name, at least, is well known in connection with the numerous revolutions which have occurred in that unhappy country. In this picture the subject is handled vigorously, and we should suppose that the portrait was done. "The Young Skater" (29), by Montanaro, presents the entire male figure of a boy of some six or seven years of age, who stands before a canvas on which he is sketching a simple outline with a piece of chalk. The main interest of this picture lies in the anatomy and flesh-painting of the child's figure. These are excelledly well handled. This entire collection of works from Mexico is contributed by the National Academy of that country.
contributions of Belgium, consisting chiefly of engravings on steel from Brussels and Miam. There is also a drawing by Deforce (275), entitled "The Christina Martyr," a picture well known by the engravers. A very large oil-painting, by John Bernard Winkler of Antwerp, called "Crucifix of Adolph toward his Father, the Duc de Guise," will have interest for Americans, from the fact that the subject is furnished by the History of the Dutch Republic by a countryman, John Lothrop Motley. The horrible subject, which represents the old man dragged by a rope attached to the horse on which his son rides, is wrought out on the canvas with great skill, and is presented with true feeling and pathos.

In a variety we will consider Galleries 23 and 27, which form the extreme eastern and western limits of the corridor. Gallery 25 is divided between south side and Spain and Norway on the north. Among the Swedish pictures, of which there are a dozen, that which first arrests attention is "Oldabuse." by Hugo Sanden, of Stockholm, a life-size nude figure, standing in front of a couch where curtains and draperies of gray, blue, and crimson are set off her figure to advantage, the modesty of her dress covered by a bluish mantle, the hair gray and hairled back. The back of the figure is strongly delineated, and the hanging curtain, which is interposed between the interior of a harem and its necessities and the outside world. The figure of the Oriental soldier is strongly delineated, and is presented with true feeling and pathos. "F. Elatum" (43), by Charles Tschaggeny, is the striking and impressive incident of a superb horse in peril on the approach of the flames. The peculiar disposition to extreme terror always evoked by animals under such circumstances is shown with great skill and marked dramatic power in this picture.

Passing from this room to Gallery 29, we continue the consideration of the Belgian collection. No. 44, by Miss Clemente Van den Breedt, is a "Flemish House in a.d. 1600." In this work there are painted with true Dutch or Flemish fidelity the usual accessories of an old-time Flemish kitchen. Every dish or other utensil is elaborately painted, and an amount of labor has been expended over the work which its importance would scarcely demand. It is very clever and very truthful. No. 49, by Victor Lagro, "Faun and Deer" is splendidly painted. A beautiful little rustic piece with a small domestic landscape and rustic architecture. No. 50, by B. Stadler, "Landscape," and its textures of tan, violet, and brown, are quite remarkable, and impinge on the subject with men.

Meanwhile there are pathetic incidents shown or suggested in "The Christian Martyr," a picture well known by the engravers. The subject is furnished by the History of the Dutch Republic by a countryman, John Lothrop Motley. The horrible subject, which represents the old man dragged by a rope attached to the horse on which his son rides, is wrought out on the canvas with great skill, and is presented with true feeling and pathos.
The water-color collection in this gallery is of a higher class and really more deserving of praise than are the oil-paintings. Nos. 61, by Eakins, 68, by Way, and 59, by Julian de la cruz, are very favorably compared with anything in the American water-color exhibition, as will also be, by Eakins, entitled "Frescoes," representing stray sheep among sheep of wool. No. 74, by H. Fowlkes, "Holbein," is gorgeously colored, yet not the least exaggerated. No. 117, by H. Sandham, "On the Godbout River," is a striking picture of very romantic, or rather imaginative, scenery, with precipitous declivities, and in the distance looming over a dark and turbid pool, which breaks into a dashing and rapid current, immediately before and immediately after. In the foreground the foliage peculiar to this latitude is carefully worked into the composition. No. 147, by Mrs. Schroeder, "Olivia." This is from the "View of Walsingham," and is a very charming representation of the character conceived by Goldsmith. The girl, with a thoughtful expression on her countenance, is represented sitting at a window, which looks off on an English landscape, being engaged in the occupation of feeding apples, but has ceased her employment and dropped into a reverie.

The remainder of the French exhibits, completing the collection in the Art Annex, are contained in Galleries 32, 34 to 38 (inclusive), 43 and 45. Gallery 32, next to the corridor, and near the centre of the building, contains but few works specially noteworthy. No. 240, by Burtens, "Electra (Victor Hugo)," is an impressive and strong representation. There is something indeed majestic in the pose of the figure, which the surroundings in the background are artfully made to bring into due prominence. "Gale on the Nile during the Flood" (251), by N. Berchere, represents a boat laden with rigging, being driven before the wind over the robberous disturbed waters of the sacred river. This is a peculiar work, and will bear inspection. No. 238, "Alone in the House," by Condor. This picture depicts a magnificent floral display in a large vase of violets, with a glass globe containing gold-fish beside it on a handsome carved table well painted. On the floor two kittens gambol about over a priceless carpet, destroying such flowers as they are able to pull down, having made wreck of a costly fan, which lies broken upon the floor, and being now engaged in earnest efforts to topple over the jar of gold-fish. This is a pretentious work, but not more so than meritorious. The colors are vivid in the flowers and leaves, and the action of the scene is graphic with a touch of the human.
Theodore Maillefert, submitted to a meeting of New York citizens a proposition to remove three of the most dangerous obstructions in the Hell Gate. The key which controlled the batteries was found, and Gen. Newton's scheme that the shaft and galleries of the mine should be flooded previous to the explosion, this was the belief of Mr. Streidinger, who has managed the drilling operations under the directions of Gen. Newton, that there are many masses which weigh more than that. While it is generally admitted that some winter traffic will be benefited by Gen. Newton's work to an amount fully worth its cost, it is believed by the agents of the Transatlantic Steamship Company that ocean travel will not be changed on account of it. The Sound passage is said to be especially dangerous in stormy, foggy weather, while the statement that the narrow course is said to be really no narrower than that of the Sound.

THE INTERNATIONAL RIFLE MATCH AT CREEDESBOR. On Tuesday, September 12th, commenced this series of rifle matches, under the auspices of the United States Centennial Commission and the National Rifle Association. The Irish, Scotch and Australian Rifle Teams had arrived in New York early in the month, and were formally received by the National Rifle Association, an amateur rifle club, on
The matches commenced on September 12th, and closed October 4th.

The international live-stock exhibition.

New Cutter.

United States.—The exhibition of best cattle, under the auspices of the Centennial Commission, commenced September 21st and closed October 4th. The department under the superintendence of Messrs. Smith, Sleep, Lynch, King, Dakin, Farnwell, Weber, Fulton, Gildersleeve, and others, is as large and as popular as the Scotch and Irish. It is opened on Wednesday, the 12th, with the Amer. The members of the Centennial Commission to the members who won in the short-range matches, and then the trophy itself; after which he presented each member of the team with a miniature copy of the trophy in gold and silver.

The meeting commenced on September 12th with the short and mid-range contests. In the first match of 200 yards there were 140 entries, shooting ten rounds each at sixteen targets. In this match George Disher, Canadian, was the only foreign marksman who carried off the prize. In the mid-range competition there were 133 competitors, among whom were Messrs. Milner and Thynne, of London, and Gen. Hawley, the umpire, proceeded to the American's box and headed the procession of the teams, as they started upon which rested the great trophy, which has already been illustrated in this publication. Gen. Hawley presented the medals of the Centennial Commission to the members who won in the short-range matches, and then the trophy itself; after which he presented each member of the team with a miniature copy of the trophy in gold and silver.

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New Cutter.

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The meeting commenced on September 12th with the short and mid-range contests. In the first match of 200 yards there were 140 entries, shooting ten rounds each at sixteen targets. In this match George Disher, Canadian, was the only foreign marksman who carried off the prize. In the mid-range competition there were 133 competitors, among whom were Messrs. Milner and Thynne, of London, and Gen. Hawley, the umpire, proceeded to the American's box and headed the procession of the teams, as they started upon which rested the great trophy, which has already been illustrated in this publication. Gen. Hawley presented the medals of the Centennial Commission to the members who won in the short-range matches, and then the trophy itself; after which he presented each member of the team with a miniature copy of the trophy in gold and silver.

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The most interesting of the exhibits of cattle were from Canada, comprising 105Register of the Centennial Exposition.

...

In the exhibits of fat sheep the weight ranges from 300 pounds to above that figure. There were four exhibits of Angora goats, bucks, and four of Does. Two Angora goats, pure breed, weighing 150 pounds. Great Britain made forty-six exhibits of cattle. Canada had two


two-month old, short-horned bulls, cows and heifers; Devondale bulls, cows, and heifers; Ayrshires, Aberdeen and Galloway bulls, cows, and heifers; Devonshire, Holstein, and Lincolnshire, long-woomed and short-woomed cows and heifers. The American exhibits of swine numbered one hundred and sixty-nine, including Berkshire, farn and large Yorshire, and small Yorshire, and small Rousdale sheep, fat swine, and New Zealand sheep. Great Britain made sixty-five exhibits of Cotswolds, Oxford Down, sheep, and New Zealand sheep. Great Britain made sixty-five exhibits of Cotswolds, Oxford Down, and South Downs, and long-woomed. Canada had twenty-nine exhibits of Lincoln, Leicesters, Cotswolds, and South Downs, and pewitt.

...Ayrshire bull, four years and six months old, red, and white, contributed by William Rodden, Plantagenet, Ontario, who has taken eight first-...

...Eck,Hornby, Ontario; "Graceful," one and nine months old, red and white, contributed by William Rodden, Plantagenet, Ontario, who has taken eight first-...

...Guelph, Ontario; "Camck Lad, Ayrshire bull, five months old, red and white, contributed by H. J. Rodden, Plantagenet, Ontario, who has taken eight first-...

...Sheep and Goat and Swine Exhibits, being made by the United States, Great Britain, and Canada in both departments. In part first, of sheep and goats, there were three hundred and fifteen exhibits from American exhibitors. Canada made fifty-six exhibits, and the United Kingdom and France, thirty-five each.

...The largest number of exhibits was in Merinoes, of which there were eighty-two of rams, and one hundred and thirty-five of ewes. The number of exhibits was in Merinoes, of which there were eighty-two of rams, and one hundred and thirty-five of ewes. The largest number of exhibits was in Merinoes, of which there were eighty-two of rams, and one hundred and thirty-five of ewes.

..."Duke of Cumberland," two years and seven months old, red and black, contributed by W. J. Rodden, Plantagenet, Ontario, who has taken eight first...

..."Crown-Prince" (Holstein bull), three years eleven months old, roan, contributed by Catherine H. Bradley, of Champaign, Illinois, weight 3,000 pounds. No. 6, exhibitor, William Rodden, Plantagenet, Ontario, "Lucy" (Alderney cow, Canada), eight months. No. 9, exhibitor, William Rodden, Plantagenet, Ontario, "Lily Dale" (Galloway cow), nine years, eight months, white, weight 5,000 pounds. No. 6, exhibitor, W. J. Rodden, Plantagenet, Ontario, "Lacy" (Aberdeen cow, Canada), two years, eight months, fawn-woomed, weight 4,000 pounds. No. 16, exhibitor, W. J. Rodden, Plantagenet, Ontario, "Oxford Geneva," one and a half years, red, exhibited by Reg. B. Groom & Son, Winchester, Kentucky, value $10,000. No. 2, same exhibitor, "Winchester," two years old, value $10,000. No. 3, exhibitor, Thomas J. McKeen, Easton, Pa., "Dairymaid," three years, white. No. 4, Benjamin St. John Achors, Gloucester, England, "Wedding-Day" (English cow), two years eleven months old, English, weight 3,000 pounds. No. 5, exhibitor, W. J Rodden, Plantagenet, Ontario, "Crown-Prince" (Holstein bull), three years eleven months old, white, weight 3,000 pounds.
enterprise, enough within its limits, to form a representative collection for the Exposition. In the Agricultural Department of the Centennial Exposition, this exhibit should be one of the most interesting and instructive displays. Such is the case. Such an agricultural show, coming from the most northerly State of the Union, is as extraordinary as it is gratifying to the enterprise and industry of those who are able to make it. Here are to be found every variety of the wild grasses, flowers, mosses and ferns of Oregon; laurel, chestnut, sycamore, maple, pecan, tulip, chestnut, oak, black and white ash, tamarind, black and white thorn, etc.; also cherry, plum, and fruit-trees, showing a growth of 39 feet from the graft in a single year. Besides these trees, there are samples of balsam, tallow, monkey, and gray wolf; her birds stuffed, from the American eagle to the red bird, including every variety of duck known to the sportsman. Here are also transverse sections of her trees—the red cedar, spruce, white, red and yellow fir. Ten of these trees attain a diameter of from six to seven feet in circumference at 325 feet high. Here, also, are samples of yellow fir, green pine, red fir, Douglas fir, Sitka spruce, hemlock, cotton-wood, laurel, leather, yew, dogwood, maple, birch, maple, poplar, willow, asp, hazel, walnut, and alder. Here, too, are samples of the cultivated grasses of Oregon, red and white clover, orchard grass, timothy and blue grass, the species being five feet high and upwards. Here is rye in stalk standing over 10 feet; oats 8 feet; every variety of grain—all of extraordinary size and yield. There is wheat from forty bushels to the acre, and oats from 50 to 70 bushels from 100 feet. A luxuriant expanse of alfalfa is pulled over five feet high and of fine quality. Dried fruits, as prepared for the markets of the world—apples, pears, peaches, apricots, plums, peaches, nectarines, prunes, equal to any imported. There are also samples of salmon in barrels and peaches and prunes, equal to any imported. There are also samples of salmon in barrels and prunes, equal to any imported. There are also samples of salmon in barrels and prunes, equal to any imported.

OREGON, WHICH HAS NOT YET BEEN A STATE TWENTY YEARS, IS ENTITLED TO THE FULL APPRECIATION AS ONE OF THE MOST VALUABLE AND IMPORTANT, AT LEAST, OF OUR WESTERN COMMONWEALTHS.

UNITED STATES LIFE-SAVING STATION.

On the north side of the lake, and near the United States government building, is a small model station which has been erected for the purpose of exhibiting the apparatus used in the United States Life-saving Service. On the lake itself are the American self-regulating and self-bailing life-boat and the Kansas life-sail. The life-boat weighs 4,500 pounds.

Entering the station on the right, from the lake side, the visitor sees a long, side-sail boat, resting on the carriage used to run it along the beach to the nearest point to the wreck; and opposite to this, the cannon for throwing the line to the ship. This weapon throws a ball of 24 pounds, attached to a light line of 200 yards in length, to the wreck, and when this is caught by those on board, the shore-end is fastened to an endless line with pulleys.

VICTORIA'S EXHIBIT IN THE MAIN BUILDING.

Our Illustration presents a view of a portion of the Victoria section in the Main Building. Here are to be seen a fine collection of exhibits of minerals, ores, stone, and other mining products, besides manufactures in wood, pottery, textile fabrics and mechanisms; also stuffed animals and birds, and a long list of animal and vegetable products, including native wines, preserved meats, vegetables, and fruits, a fine display of wool and flax, and some very creditable articles in the line of furniture, clothing, jewelry, tools, cutlery, etc.

Among the mineral exhibits, and very prominent articles in the section, are fac-similes of gold ingots found in the United States Life-saving Station.

The pottery is generally simple form, but is engraved with hieroglyphics and grotesque characters, to which no key has as yet been discovered. Fifty pounds in Peru have contributed toward this collection, and among the other articles found have been skeletons of Araucanian Indians, who are supposed to have lived about 1000 years before Christ. The centre piece of the collection is a charmingly carved wooden model of a Japanese dwelling-house. On the other side of the latter are successively carved with soft carvings of grotesque shapes, dragons, etc. The two bronze statuettes are storks holding candelabra, and are considered among the finest reproductions of this class of art in the Exposition.

SOUTH AMERICAN ARCHEOLOGY.

Peru and the Argentine Republic display in the Main Building a fine collection of relics in pottery, etc.; obtained from the mounds which exist in these countries. The pottery is generally simple form, but is engraved with hieroglyphics and grotesque characters, to which no key has as yet been discovered. Fifty pounds in Peru have contributed toward this collection, and among the other articles found have been skeletons of Araucanian Indians, who are supposed to have lived about 1000 years before Christ. The centre piece of the collection is a charmingly carved wooden model of a Japanese dwelling-house. On the other side of the latter are successively carved with soft carvings of grotesque shapes, dragons, etc. The two bronze statuettes are storks holding candelabra, and are considered among the finest reproductions of this class of art in the Exposition.

Japanese Toilet Mirrors, Etc.

This illustration represents an elaborate toilet mirror, with its accompaniment of other appliances to meet the various exigencies which might arise during the journey about to be taken by the deceased. The Argentine Republic exhibits quite an archæological collection, which will be described fully with a general discussion of the Main Building.

Exhibit of the Furs of F. Booss & Zie., in the Main Building.

The exhibit comprises a fine representation of furs, including samples of all of this class of articles at present fashionable. Here are sealskins and furs, muffs and boas in Russian sable, silver fox and mink, minks, mink skins, sealskins, etc., and others without trimming. Here are also carriage robes of beaver, red and white fox, black bear and wolf; muffs and llamas in Russian chinchilla, sealskins, and other furs; articles for children in Russian chinchilla, sealskins, etc., and a remarkably fine, double-breasted sealskin overcoat for a gentleman, made in the most approved style of the period. This firm has a large establishment at 449 Broadway, New York.

ITALIAN SCULPTURE IN MEMORIAL HALL ANNEX.

As has been elsewhere remarked, Italian art in sculpture, at the present time, so far as its representation in our Exposition is concerned, achieves its best success in the work of the sculptor of the Italian school.
COVER IN MACHINERY HALL.

In the centre transept of Machinery Hall, and immediately behind the Corliss Engine, is an exhibition of water-power, waterfalls, and scientific and powerful pumping engines, such as probably never was made before anywhere.

This is located in a sort of a wing known as the Pump Annex. In our illustration the spectator is supposed to be standing at the dividing line between the Annex and the main structure, looking south. In the centre is a tank, 100 by 80 feet in dimensions, which is kept nearly full of water received by the Centennial Commissioner's own system of water-works, direct from the Schuylkill. At the further end of the tank is a cast-iron, 40 feet wide, the water being precipitated a distance of 40 feet, at the rate of 18,000 gallons a minute. The construction of this artificial fall is as follows: Supported upon iron pipes, which also serve as conduits, is a platform over which the water descends, and to which it is forced by powerful pumps, which are also on exhibition. On both sides of the tank are various forms of pumps exhibited, some of which, operated by steam, force water through pipes, at a distance above the tank in such way that the rushing streams from them shoot in parabolic curves into the waters below.

JAPANESE SCREENS.

The illustration represents one of the peculiar and characteristic subjects with which the Japanese decorate their screens. It exhibits a long line of green grasshoppers, marching in single file on their hind legs, each carrying a species of flowers. In the center of the line a high-caste grasshopper is carried along in a palanquin. The Japanese devote a great deal of time and thought to the decoration of their screens, and succeed in combining embroidery and painting with quite wonderful effects; the faces of figures and outlines of landscape being painted on a silk background, while costumes, animal structures, etc., are embroidered in relief. The larger-sized screens cost from $100 to $1000, and the best pastoral art in Japan is devoted to their decoration, the wealthy and cultured Japanese enjoying the collection and exhibition of these articles in the same manner as does a merchant-prince in this country his gallery of paintings. In painting on silk, without the aid of the effect produced by embroidery, some very charming work is exhibited; a few small screens like that which we have illustrated, displaying the most quaint and original conception.

CROWNS, BAKING-POWDER, CONFECIONERY AND STATE ROUTES.

There are in Agricultural Hall, as will have been noticed by most of the visitors to that interesting building, a number of exhibits of crackers put up in such ornamental shapes as to be most attractive. Of these exhibits, that of Adam Exton & Co., of Newton, N. J., is deserving of consideration. Our artist has represented the pretty cracker, which contains the different kinds of crackers exhibited by this firm, including the "butter," the "oyster," the "pearl," the "plain wine," the "fancy wine," the "cucumber cracker," etc. On the wall of the section containing these exhibits are large pictures of their inventor, Exton, and also of his patented cracker machine, together with the long list of his premiums, gold and silver medal, etc., are emblazoned on the case, which contains the different kinds of crackers put up in such ornamental shapes as to be most attractive. Our artist has represented the pretty cracker, which contains the different kinds of crackers exhibited by this firm, including the "butter," the "oyster," the "pearl," the "plains wine," the "fancy wine," the "cucumber cracker," etc., and the entire exhibit is surmounted by a glass jar, containing the sun-flour in full view, rising to the height of 15 or 20 feet.

Another of our illustrations, in quite a different department of manufacture, is that representing the building of the New York Slate Roofing Company, located near the Annex to the Main Building. This Company manufactures a cheap but durable coating for roofs made by a combination of slate in the form of paint for the protection of roofing. One coat of this paint applied to shingles will fill all the holes, pores or cracks, warped or curved shingles, and makes the roof reusable for slate in color and condition. It is claimed by the proprietors to be the only reliable paint made, which will effectively fill all holes in flat, shingle or other roofs, at the same time proving the most durable paint for metal surfaces. Many of our largest Government buildings, as also theatres, bridges, factories, foundations and corporations, use this roofing in preference to all others.

POURTRAIT OF G. Q. RICHMOND, OF THE CENTENNIAL COMMISSION FROM COLORADO.

Colorado being the "Centennial State," an account of having just been admitted into the Union, it is proper that the portrait at least of one of her Centennial Commissioners should be given in this publication. We have selected that of Mr. G. Q. Richmond, of Pueblo, Colorado. Born August 9th, 1845, in Kennebec County, Maine, at the age of sixteen he enlisted in the 61st Massachusetts Regiment, and served until the end of the war, at the close of which he was appointed to a position in the Treasury Department, and although filling this, he continued his studies and actually passed through Columbia College, Washington, D. C., with high honors, and received a diploma of its
The American restaurant has been very popular during the Exposition. Files of the numerous periodicals issued by all the establishments, as well as resident artists, to whom are due the illustrations of the Historical Register. During the Summer this building has had the advantage of a cool sheltered place, and has given satisfaction. It is claimed to be the largest establishment for this purpose on the ground, having seating accommodation for 2,000 guests. Its army consists of one battalion, its officers, and a large number of guards. Some of its products are exhibited in the Exhibition, and are valued respectively at $1,700. The larger one, presented by Messrs. Gaff, Fleischman & Co., who established the Vienna Bakery, is design to locate branches, after the Exhibition is over, in the cities of New York and Philadelphia, with a view to introduce what is known as the "German Press Yeast," by the use of which it is claimed this wonderful bread can be manufactured by anybody. It is to be hoped that the firm will be eminently successful in their undertaking.

CENTENNIAL RESTAURANTS.

We illustrate two of the restaurants on the Centennial Grounds—the Grand American and the Vienna Bakery. The American restaurant has been very popular during the time the Exposition has been opened, and has given excellent satisfaction. It is claimed to be the largest establishment for this purpose on the ground, having seating capacity for 5,000 guests. Its location is near Agricultural Hall, and its surroundings and the views from it are particularly beautiful. The Vienna Bakery is an establishment which cannot be too highly praised, and if its existence at the Centennial should do what it promises, it may effect a permanent improvement in American broad-making. The Vienna bread has been first introduced into this country in a plain structure, in which the only articles served are coffee, tea, chocolate, and bread. Yet this building has been crowded to repletion during every day of the Exhibition, hundreds frequently waiting for opportuni- ties to obtain a seat at one of the marble-top tables, and a chance at the limited but most excellent bill of fare. Messrs. Gaff, Fleischman & Co., who established the Vienna Bakery, design to locate branches, after the Exhibition is over, in the cities of New York and Philadelphia, with a view to introduce what is known as the "German Press Yeast," by the use of which it is claimed this wonderful bread can be manufactured by anybody. It is to be hoped that the firm will be eminently successful in their undertaking.

INTERNATIONAL REGATTA PRIZES.

Our illustration of the two principal prizes for the great Centennial Boat Races is from a photograph by Broad- head & Phillips, of Philadelphia. These prizes are of solid silver, the manufacture of Messrs. Bailey & Co., and are valued respectively at $3,500 and $1,700. The larger one, presented by Mr. Geo. W. Childs, the proprietor of the Philadelphia Ledger, was presented to the winner of the intercollegiate race. It stands upon an ebony base, about three feet high, and is surmounted by a miniature statue of Victory holding a wreath. Two American Eagles, the British Lion, Liberty Bell, and other symbols, form a pretty ornament of this fine piece. The smaller prize was given to the winner of the international four-oared race. It represents an oval-shaped bowl, with a shell-boat running through it. On the sides are engraved views of the course on the Schuylkill and the boat-houses. The figure of Liberty, copied from that on the Capitol at Washington, surmounts the whole.

CENTENNIAL COMMISSION.

The Grand Duchy of Luxembourg was declared neutral by the Treaty of London, May 11th, 1867, and placed under the sovereignty of the House of Orange and Nassau. The population of this little Grand Duchy numbers 210,000 souls, and the annual budget amounts to about a million dollars. Its army consists of one battalion, its officers, and a large number of guards. Some of its products are exhibited in the Exhibition, especially gloves, which have obtained a high reputation in Europe. In more practical products Luxemburg is also superior to the others, without designating in what particular the superiority consisted. By the Treaty of London, May 11th, 1867, and placed under the sovereignty of the House of Orange and Nassau.

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The Centennial Awards.

In the system of awards adopted by the Centennial Commission, a wide divergence has been made from the plan heretofore followed by international exhibitions. Thus it has been the custom to place the decision with regard to the comparative value and merit of articles in the hands of juries, who were required to render in the case of each class of articles a definite decision as to which was best, which second best, etc. For these relative merits, graduated medals were awarded. This plan, however, has never been altogether satisfactory. The jury system, in fact, both at the Paris Exhibition, in 1867, and that held in Vienna in 1873, resulted in universal disgust and dissatisfaction. Jealousies and intrigues were found to be a part of the programme, and the best judgment on the subject decided to do away with the system altogether. The Centennial Commission adopted the judicial system, one-half the judges being Americans and the other half foreigners, appointed by the different countries. The whole number of judges was 225, being about one-half of the juries at the Vienna Exhibition. Each American judge received $600, and the foreign judges $1,000, to cover necessary expenses. The personnel of the Board of Judges was of the highest character, and especially so in regard to the Chief, Gen. Francis A. Walker, a gentleman who brought to the duty the highest qualifications. The personnel of the Board of Judges was of the highest character, and especially so in regard to the Chief, Gen. Francis A. Walker, a gentleman who brought to the duty the highest qualifications.

The old system consisted in showing that one article was superior to the others, without designating in what particular the superiority consisted. Meanwhile, medals of four or five grades were awarded in gold, silver, bronze, etc., showing degrees of excellence. By the new system a uniform bronze medal was given, the gold award consisting in the carefully discriminating report by the judges, showing.
a block of coal and a very fine exhibit of wool. The
beautiful photographs from Sydney are also most attractive,
while here, too, is an obelisk showing the amount of gold
taken from the mines of this colony. Queensland has
a smaller obelisk, representing the quantity of gold found
in this colony since 1868. It amounts to sixty tons of gold,
valued at $85,000,000. Here also are specimens of tin,
copper, arrowroot, woods, oils, silks and botanical speci-
mens. In production of tin Queensland actually exceeds
that of gold, and immense quantities of both products are
exported.
South Australia, Tasmania and New Zealand also make
interesting exhibits.

The finest illustrated newspapers, periodicals—(such as
the Staff) of the finest quality, and it is always adapting every new
publication to the printer in the more
The enterprising advertising agents, Messrs. George P. Howell & Co., concurred and carried out a most original and useful idea when they established the Newspaper Building on the Exposition Grounds. Here visitors were offered a comfortable apartment 67 ft. in height by 46 in width, and 35 in length, admirably lighted and ventilated, where they could write letters home, if that convenience was desired, or could examine any one of the 8,000 news-
papers published in the United States, every issue of each journal being received during the Exposition. The
\textbf{CENTENNIAL MEDAL.}

It is stated that about 12,000 medals have been awarded to
successful exhibitors, being in the vicinity of one-fourth of
the entire number. These medals are all bronze, four inches
in diameter, the largest of the kind ever seen in this
country. On the obverse is represented the Genius of
America, holding a crown of laurels above the emblems
of industry lying at her feet. Female photographs on the
attractive shape, having in the exergue, "International
Exhibition, Philadelphia, MMCLXXVI." and within
the wreath, "Awarded by the United States Centennial
Commission.

EXHIBIT of Messrs. George Mather's Sons Letter-
Papers and Lithographic Printing-Inks, Etc.

The section devoted to the British Colonial exhibit comprises a very considerable place on the northern side of the
move of the Main Building, west of the transept. Chief
among these colonies are, of course, the Australian group,
which occupies one-third of the entire space allotted to
the dependencies of Great Britain, Canada having one-half,
and the remainder being given to India, the Cape of Good
Hope, the Gold Coast, Jamaica, Bermuda, the Bahama,
Seychelles, Ceylon, British Guiana and Trinidad.

It is to the Australian exhibit, illustrated by our artist,
that we wish to direct the attention of the reader in the
present instance. Here are specimens of raw products, statistics of wealth, views of scenery, samples of minerals,
textile fabrics, etc., and especially in the Victoria Court,
the exhibits illustrating the gold product of that colony.
The five Australian colonies have produced since the
beginning of gold mining in 1851, excluding Victoria,
17,996,834 ounces; while Victoria alone has produced
45,629,122 ounces, valued at more than $875,000,000.
Most interesting exhibits in this connection are models
representing the gross product of gold as well as other metals
of enormous value. In the New South Wales exhibits are
of enormous value. In the New South Wales exhibits are
the special merit for which the medal was given. The
plan was, in fact, to give grants of medals of equal value
for all articles considered by the majority of the judges
having the groups under consideration which possess
distinguished merit, and to plainly point out the character
of the merit itself. None of these diplomas or medals is in
itself better than any other.

It is desirable to make this fact very plain, as many
exhibitors have announced themselves, by a public adver-
sisement, as holding medals or diplomas of a higher rank
than all others. Such is not, and by this system cannot
be, the case. All are alike as far as the medals are concerned,
the special differences in the articles honored being speci-
fically mentioned in the diploma.

The awards were made on the evening of October 5th, in
the Judges' Hall on the Centennial Grounds, and in the
presence of the foreign Commissioners and about 1,800
invited guests. Addresses were made by Commissioners
Morrell and Godkorn, after which the President of the
Centennial Commission presented the diplomas or awards
to the Presidents of the different Foreign Commissions,
and to Mr. Godkorn the awards of the successful exhibitors
of the United States. We have illustrated the scene of
the occasion of this important transaction.

THE BRITISH COLONIES EXHIBIT IN THE MAIN BUILDING.

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and to Mr. Godkorn the awards of the successful exhibitors

thoughtfulness which provided for them, constant news from home.

THE DOWRY.

One of the most satisfying refreshment establishments on the Centennial Grounds is the Dairy, which is located on Landsdowne Drive, between the Main Building and Horticultural Hall, one of the most picturesque spots in the entire area. The main building is about 300 feet in length, built of rough-hewn logs and grapevine branches in artistic style. It has two branches in artistic style.

The Dairy.

The one above named, a nutritive beverage said to contain more of the important constituents of malt than is found in a pint of the best ale. In Germany the article is frequently employed in beer. Among the numerous preparations of malt exhibited in the Brewers' Building is a malt extract said to combine sedative, tonic and alterative virtues. Malt extract is highly recommended by the medical faculty as a restorative of exhausted constitutions, it being exceedingly nutritious and most satisfactory in its digestion. A single dose of this extract is said to contain more of the important constituents of malt than is found in a pint of the best ale.


This is a long, low, narrow building, extending over about one-third the length of the Main Building, south of that structure, and near the center end. On entering this building at the western end, and after an exhibit of stone, we come upon a large collection of articles from China, which are apparently the overflow from the crowded Chinese department of the Main Building, since many of them are certainly not minerals or geological specimens. First there are a number of articles in basket-work, some of them quite curious and pretty. Then there is a collection of specimens of native woods. After these, in a glass case, there is an exhibit of Indian ink in the small
PENNSYLVANIA at this point includes only specimens of marble and coal, after which comes

DELAWARE. Here is a large case of minerals, and there are also some exhibits of marble ores and granite.

Ohio begins her exhibition with several fine specimens of coal, one of these being about fifteen feet high and four feet square. There are also large specimens of ores and minerals arranged on shelves, and some samples of manufactured bars and wrought iron. Next, a considerable show of pottery and fire-clay, limestones, and a glass containing brasses. There is then a stoneware, specimens of grain, etc., and a positively splendid collection, illustrating the Stone Age, as elucidated through its relics in Ohio. This includes a fine and arrow-heads, and a very fine collection of Indian pipes, beads, wampum, corn, shells, and axes or punchers. Some of the pipes are beautifully carved and polished. There are also a large number of discoidal and other stones from the mounds. One specimen exhibited here is a pipe presented to Captain Lewis, by a Mandan chief. The bowl is of carved red-stone, and the stem is of wood about three feet long, and an inch and a half broad, ornamented near the mouth-piece with what appeared to be horse-hair and wampum. This collection of Indian and other relics is very large and most interesting. It is exhibited by the State Archaeological Association of Ohio.

INDIANA presents a very fine exhibit, including iron and other ores, specimens of pottery, fire-clay, oil-stones, hydraulic cement, kolin or porcelain clay, rubber, sandstone, cameo coal, biphone, limestone, etc.

MICHIGAN. Here we have a very handsomely shown of minerals, and native copper and silver. One peculiar and characteristic exhibit is an Indian birch-bark canoe from Lake Superior. There are also some Indian curiosities, and a very fine display of Lake Superior copper ore, bar and ingot copper, some of the specimens of copper ore and conglomerate being of enormous size. Then there is native metallic copper, stamped work, etc. Finally, we have a case containing a good show of specimens of Michigan gypsum, and another, of articles illustrating the Stone Age, as represented in this State.

WISCONSIN. In this State we have first a fine collection of pre-historic stone tools in upright cases, including axes and arrow-heads, pestles, cutting utensils, etc. Here are specimens of a number of different kinds of native stone, polished and plain; also, bronze, clay, and fire-clay. A very curious exhibit is a case of pre-historic copper tools and flakes, arrow-heads, etc. The copper articles include knives, chisels, and pointed tools, and are most interesting. There are also four large cases containing a general mineral display. Vegetable products in the case, grains, etc., those latter being in a glass case—altogether with several boxes of manufactured iron and steel, complete the exhibit.

IOWA exhibits kolin. There are here also several upright cases containing specimens of the geological strata of the State, from the Saint Peter's sandstone to the post-tertiary, hornstone and drift strata. Among these are numbered the Potash sandstones, Trenton limestone.
Niagara limestone, etc. It is in the exhibition made by this State that we first meet a collection of the relics of the Stone Age and of the pre-historic inhabitants of that section of the country. This collection comprises axe-heads, arrow-heads, fragments of pottery, and even skulls, although Stone Age and of the pre-historic inhabitants of that section.

Gov. Rice, surrounded by his full staff, held a reception at the New Jersey Building, on Belmont Avenue, where an address upon the history and growth of New Jersey, on August 24th, 1876, when it is believed the glass-cutting frame, in which is displayed the wonderful and unheard-of mass of native sulphate of soda from the mines of an Iowa Coal Mining Company. The exhibition of the State of Iowa consists with two miniature freight-cars, in which is displayed a new patent coupling of considerable utility.

The exhibits in the Mineral Annex conclude with a display obtained from the second geological survey of Pennsylvania, including a large number of fine specimens. There are also some minerals from Illinois, grains, shells, etc., and a large mass of native sulphate of soda from the Laramie Plains, Wyoming Territory.

THE STATE DAYS.

NEW JERSEY.

The system of State receptions at the various State Buildings on the Centennial Grounds commenced with that of New Jersey, on August 24th, 1876, when it is estimated about 50,000 persons went from New Jersey to the gathering at Philadelphia. Shortly after 11 o'clock a committee of citizens of New Jersey met the Governor of the State at the Centennial Depot, and escorted him and his party to the Judges' Hall, where Hon. Abram Brownley, President of the Centennial Commission, the Glacier State, for the Centennial, there was present at the grounds a very important personages. In the afternoon a reception was held at the Judges' Hall, by the Woman's Centennial Executive Committee, when Mrs. Gillespie, the President, Mrs. Forney, Mrs. Wright, and other ladies of the Committee, were present, and Gen. Hawley, Col. Forney, Dr. Stebbins and other prominent citizens of Philadelphia were introduced. The occasion was enlivened by music from Theodore Thomas' unrivaled band. Still another reception took place at the Municipal Building, Mayor Stokley receiving. A peculiar observance on this occasion was the arrival, in procession, of numerous employes of various manufacturing firms. The ceremonies concluded with a magnificent display of fireworks, when it is supposed as many people were assembled as during the day.

THE GLASS-WORKS EXHIBIT OF GILLENDER & SON, PHILADELPHIA.

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THURSDAY, OCTOBER 12th, was the day selected by the "Granite State" for the union of her sons at the Centennial. The State Building was gaily decorated with national and foreign colors, and the Governor was escorted by Col. Frank Thomas' unrivaled band. Still another reception took place at the Municipal Building, President of the Centennial Commission, the Governor was received by the Governor; and after this interchange of pleasantries and courtesies, the gubernatorial party visited the most prominent features of the Exhibition, and while examining the Corliss Engine Mr. Commissioner Corliss was introduced to the distinguished visitors. "Rhode Island Day" will long be held in remembrance by the participants in the pleasures of the occasion.

NEW HAMPSHIRE.

On Thursday, the 19th of October, the States of Virginia, Delaware and Maryland, and the District of Columbia, united in a reception on the Centennial Grounds. The day selected was memorably important for two reasons.

Rhode Island.

October 5th being selected as "Rhode Island Day" at the Centennial, there was present at the grounds a very fair show of wealth and beauty from "Little Rhody." The State Building on George's Hill was thronged by visitors; and when Governor Lippitt, preceded by his staff, entered the grounds and was escorted to the Rhode Island
On that day, in 1774, the Peggy Stewart, freighted with ten, was burned in the harbor of Philadelphia. In 1783, the surrender of Cornwallis at Yorktown occurred, the 62d anniversary of the French and Americans being drawn up in two columns outside of Yorktown and Rohrbaugh on horseback at their head, and between them, the conquered troops marched out, laying down their arms as through a British town. The British number was about 7,000, of the French and Americans about 16,000.

On hearing the news Congress recommended a day of thanksgiving to be observed throughout the States of the Union, and the Senate of the American forces, ordered the liberation of persons under arrest for any offense that all might share in the general joy. Even to the present day it is customary in countries matted for the soldiers to go through the form of the surrender, the occasion being called "A Cornwallis." Under the circumstances of the surrender and of the union of the Southern States named, the occasion at the Centennial was one of peculiar interest. The attendance on that day was the largest in point of numbers, excepting Pennsylvania Day, which has been observed during the Exhibition the total number of paying admissions being nearly 170,000. The official statement comprises 102,334, besides 1,240 cash admissions to the Live Stock Exhibition. It is estimated that at least 50,000 visitors were from the three States and the District of Columbia. At about 1 o'clock the State authorities of Delaware, and the city officials of Wilmington, reached the Exhibition Grounds, when they were received by the Centennial officials and escorted to the Delaware State Building. Here Gen. Cochran acknowledged the complimentary reception of Gen. Havely, and addressed those present. He was followed by Hon. Wm. G. Whiteley, who gave a concise history of Delaware to the present day, stating, among other things, that the first iron steamboat built in this country—the Bunker—was built at Wilmington, in 1844, since which time 443 iron vessels have been constructed there. At about noon the Maryland visitors were received at the gates in the usual manner, and escorted to the Maryland State Building. Here Gen. Carroll reviewed the Second Brigade of the Maryland National Guard, and addressed the people. Gen. Carroll was followed by Gen. Dawson, and Gen. Thomas Wilson, who were introduced as representatives of the District of Columbia. These officers were serenely delivered eloquent addresses. Mr. J. G. Findlay, the editor for Maryland, spoke, and while speaking, was followed by about 70,000 people, fully half of whom were ladies. This case of festival is almost peculiar to Maryland and Virginia, although erev3enings in Virginia are given in other of the Southern States. Nothing of the kind has hitherto been seen in our North. There were fifteen knights, who represented the thirteen original States, the Union, and the Confederacy. These figures, together, were gathered together, and with a drum and bands were marched to and from the Maryland State Building, each knight being furnished with a sword, and a helmet with a plume. The Union and the Confederacy are represented by the Union Jack and the Stars and Stripes, respectively.

At the Virginia State Building only informal gatherings took place. The number of Virginia visitors was estimated to be about 5,000. Those from West Virginia numbered about a thousand, who were to be found chiefly at the State Building near George's Hill. An interesting incident of the day's ceremony was the arrival of a number of the Society of Cincinnati, who paid their respects to the Centennial Commission, and were received by General Havenly in the Gallery. It is clear that the great feature of the day's entertainment was the tournament which took place on George's Hill in the afternoon, and which was promptly followed by about 70,000 people, fully half of whom were ladies. This case of festival is almost peculiar to Maryland and Virginia, although evening in Virginia are given in other of the Southern States. Nothing of the kind has hitherto been seen in our North. There were fifteen knights, who represented the thirteen original States, the Union, and the Confederacy. These figures, together, were gathered together, and with a drum and bands were marched to and from the Maryland State Building, each knight being furnished with a sword, and a helmet with a plume. The Union and the Confederacy are represented by the Union Jack and the Stars and Stripes, respectively.

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feather-work and artificial flowers in bouquets and baskets. Quite a pretty show is made in beautiful flower-baskets worked in all kinds of materials, made into wreaths of flowers, with leaves, and framed. A large strawboat model, made of wire, for the reception of natural flowers, is a prominent object. One is seen of butterflies; and another, preserves of natural flowers. There is also considerable rustic-work to be seen about this room. On the south side of the western end an exhibition-room displays all kinds of Woden-cases, small flower-baskets in ornamented and painted tin and other materials. Some choice wreaths grace the exhibit, and on a table is a beautiful display of skeleton leaves, formed into bouquets, and shown under glass. Also, various ornamental straw baskets and other receptacles for flowers, and a goodly show of ornamental earthenware and terra-cotta flower-pots. Here, too, are some garden vases, terra-cotta and radish-wares, and a large number of horticultural tools and implements. Finally, there are specimens of beans and seeds shown in glass jars, a case of bullies, and a large case of colored greens, and feather-work, formed into bouquets, at the eastern end of the building. On the south side there is a room containing large garden stands for pots, and a great variety of styles of garden-cases in terra-cotta. There are also some very handsome bouquet-holders, made of ornamental paper and other materials. The room on the north side at this end is devoted to horticultural implements, flower-pots of all sizes and styles, some greenhouse baskets, and garden chairs and seats in iron. On either side of Horticultural Hall there are forcing-houses—one on each side of the United States, mahogany, coco, chocolate, laque, guava, paper, rose-apple, etc. From the Zoological Society of Philadelphia there is a specimen of the Austra-

sion fern-tree, and from Samuel M. Rines, one ficus-embury tree. Miss Ann E. Merryweather, of Camden, New-Jersey, sends an ast. There are also orange-trees, bananas, date-palms, the wax-plant, century-plants, the sage-palms, etc.

There is a fine tree, numerous orchids, with variegated pine-apples, etc. The out-door exhibits in the Horticultural Department are numerous, and cover a considerable area of ground, extending westward from the building nearly to the nunsaculated Catholic Fountain. Over this extent of space, garden plots have been laid out and planted with every variety imaginable of flowering and brilliantly colored leaf plants, producing during the summer months a varied and most beautiful horticultural presentation. Numerous varieties of geraniums, veronica, roses, dahlias, rhodoedenrons, bulbas, magnolias, azaleas, and others less known, are also exhibited. Rustic summer-houses, hanging baskets, still-cots, rustic gates, stands, vases, wrought-iron railing, artificial stone-work in fountain-basins, vases, tiles, etc., terra-cotta vases, trellis, and, in fact, every conceivable species of ornament for gardens and summer-houses, are to be seen. The garden-tools exhibited include the Comstock sower, hand mow-

sor, portable sprinkler and fountain lawn-sprinkler, wheel-hoe, self-acting water-fountain, portable boilers, heating apparatus for green-houses, etc. For portable plants there are plant-stands, ferneries, window-boxes, re-

volving flower-stand with fountain attachment, drainers and cisterns with globe attachments, for pots, vases and hanging baskets, combined aquarium, pasture-stand, bird-

cage and fernery, and other conveniences.

THE ALSPORF BREWERY EXHIBIT.

Alsporp's ale is as well known throughout America as in England, and the display of specimens of this beverage in Central Europe is large and complete. The firm stands among the most interesting and extensive industries of the fair. The excellence of it is due to the adaptation of the Burton waters for brewing purposes—a discovery said to have been made by the monks in the thirteenth century, at which early period the trade of malting was already carried on upon an extensive scale. As early as 1748 the Burton ale had a large sale in St. Petersburg.

The Allsporf ale, look to nearly half a century ago, and have been manufacturing ale ever since. The waters used by them in their manufacture are obtained from wells, some of the borings being more than 100 feet deep, and one of them 46 feet in diameter. They number eleven in all, their total supply of water being estimated at over 100,000 gallons per hour; and this tremendous production in the height of the brewing season is severely taxed.

The ale brewery, maltings and coop-

erage buildings of the Allsporf cover an area of fifty acres, and the general offices alone of the establishment occupy the ground-floor of an entire block of buildings. The material of their buildings is chiefly brick and iron, on foundations of concrete. They have three great malting establishments: one at Burton, one at Beeces, and another at Grantham. They have, besides, ten smaller malting-works at Burton, and are further supplied by private firms.

Some idea may be formed of the magnitude of these works from the fact that the water is boiled in four enormous vessels, each holding 280 barrels, or 10,000 gallons, and capable of supplying together a constant supply of boiling water of one million gallons per week. Their fermentation facilities are close upon 9,000 barrels at one time. They employ a grand total of 1,904 union men, holding four and a half barrels each, for the manufacture of ale.

The stores of the establishment cover an enormous area, and are capable of receiving about 10,000 barrels of ale. The firm have private railway connections extending from one end of Burton to the other, the road being over ten miles in extent, in which the firm employs three locomotives, while during each week as many as 5,000 railway-trucks pass in and out of their premises. The quantity of malt consumed amounts to thousands of tons, and the average number of employees, including those at the London and country agencies, is about 1,500.

This description of the business of a malt brewery on a large scale will be interesting to those readers concerned in the manufacture of ale.
GREAT BRITAIN.

The space allotted to the United Kingdom of Great Britain and Ireland comprises about one-half of the entire Main Building, being on the north side of the nave and extending from the Canadian section east to the transept, or for about half of the space north of the nave and west of the transept.

It is almost impossible to give the slightest conception either of the magnitude, the comprehensive character, or the educational value, of the vast number of exhibits made by Great Britain. When taken in connection with the and with the Dominion of Canada, which may fairly be considered in the same category in this instance, her display is colossal. Whether to consider this as representative of her industrial ingenuity or her magnificent and wide-spreading power, whatever view we may take of her exhibition, we cannot fail to admire and respect. Here we may not improperly grant a fair share on the subject, who says, in reference to the exhibits of Great Britain:

"She meets you everywhere. Go into the machinery department, and her engines are among the first and most substantial ever made by human hands. In cotton goods she has no superior in the world; and it is esteemed no small compliment to stand with her in any of the marts of commerce. In silks she rivals the looms of Lyons, in carpets she is almost without a peer, in cutlery she is master of the situation, in afterwear she need not fear to enter into competition with the productions of any kind, and in the million and one of smaller items that go to make up the business of the world, she displays an activity and grasp of government, power, or for about half of the space north of the nave and west of the transept.

For instance, at Paris and Vienna the English had an immense display of machinery; but in Philadelphia there are more original than others, and that it defies competition. It is of the same with jewelry. In Paris and Vienna, the British had a_great display in this direction, while in Philadelphia there was an immense display of machinery; but in Philadelphia she displayed an activity and grasp of the business of the world, she displays an activity and grasp of government, power, efficiency, and genius, his courage or his perseverance, but that she seems master of the situation, in silverware she need not fear competition, in rugs woven of wool, silk, and Cashmere and Western Asia; carpet-woven rugs, woven in various stage, made of wool, silk, or cotton from India, Persia, Cashmere and Western Asia; Axminster carpets, woven in one piece; Axminster, woven by hand power, for wall decoration; Axminster, woven by hand power, for wall decoration; Axminster, woven by hand power, for wall decoration; Axminster, woven by hand power, for wall decoration; and Axminster, woven by hand power, for wall decoration.

The exhibit of the British section begins with the famous Sheffield cutlery, of which the display is very large and very interesting. This includes razors, knives, daggers, scissors, dressing-case instruments, tools for mechanics, and among the more curious articles a newly invented set of drills for cutting wood and stone, so highly tempered as to cut the hardest stone, and a case of tools for iron, brass, brass, etc. There are also displayed among articles of hardware, handles, bolts, nails and castings from Birmingham, steel safe and locking apparatus, pneumatic signals, etc.

Next to the hardware and cutlery, come the scientifically less known but perhaps the most valuable articles, the Irish pineapple, Manx bows, tawlings and prints, and Belfast linens. Lancashire and Yorkshire, Paisley, Glasgow and Belfast sent yarns, cotton and worsted, American and English; for the English had an immense display of machinery; but in Philadelphia she displayed an activity and grasp of government, power, efficiency, and genius, his courage or his perseverance, but that she seems master of the situation, in silverware she need not fear competition, in rugs woven of wool, silk, and Cashmere and Western Asia; carpet-woven rugs, woven in various stage, made of wool, silk, or cotton from India, Persia, Cashmere and Western Asia; Axminster carpets, woven in one piece; Axminster, woven by hand power, for wall decoration; Axminster, woven by hand power, for wall decoration; Axminster, woven by hand power, for wall decoration; Axminster, woven by hand power, for wall decoration; and Axminster, woven by hand power, for wall decoration.

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the South Kensington Museum, is designed and wrought for the International Exhibition of Paris in facture. The Milton Shield, of which the original was keen toicery in gold and silver. It process, the whole of the repousse of art, the Helicon Vase, the Milton Shield and the works of Messrs. Elkiugtou in inventors of electro-plate in 1840, are "twelve complete chis¬
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projects. It is of similar materials and wrought by the same process. The subject represents a Pomegranate leaf of her tablet; and it is the epitome of the most competent judges that it has never been surpassed either in conception or in the delicacy of its manipulation. The value of this work is $7,500 gold.

The articles of glassware include exhibits from James Green & Nephew, London, John Miller & Co., Z. Elkin¬
gton & Co., manufacturers of all sorts of Summer fancy articles in this class of fabric. Besides dress goods, are exhibits of embroidery and sewing-goblets and wine-glasses. The exhibits of silks and silk fabrics are handsomely arranged. The display of military arms and hunting and fishing implements comprises exhibits from the leading manufac¬
turers of Great Britons. Among them are the "Super" rifle, which has been loaded and fired sixty times in one minute; the Lancastrian gun; central firing and breech-loading lang¬range guns, and rifles from a Glasgow manufact¬
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In medicine and surgery the exhibits comprise medicines, dietetic preparations, such as beef extract and other articles intended for the sick; surgical instruments and appliances, and dental instruments.

In stationery, paper and blank books, there are a number of ex¬hibits from leading manufacturers in Lon¬
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the inventor of the marine chronometer, and to which was awarded by the Board of Longitude the Government prize of $2,000 for that important invention. Microscopes, magic-lanterns, telescopes, chronometers, musical instruments, including portable organs, violins, pianofortes, harps and wood instruments for bands and orchestras. These are a few of the articles exhibited in this department.

Greatest is represented by an exhibit of carved-stones from Ceylon, Edinburgh, and another of bows played on scientific principles.

Drawings illustrating the Greenway method of hospital instruction of Henry Greenway, surgeon, Plymouth, England, are exhibited, and are important.

In chemicals, exhibits are made in all directions, from poetry and powder and bleaching powders to soap, fluid magnesia, creosote, galls, and perfumery, the latter including the exhibits of Eugene Rinaldo, the well-known Paris and London perfumer and toilet-sap maker, and comprising extracts and essences, vapors, pomades, hair, bath, rubs, liniments, cologne, toilet and shaving-soaps, etc.

This completes our description of the department of Great Britain, and which, as we said, is of importance. In some of the three directions in which we have been dealing, we find work of the most beautiful character and the finest class of workmanship.

The collection of minerals is large, and fully illustrative of the mining industries of the Dominion. We have, in connection with the mineralogy of the entire Dominion, beginning with the collection of specimens of copper pyrites and ore, magnetite, dolomite, and jasper, as also ornamental and handsome collections of iron pyrites and iron bars from Ottawa and Three Rivers, with Canadian specimens, of both iron pyrites and iron bars from Canada, and from Nova Scotia, New Brunswick, and from Lake Superior, Ontario and Quebec. The gold which has been found in these sections of the Dominion, in the province of Quebec and Ontario, is certainly unparalleled.

A specimen of platinum is exhibited from British Columbia, and also ammonia from the same province. A specimen of platinum is also exhibited from British Columbia. The gold which has been found in this country, in the province of Quebec and Ontario, is certainly unparalleled.

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The revenue of New Zealand in 1874 was £3,063,811; the exports to £3,551,369. The form of government in New Zealand is as free as any in the British Dominions, the Queen being nominally titular, while the Governor, appointed by the Queen, but actually the direction of affairs is conducted by the representatives of the people.

The changes of weather and temperature are very sudden, which is well illustrated by the fact that in the month of July a heavy frost may suddenly as to defy previous calculation.

In New Zealand the government is conducted by the representatives of the people. As you enter the New Zealand section at the nave you find a large case containing the models of building-stones, and a great many specimens of sculptured stones from the ancient temples, complete the display of India.

New Zealand

New Zealand was discovered in 1842 by the Dutch navigator, Van Diemen, who, however, did not land upon the shores. In 1863 it was first visited by Captain Cook, who explored its coasts. Subsequently, however, the country became the scene of hordes of whalers and traders. In 1840 the native chiefs ceded the country to the British Government.

The aborigines, called Maoris, are a branch of the Polynesian race, and a remarkable people. They have a tradition that their ancestors, some 600 years ago, came to New Zealand from Hawaiki, which may have been Hawaii, in the Sandwich Islands, or Sumi, in the Navigator or Saison group. These remote suppositions are not unlike the Higgledy of Scotland, being, like the latter, divided into clans. On June 1st, 1874, the Maoris and half-castes amounted to 46,016.

The returns given by the natives of three principal islands, called respectively, the North, the Middle and the South or Stewart's Island. There are several small islands, mostly uninhabited, the chief of these being the Charta and the Island Isles. The three principal islands extend in length 1,100 miles, but their breadth varies between 45 and 250 miles. The total area of New Zealand is about 61,000,000 acres. It has a healthy and salubrious climate, with a very equable temperature. The Summers are as cool as those of England, and the Winters as warm as those of Italy. It has a mean annual temperature at Auckland is nearly the same as at Rome.
principal island is New Providence, containing the capital, Nassau. San Salvador, one of these islands, was the first land discovered by Columbus on his voyage in 1492. Pine-apples have been largely grown here, and are extensively cultivated. Salt and wood have also added to the exports. At the present time the staples are salt, fruit, spicery, barks, dye and furniture woods, guano, straw, tortoiseshell, fish-scales and shell-work. The specimens of native woods exhibited include mahogany, satin, color, cocoum, green ebony, logwood, and buccaneer woods; also lignum-vite, orange, and horse-fish wood.

Quite a number of walking-canes are exhibited, manufactured out of woods growing in the Bahamas, including crab-tree, cassave, black torch, lignum-vite, coconut, mahogany, silver, iron, green ebony, sotton, cassava, wild lemon, tamarind, guava, and willow woods. A dray is shown, manufactured out of nine different woods, also broak-platters, including three to be presented to Cornell University. Sponges are displayed of various species of shells valued at $50. Other cases contain shell-work, baskets, bridal-wreath, etc, and one displays a magnificent specimen of shells valued at $500. Tortoiseshell is the West India Company in 1880, but was finally ceded to Great Britain in 1814. The area of the colony has been computed to be about 76,000 square miles. The exhibits in the Main Building include a number of specimens of sugar and rum, contributed by various sugar estates and plantations. Specimens of silk grass, sweet-brier, monkey-apple and manaca fibres, some rice straw ornaments and a collection of starches, bars and other medicinal productions of the colony. A native curiosity is shown in the shape of a specimen of greenheart wood, nearly one hundred years old.

GOLD COAST COLONY.

This colony in West Africa, comprising the British settlements on the Gold Coast and at Legga, was ceded by a charter bearing date 24th July, 1874. The name is derived from the German "Gold," and means Gold Coast. The colony was first partially settled by the West India Company in 1680, but was finally ceded to Great Britain in 1814. The area of the colony has been computed to be about 76,000 square miles. The exhibits in the Main Building include a number of specimens of sugar and rum, contributed by various sugar estates and plantations. Specimens of silk grass, sweet-brier, monkey-apple and manaca fibres, some rice straw ornaments and a collection of starches, bars and other medicinal productions of the colony. A native curiosity is shown in the shape of a specimen of greenheart wood, nearly one hundred years old.

Cape of Good Hope.

This colony makes a considerable display in minerals, ores, stone, and metallurgical products, including copper, sulphur, coal, etc. There is also a display of native ornaments, including necklaces and bracelets, native aprons, headdresses, exhibits of skeletons, seeds, and most of the wild fig-tree and palmetto, made into rope, and a specimen of white clay used in medicine, and also to cloth; crossed wires. This clay is likewise used in law-suits to mark those who are successful, and at marriage ceremonies as an indication of purity. A number of native paintings, engravings, lithographs, photographs, etc., complete the collection.

The Royal Baking Powder Company's exhibit, in Agricultural Hall.

The British Colonial section proper ends at the eastern end, with the colony above named. This exhibit comprises native products in general. For instance, the Strick settlements send silk flow, silk thread and silk line, woods from Singapore, Madras, Bengal and Nungapatam; nuts, grass, tea, coffee and spices from Singapore, and cotton and wool from the same island. Ceylon exhibits tea and plumbago, indigo, rubber, cocoa, pulses, tobacco and cigars, hukka-dhows, vegetable fibres and native woods; also straw hats and mother-of-pearl and other shells.

Mauritius, Seychelles, Archipelagoes, Celebes, and Trinidad.

This colony makes a very fine display of native woods and samples of coffee, a large number of fibres, specimens of native sugar and articles made from the palm trees, including slippers, cigar-cases, baskets and rugs. There are also a number of views taken in Mauritius, and types of the Chins, Indian, Madagascan and Mozambique inhabitants of Mauritius.

The Seychelles, or Malo Islands, include a group comprising 50,120 acres, and are distant 940 miles from Mauritius. The Archipelago is subordinated to the Governor of Mauritius. This exhibit from Seychelles is most curious and interesting. It is particularly noticeable for the display of the native work displayed, this work being made from the produce of the island. Many of which curious natures several are shown in the rough state and polished. They are in appearance a sort of twin cocoanut, larger and of a somewhat different shape from the ordinary cocoanut. They are in appearance a sort of twin cocoanut, larger and of a somewhat different shape from the ordinary cocoanut. They are in appearance a sort of twin cocoanut, larger and of a somewhat different shape from the ordinary cocoanut.
The Republic of Orange Free State is situated on the northern boundary of the Cape Colony, and covers an extent of territory roughly estimated at about 70,000 square miles. It consists of extensive undulating plains, sloping from the great water-shed northward and westward to the Vaal and Orange Rivers. The courses of the larger rivers are extremely tortuous and hollow, their banks being precipitous and commonly lined with the water-willow, mimosa and other trees indigenous to this country. The streams are usually fordable, but during the winter season become swollen and impassable.

The country is divided into fourteen districts, each of which has its chief town and capital, borough villages. In either district there are small ranges of hills, forming their water-sheds, in which the various streams take rise, and affording landmarks which are used as division lines of the various districts. The plains and table-lands are covered with grass, which in rainy seasons becomes rank and luxuriant, affording excellent pasture for stock of all descriptions. In the northern and eastern districts, where the rainfall is greatest, is burned off once a year, for the purpose of destroying the old crop, which rots by reason of rains, and becomes injurious to sheep and cattle.

In the western districts the grass is rapidly becoming supplanted by a dwarfed bushy vegetable. The grass, which in rainy seasons are to be seen in the minds of the inhabitants, in the State during one year, and have fixed property to the amount of £50. Thirdly, whites who have resided in the State for three successive years, whose owners are obliged to furnish certificates of conduct and written acknowledgments to respect the laws of the State.

The constitutional Church of the Orange Free State is the Dutch Reformed. There is a bishop and a numerous staff of clergy. The Wesleyan Methodist Church, the Evangelical Lutheran Church, and the Roman Catholic Church, are also represented in the Republic. A rough estimate fixes the number of farmers throughout the country at between 6,000 and 7,000. The revenue of the State is raised by grants on these farms, hire of the State lands, license, stamp dutie, etc. The Orange Free State was formerly one of the occasional residences of nesting beaks of Curo. Some of these sites inhabited by any definite race, these wild tribes inhabiting it from time to time, to secure pasture for their flocks, or to escape destruction from the hands of white farmers. The present control of the country has only existed twenty years, and when it is considered that it revenues

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Partments send specimens of hides and skins, and a considerable number of antiques, paintings in oil, solid wood-carving, photographs, specimens of printing, artificial flowers andembroideries, glass, silver hats, silver and copper vases, taken from all parts of the world. Much of this material comes from Lima. A very good display is made of the minerals of Peru by the Special Commissioner to the Exposition from Lima. There are also specimens of sulphur, tar, petroleum, oil, soap and candles of native manufacture. Something of a show in wood-work is made from the Peurinlantic, and some articles in textile fabrics, including ponchos; tools, etc., and goods made from the vicuna texture. From the Department of the Amazon there are shown samples of vegetable silk; from the Bureau of Education of Lima, a map of Peru. The forest products exhibited include specimens of native woods, also nets, ropes, and rafts. In strictly agricultural products there are various kinds of grain, tobacco and cigars, rice, sugars and starch, and in manufactured articles other than these, rum, wines, brandies, and wines made from the vicuna texture.

The exhibits in the Main Building from the Department of the Amazon include a very full show of grass, grown and exhibited by the Normal School Farm. There are also 19 different varieties of potatoes—all from the same source. A collection of medicinal herbs, including 108 varieties, is exhibited, chiefly by the Department of Victoria. The collections of woods exhibited by the Normal School Farm includes 51 species, and a frame containing 78 specimens of different woods from the Department of Science. Quite a number of specimens of bark, cotton of the pod and ginned silkworm cocoons, horsehair, fibers of common wool, etc., are also exhibited, and a number of samples of bouxaw, which are to be found here. Among the animals exhibited are the condor and the Cinnabar llden, stuffed, as also preserved fish and shellfish. Finally, there is a display of national publications, including the official reports from the Government, commercial statistics, etc., the Cinnabarian codes of law at present in force, Reports of the Sessions of the National Congress from 1826, Annals of the University of Chili, a collection of the historians of Chili, text-books of instruction used in the National Institutes and in the primary schools, scientific and literary periodicals and reviews, and a large collection of miscellaneous books, comprising several hundred volumes. Happier it may truly be mentioned the Cinnabarian Building, a small brick structure, lying west of Machinery Hall and opposite the right of the silver and gold amalgamating machinery exhibited by the Republic of Chili. This is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the amalgamating machine in use at Antofagasta, and is a model in fac-simile of the 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of two vertical iron rollers, resting on an iron plate, which being kept in motion, produce the necessary friction to grind the ore, which are received in the iron grates, passed over these rollers, by means of scows of feed.

The reduced ore is carried with the water, which is kept running upon it continually by means of pipes through the grates. The copper ore is then accumulated in a canal, containing a chemical solution, one washer, and one centrifugal machine. By this process the ore is freed from impurities, leaving the pure silver and copper which are discharged and stuffed into moulds ready for section three.

This section includes the copper-caster and melting-furnace. Here the copper, reduced in small rolling-mills, is being melted, and the copper being cast into ingots and cast to various forms and shapes, is then burnt and the copper put into the centrifugal machines, where the copper-silver is separated from the silver, after which all remaining impurities are washed out into two small canals, and all the impurities are removed. The copper is then returned to the foundry and sold.

The model are seen in motion. The entire model was exhibited at the Crystal Palace of Santiago, and east at $300. In January, there is but one exhibit, that from Buenos Ayres, a broad-stand of oil glass. A most curious and unspotted article, one that would be readily looked for as the product of Xino's ingenuity and skill than as coming from one of the South American Republics, is called "Ita". Encyclopedias del Rio de la Plata. This is a combination of hydraulite, wood, stand, dressing-case, etc., containing many other useful articles for convenience in domestic life, the opening out, and displaying various compartments for the uses indicated. The article is priced at $300. The furniture also includes night-tables for bedrooms, of eco-coo-wood, and aloger-wood, a new system of Venetian-blinds and a curling-iron.

There are also shown ostrich-feather fans, diapate mantles, woollen dresses and trugs, hand-mills, powdery, towels, slumber, superstitious, taboos, clilie, those latter made of cotton, grown and spun in the province of Tucuman, also native wood and silver tanks, and cups made of stone. Wooden fabrics include pochonets, blanlakke, napkins, etc., dyed of different colors with native roots and plants.

Woven articles made by the Pampas Indians are rugs, garters, saddle-cloths and blankets, which, with two pochonets, blue with white spots, are interesting specimens of native manufacture. The vienna articles include some quite costly. A vienna shawl of natural color is priced $400. Socks and a purse are $10 each. A thick vienna pochonet is valued at $50, another $150, and a suit of clothes of the same fabric $350. Among these articles are also mufflers, a vienna shawl, containing 5,000 warped threads, woven for the Philadelphia Exhibition, of which the price is $25 gold oones. Native leather is represented by a pair of boots, priced $16, another pair of "dandies", $10, and one pair of $5. A Buenos Ayres milliner sends three bonnets. One of these, a white bonnet, trimmed with blue feathers and flowers, is priced at $40; another, with green cotton bands, is priced at $20. These hats are exhibited made from the leaves of the Yatay palm trees. These hats are very much used in the province of Corrientes, and are made in pairs of boots, made of moose skin, in a curious exhibit from this section. The same native exhibit a flower made of hair, and a wreath of artificial flowers made of the pait of a native plant. A basket of flowers made of different kinds of seeds and grains is offered for sale at $100. Quite a number of articles in hair are displayed, one such exhibit of flowers being valued at $600. A pair of silver, Italian earrings is exhibited by the province of San Lucis, and a necklace and buckle of gold, representing the 14 Argentinian provinces, comes from the province of Buenos Ayres, and is priced $800. A very ingenious structure, something similar to the "Etrusco-palace" before mentioned, is exhibited by Eugenio Mestali, of the province of Buenos Ayres, of red granite called computer, which can be transformed into a sofa, writing-desk, dressing-case or chest of drawers. Several other objects a 3-in-hand are exhibited, one from the province of Santa Fe,

To see the collection of trunks, caskets, and carriages, it is necessary to go out, and to go to the several sections of the exhibition, which is after an arrangement of the objects, the different articles are exhibited in a known order, according to the general appearance. The collection, it is true, is small, but it is of considerable value, and the exhibit is quite a number of articles in hair, and an Oriental saddle of velvet and gilded silver, in imitation of gauze, exhibited from Buenos Ayres. Horse-furniture, harness and saddlebag are especially represented. A saddle of silver and gold, decorated with $42, a Mexican saddle made in San Juan, with gilded breast, bridle, etc., very costly, is valued at $350; a whip made of horse-hair, a plaited issue and a pair of handkerchifs for laying ostriches, are among the curiosities in handloomed. Lawns are numerous, as are also pincushions, horse rugs and hobbines. Some picture novels are made of ostrich feathers, others of heron's, and others of skins of native animals. This department concludes its exhibitions with quite a full display of Argentinian books published in the different provinces, including educational works, statistics, historical books, atlases, maps, digests and compendiums of the Argentine provinces, and a two small volumes of travels, poetry, reviews, medical books, etc. Two containial flower arrangements, being exhibited. Games have been noted standing at the entrance to the section. Finally, there are a number of model rolling-mills, including a box weighing four pounds, and seven ounces weighing 15 to 20 pounds, a silver and a back-tooth, which, when animals is assisted, the collection being valued at $200. 

Tunis.

The section devoted to Tunis lies near the center of South Avenue and immediately behind Denmark, Sweden and Turkey, and is the most prominent one of the present space. The contributions to this department include minerals and rocks, petrography, porcelain, glass, household furniture, carvings, rugs, woolen blankets, saddles, saddlebags, coverlets, etc., dyed of different colors with native roots and plants. Woven articles made by the Pampas Indians are rugs, garters, saddle-cloths and blankets, which, with two pochonets, blue with white spots, are interesting specimens of native manufacture. The vienna articles include some quite costly. A vienna shawl of natural color is priced $400. Socks and a purse are $10 each. A thick vienna pochonet is valued at $50, another $150, and a suit of clothes of the same fabric $350. Among these articles are also mufflers, a vienna shawl, containing 5,000 warped threads, woven for the Philadelphia Exhibition, of which the price is $25 gold oones. Native leather is represented by a pair of boots, priced $16, another pair of "dandies", $10, and one pair of $5. A Buenos Ayres milliner sends three bonnets. One of these, a white bonnet, trimmed with blue feathers and flowers, is priced at $40; another, with green cotton bands, is priced at $20. These hats are exhibited made from the leaves of the Yatay palm trees. These hats are very much used in the province of Corrientes, and are made in pairs of boots, made of moose skin, in a curious exhibit from this section. The same native exhibit a flower made of hair, and a wreath of artificial flowers made of the pait of a native plant. A basket of flowers made of different kinds of seeds and grains is offered for sale at $100. Quite a number of articles in hair are displayed, one such exhibit of flowers being valued at $600. A pair of silver, Italian earrings is exhibited by the province of San Lucis, and a necklace and buckle of gold, representing the 14 Argentinian provinces, comes from the province of Buenos Ayres, and is priced $800. A very ingenious structure, something similar to the "Etrusco-palace" before mentioned, is exhibited by Eugenio Mestali, of the province of Buenos Ayres, of red granite called computer, which can be transformed into a sofa, writing-desk, dressing-case or chest of drawers. Several other objects a 3-in-hand are exhibited, one from the province of Santa Fe,
exhibited are stearine candles, matches, varnish, double-distilled bay-spirit and oil of bay-leaves from St. Thomas, West Indies. A very pretty display of Danish pottery in black-and-red is made, ornamented with flowers, some articles being in Etruscan forms, and those from Wendish and Sam, Copenhagen, being especially elegant. A trophy of bottles of cherries made with great care and discrimination, and there is a considerable show of playing-cards. A glass case fixed against the wall contains a suit of clothes apparently of very fine manufacture. In clothing there are also wooden goods from the Faeroe Islands; and oil, clothing and goods, also jewelry and ornaments, from Copenhagen. From the Faeroe Islands there is likewise a collection of birds, feathers, eggs, etc. A very interesting ethnographical collection is sent from Copenhagen, illustrating the products, minerals, manners and customs of Greenland. This case includes weapons and tools used by the natives; clothing, fur, corderoy and skins, stuffed native birds and a model of a kayak. There is also a Greenland kayak of the usual size, with fish, spears, paddles, etc., and a stuffed figure placed in the center to illustrate the method of using it.

**Turkey.**

The Turkish section fronts on the nave, and lies between Denmark and Egypt, occupying the same space as the latter country, 5,022 feet. This section is more truly Oriental in its character, as we understand the Oriental, than any other. It begins properly enough, with a large case of pipes—long-chopsticks with red clay bowls—native jewelry of gold and silver, and enamelled small coffee-cups, cups of horn, snuff-boxes, including brooches, shoulder-strings, buttons, etc., strings of beads, and scented wood, etc. The display of opium, essences and gums is large, and is made with great care and discrimination, illustrating effectively those peculiarly Oriental articles. Of the same character is the exhibit of attar-of-rose. This finest of all perfumes is nowhere made with such perfection as among the Turks. A bottle nine inches high and about four inches in diameter sells for $120 in gold, besides the duty; a little bottle holding not much more than a gill is marked $50. The wines and liquors of Turkey are illustrated pretty completely, including brandy, muscat, Samos wines, etc. A case of curious green pottery is attractive, the forms of the articles being peculiar. There are also some black tea-sets, ornamented with what seems to be silver-foil. Turkish tobacco, and the fine Macedonian tobacco, are exhibited in bunches, bowls, casks, and in cigarettes. Opium is also displayed in masses wrapped in leaves. Curiously enough, a principal exhibit is a large case filled with roses, crosses, caskets, paper-knives and other articles made of chlo-wood, and reported to have come from the Mount of Olives; although this is probably apocryphal, and the wood is likely enough to have come from Spain or some other southern European country. A case of native arm includes scimitars, guns, helmets, etc., all heavily engraved, and displaying very fine workmanship. There is a good show of rugs and carpets; also of Turkish shawls and other garments, the fineness prominent in numbers. Quite a large display is made of crude silk, wool and flax, including wool of various grades in small bags, silk in the rough, in skeins, etc., and cocoons classified in jars according to quality and color. A variety of leather-work makes a very handsome show, and includes a display of prepared skins heaped up in the rear of the section. Here are also fine leather leggins, saddle-bags, belts, etc., and a variety of boat-work on leather, which is curious. Perhaps the prettiest collection of the department is a case of goods of carved mother-of-pearl, said to be manufactured in Bethlehelm. The articles are all small, the largest being carvings of the pearl oyster-shell; the centre piece is a cross of native wood. The remaining articles are crosses, ornaments, buttons, strings of beads, etc. The Turkish carpets deserve all praise. In some particulars they are pre-eminent, and are worthy the high repute in which they are held all over the world. The vividness of colors and originality of design of these fabrics defy competition. The texture of the goods is among their strongest points. A few skins of animals are shown, including a tiger-skin. A number of domestic articles in brass and copper, including vegetable-dishes, water-jars, etc., are interesting as being peculiar to the country. The gauze fabrics of silks, with shining bands of gold or silver thread, alternating with gay stripes of scarlet, green and white, are.
strikingly Oriental, as are also the velvet jackets, heavy with gold braid, the tissues of the mixed silk and cotton covered with gold embroidery, the scarlet table-spreads with intricate tracery of ar-"hloops in gold threads and colored silks, and slippers of green and scarlet leather, with pointed toes. Five Turkish towellings and gauze mantis, with heavy brocades, and a brownish amount of embroidery in various materials, complete the Turkish exhibit of fabrics, and with them we close our description of this section.

Egypt.

The section devoted to Egypt lies between those of Turkey and Spain, and fronts upon the nave. It comprises 5,922 feet of space. Here is seen, on entering the section, a large display of native woods from Egypt and the annexed provinces, including the cotton-tree, and also samples of gums and materials for dyeing, and other vegetable articles for industrial purposes. There is also a very large case full of silk cocoons and manufactured silk, while cotton and tobacco are seen in considerable quantities, as well as samples of silk and cotton. There is a large case of brass manufactured in that country. The minerals and building-stones of Egypt are exhibited in rough-hewn and polished specimens, including marble, limestone, linseed, clay, cement, plaster, sand, and materials for manufacturing porcelain and faience. The exhibits of metals include iron, gold, and silver. A number of articles of Egyptian manufacture are also displayed, and a large case of books, in the Arabic language, including school and text-books, newspapers and periodical literature, illustrate the educational system of the country. The Polytechnic School of Cairo sends a number of books, and quite a display is made of articles of pottery from Assouan, Upper Egypt, showing the styles of Egyptian earthenware, with porcelain tiles and bricks from Lower Egypt, contributed for the National Museum. Specimens of majolica ware of different designs, and porcelain, are contributed by Drusoph Bey, of Cairo. The National Museum also displays table-furniture, porcelain, solid gold and silverware, coffee-sets, and vessels of brass, utensils for kitchen use, and tinware. The clothing, jewelry and ornaments, travel, and manufactures, are contributed by the National Museum, and include dress-goods from Egypt, contributed by the National Museum. 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the pattern peculiar to the lower classes of the Spanish province are quite wonderful in their extent and variety. In the articles, there is an admirable, of easy construcible design, and interesting as displaying the distinctions of the Spanish people. Here a large class of women's corsets is on exhibition. A resembleable show of caps, hung from above, is also to be seen, and a fine display of blisters, foclockes, balbec-clothes and rags. Next are the finer qualities of the country; such as condenseus, finesse, underware and enbrodered work; and next a circular case containing the inevitable Spanish fin in every possible form and quality; woolen clothes for gentlemen's clothing, boots and shoes covered with leather, and a truly magnificent display of silk and brocade goods and satin. A great exhibition of silver is made in two enormous cases from Barcelona and Catalonia, with a show of blood-horse also occurs here. The collection of shoe-coverings (include varieties little known in this country. There are sandals, boots and shoes of every conceivable kind, as "flip-books," as they are called, riding-boots, elks, sabots, sabots for women, and in fact every conceivable pattern of coverings for the feet. Huts and houses representing, likewise, are by the city of Seville, and from Havana, Cuba. Some very handsome articles of embroidery are exhibited, including embroidered pictures, church ornaments, embroidered alpaka, laced embroidery, escoquinas, handkerchiefs, while His Majesty (of King of Spain) exhibits embroidery made by the two Brothers of San Lorenzo. The straw-work peculiar to Spain is interesting and includes a large variety of articles. There are baskets and uncut slippers, lady's work-boxes covered with straw, gloves, and cases for the same, straw hampers, match-boxes of straw, etc. There are also some specimens of Italian hair-work from Madrid, which are curious. In miscellaneous articles there are cases and cano-heads, coats of red and yellow, shawl, cigarette-paper in quantities, playing-cards, paper-paper, cigarettes, silken, silk, silver or copper, silver, gold, and turquoise. Here, too, are elaborate dishes in gold and silver, some of which are cut from a single block of stone, cost $4,500 a pair, while the smaller size, about 18 inches high, is valued at $2,500. The malachite and lapis-lazuli vases range in price between $500 and $1,000. A great variety of small articles are made of these stones, and are sold at very moderate prices. These include brooches, necklaces, bracelets, studs, shoe-buttons, crosses, etc., in personal ornaments; clocks, paper-weights, small vases, all made of materials in high respect relief, representing the Adoration of the Shepherds, and the Nativity, valued at $7,000. A Cossack chief mounting his horse, being expertly spirited, and worked with microscopic and mosaic art, is valued at $1,000; a pair of cashmere mittens, admirably carved, and in the frame is the characteristic of work, which is quite common among the Russians, is novel and perfect in execution. It consists of a large block of gold and silver, on which lies a white damask napkin, which appears to be linen, but which is really silver, with the ornament of linen covered imitated so perfectly that the object is undetectable. In some, this napkin has a colored border, and in others it forms the edging of a large oval plate or a punch-bowl. None of the articles of this class is in any way bound up, but the great demand for linen and cotton necessitates the manipulation of the miscellaneous articles. Returning to the internal commerce of Spain, we find minerals largely represented, including all the known ores, coal, copper, argentiferous lead, slates, and lapis-lazuli from the province of Burgos, yellow and red cedars, quicksilver, malachite, blue copper, silver, and a large variety of specimens of coal and coke. The stones exhibited include alabaster, marble, granite and jasper; iron and volcanic products, such as coal, iron, Canary Islands; serpentine, gyspum, spar, whiteness, gristomax and jet; a considerable display of farragous, sulphur and other oxides, characteristic of the various provinces. Quite a number of exhibits are made in tiles and pottery for flooring; and there is some very fine metallic-work, handsomely burnished, in vessels, swords, boxes, etc., glass-chintz, chinaware, and finally, a large show of stained glass, including several specimens of glass exhibited by His Majesty the King of Spain; mosaic from Seville and the province of Terragona, JV & IV pitchers from Valencia, a fine vase from Murcia, and glass, chiefly from Barcelona, although some plate-glasses and a crystal lanterns are exhibited from the province of Santander. In furniture there is a dressing-table, a couch from Barcelona, and a dining-room sideboard from Madrid; wooden eaves from Havana are novel, and the articles manufactured from esparto-grass are also peculiar to Spain. In designs of an English catalogue of the Spanish articles, and owing to the fact that the Spanish catalogue, even, was very late in making its appearance, it is impossible to make a just showing of the really superb display in the Spanish section. It is proper, however, to direct attention to the fact that perhaps the most interesting portion of this display is in the fabrics and hues, which we have been able only to barely mention. Russia. The Russian section lies next to that of Spain, and between it and the Austria-Hungary department, and extends from the nave to the southern wall of the Main Building, comprising 11,982 feet of space. This section is in some parts one of the most interesting and important in the Main Building, and it must be conceded that although the Russian Government was slow in making up its mind to participate in the Centennial Exhibition, yet when it did decide, it acted with great energy and liberality. The Government undertook the payment of freight and insurance to and from Philadelphia, and all expenses of installation, including the purchase of space. No part of the Exhibition has more richly repaid careful study; and this chiefly from the fact that the Russian display differs from those of England and France, no matter how magnificent and costly these may be, in that it comprises works in the arts and manufactures hitherto totally unknown to Americans. A vast improvement in art-industry in Russia has taken place in late years, and it was only at the Exhibition of 1867 that this great country was able to make a display which would compete with the nations of Western Europe. All this progress has been owing to the School of Technical Design, founded in Moscow in 1868, and which makes a fine exhibition in the Russian section, displaying the system of education adopted, and the progress of the pupils, as illustrated in plaster casts, patterns for textile fabrics and wallpapers, and other art-works. It is in the richness and the magnificence of its exhibits that Russia strikes the observer as being superior to all other sections. Whether it be in the novel specimens of silverware or in the fantastic and elegant carved-ware, the massive and costly objects of malachite, or the superb fabrics, it is all grand and illustrative of lavish wealth and liberality. The cases of fur garments cannot be surpassed in the magnificence and value of the articles. Here is a Russian table-cloth, valued at $2,000, a fine foxskin cloak for $5,000; a pair of Thibet gauze, blouses and stockings; fox, silver and oriental cloak, trimmed with silk, wool, and beeswax; a fur of gossips in moss; beavers; ermine-stains; and on either side of the case two immense Russian bears standing on their hind legs, veritable "dumb-waiters." One holds in his jaws an armful of stockings worth from $90 to $60 a pair. Deer-horns chairs, upholstered, and stone-boxes of the same structure are here, and a little foot-stool covered with foxskin with the fox's head prominent. Above the case are two studded muffins. The silks, brocades and silk goods are rich and handsome, some the most magnificent being the rich altar-cloths and materials for priest vestments, red velvets and flowers of gold, black satin embroidery with flowers and gold figures woven with gold thread; silver clothes—alot of the heaviest and richest fabrics to be seen anywhere. The Russian Department opens at 6 A.M. with a beautiful show of gold and silver-plated ware and jewelry. Here are plain bands of gold, set on the edge with rows of pearls and turquoises. Here, too, are many original and silver or gold, or heavy gilt, curious repousse work, the figures of which are beaten out by hand from the molar sides, and any quantity of silver bowls lined with silver, and plated on the outside, and turquoises, gold knifes, cigar-cases, inksstands—in fact, all conceivable articles in ornamental work. Next to this is the show of malachite, jasper and lapis-lazuli. This is a peculiar Russian industry, the articles being fashioned from a variety of ornamental stones found in the Ural Mountains, although some of the stones used come from Bohemia. Very few articles have an ornament as costly as the others, than these. Here is a large mantel of malachite, with a mosaic front, comprising perhaps twenty different stones, with carved fruit-work, and which is worth over $6,000. Malachite vases, about 3 feet high, each cut from a single block of stone, cost $4,500 a pair, while the smaller size, about 18 inches high, is valued at $2,500. The malachite and lapis-lazuli vases range in price between $500 and $1,000. A great variety of small articles are made of these stones, and are sold at very moderate prices. These include brooches, necklaces, bracelets, studs, shoe-buttons, crosses, etc., in personal ornaments; clocks, paper-weights, small vases, all made of materials in high respect relief, representing the Adoration of the Shephers, and the Nativity, valued at $7,000. A Cossack chief mounting his horse, being expertly spirited, and worked with microscopic and mosaic art, is valued at $1,000; a pair of cashmere mittens, admirably carved, and in the frame is the characteristic of work, which is quite common among the Russians, is novel and perfect in execution. It consists of a large block of gold and silver, on which lies a white damask napkin, which appears to be linen, but which is really silver, with the ornament of linen covered imitated so perfectly that the object is undetectable. In some, this napkin has a colored border, and in others it forms the edging of a large oval plate or a punch-bowl. None of the articles of this class is in any way bound up, but the great demand for linen and cotton necessitates the manipulation of the miscellaneous articles.
THE FRENCH ART GALLERY IN MEMORIAL HALL
The department allotted to the exhibits of Austria and Russia is located near the south wall of the Main Building, and between the Russian and German sections, occupying 24,970 feet of space.

This collection commences with a magnificent show of glass-ware and a display of meerschaum pipes and amber, with valuable minerals and fossils.

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Austria.
something as perfect in its line as the productions of this porcelin-ware manufacturer.

The porcelain manufactory of Count Thurn, in Bohemia, displays dinner-table, coffee and washing services richly decorated, and other porcelain articles in great variety. This manufactory was established in the year 1746, and until 1820 its production was confined to tobacco-pipes, cups and saucers, plates, etc.; but after 1822 being charted by the Government, it began to produce dinner and coffee services, and other articles for use and luxury. The average number of 400 workmen are employed, and the daily article being about ten hours. This establishment makes richly furnished services, furniture knobs, buttoms and ends, and many other articles, to the value of about 2,500 florins a day.

A manufacturer of Prague exhibits miscellaneous wares, including pyramidal obelisk-stones, camaled; also figures and statuettes. Another firm in the same line. This manufactory employs from fifty to sixty workmen. Handsome exhibits are made of cabased and other-wise ornamented leather goods, ornamen and other ornamental work in jewels, cards, receivers, etc.

In jewelry a very fine display is seen, including gold and silver, nickel and enamel. Two cases are especially admirable in their contents of trinkets and garnets in jewelry, as also a case of garnets and ear-phones. Gold chain work is exhibited, also cut opals in some magnificent speci mens. The Boheman garnet articles are being a specialty. A large case of imitation gems of great brilliancy and peculiarly excellent workmanship has attracted considerate attention.

In bronze there is a joint exhibition of manufactures in Vienna, including cand chalices, candlesticks, vases, vases, writing-table furniture, photograph frames, fancy ornaments, etc., in large variety. The exhibition of mother-of-pearl articles is also considerable, and is a joint display on the part of Vienna manufactures. It includes mother-of-pearl buttons and fancy articles of all sorts. A small case containing crystals set in ivory, also in buffalo-horn, is curious. A specimen of wood-carving has also attracted much attention. It represents the Emperor Maximilian 1, entering Vienna after the departure of the Turks in 1490. It is about 22 x 15 inches in dimensions, and is exquisitely carved.

In the Austrian department is seen the largest show of chromos exhibited in the large variety. The exhibition of mother-of-pearl articles is also considerable, and is a joint display on the part of Vienna manufactures. It includes mother-of-pearl buttons and fancy articles of all sorts. A small case containing crystals set in ivory, also in buffalo-horn, is curious. A specimen of wood-carving has also attracted much attention. It represents the Emperor Maximilian 1, entering Vienna after the departure of the Turks in 1490. It is about 22 x 15 inches in dimensions, and is exquisitely carved.

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The exhibited product of the German Empire in 1873 amounted to $35,000,000. Germany manufactures cloths of all sorts, from the highest finish to the plainest quality. Specialties are buckram and other cloths of excellent quality, while the wool manufacture of Blumenberg, Saxony and Silesia is of repeat everywhere. Certain towns are renowned for military cloths, while others manufacture cloths for hunting, limings, as also for light tissues for ladies dresses, large quantities of which are exported to China and Japan.

In worsted wool yarn and in mixed fabrics Germany is also prominent, and by the manufacture of Alsatian, the country has been curtailed by that province, in which wool-spinning is highly developed. The chief localities of this industry are Saxony, Silesia, the Rhine Provinces and Austria. The principal market for these goods is America.

The Elberfeld cloth has a high reputation, Germany supplies annually woollens to the value of about $5,000,000 in its manufacture.

A joint exhibition of Elberfeld Manufactures displays this industry fully. The cloth manufacture is represented by Berlin, as also by the manufacture of flax for dresses and drapery, which is a Berlin specialty. The German mills are in the second or third story of the city of Cologne. The establishment dates from 1709. Since the end of the sixteenth century, and until the present time, has contributed to Europe an annual product of the value of $5,000,000 per annum. The production goes back as far as the sixteenth century. These include articles of bone, ivory, shell, and horn, as well as wood, bone and tin. In only a few cases is the manufacture carried on upon a large scale; usually it is done in the families. The production of paraments, brushes, broomlets, pipes, etc., in this way is enormous. 200,000 cakes, valued at $400,000, are made every year in these towns. For this end 750,000 horns, 200,000 pounds of ivory, and 100,000 hoofs are worked up. The exportation of toys and novelties is valued at $2,000,000.

Another German specialty is the manufacture of toys and small goods, in which trade Nuremberg and Firth are the chief centers. The national costumes of many, and was prominent as far back as the twelfth century. The wool manufacturing industry of Germany is situated principally in the Rhine Provinces, Westphalia, Saxony and Wurttemberg, but more in Alsace, which possesses no less than 3,000 establishments for the manufacture of this material.

The exhibits in textile industry are very numerous, and although not especially attractive, are interesting as showing the progress in this important branch of German manufacture. It should be remembered that the manufacture of wooden cloth was developed at a very early date in Germany, and was prominent as far back as the thirteenth century.
Berlin, Frankfort, Dusseldorf, Halle, Stuttgart and other principal cities, and include a great number of finely illustrated works in architecture and the fine arts, natural history, miniatures, etc.

Normberg, besides its toys, has been an important seat of the manufacture of mathematical instruments since as far back as the fifteenth century. Single establishments make as many as 4,000 of these instruments per annum, and there are about sixty such shops in Normberg. The clock industry is similar. It is established chiefly in Schwarzwald, and dates from the end of the seventeenth century. About 14,000 persons are engaged in the industry.

The chief cities of the musical instrument manufacture are Berlin, Leipzig, and Stuttgart, Hamburg, Dresden and Munich. German organ-building is represented by Walcker and Co. The manufacture of string instruments is comprised in a joint exhibition. A special exhibit is that of the Wartenburg towns of Trossingen and Kissingen are famous. This completes the description of the German section.

France.

East of the centre transept, and extending from the north wall to the nave, occupying the space of 4,444 feet, is the section devoted to France and her colonies, second only in extent among the foreign divisions to that allotted to Great Britain.

The collection of French exhibits commences at the transept on the nave with the exhibition of bronze and silk, these latter being presented in an immense and elaborate display. A short writer says of the French Exhibition that "if the Berlin porcelain was taken out of the German section, and the Eltlingston silver and porcelain, and the Doulton ware out of the English, in respect to beauty, the space occupied by these countries would rank with that of France very much as a potato field does with a flower-garden." This criticism is both severe and precise. It is intended to indicate the peculiarly quick perception of beauty which is characteristic of the French people, and which is exhibited by them through the entire range of their manufactures, so that the construction of articles which on account of their uses are elsewhere entirely commonplace, is there elevated almost into a fine art. Thus the predominance of articles of real beauty, such as bronze, there are velvet and silk ribbons, lace, embroidered silks, stuffs for church ornaments and upholstery, covers, tissues, buffets, and in fact all the possible combinations and preparations of silk.

In the direction of laces there are, besides those lace materials which are marvels of beauty, and garnished made from the most costly tissues of this character, specimens of Alencon which belonged to the Marquise de Pompadoire in 1768. Here, too, are instances of almost incalculable fineness for robes and vests, gowns, farthingales, garnishings and other costly exhibits of this class. The peculiar work of the carved loom is exhibited in silk pergamina, including the inventor of the loom, President Lincoln, and other distinguished persons.

In bronze, although some of the most celebrated of the Paris houses are not represented, there are fine pieces copied of old works, by Marschand and others. One of the best statues is Bourgeois's "Negro Slave-charmer," which gained for the artist the Prix de Rome in 1852, a prize which means two years study in Rome at the expense of the French Government. Another work of this artist is the "Kalybde Lansdown," which represents a half-naked woman stepsing upon a pile of tangled linen, upon which she pours water from a pitcher. Two other figures represent Egyptian scenes showing indoor instruments.

Another good work is the "Boy and Tortoise," which received a gold medal at the Paris Salon last year. A nain-boy, life-size, has discovered a tortoise, and is shown on his knees on the rock, cautiously picking up the sluggish animal. One of the most costly and imposing art exhibits in the entire exhibition is Marchand's monument made of black marble and bronze, 16 feet high and 11 feet wide, its principal decorations are in verd-antique and gilt bronze. Under the cornice and in front of a dead-black table, being a Pompeian border in gold and colors, is a gilt statue of Minerva; and at either side of the fire-place a figure representing one of the Graces sages. The price of this is $10,000. Another costly article is a large circular sofa, in the centre of which is a fountain in real antique marble, surmounted by a bronze caeladulum. The uplight story is green satin.

Some very handsome bronzes are also exhibited by Suse Fragon, the chief piece of which is a colossal bust of Washington, cast in one single piece. The expression of this is noble and heroic. Another fine piece of work in this

BREWERS' HALL. -- EXTENslON OF THE BUILDING.

BREWERS' HALL. -- MAMMOTH VATS.

BREWERS' HALL. -- ROCK BEER.

Corinthian pillars, vases, &c. A variety of musical instruments are in this department; time-pieces are also largely represented by a great number of clocks of all kinds, sizes and material.

As in the case of Austria, there is a handsome show of chromos, and the book-trade, for which Germany is celebrated, makes a very full joint exhibition of articles illustrative of this important industry, exhibiting exhibits of different methods of illustrating—such as xylography, engraving, lithography and color-printing, and photography as applied to book-making. The book exhibits come from Munich, Leipzig (which is the great German book centre),
of great fineness and most elaborate and artistic treatment. The display of android and other tapestries offers several large, complicated and elaborately woven exhibits of great beauty. In the pottery department are two massive pieces designed to commemorate the Centennial of the country.

The exhibits of furniture are scarcely characteristic or illustrative of present styles. A large house of finely carved walnut in the Louis XV. style, costing $5,000, and a cabinet of ebony and lapis-lazuli in the style of Henri IV., marked $6,000, are prominent objects in this class; but, except some pretty tables and secretaries inlaid with porcelain tiles and a few gilt frame mirrors, with a wardrobe or two, rather elaborate, there is nothing of importance.

The collective exhibit of the French publishers is full, and both interesting and showy, including the names of Alfred Mane et Fils, of Tours, Delagrave, Jaoust, Gauthier, Villars, Hachette & Co., Guillaumin & Co., Morel, Bonnard, the Collection of the Bibliothèque Charpentier and the Cercle de la Librarie, all these latter of Paris. The books exhibited in this collection have been presented in the best possible manner, under the direction of M. Terrasson, the courteous and accomplished gentleman in charge of the interests of the French publishers at the exhibition.

Among the houses here represented are some dating back into the last century, while very many of them are from twenty-five to fifty years of age as business establishments. Among the books exhibited many are the most elaborate and magnificent specimens of the art which have been issued. Prominent among these are the works exhibited by the great house of Mans, founded at Tours in the commencement of the present century, and at present in the hands of M. Alfred Mane, whose name for a quarter of a century added to its former business that of general literature. It is, however, chiefly famous for children's books and works of education, although many of the most celebrated French works have gained added popularity from the publication of their works by this important establishment.

The establishment of Morel is noted for its magnificent works of art, prominent among which are the "History of Industrial Arts in the Middle Ages," by Lebarte, the "History of Russian Ornament from the Tenth to the Sixteenth Century," by Boutowsky, important and costly works of French painters by this author; also the Basilewsky collection and that of Burgoyne. This house, in fact, should be considered among the most important in book-publishing the world over, since it is enabled to place before the public works so costly as to be beyond the means of minor establishments.

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deserves mention as being comprehensive and largely illustrative of the best results at present attained in this art. To conclude our very vague report of the French exhibition, we should mention the glove-case of Jouvin, and the considerable display of chemical manufactures, perfumes, medicines, etc.

On many accounts, and for various reasons which will occur to any one who has glanced through the foregoing summary, the French department is one of the most difficult to describe in a limited space, and certainly the most impecunious to receive justice in a briefly written account. After all, silk, linen, china and glass-ware, and most of all jewelry—of which we have said nothing—must be seen to be appreciated. It is only in the case of peculiar and conspicuous individual exhibits that description can be attempted. It may be concluded, however, that France, if she did not altogether do entire justice to herself in the exhibition in the Main Building, has at least done all that could be demanded for us in the beautiful and costly articles which she there brought together.

Switzerland.

East of the French department, north of the nave, and occupying 6,460 feet of space, is the section devoted to the exhibits of Switzerland, ranged in a series of courts, enclosed by plain show-cases, painted deal, and without ornament. Beginning at the nave, these courts may be described as representing the following classification of exhibits, viz.: Watches, education, embroideries, textile fabrics, wood carvings and chemical products.

At the rear of the section, by the north wall, is the office of the Swiss Commission, a pretty little one-story building. The section contains the exhibits in this floor of the Main Building. The geography, and history of point in its geographical and free hand drawing, finally enlarged in its position in the Swiss section in the Main Building is remarkable. In St. Gall is the "Voluntary School for the commerce in which is to be, presumably, the business of the members with the products of the cantons of Switzerland, and it is therefore natural that this great manufacturing interest should be given a prominent position in the Swiss section in the Main Building. The court containing the exhibits in this department is the first which you enter from the nave. There are 45 exhibitors of watches, chronometers and parts of watches from the cantons where this is the chief industry. The exhibits include gold and silver watches and chronometers of different shapes, watch-dials, stones, detached parts of watch-dials, enamelled watch-dials, precious stones and jewels for watch-ornamentation, movements, watches of platinum, watch-springs, tempered steel for spirals, various complicated and precision watches, ladies' watches, etc., including also machines and tools pertaining to watch-making. From the cheapest silver watch-case up to elaborate pieces of mechanism, which strike the hour and the minute, and tell the day of the month and the phase of the moon, all are here. Here, too, are watches so small that they are inserted in finger-rings and in charms for ladies' chains, one watch being even contained in a gold pen-holder. This one has

The manufacture of cotton goods occupies upward of 1,000,000 spindles, 4,000 looms and 20,000 operatives, besides 8,000 hand-loom weavers. Switzerland is noted for its educational facilities, as in no other country is elementary instruction more widely diffused. Parents are compelled to send to school their children of from five to eight years, but not above that age. The number of clubs for scientific, literary, and musical and social purposes is incalculable. In St. Gall is the "Voluntary School for the Improvement of Merchants' and Artisans' Appointments," which, starting from a Sunday drawing-school, was so modeled in 1869, and opened under its new name, being finally enlarged in its scope in 1881. When we speak of geometrical and free hand drawing, modelmaking in wood, clay, etc.; arithmetic and bookkeeping, modern languages, geography, and history of commerce, etc. Popes are received into this school after passing an examination and exhibiting school testimonials, having to pay the trivial amount of one franc for the Summer course and two francs for the Winter course, which goes toward defraying the expenses for writing and drawing materials furnished to the school. Another interesting and peculiar feature of the Swiss educational system is known as the "Swiss Unions of Young Merchants," which exist in almost every town of Switzerland. These unions are designed to improve young merchants in a mercantile point of view, as well as in cultural essentials; and to promote good-fellowship and social intercourse among its members. An interesting and important feature of these organizations is the collecting of patterns and samples of works and raw materials for the purpose of acquainting the members with the products and manufactures, the commerce in which is to be, presumably, the business of their lives. During the last century watch-making has become the chief industry in the French-speaking cantons of Switzerland, and it is therefore natural that this great manufacturing interest should be given a prominent position in the Swiss section in the Main Building.

The exhibits consist of movements, watches, and elegant timepieces, both for personal and public purposes, illustrating the best results at present attained in this art.
three each 5.6 of a inch in di-
ager, indicating the time, the day of the
week, and the day of the month. Its price is $200.00. Watches are set in gilt cases and a little larger than this one, cost about $300.

The most valuable watch exhibited is priced $5,000.00. This is an hour, quarter and minute repeater, has an independent second-hand, and a calendar of the day, month and year, and shows the change of the moon. Watch-dials are designed which are valuable as art-works, being en-
graved in the most artistic manner in gold of different colors. Watches are pro-
perly classed in the Swiss catalogue as scientific instruments, in which department there are exhibited mathematical drawing instru-
ments, hygrometer, thermometer, telegraph apparatus for controlling the speed of railway trains, regulator for tele-
graphic clocks, microscopes, level instru-
ments, tower clocks, and a double dial clock for postal stations. The Swiss are cele-
brated for their mechanism, and a bonbonier, dealing in the arts of carved oak, containing a clock, a massi-
box and a singing bird. This next court is the Swiss section, and there are numerous ex-
hibitions of education, combined with those of engineering and architecture. Here every child in the primary grades is taught wood car-
ing engineering matters, and in fact in this direc-
tion a vast variety of material of the hand-carving, the beautiful subject of that all-im-
portant subject—education.

Next come the laces and embroideries, including very beautiful white and colored lace, which represent patterns, and em-
broideries—of great ingenuity and richness—upon white
 goods, silks, woolens and velvets. The curtains are marked at various rates, between $20 and $2,500, with the duty added. The band, or ribbon, is a most beautiful silk, while the entire display of lace and cotton goods, silk
 and handkerchiefs come next, the latter finding their market chiefly in Oriental coun-
tries. Among the latter are the Flemish cluny, knitted
 jackets and undergarments, colored shirts, and vine-lace.

A considerable space is taken up with panama cotton and
jute manufacture both of the Middle and South American countries. The jute dates back for many generations, being
brought from the Orient to the United States during the
Winter season, when there is no cooking work that can be done. The jute fiber is employed in this industry are few, being chiefly in the manufacture of mats, rugs and oil-cloth. This material is also used for making
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exhibitions, four of those having been held in the capital of the Empire, Rio de Janeiro—the first in 1861-62, the second in 1869, the third in 1875, and the fourth and last commencing on December 24, 1875, and closing January 12th, 1876. These were all inaugurated by His Majesty Don Pedro, and were preceded by exhibitions in the capitals of certain provinces. Products selected by a jury of the capital from the empire were also sent to the International Exhibitions of London, Paris and Vienna. The Imperial Government is organizing general and special agricultural and other exhibitions, to regulate industrial exhibitions, in order to make them a permanent institution, and to erect a vast building adapted for the purpose. An association of exhibitors has been organized at Rio de Janeiro which has efficiently assisted the Brazilian Government in the last two exhibitions. Further, the Association for the Promotion of National Industry held a horticultural exhibition, the first of this character ever organized in South America, in 1871, and which was inaugurated by the Imperial Princess Regent, in the absence of the Emperor. A sufficiently large capital has been created to permit similar exhibitions being held annually.

It is especially flattering to the Centennial Exhibition that the Emperor of Brazil should have appointed as President of the Brazilian Commission to Philadelphia His Royal Highness Gaston d'Orleans, Count d'Eu, the son of the Duke de Nemours, and a Marshal of the Brazilian Empire, inaugurated by the Imperial Princess Regent, in the absence of the Emperor. A sufficiently large capital has been created to permit similar exhibitions being held annually.

The exhibits of Brazil in the Main Building are classified into feathers, flowers and jewelry, education and science, manufactures, leather and hats, mining and metallurgy. The arrangement of the section is light, airy and elegant. Near the entrance are cases of costly books admirable in workmanship and rich in binding. The display of minerals, ores, building-stones and mining products contains specimens from all the different provinces, including marbles, some curious specimens of stalactites, samples of colored agate, obsidian, sylvanite and other minerals, including gold and precious stones, including specimens of gold and amethysts, gold-dust, etc., is considerable and interesting.

Mining engineering is illustrated by collections of geological photographs and maps. The exhibits in manufactures begin with a display of chemicals, including essences, flavoring extracts, perfumery, toiletries and pomades. Pottery and porcelain are illustrated by articles especially noteworthy for their elegance and the perfection of their workmanship. Some of these are terra-cotta vases, including the Etruscan style. In furniture an attractive exhibit is a complete set for the parlor, after the Brazilian style, manufactured of jasminas and rose-woods, and containing one sofa, four arm-chairs and twelve chairs, all carved. There are also articles of furniture made by the inmates of the House of Correction of Rio de Janeiro. A secretary of cedar-wood and a small work-box inlaid with different woods are very handsome native specimens. One exhibitor sends chairs made from the genipapo, a native wood. This manufacturer employs about 120 workmen, using only Brazilian woods in his manufacture.

Some tortoise-shell boxes, straw articles, caps made from the gourd, varnished and colored, and others made of ox- and other woods, with a curious collection of small artistic objects made from pine-tree-knots, are among the curiosities, as are also some carved coconut-shell flutes. A number of hammocks trimmed with feathers, made in the provinces of Paraná and Amazonas, are sent from Rio de Janeiro.

A considerable exhibition is made of cotton goods and other fabrics, and though these are not up to the standard of English or American manufactures, they are interesting as showing what has already been done in this important industry, and as indicating that with an abundant possession of the raw material, improvements may be readily made.

Hats and caps make a considerable display, including a number of hats manufactured from different native reeds and grasses, and even from feather, besides the ordinary black bowler and silk-lined gray beaver and top-hats, which display a very favorable condition of this trade. A large number of feather articles, including fans, ornaments, eulogists and insects mounted in gold, in which department Brazil has no rival in the world, presents peculiar industry in a favorable shape.

There is also a collection of Brazilian newspapers, reviews, and other periodicals, musical works, an exhibition of insects, a few philosophical instruments, one or two musical instruments, and a considerable exhibit of drawings, plans and profiles illustrating public works of Brazil. This collection closes with a display of medals and Brazilian coins.

The educational exhibition comprises specimens of writing, drawing, and other handiwork; a collection of text-books and theses; a variety of educational books, and drawings and models made by the cadets in the Naval School of Rio de Janeiro; the books used in the lower and higher schools of the empire exhibited by the Instructional Board of Rio de Janeiro; specimens of book-binding; maps and charts; a collection of writings and drawings by the deaf and dumb; and geometrical figures, shown by the blind boys of the Imperial Institute for the Blind of Rio de Janeiro. There is also a collection of Brazilian newspapers, reviews, and other periodicals, musical works, an exhibition of insects, a few philosophical instruments, one or two musical instruments, and a considerable exhibit of drawings, plans and profiles illustrating public works of Brazil. This collection closes with a display of medals and Brazilian coins.

The Netherlandish section in the Main Building lies between those of Brazil and Mexico, north of the nave, and includes exhibits of its East India colonies, comprising in all the space of 15,450 feet. The Kingdom of the Netherlands is 196 English miles in length by 110 in breadth, being a little smaller than Switzerland, although it contains 1,000,000 more people. Almelo has hitherto been made in this week to the dike of the Netherlands, the greatest of which are those of the Helder and of West Capell, on the east coast of Walcheren. These dikes and the national hydraulic works are in the charge of special engineers; and, as the public works of the Netherlands are numerous and important, the exhibition in the Main Building begins...
GENERAL VIEW OF THE SOUTH NAVE OF MACHINERY HALL.
represented by exhibits of lacquer and inlaid screens and latter as is comprised in tiles and other material for archi-
cabinets, native woods, war weapons, furs and fabrics.

126 different establishments. The Netherlands colonies are colonies. This entire collection is important and thoroughly years ago, and representing most of the chief cities and towns
tion of educational works, including a number of Egyptian exhibits include works of bibliography, theology, geography
or such articles. What there are include picture-frames,
or such articles. What there are include picture-frames,

The Mexican exhibit is not of a collective system or official character; neither has it a historical aspect, by means of which might have been pre-

The Mexican exhibit is set up in the State of Oaxaca, and it is in the City of Mexico at 5 ft a pound. A native resin is burned by the Indians as a perfume. Another is used for the preparation of illuminating gas and the manufacture of soap. A new elastic gum called the Durango caoutchouc, is the product of a plant which flourishes in the State of Durango. Like the genuine india-rubber, it hardens with sulphur and resists fire.

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of cane, prepared from that material. Cocinilla is sold at an average price of $36, a pound. Specimens of vanilla-beans come from the State of Vera Cruz. The value of the production of this fruit in 1872 was about $500,000. As to coffee, it is alleged on good authority that in Mexico there exists the agricultural produce in this fruit which can be consumed in the United States, and of a quality equal to the best grown in my country. In Mexico, coffee is cultivated with success at the elevation of 1,500 feet, and is found even still higher on the eastern coast of Yucatan. Collections of yew trees will grow near the sea level, as well as in many other localities. The adaptability of Mexico as a coffee-producing country has been shown by more than fifty years of cultivation. That it has not assumed its place in the list of important coffee-producing regions is reasonably attributed to the same causes which have retarded all commercial and agricultural development in the country. In the coffee-exporting provinces, the value of the coffee exported from Vera Cruz, however, increased from 6,072,000 pounds in 1871, to 5,597,000 pounds in 1875, the coffee exported from Vera Cruz being all grown in that State. The average price of the coffee exported by government bonds can be taken up at from $2.40 to $2.50 per centlibale, a Spanish measure of about 105 acres. Wages are reported at 25c. per hour. The coffee exported from Brazil is more than three times as much as that of the gold and silver product of Mexico. The main collections of this fruit are from Colima City, Coa- do, and San Luis Potosi.

ITALY.

The section devoted to the kingdom of Italy, in the Main Building, lies at the extreme western end of the building extending from the transept opposite to the sections of the Argentine Republic and Italy.

In minerals Italy displays marble and alabaster, cement, limestone, lithographic stone, sulphur, coal, and a few specimens of metals, such as native iron, copper, and iron. Quite a display of chemicals is made, sent from Naples, Turin, Palermo, Fidena, Pisa, Milan, and other cities. This includes sulphurous products, soda, sea rock salt, cream of tartar, soda, linseed, bitumen of Brescello, in ancient sawn and woven silk; Messina, overcoats; and Milan, also silk velvets.

The wood-carving displayed is particularly artistic and executed. Of these there is a mass of ornamental objects. They have also one or two large pieces, a fireplace and toilet-seat elaborately ornamented. Most of these are the work of one man, but very excellent bit of work is a statue of St. John, a copy from Donatello, which shows some fine modeling and very beautiful enameling. It is a noteworthly article. Another is a Pilgrim bottle, decorated in two shades of blue, which is very graceful.

The best of this ware comes from Ancona, and is exhibited by Cesare Milliani, which is for sale at very close and successful prices. Reproductions of Urbino ware from Florence, by Torelli, are quite brilliant in color. Useful articles exhibited are Legnanesi, buttons, zithers, clocks, watches, buttons, beds, etc. Cremona violin, 171 years old, sold to have belonged to Paganini, is exhibited, and is for sale at $9,000. Quite a large number of beautiful pictures are shown in this section, in dimensions, and marble ones in the beauty and accuracy of coloring. One large case is filled with gold and silver filigree articles from Genoa.

In the jewelry collection, a heavy necklace of diamonds and rubies, set in silver, and a similar one of pearl, surrounded with smaller diamonds and rubies on filigree, have attracted a great deal of attention, as has also a massive necklace of gold and sapphires, which was sold to two cachet books for $4,000. Some jewelry in the Etruscan style is exhibited by Signor Castellani, whose exhibits in Memorial Hall has been already described. The tortoise-shell and conch-shell work in ornaments is very fine and pleasing.

The collection of marbles includes more than 100 varieties displaying the most beautiful colors. Quite a remarkable article is a carved and polished marble bust of a woman, very excellent bit of work, an age of 1,000 years. The bust was executed by the family of St. John, a copy from Donatello, which shows some fine modeling and very beautiful enameling. It is a noteworthly article. Another is a Pilgrim bottle, decorated in two shades of blue, which is very graceful.

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single, newspaper, *Lo Dong*, is the contribution of Signor Beccari, of Bologna.

The articles of greatest interest and importance in the Beccari section are certainly the cabinet and various objects; the work in terra-cotta, and a few of the ceramic specimens. In other directions it will be seen that the exhibits of Italy are surpassed by those of other countries.

**CHINA.**

The Chinese section in the Main Building has proved to be one of the most attractive in the entire exhibition, and compares favorably with that of Japan in the curiosity and interest which it excites. This section is third in numerical order from the western end of the building, and comprises an area of 5,844 square feet, extending north of South Avenue, between columns 5 and 11. The arrangement is comprised as follows: At the western end are the chinaware, fans and skins; the trade collections; at the eastern side are the furniture, woodwork and carvings; in the center are the silk and satin, the cloisonnes, and bronzes; and in the rear part, the office.

This section owes much of its importance and value to Hu-Quang-Yung, of Shanghai, an eminent Chinese, a pink-tstonnes-varen and bronzes; and in the rear part, the office.

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The display of artificial light through an ornamented and pictorial medium seems to be a part of the very existence of the Chinese. Lanterns form a portion of the belongings of every family, and appear at every festival, while the "Feast of Lanterns" is one of the most characteristic, gorgeous, and impressive institutions of the country, and probably attracts the largest crowd of any demonstration, whenever it occurs.

I have already mentioned that the display of this article is a fair one, although not as complete as could have been expected. The grade of the goods exhibited are not familiar, and will repay inspection. The figures are large, beautifully worked, and the fabric has a brilliancy and firmness of appearance seldom seen in the products of other lands. Some of these have silk sides, some are made of bone, and others of silk, richly embroidered. The lanterns all come from Canton. Some curious antique bronzes in the rear part of the section are noticeable, one of these articles being certificated to be eighteen hundred years old. The bronzes include vases, bells, bowls, teapots, and numerous articles in shape of animals. There are also bronze incense-dishes, altars become birds, vases, and a pair of bronze idols from Foo-Tin.

In the manufacture of silk, China had for ages the monopoly of the world, and it is largely used as a staple for clothing by all but the richest classes of the population. Among the exhibits of silk are rose yellow silk, raw silk, cocoons, brown silk, etc. Then there are plain woven silks, interlaced satins, brocades, damasks, reds, yellows, and maroons, etc., confined to four provinces. In Shantung it is manufactured a curious kind, known as "Shantung pongee," which, for its cheapness and durability, is much prized as an article of Summer clothing by both natives and foreigners, valued at $5 per piece of 32 yards. Then there are figured satins, consists, brocades, silk, silks, damasks, shawls, harness, etc., and striped gauzes, sheets of embroidered silk, scarfs, etc. But silk is not the only fabric in which China makes a satisfactory exhibit. For one thing, it has the faculty of making a fabric from asbestos, a fire-proof material, by weaving the fibre with cotton or hemp. Then the grass-cloth, which is a native specialty, is manufactured from the fibre of several plants, which are classed in China under the generic term of "sea." The principal sorts of the grass-cloth manufacture are the province of Kwang-Tung, Kansu, Nei-Hang, and Kiang Si. That of Canton, Swatow, Kinkiang, has ports of shipment. There are many varieties and qualities of the article, varying in price from eight cents to one dollar and twenty cents per yard. The coarse kinds are exported in small quantities to Manilla and Singapore, where, as in the case in China proper, they are extensively used as materials for Summer clothing. A number of pieces of grass-cloth, white, blue and yellow, are exhibited, as also grass-cloth handkerchiefs, embroidered and plain. There is also a piece of cloth exhibited from South France. Matting is another important manufacture of China. It has a texture made from reeds, the natural color of which is greenish-white. These are not bleached, but become white in use. To produce the different patterns, the reeds have to be dyed before: being woven, the colors employed being red, yellow, green and a very dark-blue. The chief seat of the matting industry is the province of Kwang-Tung, and it is shipped via Canton to the United States and Great Britain, the average value being $1 per roll. Specimens of the patterns most in favor here are exhibited from Canton. A number of exhibits of cotton cloth and muslin are made. Cotton cloth gets the name of "musket" from Nankin, where the manufacturer is said to have been begun, and where the finer kinds are still produced. This manufacture, however, is carried on everywhere in China. Each piece of cloth is 38 Chinese feet long, and from one foot three inches to one foot four inches wide, and an industrious worker can make a piece in twelve hours. The cloths are of all colors, blue.
being most in favor. It is made in hand-looms, worked principally by women. One piece is sufficient to make a short jacket and a pair of trousers, which are said to be twice as durable as those made of ordinary shirting, and are from Mantchouria. The clothing exhibits include stockings, bamboo undershirt, some women's and men's shoes, the women's shoes being small-footed, and valued at Canton at $1 per pair. There are also straw shoes, others of satin, of Mantchouria, and cut ox-hides and moccasins.

The jewelry and ornaments include filigree-ware, silver bracelets, necklace, cross and earrings inlaid with kingfisher's feathers from Foo-Choo, a set of jewelry of gold, pearl and coral complete, in an ivory box from Canton. A pair of bracelets, in ivory and gold, and earrings in the same materials. There are also gold anklets, pearl buttons, gold-plated ornaments for dressing the ladies' hair, from
of vegetables are considered cures for consumption and remittent fever. The under-shell of the land-turtle is taken as a decoction by the old and weak, and as a stimulant, as is also mustard-seed. To debilitated are attributed rejuvenating and highly nutritious qualities. One vegetable, with a totally unpronounceable Chinese name, is employed to work off the effects of drunkenness. Fragments of small crabs, crushed and powdered, are considered a specific in affections of the eye. That most useful of vegetables, rhubarb, is indigenous to China, and, in former times, Canton was the only port from which the drug was exported. The Chinese dig the roots only in the Spring, before the leaves appear, cut them into long, flat pieces, dry them for two or three days in the shade, and then string them on cords. Turmeric is used for diseases of the skin; also as a yellow dye in the preparation of tobacco, and, mixed with indigo or Prussian-blue—a fact which will be interesting to Americans—it is employed to color green tea, as also to season curries. Another of the Chinese vegetables is used to bring out the erection of small-pox; and also to color candles; while still another plant is found equally important in the curing of boils, and in strengthening the hair. From cotton-oil beans the typoid fever, ague and rheumatic headache. It is also taken by the person who has been bitten by a dog, for, as a preventive to hydrophobia. The article is valued at $150. Pearls are prescribed in affections of the heart and liver; also in dyspepsia, for which their virtue is exhibited, and can probably be obtained by such as are anxious to venture on those novel modes of treatment. A description of the Chinese articles would be totally incomplete if no allusion were made to the objects of value which are in constant demand. Of these there are several exhibited, valued at from 50 cents for a hand-going to $44 for a huge article. Two of these are in black-wood framed, beautifully inlaid with ivory, and with the inscription, "my name going, valued at 85 cents. Besides these, which are classed as musical instruments, there are, in fact, three strings; the hula, a string instrument, with string, a twenty-five-string fiddle; and then there is a clarinet, a mouth-organ, a set of cymbals, tambourine, flute, violin, viola, and wooden drums used by the Buddhist priests, and a set of three brass castanets with two trumpets and three clarinets, valued at Shanghai $3 36 for the lot. The collection of coins exhibited comes from Shanghia and Foo-Choo, and includes five specimens on seventy cards; four boxes, each containing gold pieces, and the collection on thirty trays including $16 coins.

The collection of ivory earings in small articles is very fine. China is the chief manufacturer of ivory, in the shape of pins, hair sticks, and cutlery. Then there are musical instruments made of ivory, and several of the most curious articles may be closed with two ivory book-cases, and stuck on the black-wood stand. Some curious pictures in water-color and applied on paper, are shown, representing the cultivation and manufacture of tea, occupations in the life, and industries of wealthy men, farmers, prospectors, hunting scene, and one painting of the Buddhist burial chamber, showing the eighteen punishments of hell, with a totally unpronounceable Chinese name, is exhibited. There a number of Chinese relics are shown from the ancient temple of Pekin, and the collection of curiosities may be closed with a lock of the imperial hair, and some other bronze idols also from Pekin.

SANDWICH ISLANDS.
The display from Hawaii is located immediately behind that of Tonin; and, for so young and so small a kingdom, is most creditable. The chronology of Hawaii begins in 1716. In 1779 (February 14), Captain Cook was slain by the natives. English trading with the islands, and the missionaries, had resided there seven years later, and though massacres occurred there, and human sacrifices were not infrequent in religious ceremonies, it is a new world, since the mission, and nothing, landscapes, flowers and fruits, silk manufacture, gambling, the theater, occupations of wealthy men, for the collection of curiosities may be closed with a lock of the imperial hair, and some other bronze idols also from Pekin.

BELIGIAN FURNITURE IN THE MAIN BUILDING.

Chinese export an oil which is used in the manufacture of soaps. A very costly galantine is made by boiling down deer-horns, after which it is employed as a tonic. One of the most important medicines in China, taken in spirits, is supposed to be a local treatment of any kind. Petrified bones are used for boils, sores, etc., sake-skin for smallpox, and catarrhal is employed in bronchial complaints; dried cow's gall is used as an expellant; the refuse of tobacco mixed with straw as a stimulant, and cow's ghee made from buffalo-hides, a sedative. There is, in fact, no end to the number of medicines used to work off the effects of drunkenness. Fragments of small crabs, crushed and powdered, are considered a specific in affections of the eye. That most useful of vegetables, rhubarb, is indigenous to China, and, in former times, Canton was the only port from which the drug was exported. The Chinese dig the roots only in the Spring, before the leaves appear, cut them into long, flat pieces, dry them for two or three days in the shade, and then string them on cords. Turmeric is used for diseases of the skin; also as a yellow dye in the preparation of tobacco, and, mixed with indigo or Prussian-blue—a fact which will be interesting to Americans—it is employed to color green tea, as also to season curries. Another of the Chinese vegetables is used to bring out the erection of small-pox; and also to color candles; while still another plant is found equally important in the curing of boils, and in strengthening the hair. From cotton-oil beans the
kingdom is Honolulu, with about 15,000 population. The coffee exportation of Hawaii is very variable, having reached 415,111 pounds in 1850, while in 1872 it fell to 39,570 pounds, and in 1874 was only 7,459 pounds. The total amount of exportation of domestic products reached $1,022,455 in 1874, and averages about that figure during the past ten years. It is a curious fact that the quantity of spirits consumed in the kingdom, which amounted to 7,862 gallons in 1853, had increased to 21,212 gallons in 1874, though there was a slight falling off in the following year. The exports of Hawaii comprise sugar, molasses, rice, coffee, kava, wool, calf, sheep and goat skins, and tallow.

The Hawaiian exhibits in the Main Building comprise most of the special and more curious products of the kingdom. There is, for instance, quite a show of native feathers, these being displayed more particularly in the case devoted to the exhibit furnished by Queen Emma, widow of the late King Kamehameha V. Here are wreaths and festoons made by means of attaching these feathers in their natural colors to strings, and thus forming them into any desired shape. Here, there is also to be seen a small kapa, made from these feathers, in yellow-and-black, which is very highly valued. Indeed a single wreath of this character costs $600.

There are a number of cans, some of which are delicate and ornamental texture. Some very pretty articles are manufactured of a peculiarly fine white straw, resembling rice-straw, and of cocoanut, and others of the same woods already described. Some very pretty articles are manufactured of a peculiarly fine white straw, resembling rice-straw, and of delicate and ornamental texture.

Japan.

The empire of Japan is governed by a supreme legislative and executive body, comprising the “Supreme Chamber,” or “Great Council of State,” over which His Majesty the Emperor presides in person, and which also includes the Prime Minister of State, the two great officers, and a number of councilors of state, with clerks, attendants, etc. Then there is the Deliberative Assembly, which has the privilege of investigating the action of the executive branch of the Government, and of reporting upon such action when found contrary to the laws and rules established, but which has no power to deliberate on the promotion or dismissal of officers. The officials and members of this Assembly are selected from among the members of the Imperial family and officers ranking above the fourth grade. Then there is a department for foreign affairs which includes the diplomatic and consular services, a home department, war department, naval department, judicial department, and court of appeals—the court which may exercise the power of the French Court of Cassation with that of the American Supreme Court. The dependent principalities of the Government are administered by a ruler, secretaries, and a Deliberative Assembly.

The population of the empire amounts to 33,500,675 souls, according to the census of 1874. This number is almost equally divided between males and females, the predominance of the former over the latter being only about 500,000. The whole country is divided into nine large districts, which are subdivided into 85 provinces, in which there are three cities—two of which are capitals—and 59 chief towns have been designated. Tokio (Yedo) is the capital of Japan and the seat of government of the empire. Its population is 506,966 inhabitants. A railroad communicates with Yokohama, and a telegraph extends to nearly all parts of the empire, and thence to Europe and America. Kyooto, the western capital, has a population of 238,663. There are at present six ports open to foreign commerce: Yokohama, Osaka, Hiogo, Nagasaki, Nippon and Hakodate.

The known history of Japan commences with the first year of the Japanese era, 660 B.C., since when the Imperial line has continued unbroken. The American treaty with Japan, which preceded all the treaties made between that country and the European nations, was effected in 1858, by means of the expedition under Commodore Perry. In the reign of the 121st emperor, who is now reigning, the controlling power of the government and the administration of affairs was assumed by him. Old customs, which had lasted for 700 years, were cast aside, as it were, in one day. The feudal system was abolished, and the monarchical form of government instituted. Many European and American arts and sciences have since been introduced, the youth of Japan have been sent abroad to America and to European countries to be educated; and it is stated that the present sovereign and his people are united as one family.

by bright or the ravages of some native destroyer. Other articles of wood construction are bowls of very pretty shape, some having covers, others without, and varying in size between a capacity of about a quart and that of several gallons. Those sold at Hounchah at prices varying between $3 and $20, the natives buying them very eagerly whenever offered at the public auctions, which take place there periodically. Still further contributions of wood manufacture are a number of cases, some of which are made of coconut, and others of the same woods already described. Some very pretty articles are manufactured of a peculiarly fine white straw, resembling rice-straw, and of delicate and ornamental texture.
in the promotion of progress and reform. The revenue of the empire, according to the last official statement, was $200,000,000. The exports in 1875 amounted to about $200,000,000, and the imports to about $300,000,000. The Japanese currency consists of the Imperial body-gold of 3.995 min, and of 37.81 min in silver. The navy comprises 20 vessels, manned by 8,775 men.

The museum, containing works of art, is free of charge to the public.

The collection of minerals includes gold and silver, iron, copper, and, in fact, all the metals, sulphur, alum, arsenic, saltpetre, sulphur, etc. There are also exhibited coal, mineral oils, building-stones, limestone and specimens of mortar. The minerals used in the manufacture of pottery and porcelain, including clay, sand, and silice, are also exhibited, as are samples of mineral waters, from the chemical laboratory of the city of Kyoto. Quite a number of chemical laboratories, containing works of art, are exhibited, as are the products of the most elaborate and ornamental objects of this material. An enamelled basin and pot; porcelain statuettes are also objects worthy of notice.

The silks exhibited are in rolls of 12 yards each. Two specimens are valued at $37 per yard. Some of the cabinet ware is very high-priced. Two small pieces are valued at $8,000; another, with carved drawer, $1,850, and a cabinet in this style of work is marked $5,000. A carved bedstead, with a beautful silk covering and silver and gold ornaments, is valued at $7,000.

One specimen of bronze is valued at $2,500. The bronze-ware is in the highest degree artistic and beautiful, while being at the same time of great value and original in design. The bronze vases are of the most elaborate and intricate work, abounding in grotesque objects of birds, beasts and human figures, mingled and strangely faithful reproductions of natural objects, familiar to every one. It is claimed that to make a copy of one of the smallest of the objects in this collection would be beyond the skill of the best French bronze founders. The work of the Japanese is very fine, the chiseling being neat, while the other is worked out by hand, with cutting and polishing instruments. The objects are of great value and skill. It is estimated that the work on one of the vases is equivalent to 2,250 days' steady labor of one man. When the fact is appreciated, the price asked, $2,000, does not seem extravagant.

The ground color of the fine vases is a dark slate. The grotesque in art, which seems to be a part of the very nature of the Japanese, is displayed in the most exquisite manner.

The articles of clothing are not numerous, but that under head come some curious hats made of the visors. There is a large variety of fans, folding and non-folding, walking-canes, pin-cushions, table-cloths and shawls, embroidered silk carpeting and imitable screens. Quite a number of articles in crystal are exposed, including necklaces, earrings, buttons, ornamented rings, and a magnificent spherical crystal about five inches in diameter. The stationary articles include writing-brushes, specimen papers, some of those being of platinum fibre and straw, thick colored and ornamented paper for writing, and wallpapers, some of which are made in imitation of leather.

The military articles include a coat of mail, swords, spears, halberds, bows and arrows. Under this class come also surgical instruments, dental instruments, and vehicles for the transportation of wounded men.

A good display is made in bamboo work and straw, including trays, vases, baskets, boxes, and sheet iron ware; also in ratten work and curio.

The bronzes include the large bronze fountain already mentioned—which is exhibited by the First Japanese Manufacturing Company of Tokio—bronzes statuettes, vases, censers, umbrella-stands, buttons, kettles, teapots, and imitable screens. In carved wood and ivory there are a number of very pleasing objects, including a beautiful model of the city of Kyoto, a carved wooden bedstead, a set of bathroom furniture, and small ivory images carved at Tokio. The infant work comprises articles similar to those already named; and the silver ware includes canestead silver goblets, silver cake-box, silver vase, a kind of censer, and various decorative objects of this material. An enamelled basin and pot: porcelain statuettes are also objects worthy of notice.

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marvelous conceptions imaginable, not only in the strange dragons and other unknown creatures delineated, but in the intricate life which are exceedingly comical.

On one of the largest pieces there is a platform just above the base, surrounded by a procession of women, each carrying a gold or silver rose about twice as large as her head. Above, on the right, are a number of scenes, with male characters; and above this on panels, in relief, are representations of hovering officials and high dignitaries. The handles are formed of dragons. In the case of one large vase, the handles are made by flocks of birds, which appear to be swooping down to alight on the mass of rocks at the base, regardless of a dragon just making his appearance.

The art of making these bronzes dates back two or three centuries; and the manufacture is carried on in no fewer than twenty-six places in the empire. The prices of the articles in the finest class of work range from $800 for a pair of small cases about 18 inches high to $2,500 for a single large piece.

Quite a number of urns and vases are from three to five feet in height. One urn, which is particularly noticeable, has a base in the shape of a twisted root, among the gilded projections of which are crowded dragons, serpents and turtledoves, while on the top perches a stork. It is observed that the modern bronzes of the Japanese exhibit very plainly the effect of the active communication with the outside world, which has obtained for the past ten years; since, although the ornaments resemble those of the antique, there is more strict attention paid to the taste of true artistic design, and what is best in the grotesque is gained in the esthetic.

The large bronze basin of the fountain at the entrance of the Japanese section presents a magnificent specimen of silver inlaying, all in hand-work. Perhaps the most remarkable of all the bronzes is one which stands in the eastern case on the first platform from the fountain, and which has been purchased at the price of $2,600. The design of this is intricate. A grotto of perforated rock rests in a sea which is around its base, the drops of spray of which is not bronze, but silver, and in and through which fish are swimming, crabs crawling, and two enormous lizard-like dragons writhe themselves upward. Upon the top of the mass of rock rests the cask which forms the bowl of the vase. It is about 18 to 20 inches square, with the most delicate raised work imaginable on its sides. On one of these is the ancient story of the spider and the fly. From the opposite side a cat with golden eyes pursues a mouse. It is to this vase that are attached for handles the heads and trunks of elephants. A favorite connection with the bed of the vase, its foundation is a succession of serpents twisting about each other. Sometimes upright bronze figures support the bed of the vase, displaying evidences of the influence of European art.

A striking exhibit in this department is a tall candleabra made of a sort of bronze, representing storks holding aloft broken branches in their bills. The workmanship displayed in the long, feathered plumes of the birds is very delicate. A common form is an idol mounted on some undecorated animal, as a stag. These articles, as well as certain large copper, bronze articles, etc., one of a lighter color than the modern bronzes, and are generally three or four hundred years old. One of these, a pair of pagoda mounted on the back of an animal something between a hippopotamus and elephant, has been purchased by President Cleveland, of the Centennial Commission.

The mode of casting bronzes is as follows: The model is painted all over with a coating of fine sand held in the broken branches in their coats, so as to fill the most minute space. Sometimes a gold or silver rose about twice as large as her head.

The designs of the older pieces are less grotesque than those of the antique, but they are more natural, and the old masterpieces cannot now be duplicated. Here, for instance, is a cabinet 350 years old, heavily ornamented with engraved silver plates; $5,000 is the price of it. In the shops of our large cities, there are not more than half a dozen of similar cases on exhibition. There Japan was represented by a few bronzes, and those of older date. The wonderful pieces now on exhibition have been mostly produced for the occasion.

The display of porcelain is only less beautiful and wonderful than that of bronze. This art was brought to high perfection in Japan long before it was known in Europe. The entire exhibit of both porcelain and pottery made by all the other countries in the world does not furnish so great a variety in styles and forms of ornamentation as is displayed by Japan alone. The finest pieces have been brought from the manufactory at Atsuta. The Sosaku ware is large and costly. A pair of vases five feet in height are valued at $2,000 each. These stand on pedestals ornamented, in bamboo frames, in the style commonly known as the Greek border, but which is said to have been originated in Japan. There was a large work covering trees, in the shape of bamboo sticks, besides a highly-pleasant combination of great trees with gilt or white ground.

Two vases of this ware have been presented to the Pennsylvania Museum and School of Industrial Arts. These are nearly two feet high, formed like juglets, in which appear tigresses with their young. Upon one of these a young osel is displayed.

There are vases of porcelain in the shape of sea-lions, jaws of gold on their sides, in which seem to swim large turtles. Perhaps the most costly of these objects for their size which are to be seen are in the form of shells of equal work less than a foot in height. The price of these is $500 each.

Another great specialty of Japanese manufacture is the lacquer-ware, of which we have seen small specimens in the shops of our large cities; but these give little idea of the possibilities of this class of work.

From little cased trays which cost 50 cents to cabinets marked $1,000 and $1,500, there are an extraordinary variety of articles. It is stated that the art of lacquering has declined in the course of the last three centuries, and that the old masterpieces cannot now be duplicated. Here, for instance, is a cabinet 350 years old, heavily ornamented, and engraved silver plates; $5,000 is its price. Eight cases containing lacquer-ware include perhaps all the known varieties of ornamentation. Some of these date back as far as six centuries ago.

The designs of the older pieces are less grotesque than those of one or two hundred years old; while they all have the delicacy of finish which was given this material its reputation. It was once there in a writing-case of 164 years old—believed to be over 700. It is about a foot and a half in height by two feet. Salers 300 years old, lacquered
pieces 600 years old, work-boxes, writing instruments, are all to be found in this collection. Much of the ware is inlaid with silver and mother-of-pearl, and it includes all the articles of utility or ornament for which it could possibly be employed. As in bronze, the display of lacquered-work is finer than that made in Vienna. The very perfection of grace, the spirit of ornamentation and beautiful combination of delicate colors are to be observed in these articles.

A curious and interesting exhibit is made of several exquisite little ivory cabinets, as also of vases made of sections of elephants' tusks, ornamented with lacquered-work. There is one exhibit of furniture in European frames which shows the capacity of the Japanese to excel the artisans of Western nations in their own business. The upholstered chairs are admirable; and there is a wardrobe in current vogue which surpasses anything of the kind in the Italian court. The Japanese screens are among the most wonderful articles in their exhibition. In these the most astonishing effects are produced by combining embroidery with painting, the faces of the photographs being painted on a silk background, and the costumes, etc., brought out into relief. The prices are between $100 and $400.

The best decorative art in Japan appears to be devoted to the screens. In painting on silk the most artistic effects are produced in scenes from history and in genre sketches. Some of the smaller screens are designed apparently to be hung as pictures on the walls, and are beautifully quaint. One represents a long line of green grasshoppers marching in single file, each carrying a flower. A black beetle leads the van, and a company of frogs sit by the roadside and watch the strange procession as it passes. The screens are all made on one general plan, usually in three divisions connected by hinges of metal, and of uniform size. The frames are of bamboo and the coverings of silk, cotton or paper.

In embroidery, the Japanese equal the world; and the work on the screens will be found to equal that displayed in the Woman's Pavilion. The delineation of small birds is exquisite, and these are covered with gift paper of peculiar texture, the ornamentation consisting of patches of various material fastened thereto. The chief decorations are made in a primitive manner. The work is uniformly on a ground of silk, the designs being either painted, embroidered or quilted. The subjects of these delicate Japanese life are of all grades, from the recreations of the nobility to the toil of the lowest order of people, giving us clear ideas of the people, customs, industries, scenery and natural characteristics of Japan.

One process of ornamentation consists of the building up of figures by patient tailor work, layer after layer, of silk, woolen or other materials, these being sewed or glued upon each other.

In relation to the capacity of the lacquered-ware to resist wear and tear, it is stated that the French mail steamer Nile, on which were shipped back to Japan the articles shown at the Vienna Exhibition, was wrecked on the Japanese coast before she reached her harbor. This vessel actually sank; yet, a year afterward, the articles were

Even the humbler kinds of screens are most interesting objects, being suggestive of Japanese manners and customs. These are covered with gift paper of peculiar texture, the ornamentation consisting of patches of various material fastened thereto. The chief decorations are made in a primitive manner. The work is uniformly on a ground of silk, the designs being either painted, embroidered or quilted. The subjects of these delicate Japanese life are of all grades, from the recreations of the nobility to the toil of the lowest order of people, giving us clear ideas of the people, customs, industries, scenery and natural characteristics of Japan.
Japanese lacquer-work boxes.

plates used for printing Government bonds, revenue stamps, etc., samples of types, stereotype plates, proof-sheets, and a number of books in Japanese, including a history of Japan, the Code Nipponais, a collection of poetry, and *Gide's 'History of Civilization,' in Japanese, with native binding. Some facts in reference to the mining and manufacturing industries of Japan will not be most interesting or inappropriate in this place. It is stated that mines were worked as far back as the latter part of the eighth century; and even now the system of working mines is changed but little from that in use in the earliest times. Miners use hand-took—pick and hammer—and gunpowder has only been brought into use for blasting purposes quite recently. Silver mines were worked in the province of Iwami for an enormous extent a few years ago; but this was interrupted by violent earthquakes in 1872. The Iwami mines were opened some 300 years ago; and at the beginning of this century they gave employment to some 4,000 miners. The most important coal-fields are in the northwest of the Island of Kyushu. Rich seams have been found in the Island of Hokkaido, about eight miles west of Nagasaki. This mine produced 78,000 tons in 1874. Petroleum is found in the northwest of Tokio, where oil was discovered 200 years ago. A natural combustible gas issuing from the ground in certain places has long been brought through pipes of bamboo into the houses and used for illuminating purposes. Oil, however, has only been used by the people of the country during the last forty-six years. Since then oil wells have been sunk in one district, some of these wells being 600 feet deep.

Building-stones are not scarce, but are seldom used for houses, and mostly for foundation, gate-ways, walls, etc. The granges and temples contain great numbers of stone monuments, and lowering when the approach to the temples. Mantles of different colors are found in several provinces. The making of iron is carried on in the old method in small furnaces 32 to 13 feet high, made of brick. Improvements have recently been introduced, and a certain number of blast furnaces for smelting metallic ore have been built. Large smelting-works are about to be commenced in one province, the cost of which is estimated at $200,000.

The origin of Japanese industries and manufactures can be traced back to China and Corea; but these have been so much modified in every respect that the creations of Japanese artisans have a character of their own. As the country has been at peace since 1600, the industries have been developed extensively, particularly those connected with art. Of late years not only the Government, but private persons have made great efforts to create large industrial establishments. Several paper-mills and cotton-mills, with steam and water power, are to be found in different places: glass furnaces have been built in Tokio, and Satsuma and a great part of Tokio are lighted by gas made from coal mined in one of the provinces. Several machinery-shops and other manufactures have been established by the Government, and an arsenal at Yokohama is completely organized for the manufacture of iron-building. The Government has special Boards with a view to promoting and developing newly-introduced industries, as in the case of pottery, the art of weaving, and making silken garments. The Chambers of Commerce are a very ancient institution. As to the invention of pottery, the Japanese legend attributes it to a period long before the commencement of the Japanese chronology, 600 A.D. Samples of earthen vessels were made as early as 722 A.D. and still exist in the empire. The beginning of the manufacture of real porcelain occurred late in the sixteenth century, since which time this art has been of great importance.

The most remarkable manufactures belonging to the
the inventor. The material used for this ware is a brown class of stone pottery are the Satsuma and Awata, the latter service was on exhibition.

the province of Ise, and called B mko y Aki, from the name tint than the Satsuma. A peculiar kind of stone-ware, re¬

iterate size have been made, and some of these, of exceptional dishes, saucers, teapots, etc. In later years vases of mod¬

bain" manufactured in tin suburbs of Kiyoto. Both are

gold outlines or painted with transparent enamels.

fields, flowers, birds, and personages, either traced in red o

are selected, but are only made use of in moderation, to

be removed from one house to another, as they are only a

used, however, being of a very primitive kind. Kaga-war

Chinese. In inlaid-work, pieces of mother-of-pearl shell

are only used by the women in Japan, and consist almost

of the Lake Myosen in a quartz lode, and phosphate

waving establishments of Kyoto are all headed in one

are more than an inch thick.

are all of the same size throughout Japan, six feet by

composition of brightness and flowery paintings, amongst

years seven vases of mod¬

made from a kind of porcelain clay. The old Satsuma

made of various kinds of broc,Cs, lined with rice-straw. These are more than an inch thick.

for the Philadelpoh Centennial. The decoration is

are distinguished by a more yellowish

more recently

which the chrysanthemum and peacock's tail take promi¬

American loom of the last century in its construc¬

the silks trade comprehends scarcely anything but raw silk,

The cotton industry is of comparatively recent origin in

of American ware, and especially the vases, have boon fre¬

columns, staircases, etc.

The art of weaving and producing silk goods.

the interior sills of temples, ceilings,

are made of it, as the interior sills of temples, ceilings,

to teach the art of weaving and producing silk goods.

The cotton industry is of comparatively recent origin in

very similar to those employed in Europe, the machinery

a primitive kind. Kyao-ware

is distinguished by a very fine gold ornamentation, gener¬

are made of various kinds of broc,Cs, lined with rice-straw. These are more than an inch thick.

to the years of the Satsuma, and even now contain more than twenty looms each. The loom on which the figured goods are

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THE INTERNATIONAL POULTRY EXHIBIT.
consumption of the country required, and entered into it in 1807. This factory was able to produce more than the nation had been previously made, but had been unsuccessful; suited

Christiania, was established. Other attempts in this direction until 1803, when the United Match Factory, near Oslo, took up the work. Fittings of this kind are made in other establishments, and Norway now numbers 27 match factories. That at Niltofjord only supplies safety-matches, and exhibited at Paris in 1867 and at Stockholm in 1869, obtaining medals in both exhibitions. The exhibits of ceramics, pottery, porcelain, etc., as well as glass and glassware, come from Christiania, and include most attractive. The most prominent articles in this collection are drinking-vessels, from the vast drinking-horn down to the flacons of various sizes, and silver mugs holding several half a pint. One drinking-horn has a capacity of a gallon or more, and is set on golden wheels. At its base it ends in a large knob, where a crowing cock is placed. The mouth is finished with a gilded bull in a wide band, ornamented with a border of flowers, and in front nymphs and satyrs are painted, dancing.

A porcelain flagon, with a richly wrought silver lid, is a very handsome article in this collection. The porcelain is remarkably fine, ornamented with gilding and flowers. On the lid is a figure in high relief, representing a knight undressed. Another porcelain flagon, very small, has a general tracery of blue on a white ground, and a silver lid, with the date 1743. The silver drinking-expires are about the size and shape of ordinary tumblers, with simple engraved or in repoussé. There are also a sugar-bowl, saltcellars and spoons. Most of these articles have the initials of former owners engraved upon them, and there are doubtless associations of their own. There are several small boxes, elaborately worked in repoussé, and a number of beautiful little vinaigrettes in the shape of hearts, or crescents, or flowers, or birds, with silver, half-chips, clasps, chains, earrings and finger-rings, all highly ornamented. There is also a show of antique articles of hummedared brass and copper, and the carved furniture is well worthy of examination. The largest piece is a buffet of oak, about 8 ft. wide by 10 high. If this be really a buffet, the subjects designed upon it are strikingly inappropriate. These include the Nativity, the Adoration of the Magi, the Vision of Zacharias, the Circumcision, the Last Supper, and the Crucifixion; while upon the panell supporting the panels are carved heads of the apostles. The carvings are artistic and finely finished. Another piece is a bedstead, ornamented by a canopy, both richly carved. The heads of the pillars are illustrative of sculptural subjects. The canopy is upheld by small figures, supported by caryatides. The brass and copper-work includes a number of great plates with designs in repoussé, of scriptural subjects, and also antique brass candlesticks and candelabra. The national costumes of Norway are shown by life-size figures, which are not only lifelike, but life-like. These are in great variety, and are ornamented chiefly by girls. The oil is supplied according to the method originated by Peter Moller, who has received personal decorations at the hands of the King. The oil is inclosed by a lid ornamented with a band of flowers, surmounted by a small cushion. The child is en-

expected. The young and middle-aged, who are the greatest customers of native products, are unable to support them, owing to the reduction of prices and the greater perfection of foreign imports. Domestic industry is on the decline, owing to the reduction of prices and the greater perfection and tastefulness of the manufacture. The precious metals are, however, still of importance, and are still used extensively.
are birch, elm, oak, mahogany, walnut, mahogany, etc., the walnut being at present most in favor. It is obtained from Gotland and the most southern parts of Sweden.

Basket-work has of late attracted general attention in Sweden, and the production, chiefly of domestic industry, has been encouraged by various economical societies, which have established schools for instruction in this and in straw-work.

The manufacture of articles belonging to the clothing industry, such as wearing apparel, lace-work, embroideries, artificial flowers and the like, is insignificant; although it is practiced in small manufactories, and partly as a domestic industry. In some districts lace-making is still continued.

The Swedish Association in the Main Building begins with a group of five figures, showing the costume of the country. They are represented standing by a deer, which has just been shot. Next there are cases of minerals with specimens of native marble cut into small blocks, and on the partitions, geological maps of the kingdom. Some fur-skins are next shown; and there is a specimen of a porcelain stove peculiar to the country. A case of manufactured fur-skins are next shown; and there is a specimen of a porcelain stove peculiar to the country.

Returning south from the metal exhibits, we find those illustrating the manufacture of paper and printed books, including wall, writing and wrapping paper. Next are chemicals and philosophical implements. In a case just here is seen a cheeseboard with a curious set of carved wood cheeses. Then there is a monument on which are displayed a large number of statues of different sizes. These are manufactured from statues, divine and historic. A show of fire-brick and large pottery come here to $7 per week, and that this is 50 per cent, of journeymen cabinet-makers from $4 1

North of North Avenue, and extending the full width of the section, are the exhibits of Swedish iron and steel, including ores and heavy castings. The Swedish iron industry is promoted by an association composed of nearly all the iron-masters of Sweden, and which meets every three years in Stockholm. This association advances money to its members to assist them in extending their works, makes appropriations for experimenting and investigation, and in other ways extends a liberal protection over this manufacture. This association was founded in 1745. Its capital is more than $3,500,000 gold.

The iron ores exhibited include magnetite and specular iron ores. There are also exhibits of pig-iron, bloom and bar-iron, iron plate, armor, steel springs, axes, sheets and various forgings for machinery, etc. The Iron-Masters' Association has a collective exhibit covering pretty much the whole manufacture. The manufacture of bar-iron was commenced in 1840, pig-iron in 1872, and steel in 1874, in one manu-

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Wool and paper for super-, mining, chemically manufactured, is a quite an important article, one manufactory employing 139 workpeople. The product is exported to England, Germany, and France.

The exports of Sweden cannot be said in favor of the educational system of Sweden, and its lasting benefits to the growing youth of the country. In illustration of that system, we refer to the Swedish University, with buildings, books, maps and apparatus for instruction, situated north of the Main Building, and illustrated and described elsewhere in this volume. These buildings, which is 60 by 50 feet in dimensions, was imported from Sweden, and is exhibited by G. W. Wenzstrom.

The coal is obtained from the same, or possibly to the south, is given up to engraving, maps, drawings, charts, plans, etc., illustrating engineering and industrial matters; and so placed near the nave in the Swedish Church, to which the following is added:

In Sweden is that which is called the Lancashire process of refining, which is the method of refining most common in the Swedish varieties of iron ore, and the process of manufacture of steel, and also in the construction of the Scotch-steel canal. The phosphorics which come from Dalarna are used in the manufacture of iron, drums, rods, pestles, tombsstones, table-tops, dishes, plates, lamp-bases and boxes. Another close relative of the same process is called phosphatic, and sometimes serpentine. Altogether, the geological specimens of Sweden offer a subject of much interest and instruction.

A further extent of this kind is still common. The polished cubic specimens of urns, vases, gravestones, columns, pedestal, of urns, vases, columns, pedal
fish-scales, pipes and roulette-boxes of wood are also myall and fleece; there are specimens of silk in the raw material; blankets, shawls, dyed woolen cloth, dyed Angora goods, articles in basket-work, such as, cradles, perambulators, crucibles and caustic-tiles, vases, etc., with some specimens of glass-ware, and stained glass for windows. In furniture there are tables of black-wood, sideboards, 

NATIONAL WOOD-MANUFACTURING CO., EXHIBIT, IN THE MAIN BUILDING.

1x011 aild to' extent mined *in which there is no school. smmia is *compulsory, and there is *so .° .°' ear was "327,925, and the expenditures £318,278 £1 of exports £1 of exports 257,325 of imports £1 16 325 imP. Of the end of 1874 was 104,176. The revenue of the colony for the American Indian.

country the settled districts they are fast sharing the lite-size photographs of Australian natives, a species by no pack-saddles, saddle-bags, and leggins. There are two trapper's saddle and bridle; stockman's saddle and bridle dugong oil, a hunting saddle, bridle, breastplate and pouch-teeth of a dugong, a dugong calf in spirits, samples of indigenous trees in Queensland than in other parts of the continent. Many of these are on exhibition. Owing to its vast area and the great diversity of its soil, climate and altitude, there is a greater variety of indigenous trees in Queensland than in the rest of the Australian colonies, and perhaps more than could be found in the same extent of country in any other part of the world. The specimens of woods exhibited are from a collection that was easily procured, and were chiefly shown for their economic value. They do not, however, include one-fourth of the species existing in the colony. It is believed that with none of those woods a higher value would be put upon them in America than that received in Queensland, which, being a young colony, has found very little time to experiment in them, and the consequence is that timber probably of a superior quality are neglected, or used only as firewood.

The value of some varieties of the Australian eucalyptus for building or railway purposes has for some time past been fully recognized, and the number of species is greater in Queensland than in other parts of the continent. Inasmuch as the most of the available woods grow on the coasts and on the banks of rivers, it is not difficult or expensive to transport them. Several articles made from Queensland wood are exhibited, including bogongwood, tallow-cakes, sugar-rails, and ax and pick-lanaisons. Of skin stuffs there are the kangaroo, wallaby, wallaroo, seal, etc. There is preserved the skin and teeth of a dingo, a dingo calf in spirits, samples of dingo oil, a hunting saddle, bridle, breastplate and pouch; trigger's saddle and bridle; stockman's saddle and bridle; pack-saddles, saddle-bags, and leggins. There are two life-size photographs of Australian natives, a species by no means numerous even in the unoccupied portions of the country. In the settled districts they are fast sharing the fate of the American Indian.

Tasmania is the next section, a country so remarkably landlady among children, particularly those under one year of age. The principal animals are the kangaroo, wallaby, possum and bandicoot, with the devil and Tasmanian tiger which are formidable beasts that frequently make great havoc among the flocks. Of birds 171 species have been preserved, but only 20 of these are supposed to be peculiar to Tasmania.

The exhibits in the Main Building begin with a display of rugs and shawls, including the black and gray opossum, native cat-skins, ring-tail opossum, kangaroo, tiger-kangaroo, hair for household use. The cloth goods consist of blankets, shawls, dyed woolen cloth, dyed Angora goods, and fleece; there are specimens of silk in the raw material and worked on Brussels-net. Some ornaments made from fish-scales, pipes and roulette-boxes of wood are also to be seen here. The artificial or cultivated fruit include, beside the ordinary varieties, the Medlar, jujupit, apples, pomegranates, figs, wax apples, egg-apples and Cape gooseberries.

The next division is (parabolical), the northeastern section of Australia, and is of vast size, having nearly three times the area of Texas, with a seacoast equivalent to that of the United States from Maine to Louisiana. This colony is rich in minerals, and equally so as a farming country; extensive and valuable sugar-plantations existing in certain sections, while gold, silver, lead and copper abound, and the whole country is well provided with sheep, cattle, and horses.

In the west are vast rolling plains, large enough to accommodate either Germany or Austria, while the coast is dotted with beautiful islands, grassy and fertile, and distinguished by picturesque beauties of reef, island, mountain and river.

In the Queensland section, one side is devoted to the colony from a geological point of view; the other is illustrative of its mining, pastoral, agricultural and other industries, including photographs, representations exhibiting the geological formation, as well as local access and native inhabitants. Among the minerals there is a trophy of tin, besides specimens of manganese, iron and magnesite, an ingot of native copper, copper ore, gold-bearing spars, building-stone, and a slab of polished malachite. There are also specimens of gold in nuggets, and tin and copper in nuggets. There are varieties of the soil, specimens of products, cotton, arrowroot, rice, sago, coconuts, wheat, manioc, barley, tobacco, etc. Sugar is a very important article of commerce, although as late as 1866 there was none grown there at all, while the yield for 1874 was 14,000 tons.

In the body of the court the exhibits are arranged in four groups, representing mining, agriculture, pastoral and miscellaneous products. There are exhibits of sugar which will enable the observer to see how far advanced this product is in quality in Queensland. The specimens of native woods exhibited include a great number of varieties. There are various specimens of pine, oak and cedar, including the swamp-oak, cypress pine, red-oak, also the yellow wood, spotted tree, sweet and sour gum, orange and lemon, banksia opaca, silver-tree, pili wood, tamarind, tea-tree, yellow box, spotted gum, red mahogany, blue gum, man-grove, beech, sandal-wood, and many others. There are also specimens of the famous eucalyptus, each to be a specific against malaria; and in one district it is said there are no fewer than 200 different varieties of woods available for every purpose, from cabinet making to ship-building. Many of these are on exhibition. Owing to its vast area and the great diversity of its soil, climate and altitude, there is a greater variety of indigenous trees in Queensland than in the rest of the Australian colonies, and perhaps more than could be found in the same extent of country in any other part of the world. The specimens of woods exhibited are from a collection that was easily procured, and were chiefly shown for their economic value. They do not, however, include one-fourth of the species existing in the colony. It is believed that with some of those woods a higher value would be put upon them in America than that received in Queensland, which, being a young colony, has found very little time to experiment in them, and the consequence is that timber probably of a superior quality are neglected, or used only as firewood.

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Of skin stuffs there are the kangaroo, wallaby, wal-laroo, seal, etc. There is preserved the skin and teeth of a dingo, a dingo calf in spirits, samples of dingo oil, a hunting saddle, bridle, breastplate and pouch; trigger's saddle and bridle; stockman's saddle and bridle; pack-saddles, saddle-bags, and leggins. There are two life-size photographs of Australian natives, a species by no means numerous even in the unoccupied portions of the country. In the settled districts they are fast sharing the fate of the American Indian.
We have the skins of the platypus, galah and penguin, and those of the phalangers, tiger-cat, kangaroo, red flying-fox, devil, wombat and bandicoot. Curiosities are a terracotta wool and egg-cook and crust-stand, a spinning-jenny made of Tassie wood, a pepper-mill, a coffee mill, beer and ale, King William pine, myrtle, gum, tea-tree, eucalyptus, swamp-gum, stringy-bark, flax, pine, etc. The exhibition closes with charts and maps showing the whole of the natural history of the colony, and also photographic views, photographs of the East Tassie aboriginal man, Billy Lannev, and other portraits of aborigines.

The colony's producing area covers the entire length of the colony, and over a breadth of 200 miles, comprising an area of 13,626 square miles; while all the gold fields of the west are within two days' journey of the capital. The authority to dig for gold costs only ten shillings a year, and entitles its poserower to take up ground upon any gold field to the extent of 60 x 90, or 114 x 114 feet, according to the class of mining. The export of gold in 1873 was 25,490,000.

The coal beds of New South Wales extend from the 25th to the 35th parallel of latitude, Sidney being the centre of the coal basin; coal having been traced about 100 miles to the north, to the south and to the west. The value of the coal raised in 1874 was about £800,000. Copper and tin are found in many parts of the colony, and were also in that district and formed ore, galena and lead, and there is a form of an enormous cube, bearing the following inscription: "This model represents the quantity of gold obtained in New South Wales from 1851 to 1874; 250,000,000 ounces; value £39,596,246 14s. 6d."

In manufactures there are a number of jugs, bottles, galley-pots, etc.; and in glass and china similar articles, such as window sill-glass, "Captain Cook." Some bowls and window-sashes are shown, manufactured of native woods. There are also a number of mats and mats which have been manufactured by the aborigines of New South Wales, and some artificial flowers are shown, made of wool and copied from Australian native flowers.

The furs and skins include the stuffed phalanger, with a travelling rug made from the skin of the peculiar creature, which is the Ornithorhynchus paranae, or "beast with a bill." There is also a set of collected skins of the platypus, marsupial, kangaroo, tarsier, and kangaroo, all banded. The river is about 17 inches long, with rather short and close fur, generally colored a dunkey brown. The male is armed with spurs on the hind legs. This interesting creature has excited, perhaps, more attention from naturalists in New South Wales than from any other animal. The question concerning this bird or animal is, whether it produces its young living, or by means of eggs. The platypus lives in bodies on the banks of the rivers, and has browsing habits, and the bushes varying from 10 to 40 feet in length. Its food consists of minute insects and pond-salts. The skins are made into shoes, coats, and are made into chaps, boot-covers, muffs, wrists and tippets.

Among the exhibits is the Joey, or stone-hatched, of the aborigines, together with other furbrit implements. There are also boomerangs, spears, axe, and billabongs.

The specimens of natural history, including the phalanger, swallow-tiger and cat-tail, swallow and kangaroo, water and fly-fishing, are exhibited by the Trustees of the Australian Museum at Sydney. A specimen of a rock-dwelling phalanger in spirits, as also the ducks and other water fowl, together with a number of Australian birds exhibited by the New South Wales Commissioners and the United States.

A very large number of photographs, particularly of public buildings in and around the town, and of the various articles in the New South Wales section is very large and complete, including all the native minerals and iron ore, auriferous quartz, copper ore, tin and wolfram, and many different kinds and varieties of minerals, including tin, iron, copper, lead, silver, zinc and antimony. There is also a collection of the chief characteristic fossils of New South Wales exhibited by the Department of Mines. There are also mineral specimens from several of the gold fields, and 411 specimens of gold tin exhibited by the New South Wales Commissioners. The collection of minerals from New South Wales includes tomatine, tourmaline, topaz, topaz, smoky quartz, crystal, chalcedony, hornblende, diamonds, etc. There then are rocks, both semi-britannitic and bimorphite, marbs, micas, and other minerals, forming a collection of enormous size, bearing the following inscription: "This model represents the quantity of gold obtained in New South Wales from 1851 to 1874; 250,000,000 ounces; value £39,596,246 14s. 6d."

The United States.

The exhibition of articles in the Main Building from the United States includes all that portion of the building lying east of the centre transept and south of the nave, and on either side of the central aisle, commencing from the Mexican section to the eastern end, and including in all 188,251 feet. The display includes every variety of articles which have been manufactured in the United States through the Art Exhibition, or in Mechanics or Agricultural Hall, and in five times as large in extent as the exhibition of New South Wales.
Great Britain, which stands next in size. A peculiar feature of this important portion of the Exhibition is the noticeable frequency with which one meets exhibits from Philadelphia houses; and that this fact has not been unnoticed by the Philadelphians is made obvious by the complaisant commentary of one of the papers in that city that "fully two-thirds of the best American exhibits are the result of the well-known energy and enterprise of Philadelphians." Without contesting or criticizing this statement, we may not improperly draw attention to the general prevalence of Philadelphians in the Main Building; and whatever may explain the circumstances, there is no doubt that much energy is displayed. All her goods are of an exceedingly rich and attractive character, and her exhibition is vastly commendable.

New York stands next in the extent and importance of her display, which, however, is nowhere so representative or up to the possibilities of the metropolis. It should be observed, also, that New England holds up in this section in most admirable fashion, her exhibits comparing favorably with those of any other section; while in respect to manufactured goods and her educational representation, she surpasses all the rest. With regard to New York, however, it may be remarked that the Empire State furnishes more than 1,500 of the 11,000 exhibits in the Centennial from the United States, or more than one-seventh of the entire American contributions. Notwithstanding this, there has been much deficiency in important industries which might have been filled to greater advantage, had better preparation been made, and had there been more agreement among the exhibitors concerned. This is particularly the case in the matter of silks. It is a fact that in sewing silks America, and especially New York, leads the world; yet in this department the exhibition is nothing like what it ought to have been.

The glove trade is another New York industry, several manufacturers from New York City exhibiting, and one from Gloversville, in Fulton County, a little town which is entirely devoted to this industry. American kid gloves are notoriously as brilliant in color as the French, and more durable and suitable. Carpet-making, though represented in a slight degree only by New York exhibits, makes, nevertheless, a good display. Shirtings, which are represented by two New York City houses, and other cotton goods, are also exhibited from that city in favorable examples. The display of stuff-goods, alpaca, mohair and worsted goods, from Cohoes and Auburn and other manufacturing places in the State, is large and fully representative. In furniture New York is prominent, being represented by more than forty exhibitors, with examples of styles, from the most costly to the most simple. In the latter classes other sections offer an improved quality of goods, but in first-class furniture New York City is unrivaled. Concerning furniture, also, it should be observed that superior instances of cabinet-making are presented by New York firms in a number of the superb pavilions, and in show-rooms containing goods in the Main Building.

The south wall of the building, north of the nave, is entirely devoted to this industry. American kid gloves are notoriously as brilliant in color as the French, and more durable and suitable. Carpet-making, though represented in a slight degree only by New York exhibits, makes, nevertheless, a good display. Shirtings, which are represented by two New York City houses, and other cotton goods, are also exhibited from that city in favorable examples. The display of stuff-goods, alpaca, mohair and worsted goods, from Cohoes and Auburn and other manufacturing places in the State, is large and fully representative. In furniture New York is prominent, being represented by more than forty exhibitors, with examples of styles, from the most costly to the most simple. In the latter classes other sections offer an improved quality of goods, but in first-class furniture New York City is unrivaled. Concerning furniture, also, it should be observed that superior instances of cabinet-making are presented by New York firms in a number of the superb pavilions, and in show-rooms containing goods in the Main Building.

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Alkali glasses are a handsome display. A Rhode Island house shows a collection of colored and speckled glasses. A Pittsburg glass manufacturer displays large, crystal, porcelain, and glass vases, and a very handsome display of flint-glassware and white porcelain—vases in tureens, brackets, etc. Some of these vases are not found in noted museums, and the Commemoration in gold and colors, which have attracted so much admiration. Another Pittsburg house exhibits crystal dishes in ivory trays, and an immense collection of porcelain and china, amounting to over 2,000. The largest and most costly silver piece exhibited is said to have been the "Century" vase of the Gorham Company, which contains two thousand ounces of solid silver, and is valued at $25,000. This superb art work was designed by George Wilkinson and J. Pierpont, and is five feet and two inches in height. While massive in the extreme, it is elegant in every part, and all its decorations are such as to present no appearance of unwieldiness. These decorations are emblematical of the progress of Western National Republican Government, and are appropriate and artistic. The "Hiawatha" brings another beautiful exhibit from this house, and the "Ameria" epergne, valued at $4,000, is still another. Moser, Reed & Barton display an exquisite ornamental vase, in whose emblematic ornamentation is finely delineated the progress of America, as illustrated by contrast of the present, with that of its civilization with the savage condition which obtained at the period of the discovery by Columbus. A superb flower and fruit stand, with artistic mounting, is another of the notable works of art, and an embossed ten-inch plate on white metal, deserves special mention as discovering peculiar originality of design.

The amount of furniture exhibited by American exhibitors is enormous, and comprises every imaginable article of this class. As has been already indicated, there is a tendency toward display and gaudiness in our first-class furniture, which is to be deprecated. Philadelphia and New York have been already indicated, there is a tendency toward display and gaudiness in our first-class furniture, which is to be deprecated. Philadelphia and New York have been already indicated, there is a tendency toward display and gaudiness in our first-class furniture, which is to be deprecated. Philadelphia and New York have been already indicated, there is a tendency toward display and gaudiness in our first-class furniture, which is to be deprecated. Philadelphia and New York have been already indicated, there is a tendency toward display and gaudiness in our first-class furniture, which is to be deprecated. 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The book trade display was organized by a committee appointed by the Convention of the American Book Trade, held at Philadelphia in the year 1875, when a committee was appointed comprising the following gentlemen: J. B. Lippincott, John A. Black, George Boyse, C. B. Bennett, Porter, W. H. Esmond, Roberts Lindsay, Presley Blakiston, and B. Griffiths. After due consultation this committee was successful in bringing together a display certainly of the greatest interest and capable of adding to the jubilant arrangement of the articles exhibited.

The American Book Trade structure occupied a full section, situated on the southern corner of the Main Building. By reason of a two-story pavilion—the only one in the building—the difficulty of want of space was got over in the most agreeable and satisfactory manner. A structure 114 feet in dimensions was built on a plan of three platforms, each supported by 16 light iron pillars and connected by two broad bridges. The second story of these platforms being 10 feet above the floor, was reached by two staircases. The cost of the structure proper was about $5,000, borne by the leading publishers occupying space in the building. This structure contains exhibits from 50 different exhibitors, each in his own division, and with special and appropriate cases and small pavilions, created in accordance with individual taste.

Of course, it is impossible to do more than to refer to certain of the more prominent houses and special exhibits in our limited space. Beginning with the Appletones, whose cases occupied a commanding position on the upper floor of the building, an interesting exhibit was made of the various modules awarded to this house, including those of the New York Industrial Exhibition of 1850, Vienna, 1873, and the silver medal presented by the Pope, in recognition of a copy of the Library of Congress, which only can not be excelled by the publications of any other establishment in the country, if elsewhere. The large-paper Webster, Mrs. Clements's, and Baron's Works of Mythological Art and a glorious copy of the "Pictureque American," which was also the open copy known to be in existence of the first book published by the Appletones, a little volume about two inches by three, written by W. Mason, and exhibited "Crumb's from the Master's Table; or, Selected Sentences, Doctrinal, Practical, and Experimental," dated 1821. Here were also the first superfine of the "American Encyclopedia," the new edition shown in four styles of binding—velvum, telle cell, morocco and vellum. Leavitt and others also make a magnificimediae specie of the "Pictureque American," a work which may fairly be placed in competition with the best publications of the French houses in the line of cost, and which, if the proper care of the copy be bound in brown Leavent, in red and blue, lined with brown watered silk and richly tooled.

The bindings shown by the Appletones are all made under the superintendence of the well-known binder, Messrs. Appletones, and they are considered as the most appropriate case and small pavilions, exhibiting a successful book what grand and unexpected results may arise from small beginnings.

The educational display of the Appletones included 330 volumes, bound in uniform half vellum, and besides being a handsome and attractive exhibit, was representative of one of the most important articles of the Exhibition.

Messrs. A. S. Barnes & Co. exhibited largely in educational affairs, while their miscellaneous publications included: "One Hundred Years of American Independence," a fine illustrated work, and Mrs. Lamb's "History of New York," which is beginning to be printed in a new edition. George Wood exhibit God's of Russell Bartlett should be mentioned, being a catalogue of the Eastlake fashion, was in itself one of the ornaments of this important house. Here were full sets of the Harpers' line of costly illustrative works—the present specimen of the "Picturesque America," a work which may hardly be mentioned, and other many and various features in the representation of the old Liberty Bell, constructed of broken pans, and in the design of the American flag—the top forming the Flying with white stars, and the flag being built in alternate stripes. Here, too, is seen a basic filled with quicksilver, and having floating upon its surface an iron wire, and said to be so mentioned that the costly and beautiful color, vermillion, is made from quicksilver. The house which exhibits these interesting articles is 10 years old, but has been in business in New York; and still another curious and interesting article in the collection is an original invoice issued by the founder of the house, and includes the name of the ship, "Tempest," on which the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally successful in the production of copies of the best works of modern literature, and the works of Emerson, Lowell, Longfellow, Hawthorne, etc., of the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally successful in the production of copies of the best works of modern literature, and the works of Emerson, Lowell, Longfellow, Hawthorne, etc., of the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia.

The stationery exhibition closed with a display of the leading American stationery publishers, represented by B. Griffiths, of Philadelphia, and the Gen¬

periodical publications, handsomely bound, and editions of the English classics and other works in different styles. Messrs. Hard & Houghton made one of the best exhibits in the collection, in the ornamental and hand-written style. Among others, Mr. Carrier's "American Ornithology," G. P. Putnam's Sons were represented by the works of Washington Irving, Ticknor, Bayly and Taylor and John P. Kennedy, the bindings being noticeable for excellence of taste. All of the principal publishers of maps were represented, Messrs. Hink's well-known maps, the important works of Curtiss, Munnens, and Max Muller, besides specimens of the maps reprinted by this house through their London agency.

In connection with the book display should be mentioned the statistical exhibits of the leading American stationary houses, as the Press of the Eighteenth Century and its connections, with particular reference to certain of the more prominent houses and special exhibits in this line, which exhibits these interesting articles is 10 years old, but has been in business in New York; and still another curious and interesting article in the collection is an original invoice issued by the founder of the house, and includes the name of the ship, "Tempest," on which the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally successful in the production of copies of the best works of modern literature, and the works of Emerson, Lowell, Longfellow, Hawthorne, etc., of the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally successful in the production of copies of the best works of modern literature, and the works of Emerson, Lowell, Longfellow, Hawthorne, etc., of the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally successful in the production of copies of the best works of modern literature, and the works of Emerson, Lowell, Longfellow, Hawthorne, etc., of the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally successful in the production of copies of the best works of modern literature, and the works of Emerson, Lowell, Longfellow, Hawthorne, etc., of the best exhibits of elaborately gold-plated and solid gold-pencil cases, ebony, ivory and pearl penholders, ivory pencil-cases, etc., were exhibited by Hotchkiss & Sons, of New York, the only American exhibit in this line being that of Messrs. Francis & Son, of Philadelphia. There is, perhaps, no class of articles more generally success
AUSTRIAN GALLERY, IN MEMORIAL HALL.
Remington & Sons, one of the most noticeable exhibitors in putting up the nerve of the Main Building from west to east. The Colt's Patent Firearms Manufacturing Company, Whitney Arms Company, Shiny's Rifle Company, Winchester Repeating Arms Company, Frank H. Snyder and Ames Manufacturing Company, were among the leading exhibitors, and displayed breech-loading firearms, revolvers, rifles, ammunitions, military and pocket revolvers, small arms, shot-guns, machine rifles, metallic shells, balls, wax, percussion caps, projectiles for rifles, cannon, double-breech-loading shot-guns, and all other arms or projectiles suitable for war or sport.

In the department of Medicine and Surgery there were exhibits of medical preparations, medical plants, a considerable display of house apparatus, and a very large share of work in artificial limbs and articles designed for surgical cases; also surgical instruments, folding chairs, couches, invalid beds, etc.

The exhibition of artificial teeth, dental instruments and furniture, and the materials used in the manufacture of teeth, was comprehensive, and included all the different articles employed in this peculiarly American profession. The exhibition of articles of hardware, edged tools, cutlery, etc., comprised 200 exhibitors, and included the leading houses in the country. These articles comprised everything known to this department, and are quite impossible to enumerate; tools of all kinds for all workers with tools—cooperators, shipwrights, bricklayers, plasterers, carpenters, including shovels, spades, picks, mattocks, etc.

The exhibition of tools and implements, wooden, iron, brass, and other small wares. In materials manufactured into fabrics, we have woven and blended goods, broads, felts, bales, cloth, twines, canvas, ready-made, with the ordinary door-lock to the wonderfully complicated and intricate bank-lock; time locks, cabinet locks, spring padlocks and outward locks, and a great quantity of mechanisms; articles made of paper—such as dinner-benches, household ware; window, chair sets, umbrellas, etc.; articles of rattan, baskets, etc.; Japanese, lacquer, etc., were among the miscellaneous hardware. Cast-steel tools, sledges, hatchets, axes, and canes, of which, perhaps, the best exhibits were made by Philadelphia firms; and in the same connection those displayed great improvement and considerable originality and invention in this direction. Here we have seen philosophical and mechanical instruments, and machinery for drawing instruments, models for scientific schools, automatic machines for grinding and polishing diamonds, for dividing units into equal parts and other improvements.

Company of Waltham, Mass., including watches and watch movements, gold and silver cases and watch materials; to the Waterbury Clock Company of Waterbury, Connecticut, and other well-known American watch and clock manufacturers. In plain-wares and ornaments a large number of exhibits were made, covering about eighty exhibitors, and comprising all the principal American wares, such as Hallin, Davis & Co., Boston; Mason & Hanlin Ordnance Company, Mayor, Council & Sons, Philadelphia; Hamilton Bros., Stearns and Sons, Becker Bros., Albert Weber, New York; William Knapp & Co., Baltimore; Chickering & Sons, Boston; and H. L. Roosevelt, of the many exhibits of the transept, the magnificent organs whose music never failed to draw a large, appreciative and delighted audience.

In the article of pianos, the exhibition demonstrated that the United States need not fear competition with the manufacturers of any other country. The full display of instruments, covering every improvement and all the numerous attachments, was one of the chief emblems of the Main Building, as well as a demonstration of the peculiar adaptability of American mechanics in regard to the development of work requiring a combination of art with mechanism.

Here we may close our brief consideration of the United States department in the Main Building and with it the present part of the exhibition. The Main Building itself. More than in any other part of the Exhibition, it has been here that competition could be made which, while encouraging to those who emerged from it successfully, could not be otherwise than advantageous, educationally, to those who were less fortunate. While the articles of artists and manufacturers of America are certainly not the equals of those of Europe and Asia in certain special branches of art and manufacture, it will be found, on consideration, that...
EDUCATIONAL DEPARTMENT.

Our concluding remarks in this connexion to the Main Building, we desire to present a succinct view of the subject of education as illustrated in the entire Exhibition by the different countries exhibiting. Beginning with Great Britain, we found numerous important articles representative of the work of British Sunday-schools, including books, magazines, cards, reward-books, Sunday-school registers, report-books, manne-books. Simply-school necessities, a fair view of this important institution as conducted in the country where it first originated in its present form. The material and methods of managing the education and employment of the blind were likewise displayed, and common-school education was represented in maps, silhouettes, sections of the classes, and other educational works; and occasionally by means of engravings, photographs, books used for wood-engraving, specimens of type, suites of illustrated and other newspapers, besides a considerable number of scientific and other instruments.

The educational department of Victoria, at Melbourne, sent photographic views of the State School in Victoria, and the Victorian Asylum and School for the Blind exhibited a number of articles made by pupils of the institution, such as baskets, portmanteaus, fans, books, fancy work, while the commissioners furnished official reports, school-books and other educational works, as well as philosophical instruments.

The exhibits from Canada have been already mentioned in the architecture of the building, and public institutions generally, a number of which were exhibited in the Main Building, comprising three stories, each canton being represented by its Board of Education, which sent prospectuses, school apparatus and models. The drawings and other school-work of pupils presented a most pleasing and attractive showing, and especially the work of the blind and the deaf and dumb. A curious portion of this exhibition was found in a collection of large blank-books, in which were inserted specimens of all kinds of needle-work, from babies' socks to elaborately constructed dresses. A number of Swiss organizations of a scientific or educational character were represented, such as the Swiss Geological Commission, the Swiss Statistical Society, Swiss Historical Society, Swiss Alpine Club, and the Societies for the Advancement of Natural Philosophy located in the different cantons. A fine collection of scientific and philosophical instruments was also exhibited, including drawing instruments, leveling instruments, and others.

Education in Belgium was presented in a schoolroom in the Belgian section in the Main Building, comprising three rooms, so hidden by the important articles exhibited around it, as to be difficult to find. The primary school, sent as a specimen, included a wash-room, a well-appointed gymnasium, model classrooms, lighted, warmed and ventilated on a scientific system, and desks and seats well adapted to their uses and graded.
to the height of the pupils. Here were shown, nine, in
mean of instruction, pictures, instruments, stuffed birds and
animals, geometric forms, statistical tables, books, used in the various other articles designed for the improvement
of the mind.

The Kingdom of the Netherlands is represented in its
educational system by no special exhibit, but offered a col-
lection of school-books, drawings and designs of work of
pupils, besides a curious writing apparatus designed for the
use of cripples.

The school system of Sweden, which is in many respects
the best in the world, was fully depicted in the Exhibition,
the Swedish schoolhouse, already illustrated and described
in this work, being especially representative, and having
formed an object which received considerable attention
during the existence of the Exhibition. According to
Swedish law, the school board of every county determines
the age when education shall commence, providing that
this shall not be postponed until after the ninth year of
the child's age. This latter contingency seldom occurs
except in localities where the hard climate renders it
impracticable for very small children to attend school.
Generally speaking, the school-life commences with their
current year and continues until the fourteenth; but after
nine years of age education is compulsory, and all who are
not instructed in private schools, or at least by permission
of the legal school board, must attend the public schools.
Children whose parents are unable to clothe and feed them
during the school period are assisted by a public fund. At
the end of the year 1873 the number of children in
Sweden between the ages of nine and fourteen was
731,165, or 17 per cent. In that year nearly 83 per cent,
of those who for other reasons received no instruction,
were in institutions denominated "School for Housekeepers,"
and established for that purpose.

Norway had no educational exhibits beyond a collection
of materials for the free school, models of hand-writing,
books and maps.

Italy offered specimens of penmanship, maps in relief,
books and newspapers, and some preparations in publica-
tional anatomy and microscopy.

The Argentine Republic is the only South American
country which had any educational exhibit, this including
a few native school-books, educational statistics of certain
of the provinces, annuals of education, reading cards, sta-
tistics of certain schools and libraries—not including a praised
collection of books and periodicals, charts, maps, and plans,
which was quite large and important.

Japan was represented by every article of importance used
in the instruction of the Japanese youth, including text-
books, cases of stuffed animals, skeletons, pressed plants and
flowers, illustrations of the Kindergarten system, gymnasium,
dates, school libraries, and the weekly and monthly
reports of several Japanese schools. It is stated, in the
authority of a Japonic Gentleman, that while, thirty years
ago, the Government found it advisable to send young men
and women to Europe and America to receive full educa-
tion, now it is unnecessary, since Japan has schools at the
highest grade, equal to those of any other country

In the educational department the exhibits of the Curran
Schools were divided between the States of Massachusetts,
Wisconsin, Ohio, Rhode Island, New Hampshire, Illinois,
Maine, Iowa, Tennessee, Massachusetts, New Jersey, New
York—and the State of Pennsylvania, as presented in the
household special education building devoted to the exhibits
of that State. Among these, the State of Massachusetts
showed the largest, most comprehensive and most represen-
tative exhibition, including every article used in school
education under the Massachusetts system, which is gener-
ally admitted to be the most practical as well as most
scientific in use. The collection included plans of State
normal schools, with microscope and stereoscope views,
drawings from high schools and academies, photographs
of high schools in different towns, architectural draw-
ings, photographs from Harvard University, Amherst Col-
lege, Tufts College, and other universities and colleges;
reports, documents and views illustrating the various female
seminaries and military schools; specimens of materials
illustrating the processes in use at the institutions for
the blind and the deaf and dumb, annual reports of the Board
of Education and the school committees of its cities and
towns in the commonwealth; and, finally, a large collec-
tion of text-books and miscellaneous works, pamphlets and
periodicals, reports, public documents, plans and photo-
graphs, having reference in one way or another to the
subject of education.

The educational department of the Curran Schools was
divided into several sections or rooms by a corridor, with an
open hall in the centre, the walls of which exhibited from special schools, illustrating, in a curious and interesting manner, the
progress of education. Thus, one above showed the old-
time school-room with its appurtenances; an old hat and
coat hanging on the wall; a clumsy desk spotted with spilled
ink; a leather satchel, suggestive of castigation; an antiqui-
ous-looking basket, with a guard for a slinking dog; an old-
chafed stove; an old dog's-eared book; and the generally
dilapidated appearance common to the school-room of a
generation since.

Next to this above was a section representing the school-
room of the present. Here everything is new—new desks,
maps, books, all the modern paraphernalia. In the space
in the centre of the room, the building exhibited the latest
improvements in school-desks. Two sections were devoted to
the work of soldiers' orphans in different

ITALIAN FURNITURE.

IMPROVED PRONTOVAL RAILWAY FOR EASY TRANSIT.
SUNDAY.
MINERAL ANNEX No. 2.

The Main Building, which, like the No. 1, was an annex to the Main Building, was devoted chiefly to large masses of minerals and decorative specimens. This building concluded with a collection of Recent and Fossil Shells of the United States, with accompanying specimens of corals and crustacea, besides fishes, zoological species, and mineral specimens of different communities.

The exhibit of the State of Tennessee included the different exhibits of the State and County Superintendents; photographs of the Colored Training School at Jonesboro; examination manuscripts and geographical drawings from Memphis and Nashville; and a collection of Tennessee monkeys, skunks, and other Tennessee animals.

New York exhibited drawing instruments, models and manufactures of scientific institutions, maps, terrestrial and celestial globes, books, charts, and modernized natural history, schools and school furnaces.

In fact, the mineralogical exhibits from the Western and Southern States proved quite a surprise even to scientists, who probably did not expect to find the wonders of the country so richly endowed with minerals, or so rich in the matter of collections.
EXHIBIT OF MESSRS. E. BOE & CO., IN MACHINERY HALL.—THE HOE PRESS, PRINTING BOTH SIDES FROM THE ROLL, WITH FOLDING MACHINE ATTACHED.

Century for Women, which was entirely completed by women’s labor—publisher, editors, contributors and typesetters being all of that sex.

Women’s Art Gallery.
The collection of pictures in the Women’s Pavilion was not concluded upon until after the building had been constructed, and no proper space for the exhibition was included in the original design. A large number of paintings, drawings and statues were comprised in the exhibition, and, as might be expected, where but little discrimination was exercised, a majority of those works of art were not up to the standard of the other articles of women’s work exhibited in the United States. There were, however, some most creditable efforts, and our artist has wisely selected, in presenting his sketch, that portion of the gallery which contained certain articles of statuary, and the admirable drawings and statues were comprised in the exhibition, excluded in the original design. A large number of paintings, reaching from his shoulders to his feet— all these articles of wood containing jewels; and apron of the American colors windmill at top; a pair of inlaid spectacles of quaint structure; a collar of different kinds of wood about his neck; clasped with a six-inch buckle of wood; bracelets made of different articles of furniture comprised the costume of this unique figure.

Mr. McChesney, known by his title of “The Mohawk Dutchman,” will be remembered as the wood-sawyer in Machinery Hall, whose curious costume caused him to be constantly surrounded by an admiring crowd. This costume comprised an oval hat-frame of inlaid woods, having a small box in the shape of a boat, containing jewels; and apron of the American colors. Mr. Phillips was one of the original House Printing operators, and was instrumental in creating the first line worked on this patent between New York and Philadelphia, and of which he was manager. He also superintended the construction of the Police and Fire Alarm Telegraph of Philadelphia, of which he is still in charge, while his official management of the District Telegraph Company, in whose Presidency he has recently been elected, has gained for him the friendship and esteem of the entire mercantile population of that city. In his conduct of telegraphic matters at the Centennial Mr. Phillips, upon further examination, has developed the value and importance of his services, while the courtesy and kindness of his personal manners have been noted and appreciated.

A most important part of the running mechanism of the Centennial was the Telegraph Bureau, situated adjoining the Bureau of Public Comfort. Here a large number of instruments were constantly in use, while a complete corps of messenger-boys was in readiness at all hours during the day. From this point telegraphic dispatches could be sent to any part of the world, at present united with the grand telegraphic systems which do so much to facilitate the operations of civilization. Naturally for the conduct of this large and material portion of the business of the Centennial Exhibition there was selected the best possible talent available, and this was found in the person of Mr. W. J. Phillips, President of the American District Telegraph Company of Philadelphia.

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necessary relation with the Foreign Commissions, it is to be observed that Colonel Koch displayed so much good nature and deliberation, that a pull or depression of his arm caused the drilling holes from half an inch to six inches in diameter, properly and customarily addressed were being put up to 120 revolutions per minute, at the south end of the building, included 2,000 feet of the machinery connected with it. The active operation. Of course, the entire object of interest was the magnificent Ceres Engine, which we have already fully described, and which supplied all necessary steam-power. The machinery exposed consisted of various patents and inventions, and was of most ingenious and varied description. Here were apparatus used in mining, working in steam and water, in shaving, weaving, felting, paper-making; in sawing and manufacture of clothing; in setting, printing, stamping; in producing and transmitting power; in pumping, hoisting and lifting; in manufacturing by hydraulic and pneumatic force; in manufacturing locomotives and railway stock; in preparing agricultural implements, and in naval and marine engines. Here was witnessed during the Exhibition the processes of rock-drilling, of well-boring, of coal-cutting, of blasting, of planting, sowing, harvesting, of stamping; of cleaning, of stamping; of drilling, turning, punching; of slopping and polishing; of rolling iron, grinding glass, casting metals, and riveting, maling, boiling and melting by steam; the processes employed in the manufacture of cotton and linen goods, woolen, cotton and linen goods, yarn, twist, paper and felting, India-rubber goods, mixed fabrics and wire-cloth; mechanisms used in making clocks and watches, engines for grinding, printing, embossing and lithographing; type-setting and stereotyping; book-binding and paper-folding; generating power by hydraulic and steam engines, with the means for transmitting it by shafting, pulleys, cables, etc., in lifting and moving liquids and solids, expanding or compressing air or gas; engines for extinguishing fire, and apparatus for working by inch; mechanisms for manufacturing soda-water, bottling it and making the bottles; the dividers apparatus for the recovery of sunken treasures; a derrick; buffers, snow-plows, street-railways and horse-cars; grinding meat; refining sugar, making candy; preparing tobacco, oil, spices, and fancy goods; for brewing beer and liquors; for transporting cables; and finally, for the transportation of telegraph cables and railway trains, and propelling ships and vessels.

Great Britain

This country occupied much the largest space in Machinery Hall devoted to foreign exhibits, comprising 35,750 feet. This space was on the eastern end of the race and ran south to the south wall and north to the first avenue. In this space were exhibited the processes of printing, stamping, and nearly all of them in a paper-folder, was exhibited, and nearly all of them in a paper-folder, was exhibited, and nearly all of them in a paper-folder, was exhibited, and nearly all of them in a paper-folder, was exhibited.
there was an eight-color machine exhibited by Thomas Culh, of Manchester, who also sent a combined engraving and punch-making machine, a varnishing and cutting machine, engraver's block, and lathes and other interesting pieces of machinery.

The complete of cotton plate by C. Campbell & Co., always attracted a crowd. Most of the specimens had been used to test the red and were badly torn or cut by the shot. Among these was a piece of the thickest plate ever rolled, being 21 inches thick, and the manufacturer of the plate said they can roll very much thicker ones if no necessity. One of the most curious as well as instructive exhibits by the English was a water-wheel for steam boilers, consisting of a large number of vertical pipes, having machinery at their tops which a number of scrapers up and down the pipes to prevent scale from collecting. The fire is then spread through the pipes, and thus made to absorb the waste heat and heat the water before it passes into the boiler. By keeping the shot from these pipes it is claimed that fully 25 per cent. saving in fuel is effected. A sugar-mill, turned out of one of these boilers, having four miles of pipe, through which the water passes before it reaches the boiler. Great Britain also exhibited a handsome model of a pumping engine made in that country for Ferma, Italy. It had a pair of compound surface condensing engines, with patent centrifugal beam, and had a capacity for 2,000 tons of water a minute.

The weakness of Great Britain, however, in departments in which she ought to have been ready to compete with the world, was very marked. In steam engines, she offered nothing in comparison with the great Cotton mill, although the engine builders of England have a reputation which is world-wide. Cotton-spinning machines, which are expected to cost an amount of the wealth and industry of England, was displayed here only in one machine exhibited by H. Bock & Co., of London. Leeds sent a model of a spinning machine for the Jacquard loom, which represents so vast an amount of the work of many other English and foreign newspapers, and by London Daily News, where eight "Walters" are employed.

The printing-machine, which is used by the London Times, the London Daily News (where eight "Walters" are employed), by many other English and foreign newspapers, and by the New York Times, was exhibited by John Walter of London, its maker, and has given opportunity for comparison with our Hoe and other printing machines. A ribbon-printing and co-crushing machinery was exhibited by the Dunton Engine Works Company, of Dunton. It is a small engine, streaming engines for heavy large work, smithy, work, cutters, and hard work, stamps for forging in dies, and drills, and models for steam engines. The machinery exhibited by Messrs. Mackenzie, engine, London, the self-acting rewind for the Jacquard loom, is adapted for all kinds of ornamental figured fabrics. It is displayed on the principle of mathematical progression and geometrical neaterness. It dispenses with skilled labor of adults, and places the manipulation and the operation of the reader under the control of juvenile hands. One of his machines exhibited a combination of mechanism of a new construction, having a compound parallel and reciprocating motion applicable to a variety of other purposes, such as ruling paper, doing two sides of the sheet at the same time without change of press.

A manufacturer of handkerchief machinery in Leriche exhibited a large circular machine, having twelve feeders designed for making Cardigan jackets, and fitted with an adjustable machine to make the photo print work. A somewhat small circular machine for making Cardigan jackets, with felt and cuff complete, was also exhibited. Among the sewing-machines exhibited by four factories were the "Queen Mat," "Express," "Queen of Scots," "Clara," "Princess of Wales," "England's Queen," "Empress," "Queen of Hearts," and "Little Dort," displaying an amount of embellishment in the matter of sewing machine monograms scarcely to be expected. These machines were mostly of the Winder & Wilson and Singer class, having, however, some attachments and special improvements.

From Dublin we hail an exhibit of a hilarographing manifold transfer machine for the reproduction of printed matter in enlarged or reduced form from the original, used for the multiplication of printed books of various sizes, reproduced by the Typo-Elimin printing process for printing. A curious exhibit was found in the thermoelectric batteries, worked by gas, charcoal coke, or mineral oils. In their nature approaching the principle of the gas stove.

Mrs. Henrietta Humber, of Twickenham,
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

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exhibited her screw propeller system in wind in what is called the
Low-Vanstewart Curved Line or Three Pitched Wave
Pipe, Novelty, blowing, Economical Screw Pump
galley, as fitted by the British Navy and Merchant Service
by Mr. Warren Vanstewart, who is the Mr. Law, the
inventor of the screw propeller.
The large or tunnel system of life-preservation in case of
shipwreck, already alluded to, was exhibited in a model.
The principle of the system is easily explained. A compart-
ment is distinct and detached from the ship is built
within, large enough to contain provisions for the
voyagers, if required. Should the vessel
fall to, detach itself from the ship, the
latter would carry the former, and it would be
with hawsers, and was lateen-rigged. A
model of a three-masted mail steamship. Siphon pumps, rotary pumps, fire-
backs, some armor plate and heavy driving-wheels were
sent for along with hawsers, and was lateen-rigged. A
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model of a three-masted mail steamship. Siphon pumps, rotary pumps, fire-
handling apparatus, and other similar machinery com-
proved the exhibits in the pump annex. Altogether, the
German machinery exhibition, always excepting the Krupp
guns, has not been particularly remunerative in the way of
educational effect.

FRANCE.
The space occupied by France in Machinery Hall com-
plicated 11,129 feet in the extreme northwest corner of the
building. As is the case with the foreign sections in
general, that of France gave no just ideas of the condition of
science and mechanical industry in that country. Many
of the leading manufacturers of France, well known the
world over for the quality of their work, and which should
properly have found a place in Machinery Hall, were absent.
Among the interesting articles on exhibition, the fine
chromo-lithographic press of Amelot was especially notice-
able. Another important collection was that of mining
tools, exhibited by M. Dubrulles, containing all the
varieties of this article, from the open air lumps to the last
perfected model originating in the Dury lamp, and which
by an ingenious combination of glass and metallic network
received the maximum of illumination with the maximum of
security. An admirable peculiarity of these lamps is that
they are not only a protection to the miner against the gas
which so often causes the most terrible catastrophes, but
are also a protection against himself. It is well known that

THE JAPANESE BASKET

improved patent copper lightning conductors for the pro-
tection of ships and buildings from damage by lighting.
In the matter of screw propulsion we had another exhibit
by William Hewitt, of Bristol, who sent a model of a
futurist screw propeller. The same exhibitor offered an
improved gun-carriage and improved Brooks loading gun.

GERMAN EMPIRE.
The section allotted to the German Empire comprised
the extensive southwestern corner of Machinery Hall, next
to that of Great Britain, and included 10,000 feet of space,
besides about 800 feet in the pump annex. Germany made
only 46 exhibits in all, of which certainly the most important
and attractive were the Krupp guns, from the great works
dedicated to the manufacture of firearms, Frederick Krupp, at Essen, which
were established in 1831 for the manufacture of arms, files,
wheels, hands, springs, rollers, steel for tool and springs and
steel, and received premiums at the London Exhitions of
1851 and 1862, Paris 1867, and a diploma of honor at the Vienna Exhibition of
1873. The largest of the Krupp canons was probably, after the Corliss Engine,
the most striking article exhibited in Machinery Hall. It has a caliber
of 1 1/2 feet, is 261 feet long, the bore extending 21 feet, its weight 128,750 pounds. The
tree has 78 parallel grooves of a uniform twist, of twice the
whole length of the gun. To load the latter with a steel

many tobacco-spinning machines previously mentioned
patent tobacco-spinning machines previously mentioned
were shown with samples of twist tobacco spun in various
places in Europe.

The Mirkos sugar-mill makes from 5,000 to 6,000 pounds
of sugar per hour, and this firm exhibited a smaller mill,
designed to make from 260 to 300 pounds per hour. The
patent tobacco-spinning machines previously mentioned
were shown with samples of twist tobacco spun in various
places in Europe.
Previos. A tapestry loom and a joint exhibit of brass and copper completed all that was noticeable in the French exhibition in Machinery Hall.

**Belgium, the Netherlands, Sweden, Norway, Italy, Brazil, and the Argentine Republic.**

Belgium had only 26 exhibits in Machinery Hall, one of which, entirely enough, was a Cofa Engine; the idea in sending it being to compliment the distinguished manufacturer. The further exhibits of machinery included a drilling-machine for mines and tunnels, with models of plans and shafts sunk in Belgium, safety lamps and wick: for mines, models of a trepan-hammer and of steam shovels, machinery for making bolts, well-draining machines, forstoming and embreeding-machines, sewing-machines, some wooden printing types, crank-wheels, railway-baskets, a fire-engine, some pumps, and specimens of belting.

The Netherlands sent a sewing-machine from Utrecht, and another an apparatus for heating railway-carriages. The exhibits of Austria included model of a glass-melting furnace, models and apparatus for the arrangement of bridges, Jaegersburg machines, water-wheels, gas-engines, boilers, an invention for guarding against locomotives' sparks, and machines used for the manufacture of candles.

The exhibits of Sweden were all there for the arrangement of metal-melting furnaces and mold for casting metal, and on both sides of the nave comprised 1,500 feet. Canada had a very creditable display. A steam drill which works in any direction, a wood-working machine a gold-quartz cracker, and some pieces of iron and wood, were among the more notable exhibits. The steam-crushing machinery, by-the-way, came from Haag, Nova Scotia—Nova Scotia being essentially a gold-quaking country, though the business is so quietly conducted that Americans know very little about it. The wood-work machinery comprised a barrel-making machine, sand-making machine, a turning lathe, planing and polishing-machine, chiefly from Ontario. A self-setting band-loom, and a combing-machine for hand-makers were all there exhibited in the way of machinery for making flax and cotton materials. Quite a number of sewing-machines and needles were sent from Quebec and from Ontario. In uniform and apparatus for the generation and transmission of power we had steam-bolters and steam-engines, water-wheels, gas-engines, rotary engines, a miniature steam-engine from Dartmouth, Nova Scotia, some propeller, etc., from different sections of the Dominion.

Quite a number of pumps of all kinds were exhibited, besides hydraulic elevators, hydraulic motor, a steam fire-engine, fire-escape, fire-extinguishers, diving apparatus, and submarine armor. Manufacturers in the interest of railroads included all sorts of appliances to locomotives and cars, as well as safety switches, railway and telegraph signals. Machine for agricultural uses comprised two or three tobacco-machines and cutters, loom-machines, cracker-machines, and milling-stones. A few models of ships and boats were exhibited, and exhibits were also made of various parts of a ship, wheels, winches, capstans, etc.

**Canada.**

The space occupied by Canada was between the sections of Germany and France at the eastern end of the building, and on both sides of the nave comprised 1,500 feet. Canada had a very creditable display. A steam drill which works in any direction, a wood-working machine a gold-quartz cracker, and some pieces of iron and wood, were among the more notable exhibits. The steam-crushing machinery, by-the-way, came from Haag, Nova Scotia—Nova Scotia being essentially a gold-quaking country, though the business is so quietly conducted that Americans know very little about it. The wood-work machinery comprised a barrel-making machine, sand-making machine, a turning lathe, planing and polishing-machine, chiefly from Ontario. A self-setting band-loom, and a combing-machine for hand-makers were all there exhibited in the way of machinery for making flax and cotton materials. Quite a number of sewing-machines and needles were sent from Quebec and from Ontario. In uniform and apparatus for the generation and transmission of power we had steam-bolters and steam-engines, water-wheels, gas-engines, rotary engines, a miniature steam-engine from Dartmouth, Nova Scotia, some propeller, etc., from different sections of the Dominion.

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**United States.**

Excepting the allotments of space already enumerated as given to foreign countries exhibiting in Machinery Hall, the United States exhibits occupied all the remainder of the building—that is to say, about four-fifths of the entire space. Of course it would be utterly useless, as being to a great extent
In one section of Machinery Hall, both as an exhibit and for its practical use. As instant means of having some notion with this stupendous engine which is worth recording, a gentleman who gave his name as Levy Taylor, of Indiana, stepped up to the engine one day, when it was seen by a crowd of men and women, and taking from his pocket a small tin case, opened it and removed therefrom a mongrel-looking singeing lamp, which he lighted, after which he placed his machine on the platform of the great engine. This proved to be a perfect steam engine complete in all its parts, the entire apparatus occupying seven grains, while the engine proper weighed but three grains. It was made of gold, steel and platinum, its foundation being a 25-cent gold piece, and many said that in the light of that lamp they could not see without a magnifying glass. The fly-wheel was one quarter of an inch in diameter, the stroke three-quarters, and the speed was 4500 revolutions per minute. The gentleman disappeared with his engine, and nothing was ever heard of it afterward.

Before proceeding further with Machinery Hall, we give a little space to the fine building erected near the western end of the grounds. Here were exhibited saws and axles from the Lane Manufacturing Company, of Montgomery, Ohio; Hunter Manufacturing Company, of Erie, Pa.; Harper & Co., of Philadelphia; Class Turbine Manufacturing Company, of Orange, N. J.; Wells Balance Engine Company, of New York; W. E. Powers, La Grange, Wis.; Harvey Eaton, Lockhaven, Pa.; C. H. Waytan, Stanford, Ontario; E. F. Allis, Milwaukee, Wis.; James & Kennedy Company, Cincinnati; Knecht Lumber Company, Warren, Pa.; W. H. Brown, Fleischburg, Mass.; Duggan, New York City, and others. The exhibits included circular sawmills, log-sawers, stave and box-boarding machines, a machine from California for cutting logs, lathes, machine tools, for cutting diamond saw-mill, and other machines of the same character. The stone saw-mill, with its 48-inch circular saw armed with 84 diamonds, attracted a great deal of attention. This is a Mission's invention, and is called "The Stone Monarch." The fit-wheel makes 900 revolutions per minute, and cuts solid stone from 6 inches to 2 feet per minute; while the under saw, 29 inches in diameter, makes 2200 revolutions per minute, being used for cutting or trimming doors, muntins, or fillet-work. One very heavy saw-mill, built principally for heavy lumbering interests, combined numerous improvements: one being a system of lubricating and cooling the entire surface of the saw on both sides, by means of water passing from the outer to the inner; and another, so constructed that it would be impossible to turn all danger to the operator. A embellishing-machine was the well-known "Flanget", the only existing machine which does the work on the under side of the saw-tooth.

Returning to Machinery Hall and rambling the farther end in such a description as is proposed here one can begin anywhere, we will commence by referring to Machinery Hall for the purpose of displaying the process of printing wallpaper. The frame of the machine is 15 feet long, and about the same in height. Made of iron-cylinder six inches in diameter. This is covered with cotton, and an endless roller, revolving a cushioned surface to receive the imprint of the printing-rollers as they revolve against it. For printing-material, wood is generally employed, though blocks of metal are now being introduced. The design being sketched on the roller, it is outlined with brass driven firmly into the wood, and this is filled in with compact filler. This is called raised or relief printing. Each printing-roller being set against the cylinder, is supplied with the color which it is to print on the paper by means of an endless smear-coated cloth. The two rollers against the upper part of which the printing-roller revolves, the lower part being in contact with another roller in a box or pan filled with the color which roller is to imprint on the paper. By this mechanism, boxes being printed, the paper is cut into sixteen yard pieces, which are afterward folded into the ordinary rolls of the shops.

Near the Corliss Engine, a dozen young ladies were constantly engaged, during the Exhibition, in making the finest portions of mechanism employed in the manufacture of machines, by the Wellesley Watch Company. These parts are so small and so exact, that the machinery for their construction is necessarily delicate and perfect, and the process of manufacture of one is the curiosities of American mechanism.

New England was particularly strong in tools, and the exhibition in this line was most instructive, and was viewed with unflagging interest by foreign visitors. The manufacturers of the Pratt & Whitney Company, of Hartford, Conn., were specially worthy of notice, and their machine tools have a world-wide reputation. Recently this company has fitted up for the German Government three large armories, those of Erfurt, Dantzic, and Stammnitz. Among their machines on exhibition was one for nailing gun-bullets, the only piece of machinery in the department, and certainly a most ingenious article of manufacture. Other machines were those for screw-making, milling, bar-grinding, planing, drilling-machines, grinding-machines, screw- and tappine machines, scissors-flushing and polishing machines, assemblers, sealers and testers for cotton and woolen manufacturers'...
use, press-cuttings for gas-works, irregularly formed sawing machines, besides trimming and stamping machines for cotton-rolls, paper-mills, manufacturers, etc. 

Mechanical Hall presented a rich and varied display of machinery for many purposes. Small drills, perspectival drills, steam or compressed air rock-drilling machines, machinery for boring arborescent wells—some of these, outside of the building, were seen in operation, specimens of each being shown in different styles, some of them being elaborately ornamented, and making a very hand- some display. Among these may be mentioned the three of these are now in operation, nine in this country. 

the manufacturing and utilizing of gas was fully illustrated in the Exhibition: gas meters, gas regulators, gas generators, portable gas machines, dry separators, presses for removing naphtha-line, and photometers for measuring and testing gas. 

In wood-working machinery, there were mechanisms for cutting, planing, shaping, Rasching, planing and polishing machines, manufacturers' tools, and amateur printing-presses. Seventy printing presses, automatic paper-feeders, and Mr. S. D. Tucker. This press works a roll of paper which is 

and they make 50,000 scales yearly. They hold 28 patents. The Buffalo Scale Company, exhibiting a steam fire-engine, and large quantities of mechanism. One of these has a capacity of 75 tons, another of 40,000 tons. New machines for cutting cottons and other materials were also exhibited. 

In the manufacture of clothing all the well-known sewing-machines were represented in operation, specimens of each being shown in different styles, some of them being elaborately ornamented, and making a very hand- some display. Among these may be mentioned the 

and without doubt the printing type; and exhibits in bookbinding, the form, the other being the impression cylinder. The 

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ing type, are represented in operation, specimens of 

in this line ever manufactured. Other scales, besides the American button-making machinery, make 50,000 scales yearly. They hold 28 patents. The 

in the Exh. had a duplicate of the famous Massachusetts verticalSPRING and IMPRESSION CYLINDERS, and arrange it so that the 

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and without doubt the printing type; and exhibits in bookbinding, the form, the other being the impression cylinder. The 

are — two of them are in use in Australia. 

the sample. Among these may be mentioned the 

the National Suspend* 

the National Suspend* 

of Boston, Mass., who 

and fire extinguishers 

and fire extinguishers 

and fire extinguishers 

a large, solid marble table from the Butland (Vt.) 

in this line, and one of these having a weighing capacity of 12,000 pounds, the machine being exhibiting over a ton. A compound beam for weighing heavy castings up to 30,000 pounds was exhibited by a Manchester firm, as also were several of the improved pieces of mechanism. One of these has a capacity of 75 tons, another of 40,000 tons. New machines for cutting cottons and other materials were also exhibited. 

In the manufacture of clothing all the well-known sewing-machines were represented in operation, specimens of each being shown in different styles, some of them being elaborately ornamented, and making a very hand- some display. Among these may be mentioned the
necessary change of valves which brings the entire system of the works into service. By this means the supply of water can be sent in any direction at a moment's notice.

Of course, the hydraulic or pump engineers were great waterfowlers and surpising curiosities in the way of blowers and powerful pumps, was an immense attraction to visitors. The great tank, holding nearly 500,000 gallons of water, the numerous streams pouring into it, varying between an inch in diameter and the great cataract, amounted to from 30,000 to 50,000 gallons every minute. This water was mixed into the tank by means of two 15-inch centrifugal pumps with 15-inch suction pipes, the pumps being driven by two oscillating engines with 22-inch cylinders and 15-inch strokes. The power of these engines was about 125 horse-power each; and this power being transmitted to the pumps by gearing, gave the latter about twice the number of revolutions of the engines. Immediately adjoining the pumps and constructed by the same firm, Messrs. Andrews & Brothers, of New York, was the elevators employed for carrying visitors to a platform running around three sides of the iron frame-work of the exhibited, and presenting a most interesting bird's-eye view of the hydraulic apparatus, the great turbine engine, and other leading features. The same firm exhibited smaller uprights of a similar construction at full operation, discharging powerful streams into the main tank. It is said that these pumps are largely used for reclaiming low lands in countries like Holland.

The importance of the steam-pumping apparatus in mining cannot be overestimated. In fact, without them the vast mining interests in this country, such as those of Nevada, for instance, could not be conducted. In this connection the exhibits of the Knowles Steam-pump Works of New York were of great importance. This concern are now in use in mines all over the United States. Combining the steam-engine and pump in one, they are particularly advantageous. Some of them for coal-mining, others for copper and iron mines. Combining the steam-engine and pump in one, they are particularly advantageous. Some of them are made of iron. Special exhibits of pumps for copper and iron mines. Combining the steam-engine and pump in one, they are particularly advantageous. Some of them for coal-mining, others for copper and iron mines.

Another firm, the Danforth Locomotive and Engineering Company, of Paterson, N. J., exhibited a large locomotive having a 16-inch cylinder with 24-inch stroke and 40-incli driving-wheels, which were formerly used. Another Paterson firm, the Danforth Locomotive and Engineering Company, of Paterson, N. J., exhibited a large locomotive having a 16-inch cylinder with 24-inch stroke and 40-incli driving-wheels, which were formerly used.

Next to the Baldwin exhibit came that of the Rogers Works, Paterson, N. J. This had a handsome freight locomotive, having a 16-inch cylinder with 24-inch stroke and a driving-wheel 56 inches in diameter. The tender was 16 feet wide—six feet, and at a distance of three miles from the source of supply. The power for the pumps of the Giant Manufacturing Company also deserve notice. These pumps have two toe-constructors, so as to mesh into one another with the most perfect unity, with the minimum amount of friction. Of these discharges 21 gallons at each revolution. A small hand rotating pump and a hydraulic ram, with glass side-ends, took part in the operation, were included in this exhibit. The Norwalk Steam Pump, the Niagara Pump, and the Duplex Fire Engine Pump, of Crane Bros., Chicago, were still other important hydraulic exhibits. This latter has a capacity of 1,200 gallons of water a minute. Besides these, there were exhibits of the Valley Machine Company, of Hampton, Mass., in bracket engines; the Union Manufacturing Company, of New Britain, Conn., engines, pumps, etc.; the La France Company, of Elkins, N. Y., rotary pumps and fire-engines; the curious submersible steam-pump exhibited by J. S. Grossman, of Jersey City, New Jersey, which is operated by a pressure of the steam on the surface of the water; White, Clark & Co., of Baldwin, N. Y., centrifugal pump; Hydrostatic and Hydraulic Company, of Philadelphia, compound propeller pump for springs and mines and other firms exhibiting large pumps for vessels, force-pumps, blowers, air-compressing engines, filtering apparatus, and other similar machinery.

The exhibits of locomotives and railway apparatus in general included nearly 75 names of manufacturers, and comprised locomotive engines and tenders, power-breaks, model engines, tender and engine indicators, snow-plows, automatic couplings, brake-rams, engine-wheels, tires and castings, and spiral springs for cars and locomotives. A very important exhibit in locomotives was made by the Baldwin Locomotive Works of Philadelphia, which exhibited six out of the fourteen locomotives shown in the United States section. To all those who examined these gigantic mechanical structures it has been demonstrated that in their grace and beauty of manufacture were not inferior to power; and that while gigantic in size, they are in no instance unwieldy or clumsy. The Baldwin Locomotive Works turn out over 500 locomotives a year, although it takes several months to build one. A freight locomotive was exhibited which has cylinders 20 inches in diameter, with a stroke of piston 24 inches. Four pairs driving-wheels (56 inches) in diameter and a two-wheeled pony-truck have in these machines the power to push a train weighing 40,000 pounds. The three-foot narrow-gauge engine, the "Valeen," and a small narrow-gauge engine. In the former, the diameter of the driving-wheel is 62 inches, and the engine weighs 45 tons. The three-foot narrow-gauge engines, axis for passenger travel, have been shown at the Philadelphia Fair, and are remarkable well-constructed four-wheeled passenger engines, having 42-inch driving-wheels; and the second, a three-foot narrow-gauge truck, also for passenger travel, which was exhibited in Machinery Hall, will produce in a single day an aggregate of 100 to 150 hogsheads of sugar. The juice is then taken to large iron tanks, where it is allowed to stand under the influence of air and the heat of the sun. The tanks are made of iron, and are placed over gutters, by means of which the molasses drains through the perforations in the tanks into the market, while the tanks are heated with steam pipes. The molasses is tempered by the gases passing through the train—and the others are heated by the gases passing under them. The cane-juice being first put into the large kettles, is allowed to stand in a position, and then the juice is filtered by the use of funnels, after which it is ready for the market, while there is little or no loss of sugar. The juice is then filtered by the use of funnels, after which it is ready for the market, while there is little or no loss of sugar. The juice is then filtered by the use of funnels, after which it is ready for the market, while there is little or no loss of sugar. The juice is then filtered by the use of funnels, after which it is ready for the market, while there is little or no loss of sugar.
The barrel-making machinery of E. & B. Holmec, of Buffalo, was another valuable and interesting piece of mechanism. By this machine, through the medium of a wheel, fitted with self-seting knives, and which turns at the rate of 1,000 revolutions a minute, rough staves are first cut to a smooth surface, and then beveled so that when put into their proper position, they will make an exact barrel. The staves, thus prepared, are set into a strong iron hoop, a thick wire rope, which is attached to a windlass, being thrown about them; the windlass being started, the staves are drawn together by the rope; another very strong iron hoop is dropped over them, the two middle hoops are then applied in the same manner, and the rope is released. Next, the joints are tightened by pressure in another machine, so that the barrel cannot leak. This, which is called a "truss-machine," tightens 4,500 barrels a day, and employs only a boy to put the barrel into the machine, and adjusted on the windlass, turns, it included a spinner, which cuts the beveled edge on the inside of the ends of the staves, and the groove into which the head of the barrel is fitted. The head is composed of pieces of the same wood as the staves, joined together, forming a circle. It is placed in a cutting-machine, which gives it a double bevel by one motion, having an edge which fits neatly into the grooves cut into the end of the barrel. The barrel having been covered with ordinary wooden hoops, the iron hoops are removed, and the head is placed in position at either end by removing the hoop nearest to the end, thus allowing the staves to spring outward sufficiently to allow the head being placed in a position to enter the grooves, when the top-hoop is replaced. By these barrel-making machines, three thousand finished barrels a day can be turned out.

The silk-machinery exhibited by the Dunforth Manufacturing Company, of Paterson, New Jersey, was interesting and striking. It included a spinner, winder, doubling and twister. Raw silk is wound around winders and transferred to bobbins, which then go through doubling-machines, on which from 3 to 10 threads are wound together. Whenever a thread breaks, the machine instantly stops. The bobbins are next taken from the doubling-machine and adjusted on the spinner, in unwinding makes a strand. From here the bobbins go to the twisting-machines, where machine-twist is manufactured from three bobbins, and wound off from two. After being twisted, the silk is wound into skeins and washed in strong soapsuds. Then it is tied and stretched. From this it goes through the drying process, and is then wound for the purpose of spooling. On a spooling-machine winds 100 dozen spools a day.

The machinery for the manufacture of India-rubber goods has attracted much attention for its ingenuity and the novelty of its operations. A machine of crude rubber is first put into a machine, consisting of two corroded iron rollers, about 12 inches long and 11 inches in diameter. As these wheels revolve, a stream of water is poured on the rubber to result in that is a short space of time the size of the rubber, weighting from 9 to 10 pounds, is converted into a narrow sheet about 12 feet in length. For two weeks this is hung up in a drying-room, where it is dried thoroughly. The next process is that of vulcanizing, the rubber with the chemical ingenuity employed for the purpose, it being run through a grinder or mixer, from which it emerges in a condition somewhat similar to that of dough. Vulcanizing is combining sulphur with rubber, and subjecting the mixture to great heat. From the grinder the rubber is passed to another machine, from which it comes in a thin sheet which is impressed by the rollers through which it passes, the rollers of the upper part of a shoe, then by another process with the sole of the shoe. These stamped sheets are then placed over glass plates to prevent their adhering. The next machine consists of three chills iron rollers, placed one above the other. One roller is fitted with an edge coating of rubber fed from above. Cloth to be coated is introduced through the three rollers, and as it passes through, it receives an even and uniform coating of rubber. These coated sheets are now carried to work-belts, where women employ the various parts of an overseer, and stick them together. When complete, the shoe is varnished, and after varnishing the vulcanizing process is finished, a bunch of shoes being placed on a car and run into a brick oven, where the temperature is about 270 or 280 Fahrenheit, where they remain for several hours. One woman will put together 60 pairs of rubber shoes a day, and one set of machinery will make 500 pairs.

The spooling-machine exhibited by the George A. Clarke Thread Company, of Newark, N. J., is a most ingenious piece of mechanism. It is self-acting and winds eight spools at once, taking them up from the hoppers and changing them with 200 yards of cotton thread wound upon each. Each takes on the other side the attendant hardly keeping machines supplied with spindles of cotton, and the hoppers with spools, removing the spools when wound. When the machine is started the cotton begins to wind on the spool with the regularity and convenience which is peculiar to the article. When the last spool is finished the action of the machine comes automatically, a chisel descends and cuts a nick in the spool, the cut
of the thread is drawn into the needle and secured by a corder, the speed is increased and a new one is commenced upon. Want of space will prevent our entering into any further details as to the machinery exhibited by the United States in Machinery Hall. Very much of this is familiar to our readers, and it is the gathering together of so many thousand separate specimens of ingenuity and invention within the limits of one space that is remarkable and interesting, rather than the articles themselves in their technical description, which can scarcely be made entertaining on paper. It is however, in our exhibits of machinery that we have shown the foreign world represented at the great Centennial Exposition the impossibility of competing with us in any hope of success. No such gathering of ingenious inventions has previously been made, and whilst unabashedly in the competition with other nations in articles of beauty and elegance, the United States can fear competition with other nations in articles of utility. The remainder of this work will be devoted to an examination and presentation of the statistics of the Exposition, and such collateral facts as are likely to be of interest to the reader.

DEPARTMENT OF PUBLIC COMFORT.

Or all the millions of visitors to the Centennial, whatever memory of the Exhibition each may have carried away, and whatever detail may have been forgotten or escaped notice, there is probably not one who will fail to recall the Department of Public Comfort. This institution, so purely American and so unquestionably original for parties who separated on entering the grounds to meet at appointed hours after the inspection of various buildings. A package-room gave convenience for leaving valises, umbrellas and small parcels, these being checked for delivery on being called for. At the sales-counter could be obtained not only umbrellas, canes and other articles of use or necessity, but numerous little souvenirs in the way of small jewelry, lacquer boxes, fans, etc., all of which were held at reasonable rates. As an illustration of the success of this business, it may be stated that one party who kept a counter in the Public Comfort Building.
Hayden's U. S. Geological Survey.

Dr. Haydn, of the U. S. Geological Survey, is a native of Massachusetts, who emigrated to the West early in his life, and graduated at Oberlin College, Ohio. Subsequently he devoted his attention to geology, making several trips to the Far West, where he brought back a large collection of specimens. In 1865 he was elected Professor of Geology and Mineralogy in the University of Pennsylvania, which position he continued to hold until 1872. The United States Geological Survey owns its origin to the following facts: In 1867, when}

...
water-color sketches were also exhibited, showing the beautiful color of the hot springs of the Yellowstone and zoology and paleontology. A number of sections, bulletins, miscellaneous publications, and reports upon zoology and paleontology. A number of water-color sketches were also exhibited, showing the beautiful color of the hot springs of the Yellowstone River.

There were also panoramic views of mountains, and two large volumes filled with photographs of Western scenery and representatives of the Indian tribes of the West. One case on exhibition contained a complete set of the publications of the survey, including the annual reports, profusely illustrated; maps and sections, bulletins, miscellaneous publications, and reports upon zoology and paleontology. A number of water-color sketches were also exhibited, showing the beautiful color of the hot springs of the Yellowstone and the centre of Colorado; while two large cases contained fine specimens from the geysers and hot springs, and fragments of pottery, arrow-heads, stone axes, pipes, etc., from the ancient races inhabiting this region.

NEVADA QUARTZ MILL.

An important exhibit in the mining interest was the quartz mill shown in active operation at the Exposition, a most appropriate representation sent from Nevada. This mill cost $20,000, the entire expense being covered by an appropriation of the Nevada Legislature. By a mutual arrangement, material to be used in the mill was furnished by the Consolidated Virginia, the California, and the Helena; the product being kept separate, and sold for the benefit of the respective companies. The quartz, which had been furnished in sacks holding about a bushel each, was supplied to the stamping box, where it was kept in constant movement by revolving arms. The affinity of quicksilver for silver caused it to seize upon the latter, with which it amalgamated; after which, the two mixed metals were placed in iron pans and heated in a retort, when the mercury passed off in fumes, being afterward condensed and collected again and again, to serve the same purpose. This mill will be remembered as standing back of Machinery Hall, a little west of the hydrometallurgical annexe. Besides displaying the crushing and amalgamating machinery, its contents also numbered all kinds of mining implements, while, from the pure silver furnished by the mill, medals were made at the Philadelphia Mint bearing appropriate devices and containing 81.29 per cent of silver, these being sold at $2 each, as souvenirs of the Centennial Exposition.

METEORITES.

Among the natural curiosities which were exhibited at the Centennial Exposition, the meteorites were certainly the most remarkable, and probably to a large majority of visitors the least known. Four such specimens were exhibited: one from Chihuahua, Mexico, in the Mexican department of the Main Building; one from Ovifak, Greenland, to be seen at one of the entrances on the northern side of the Main Building; and two in the Government Building—one from Tuscon, Arizona, and one known as the “Blake,” from Tennessee. Of the existing collections of meteorites, that of the British Museum ranks first in importance, that of Vienna second, the Paris collection third, and that of Prof. Charles Hugh Shepard, of Amherst, Mass., fourth. In the last named collection no less than 254 meteorites are represented, the total weight of the collection being about 1,200 pounds; the heaviest specimen weighing 438 pounds, and the lightest half an ounce. The largest meteoric stone in the Professor’s collection weighs 573 pounds, and is from Waccaca, Kansas. Other important collections in the United States are those of the Academy of Natural Science of Philadelphia, Yale College, and that of Professor Smith, of Louisville, Kentucky. The Ovifak (Greenland) meteorite already mentioned, and the heaviest specimen on exhibition at the Centennial, weighs 60-200 tons; it is one of the group of iron meteorites discovered upon the shores of Greenland, by Professor Nordenskiold, the celebrated

MEXICAN SECTION, IN THE MAIN BUILDING.
United States Navy, in which service he entered at the age of thirteen. In his new and responsible position Mr. Childs was endowed with an experience, that sense of order and that spirit of discipline in this place.

tune of the gentleman, some particulars having been the foundation of the for

After a time the face of young Childs grew to be familiar to booksellers throughout the country as representative of works.

the earliest issues of penny papers in Philadelphia. Here he was both industrious and successful, and growing by his own efforts, at the age of twenty-five years, he had obtained a proprietorship of this journal, Mr. Childs at once doubled the number of works, issued during this period such important works as "Benjamin's Law Dictionary," and "Institutes of American Law," "Fletcher's Brazil," and, most of all, Mr. S. Allibone's "Dictionary of English and American Authors," which, with special courtesy and a due sense of appreciation, was devoted to its distinguished author to Mr. Childs himself. It would appear, from what we can learn of both.

JAPANESE CABBIST.

A covey of the Public Ledger lies here to which Mr. Childs was first introduced, and by becoming the proprietor, Mr. Childs has made his name honorably known not only in the city of Philadelphia, but among the old residents that there was a short time to be known and to make friends, he was pre

His first move in its conduct was a revolutionary one. Despite the change in prices and values which the policy of the New York Ledger is straightforward integrity of purpose that is characteristic and such only, as were within the line which divides the real interest of the public from that which is fictitious. In its policy of business economy, the Ledger has followed the plan of treating each of its own merits, and without bias, or regard for personal opinion or criticism.

In its interior management, Mr. Childs has never failed to introduce the Ledger establishment all improvements and inventions, which, in his judgment, were calculated to make his business as attractive to the public as possible, to give the comfort and interests of his employees. On June 20, 1857, the Public Ledger took possession of a building especially constructed for its purpose, in the southeast corner of Sixth and Chestnut Streets, Philadelphia. Erected and fitted under his own personal direction, this building became the establishment of the kind in the world. Here, where Mr. Childs had full discretion and control in carrying out his own plans, he devoted himself to arrangements calculated to render those in his employ ment to work in a manner the most agreeable and most beneficial to themselves, as well as with a proper consideration for the interests of the stockholders, which should devolve upon them in advancing his own interests and those of the important cause.

Thus far, we have considered Mr. Childs in his accumulative capacity alone. It will be to us now to look upon him in his character of a public officer, to take a view to seeing what light he presents himself in his employment thereof. We are told in the writings of Mr. Childs: "All the aids to the cause are the means of adversity." This is a position which need not be praiseworthy, yet with what added sweetness should be desired? the man who has gained unto himself its many advantages! In this country, of which he has perhaps the brightest reflection in its own eyes, we do not meet with so frequent, so frequent, so frequent things as precisely these...
where he lives and where naturally the most of his wealth is disposed, but throughout the country, and even abroad.

But there are many ways of dispensing wealth to public advantage than by charity alone. By freely opening his residence on the evening of May 10th, 1870, the Childs's residence, the public benefit in some measure was inure to. On this occasion there were present the President and First Lady of the United States, the Governor and First Lady of Pennsylvania, the Governor and First Lady of New Jersey, the Governor and First Lady of Delaware, and the Governor and First Lady of Maryland, with their staff officers; leading members of the United States Senate and House of Representatives; generals, admirals, sheriffs, sheriffs, military and naval officers, eminent judges, lawyers, prominent divines, presidents of colleges, authors, journalists, artists; in fact, men famous in every branch of professional and private life. And this instance, except in the remarkable comprehensiveness of its scope, as to the gesture, merely illustrates the rule in Mr. Child's social life. Scarcely a prominent visitor from abroad arrives in this country who is not furnished with letters of introduction to Mr. Child's fealty by him. Compare such generous courtesy to the representatives of foreign aristocracy, wealth, and intelligence with the refinement of delicate appreciation which imbued Mr. Childs, during the continuance of the Centennial, to furnish with the means to visit the Great Fair not only numbers of poor women who would otherwise not have seen it, but also as many as two thousand children who, through Mr. Child's liberality, were sent happy huri, to the wonderful Exhibition at Fairmount in furnished with good dinners while there enjoying the show. Children of the Philadelphia Deaf and Dumb Asylum and those of other public institutions of that city were thus favored, and in the case of the House of Refuge, it illustrates the peculiar quality of his thoughtfulness that he made a special request that its inmates should be permitted to lay off the uniform which is their badge, while visiting the Exhibition, and wear new suits to be supplied and paid for by him. It is in his peculiarly happy faculty for discrimination in the awarding of his benefits and in his methods of distribution, as much as in the lavishness with which he yields up to public and private assessment such a material portion of his fortune, that Mr. Childs is specially distinguished.

Not an unsuitable illustration of this characteristic, possibly, was his gift of a memorial window in Westminster Abbey in honor of the poets George Herbert, Charles Wesley and William Cowper. This memorial gift was merely occasioned by the receipt on the part of Mr. Childs of a circular from the committee of English gentle, men who had the matter in hand. In considering this instance of the refinement of generosity, it should be remembered that it illustrates the patriotism of the man, no less than his liberal impulses. The placing of a memorial window in Westminster Abbey—the shrine of all the memories that by the English-speaking population of the world are held dearest—was a truly graceful act, associating the American people with their English brethren in a most generous and most fitting tribute to man the world delights to honor.

Mr. Childs's residence was a talisman, and it was pleasant to see how a nobleman like the Duke of Buckingham was remembered that it illustrates the passing of the show. Children of the House of Refuge, it is in his peculiarly happy faculty for discrimination in the awarding of his benefits and in his methods of distribution, as much as in the lavishness with which he yields up to public and private assessment such a material portion of his fortune, that Mr. Childs is especially distinguished. Not an unsuitable illustration of this characteristic, possibly, was his gift of a memorial window in Westminster Abbey—in honor of the poets George Herbert, Charles Wesley and William Cowper. This memorial gift was merely occasioned by the receipt on the part of Mr. Childs of a circular from the committee of English gentle, men who had the matter in hand. In considering this instance of the refinement of generosity, it should be remembered that it illustrates the patriotism of the man, no less than his liberal impulses. The placing of a memorial window in Westminster Abbey—the shrine of all the memories that by the English-speaking population of the world are held dearest—was a truly graceful act, associating the American people with their English brethren in a most generous and most fitting tribute to man the world delights to honor.

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THE SILK INDUSTRY IN AMERICA.

Paterson, New Jersey, gains, perhaps, its chief importance from its position as the leading centre of the silk industry in America. It claims, and not improperly, the title of the Lyons of America on account of its history; and a brief sketch of silk manufacturing in this historic city may be properly inserted here.

Paterson lies among the tumbrels of the Susquehanna, a range of mountains, distant only 30 miles by rail from New York City. Here the Passaic River furnishes a romantic as well as a profitable feature of scenery. At Paterson, in 1841, Captain McClair, of Western Virginia, an officer of the United States Navy, survived of the victors in the naval battle of Lake Erie. None of the survivors of that memorable contest have drawn one cent from the government for their services to the country. The silk-mill at Paterson has, however, been specially favored in many ways, particularly in the possession of abundant water-power, and in the way of immigration. Paterson has the title of the Lyons of America.

A curious fact is, that while still young and unimportant, Paterson was set upon as a rival of Lawrence, an industrial city in Massachusetts, which, by the 26th of March, 1846, had sent a delegation to Paterson, N. J.; in the Women's Pavilion, exhibits from two factories; and in Agricultural Hall, one exhibit from San Francisco, California, raw silk cocoons, silkworms feeding, etc.

By reference to a previous article in this work it will be seen that the manufacture of silk was carried on in different States up to the beginning of the present century. From that time, however, the industry declined until, about 1850, when it began to revive; and when the Morus rangiana excitement commenced, which lasted until 1859, when the mania exploded. Early in 1859 the Chamber of Commerce of Paterson published a report concerning American silk, in which it was stated that a sample received in Philadelphia was assayed by an assayer and declared to be of an extraordinary quality and price.

The silk-producing states were: Maine, Pennsylvania, Massachusetts, New York, New Jersey, Ohio, and Illinois. Of these, the States of Pennsylvania, New Jersey, New York, and Massachusetts were the most important, and were set upon by the manufacturers of other States. Paterson, with its large factories, carried on the manufacture of silk cocoons and silkworms feeding, etc., and was clean and wholesome.

The following figures are of considerable interest in the case of silk manufacturing in America for the year 1874: In that year the production of manufactured silk in France amounted to $112,400,000; into Great Britain, $49,276,320; into Switzerland, $21,120,428. In the United States, the production in 1874 was $22,130,428. In the same year the importation of manufactured silk into France was $12,693,120; into Great Britain, $42,748,320; into the United States, $23,906,782.

Industrial ProGRESS OF STATES.

Ohio.

We have already briefly described the Ohio State building, and a portion of the contents of that structure deserves a more extended notice. The building itself was constructed of stone from thirty Ohio quarries, all the fittings and furniture of the several departments being of Ohio material and workmanship. The principal exhibit was the masonic spoof worn by General Washington, presented by him to Captain McClair, of Virginia, an officer of his staff, from whom it passed into the possession of President Jackson, President of Ohio, and thence into that of Yatkin Lodge of Freemasons, from whose possession it was forwarded for exhibition. This cloak, which is of white satin, is probably ornamented with masonic emblems, and surrounding it is a blue ribbon very neatly sewed. No other Ohio building exhibiting a series of photographs taken in 1850 of those who then survived of the victors in the naval battle of Lake Erie. None of them are now living. The perfections of the photograph are wonderful. This is the only American picture made from the wood of the flagship Essex. A very handsome collection of iron, stone, and china from East Liverpool was also exhibited in the State Building.

The Cleveland Iron and Coal Company made a magnificent showing of their manufacturing, from the crude ore to threads of steel wound upon spools, so flexible that it could almost be used for sewing purposes. A curiosity in this display was a Dunshee steel mill.
and many know many just commenced at the Muskingum. Information, property

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existed in Clay County and Adairville, and thence, by the lakes, North. This coal is peculiarly adapted for the manufacture of iron for Bessemer steel. Six quarries of this coal are described in the specimens of building-sandstone, and from the town of Pomeroy an exhibit of brownie stone, that locality, it is stated, supplying more than half of all the article used throughout the world.

A remarkable mark of portion of country lying between the Alleghany and the Rocky Mountains was a wilderness, inhabited only by wild beasts and Indians. The only white men who had penetrated so far westward were the Jemis and Monticola missionaries. In 1785, Congress passed an ordinance for the survey of public territory, and two years later the "Northwestern Territory" was organ-

ized. Fifteen years after this, the State of Ohio was admitted into the Union. Already in 1803 the tide of emigration had begun to flow over the Alleghany into the Valley of Ohio. It was a province of backwoods, and the heavy emigrant-wagon was to be seen pursuing its way toward the lots of Ken-

ducky and the plains of Ohio; as at a later date it traversed the desert land between the Missouri and California. Ohio forms the one-sixth part of the Northwestern Territory, 45,000 square miles. It has 200 miles of navigable waters in the Ohio River, and a citizen of Ohio may pursue his navigation through about 300 miles, all in his own country, and all within navigable reach of his own State. Possessing more than three times the surface of South Carolina, and one-

third of the surface of Mississippi, Ohio has more: natural sources in proportion than either, and is capable of ultimately sup-

porting a larger population than any country of equal extent in Europe. And while upon the hills and plains the grass and the fumes from smokeless hearths, beneath the surface, and easily accessible, lie 19,000 square miles of coal and 4,000 square miles of iron.

The first settlement of Ohio was made by a colony from New England, at the mouth of the Muskingum. Of this settlement, Washington said: "No colony in America was ever settled under such favorable auspices as that which has just commenced at the Muskingum. Information, property and strength will be its characteristics. I know many of the settlers personally, and there never were men better calculated to promote the welfare of such a community."

The subsequent settlements on the Miami and Scioto Rivers were made by citizens of New York and Virginia. In 1819 Ohio had 45,365 population. In 1870 its population was 2,655,200. At present it is estimated at 5,000,000 of people, a half a million more than the thirteen States in 1787.

The aggregate amount of grain and potatoes produced in Ohio in 1874 was 157,723,076 bushels, the largest aggregate amount raised by any State but one, Illinois, which produces a larger set of wheat than any other Ohio in the country. In 1870 Ohio had 8,615,000 domestic animals; Illinois, 6,925,000; New York, 5,283,000; Penn-

sylvania, 4,443,000; and Ohio, 3,044,000. It is stated, that Ohio produces one-third of all the wool raised in the United States; one-seventh of all the cheese; one-eighth of all the corn; and one-tenth of all the wheat and iron. It is stated further, that Ohio produces one-third of all the wool raised in the United States; one-seventh of all the cheese; one-eighth of all the corn; and one-tenth of all the wheat and iron.

The money value of the export product of the State is equal to $200,000,000. In 1875 the aggregate value of bituminous coal was $815,000,000, which was after all the same amount of the people has been taken out of the annual crop. About one-third of the bituminous coal region, which descends the western slopes of the Alleghany and the Rocky Mountains, lies in Ohio. It occupies wholly or in part 36 counties.

Ohio as an iron district extends from the corner of Pennsylvania to the coast of Lake Michigan, including nearly all the counties on the western slope of Alleghany. It contains 44 rolling-mills and 15 rail-

mills, being the largest in the country. The whole length is nearly 200 miles, and the breadth 20 miles. The iron in this district is of various qualities, and is manufactured into bars and castings. There are two iron districts, one along the Alleghany and the other along the Ohio. In the Ohio district are the most extensive iron beds in Ohio, and one of the most extensive iron beds in the Union except Pennsylvania. By the census statistics of 1870, Ohio in the third State in the production of iron and steel. Ohio had 21,471 men engaged in iron mining, and 12,462 in iron foundries.

The aggregate value of the products of manufactures, exclusive of mining, in 1875, was $265,713,000, being more than four times that of 1850, while in 1870 the estimated value reached $400,000,000. Ohio has a large number of nail, steam, and all kinds of vessels, which have been built at the ports of Cleveland, Toledo, Sandusky and Cincinnati, during the last five years. The annual trade of Ohio exceeds $700,000,000.

The progress of Ohio in education forms an important episode in the educational history of the country. An ordinance of Congress, passed in 1785, for the survey of public lands in the Northwestern Territory, provided that one-sixth part should be reserved for the maintenance of the public schools in each township. As the State of Ohio possessed a broad, liberal and efficient plan of public schools, it was for ever to be encouraged by legislative provision. As has been already stated, the settlement of Ohio began in 1788, and in 1790 a school of young boys and girls was established at Rogers—the first school for white children in Ohio. The Moravian missionaries having established Indian schools at different missions in the State several years before this.

The nature of the schools and of education in North-

western Ohio in these pioneer times was characteristic of the institutions throughout the West at the period of settlement. The few schools established were taught in plan, almost by old men and women, physically unable or constitutionally too lazy to expect hemp or spin flax. The teacher was regarded as a kind of pensioner; his presence was tolerated only because county infirmaries were not then in existence. The capacity to teach was not a reason for employing him, but the fact that he could do nothing else was a satisfactory one. The popular demand was that when the scholar could write a tolerably legible hand, could read the Bible, and was able to calculate the value of a load of farm produce. This condition therefore, is a picture of that which existed in the section of Ohio peo-

ple with settlers from New England.

At an early day the schools on the Western Reserve were in a dripping condition. Among the pioneers were men who had received a liberal culture in schools and colleges second to none in the Union. Meanwhile the social condition of the teacher was such as to prevent his residence along the eastern shore of the southern part of the State, while his qualifications were generally such as to command respect. In those days the teacher found board and lodging in the homes of his patrons; and his income was not more than sufficient to cover his board and lodging. Teachers were poor, but they regarded their profession as a call to a holy mission. In Ohio, the Moravian missionaries having established Indian schools at different missions in the State several years before this.

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stipulated sum by his patrons, ranging from one to two dollars for each scholar, one-half payable perhaps in wheat at 50 cents per bushel, and the balance in money at the close of the term. The text-books in use included "Murray's English Reader," "The Columbian Ora-tor," "Dilworth's Speller," "Webster's Dictionary," and "Web¬
er's Short Pronouncing Dictionary," with Testaments, almanacs, and other miscellaneous works for general read¬
ing. Spelling and reading were made specialties and were regarded as the chief tests of scholarship. Spelling-matches
were held frequently, usually at night, and were attended by old and young. A rule, or, more frequently, a walk of six miles was an obstacle easily surmounted by persons wishing to enjoy the competition in school and observe its last champion "spelled down." The schoolhouses of the day were crude enough. The cottage cabin which had been hastily constructed by some pioneer and removed from as soon as he had built a better one, or had left the settlement to seek a more favorable locality, sometimes served as a schoolhouse. At others, settlers would exercise their ingenuity and architectural skill in building what they deemed a suitable edifice for the purpose. This was formed of logs, sometimes roughly hewed, and was generally about lying upon the ground instead of upon "sleepers." Others had clay floors. In some cases light was obtained by cutting out an entire log and pasting oiled-paper over the opening.

The school-furniture was in keeping with the exterior and interior appearance of the building. By splitting the log 6 inches in diameter and 15 feet to length into halves and mounting these on four logs, that side up, solid if not com¬fortable seats were made. In Winter immense logs burned in the open fireplace, which occupied a great part of one end of the building. A wall of rough stone against the side of the house formed a foundation upon which the chimney rested, the chimney itself being made of sticks placed upon each other, chimney with mortar and thickly coated inter¬nally with the same material. Such was the style and con¬dition of the schools of Ohio prior to the passage of the first school law in 1821. And this, indeed, may be considered a fair representation of the pioneer schools of the entire country. All of these were supported by the voluntary contri¬butions of the people, until the system of school taxation had been authorized by the General Assembly. Even as late as 1825 there were no public schools, properly speaking, in Cincinnati. And in 1829, the whole amount of money appropriated to the directors of the rural districts, for the maintenance of free schools, was only $8,000.

In 1837 a State School Department was established and a State Superintendent appointed. The plan of grading public schools was not adopted in the early history of popular education in Ohio, although it may have been practiced in the first schools long ago.

The school buildings were erected. Ten of these were built and opened in this time. The system of grading and classification in Ohio continued to be made, until the establishment in 1847 of the State superintendent's appointments. The school buildings were opened in order to complete the prescribed course of study, and for making a good record for scholarships and departmen
t. The compensation allowed was as follows: $200 to $1,000 per annum, that of men, $500 to $1,500 per annum. It is a fact which will doubtless be a surprise to many that the proportion of youths in Ohio attending school in com¬parison to the population, places it as the first State in the Union in this regard, and that the States west of the Alle¬ghanies and north of Ohio, have more youths in school, proportionately, than New England and New York. Thus the proportion in Ohio is one in 3:5; Illinois, one in 3:10; Pennsylvania, one in 4:10; New York, one in 3:20; Connecticut, one in 5:20. Still another astonish¬ing fact is that in the State of Ohio there are a larger number of churches than in any other State of the Union, the figures being 6,488 for Ohio, 5,037 for New York, 5,994 for Pennsylvania, and 4,298 for Illinois.

The educational exhibit in the south gallery of the Main Building of the Centennial included historical sketches of the schools of Ohio, historical sketches of the higher educa
tional institutions, photographs of school-buildings,

**JAPANESE SWORDS.**

**SPÉCIMÈN OF BROCADE SILK.**

18 feet wide by 24 long. The area was about 10 feet from the ground, and the house was covered with rows of clapboards held in place by long poles running lengthwise."
The display of agricultural implements from Ohio was full, and indicated much care and judicious arrangement. The display of cereals, and an admirable comprehensive display of Sears, carefully and judiciously arranged. In fact, there was no department or building at the Centennial where Ohio did not make a respectable presentment.

**ILLINOIS.**

From the address upon the history and resources of Illinois, delivered in the building of this State on the Centennial Grounds by Rev. Charles H. Fowler, we abstract a few important facts of interest in connection with the exhibit made by this State. The orator said that nearly four-fifths of the entire State is underlaid with a deposit of coal more than 40 feet thick on an average. Indeed, recent surveys estimated it at 70 feet in thickness. Compared with the coal-fields of other countries, we have the following: Great Britain has 22,000 square miles of coal; Spain, 3,000; France, 1,519; Belgium, 578. Illinois has about twice as many square miles as all those combined; Virginia has 20,000; Pennsylvania, 16,000; Ohio, 12,000; Illinois, 41,000. One-seventh of all the known coal on this continent is in Illinois. Concerning the products and manufactures of the State, Dr. Fowler observed that grain and flour were imported from the East to Chicago until as late as 1837. The first exportation was in 1839, and the exports did not exceed the imports until 1843. The Chicago Board of Trade was organized in 1848, and at that time grain was purchased by the wagon-load in the street. Now the Chicago elevators will hold 15,000,000 bushels of grain, the cash value of the grain handled in a year weighing 7,000,000 tons, or 700,000 car-loads, worth about $25,000,000. One-tenth of all the wheat in the United States is handled in Chicago. Even as early as 1853 the receipts of grain in Chicago exceeded those of St. Louis, and in 1854 the exports from Chicago exceeded those of New York and those of St. Petersburg, Archangel or Odessa, the largest grain-markets in Europe. Meanwhile, the manufacturing interests of Chicago have not remained quiescent. In 1873 the manufactures employed 45,000 operatives, and in 1875, 60,000. The manufactured products in 1875 were estimated at $177,000,000.

**INDIANA.**

The State Building of Indiana combined one feature which was peculiar and original. This was a series of panels, upon which were displayed at a glance the leading statistical facts of interest in reference to each county in the State, including the date of settlement, mineral wealth, geographical position, present population, etc. The State appropriation for the Centennial was $5,000, but to this was added, in subscriptions by schools and individuals, a supplementary sum of nearly $80,000. In front of the building were displayed specimens of the mineral products of the State, among those being several specimens of block coal, averaging from 7 to 12 feet in thickness. Samples of deposits of bituminous coal, ranging from 15 to 28 feet, were also shown, and besides several specimens of building-stones, the limestone rock of Decatur County being especially noticeable. The mineral display of Indiana, however, was best seen in the Mineral Annex of the Main Building, and has already been described.
coal-fields of Indiana embrace an area of 6,500 square miles. Over this area there are distributed from three to four seams of coal, with a combined thickness of from 20 to 30 feet; three seams of black coal from 12 to 15 feet, and one seam of canal coal, 4 to 6 feet in thickness. The Indiana black coal has an extensive reputation as a fuel for metallurgical purposes. The building-stones from Decatur County and Jennings County have been used in the foundation of some of the finest and most costly public buildings in Indianapolis, and in the abutments of bridges that span the Ohio River at Cincinnati and Louisville. The dolomite limestone is quarried in blocks from 10 to 12 feet thick, and is used in the most costly private and public buildings in the State. A recent discovery, of which specimens were on exhibition, is a deposit of porcelain clay, to which the State Geologist has given the name of "Indianaite." This has been used in the various potteries of Ohio, and is found to be an excellent clay for manufacturing fine grades of chinaware.

Michigan.

The exhibition of products of Michigan at the Centennial Exposition included specimens of native woods, native trees and other plants, to the number of some 1,000 varieties, including grasses, specimens of Lake Superior copper and iron, and of iron from the Marquette iron district in the upper peninsula of Michigan, and samples of manufactured iron from the Wyandot Rolling Mills, made from the Lake Superior ores. There were also specimens of wampum, white pine, white elm, and slaghorn hickory. At tall trees, some have been cut, furnishing over 200 feet long. The largest tree known was a black walnut in Allegany County, which was 11 feet in diameter; a cottonwood 10 feet in diameter was found at Almost. Two sections of a large cottonwood tree were exhibited in the Centennial: one, near the ground, 10 feet across; the other, 50 feet above it, over 3 feet in diameter. This tree was 140 feet high. A specimen of white wood or tulipwood was exhibited, the tree having furnished 5,000 feet of lumber. It is stated that a single walnut tree in Potrillo Mills, sold for $1,000, and a black-walnut tree, 7 feet through, in Beaverfield, was sold for nearly $1,000, to be cut up into veneering. Still another, a blister-walnut, very dark in color, which lay for some years exposed to the weather at Green Rapids, was cut into veneering by the owner for his own use after he had refused $2,000 for it.

It is stated of a certain black-cherry tree at Grand Rapids, that it was shipped to Central America, and from there shipped back to this country as good mahogany. Some curiosities in tree-nuts were exhibited, and an oyster having a deer's antler imbedded in it was among the curiosities. Michigan is now the great headquarters for valuable trees—New York,
The fisheries form another important branch of the Michigan interests, in which the income of 1873 amounted to at least $500,000, the number employed being about 2,000. The catch for 1873 was estimated at 107,719 barrels.

In manufacturing there are many factories and machine-shops, wagon, carriage and sleigh factories; agricultural implement works, planing and turning mills, saws, furniture and chair factories; brick, coal, and pulp and paper factories; and thousands of cotton factories; wool-ware manufacturers; brick and the manufactures; tanneries, paper-mill, and tobacco and cigar factories. About 2,142,970 barrels, the value being a little over $30,000,000. The value of the other manufactory forms the total amount for the year was about $30,000,000. The entire importance of the manufacture of all manufactured goods for the State in 1873 was about $125,000,000. In 1875 the number of miles of railroad in Michigan was 3,155.

Wisconsin.

The Legislature of Wisconsin did not determine that the State should be represented at the Centennial Exhibition until near the close of the session. In the spring of 1876, but after that time considerable energy was displayed in collecting specimens, it being particularly desired that the mineral resources of the State should be well represented, a result which it was difficult to obtain, owing to the unfavorable season of the year. The scientific collection exhibited was quite full. It comprised nearly a thousand specimens of rocks, ores, minerals and fossils, mostly from the extensive collection of Mr. William Welsh, of Milwaukee. This cabinet, which Dr. Legam was many years in collecting, was purchased by the State and donated, with the condition that port of the collection which a particular to the geology of the State was permitted by the University authorities to be exhibited in Philadelphia during the Exposition. Other specimens were exhibited by the Wisconsin Academy of Sciences, by the State Geological surveys, and by special scientific collections. A special exhibit, in the Agricultural and Architectural exhibition, includ the mineral, consisted of nearly 9,000 potash and copper implements. There were 58 spear-points, of the various types, selected for the Wisconsin Historical Society of Wisconsin. Among the mineral specimens are granites, jasper, pyrophyllite, greenstone, kaolin, red pipe-stone, felsic, crystals, quartz, mica, marble, calcite, and native copper, native copper, sandstone, granite, millstone, marble, sandstone, slate, mica, mica, fossil iron, iron, chalcedony, chlorite, and native copper, native copper, silver, adamas, quartz, graphite, clay, iron, galena; native silver; native silver; native silver; native silver; native silver; native silver; native silver; native silver. The Wisconsin fisheries form another important branch of the Michigan interests, in which the income of 1873 amounted to at least $500,000, the number employed being about 2,000. The catch for 1873 was estimated at 107,719 barrels. In manufacturing there are many factories and machine-shops, wagon, carriage and sleigh factories; agricultural implement works, planing and turning mills, saws, furniture and chair factories; brick, coal, and pulp and paper factories; and thousands of cotton factories; wool-ware manufacturers; brick and the manufactures; tanneries, paper-mill, and tobacco and cigar factories. About 2,142,970 barrels, the value being a little over $30,000,000. The value of the other manufactory forms the total amount for the year was about $30,000,000. The entire importance of the manufacture of all manufactured goods for the State in 1873 was about $125,000,000. In 1875 the number of miles of railroad in Michigan was 3,155.
show the production in which to be 1,019,922 barrels; oats, 1,000,127; corn, 489,882; barley, 187,425; rye, 128,935; hops, 10,922; tobacco, 3,296. The growth of grain in the meadow-bands was not returned; but it is large, as there is no ear-marking and low raising of grain than formerly. The State is becoming largely interested in the dairy business. It is a fine cattle-raising country, and the stock thrives well. The three large cities are closely connected with Wisconsin, and Wisconsin cheese ranks high in the market, large quantities being exported. Butter is also made in large quantities, and of superior quality. It is said that at the Mid-Wisconsin Centennial Exhibition, Wisconsin had the best show. Much attention is given to the raising of fine stock, and there are many bronzed horses in the State, and a large number of herds of cattle. Sheep also do remarkably well.

The natural resources of Wisconsin are extensive in lead, zinc, iron and copper ores; the manipulation of which are a source of great wealth to the people of the State. The chief interest is among the most important in the country. It is estimated that there are 8,000,000 acres of pine land in the State, besides a large amount of hard wood and timber. Black walnut, maple, ash, butternut, etc., are found in many places in the northern and central parts of the State. The amount of lumber manufactured in 1875 was 1,007,493,081 feet.

The State buildings of Wisconsin are numerous and important, including the capital at Madison, institutions for the deaf and dumb, blind and insane, State prisons, orphan asylums, industrial schools, etc. All of these institutions having been created and sustained without the creation of a debt. In manufactures Wisconsin is not yet greatly advanced. The first cotton mills made in the State was manufactured in 1873. At Beloit, Racine, La Crosse, Fond du Lac and Oshkosh there are manufacturing establishments, chiefly in agricultural implements and household ware.

The first railroad in Wisconsin, a direct route from Lake Michigan to the Mississippi River, was built in 1837. The length of Wisconsin railroads is 4,000 miles.

New Jersey.

The population of New Jersey, in 1875, was 1,019,413. In 1870 the entire lands in the State were divided into the three following sections: improvements, and personal property in the State were estimated at $941,000,000, or $833 to each individual. In 1870 the State was in the State at the time of the census. The first railroads in Wisconsin were in 1857. The length of Wisconsin railroads is 4,000 miles.

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of a steam-engine of which we have a written account was
constructed by a Frenchman named Cugnot, who exhibited it in 1769. This inventor in 1769 built an engine to run on
common roads, at the expense of the French monarch.
This was the first steam-carriage of which we have any
written account. It was put in motion by the impulsion
of two single-acting cylinders, the piston of which acted
alternately on the single front wheels. It traveled about
two or four miles an hour, and carried four persons; but,
from the smallness of its boiler, it would not continue to
travel about the single front wheels.
It was the first attempt to adopt the locomotive to
service upon a railroad, of which we have any written
account. Various other experiments were tried, including
one in 1813, to make a machine which was to go upon legs
like a horse. This one never got beyond the experimental
stage, for on one of its trials it blew up, killing and wound¬
ing several bystanders; and it was put aside as one of the
failures of the time. One engine made by Mr. Blackett,
proved comparatively successful in being capable of draw¬
ing eight or nine wagons loaded with coal, although it
and succeeded in drawing eight loaded wagons of thirty
tons weight at about four miles an hour on an ascending
grade of one in 450 feet, being the most successful engine
which had ever been constructed up to this period.
Stephenson, however, soon discovered numerous defects in
his work, and in 1815 patented a second effort in the same
direction. Finally, in 1823, the Hatton colliery road in
Durham having been altered into a locomotive railroad,
Mr. Stephenson placed upon the road four engines, each of
which drew 17 wagons, loaded, averaging 64 tons, at the
rate of four miles an hour.
It was not until 1825 that the first passenger car was put
upon a railroad. Finally, in 1829, a prize having been
offered for a locomotive which should perform certain

It, however, met with an accident one day when running at
a speed of about three miles an hour; and being consid¬
ered dangerous, was locked up in the arsenal. This locomotive
is still to be seen in the Museum of the Conservatory
of Arts, in Paris.
The first English model of a steam carriage was made
in 1784 by William Murdock. It was successful in its
working, but was never brought into practical use. In
1804 a patent was taken out in England for a steam-carriage
to run on common roads, by one Richard Trevithick, a
foreman in a Cornish tin mine. This was the first success¬
ful high-pressure engine constructed on the principle of
moving a piston by the elasticity of steam against the pres¬
sure of the atmosphere, and without a vacuum.
By this time steamroads or railways were in general use
in England, and in 1804 Trevithick commenced a machine,
which he completed in the same year, to run upon these
roads. This was tried upon a railway in South Wales,
when it succeeded in drawing after it several wagons con¬
taining 10 tons of iron at the rate of five miles an hour.
Here we have the first attempt to fit a steam-engine to
remain upon a railroad, of which we have any written
account. All of this experimental work led up to the success of
George Stephenson, who was born June 9th, 1781, in the
colliery village of Wylam, on the River Tyne. Stephenson
commenced his active life by herding cows at two pence
per day, being next promoted to work, in the capacity of a
picker, and so on until he was placed in charge of the pumping-machine, in which position he made
himself acquainted with the nature of the engine in his
charge. He displayed considerable original mechanical
talent, and as he was enthusiastic in studying as well as
working, he soon became recognized as a capable engineer.
When Stephenson was about 26 years of age he set
about the construction of a locomotive engine. His first
attempt was completed in 1814. He was called "Blucher,"
and succeeded in drawing eight loaded wagons of thirty
tons weight at about four miles an hour on an ascending
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inches in diameter, 111 inches stroke, connected with its piston-rod, so as to take hold of the stroke by direct action. This offer brought out many competitors, and introduced to notice several locomotive constructors, among whom were Horatio Allen, at the West Point Foundry, in New York.

In 1831 the directors of the Baltimore and Ohio Railroad, having been convinced of the necessity of a small and insignificant affair," made its trial trip of 13 miles, from 5 to 6 feet high. There was a single cylinder, 3½ feet long and 3 stories high, and another of equal length, containing nearly 50 forges, being under the direction of the company. In the year 1834 seven engines were turned out, after which the production was gradually increased each year until 1854, in which year 161 were built. Its present capacity for building locomotives is equal to one a day.

In 1873 the locomotive shops of Paterson were turning out 40 engines per month, 480 per year. The rolling-mill sheds and supplied 6,000 tons of merchant's iron and beams in a year, and 750 tons of rivets. The Stowe Fire-Engin Company made from 8 to 12 engines a year. All the engines belonging to this company equals about 2,100 horse-power.

The condition of the cotton industry in Paterson, according to the latest figures, is as follows. Produce of raw cotton, 500,000 pounds per year; cotton converted into yarn, 750 bales per year; bales employed in spinning yarn, 60,000. In the production of cotton-woven fabrics, the average length of the warp is 1,000 yards and of the weft 100 yards, or 40,000 square yards. The three shirt factories of the town produce 800 dozen shirts per week. The first cotton factory was finished in 1829, and was 60 feet long, 40 feet wide, and 4 stories high.

The water-power of Paterson is quite remarkable. The Falls of the Passaic have an extraordinary water-power of over 900 square miles. The minimum supply in the 67 inches at 900 square feet. The height of the fall allows three race-ways, the water being used successively that number of times. The great bulk of the water-power is the property of the Society for Establishing Useful Manufactures, one of the earliest incorporated manufacturing firms in the country, possessing a charter dated 1791. The total water supply belonging to this company equals about 2,160 horse-power, 1,700 being now in use.

MINNESOTA.

Minnesota, one of the Northwest States of the American Union, was the 19th admitted under the Federal Constitution. Its area is 52,065,706 acres. Lying nearly at the centre of the continent, Minnesota occupies the summit of the interior plain of North America, being formed by the basin of the Mississippi. St. Lawrence, and the river flowing into Lake Winnibegos, and inclosing the head-waters of the three great rivers of the continent. With the exception of a few hills, in no case higher than 1,500 feet above the level of the sea, or 600 feet above the average elevation of the country, the surface is generally an undulating plain, having an average elevation of only a few feet above the sea, and presenting a succession of small rolling plains or table-lands, all dotted with timber. The winters are cold, but clear and dry, and the fall of snow is light. The summers are warm, with heavy snows, during which period usually rains. The general salubrity of the climate recommends it to invalids. The country is well watered by pine, bird, maple, ash and elm. A large forest of hard-wood, covering an area of about 1,000 square miles, extends over the central portion of the State, west of the Mississippi.

Until the year 1815 Minnesota was occupied by the Chippewas and Sioux, the only representatives of civilization within the territory being the trappers and traders, the lumbermen on the St. Croix, and a few missionaries. The population of Minnesota in 1870 was 161,000, of which 738 were blacks and mulattoes, 1,292 Indians and half-breeds, natives 279,941, and foreign 160,126, of whom
Cotton is one of the staple products of Tennessee, yielding the best lands from 1,000 to 2,100 pounds of seed-cotton per acre. It is said that at the London Exposition in 1851 the cotton raised by Colonel John Pope, of the County of Shelby, received the medal for the best cotton known to the world. The entire yield of the State was, in 1870, 141,142 bales. About 90,000 acres of land in Tennessee are used for the raising of hay, yielding about 110,000 tons, the crop being valued at nearly $2,000,000. Rye is not a staple crop, and the annual yield of sweet potatoes is 1,200,000 bushels, and that of Irish potatoes is about the same quantity, averaging about one bale to each inhabitant. Potatoes are an important product of the State, the quantity produced reaching, in 1872, 600,000 bushels. There are also grown in particular localities hemp, broom-corn, flax, and ginseng vegetables in abundance. Fruits of all kinds also grow well. Considerable enterprise is being displayed in the raising of grapes in vineyards of all sizes, from one to twenty acres, which are being planted in every division of the State.

Tennessee ranks sixth in the Union. In 1840 it stood first, and its western boundary, and the third State in value of three States in the Union having more wooded land. Here chestnut, oak, ash, beech, maple, hickory, locust, sugar-maple, redmulberry, poplar, basswood, sassafras, cypress, and black-walnut grow in different sections. As a corn-growing State Tennessee ranks first in the Union. In 1850 it stood first. Its annual average of production of that period is about 28,000,000 bushels. About one million acres are sown in wheat, and yield between five and ten million bushels. The production of the State is about 5,000,000 bushels. Tennessee stands third as a tobacco-growing State, Kentucky being first and Virginia second. The annual product of this crop in 1870 was 65,000,000 pounds. Tobacco is grown on 1,900 farms, or between thirteen and twenty-two thousand legislatures.

It is said that in Tennessee, by careful management, the oxen can often walk from 150 to 200 miles. Much of the cotton is exported to the Quaker City. The annual average of production of potatoes in Tennessee is about 28,000,000 bushels. About one million acres are sown in wheat, and yield between five and ten million bushels. The production of the State is about 5,000,000 bushels. Tennessee stands third as a tobacco-growing State, Kentucky being first and Virginia second. The annual product of this crop in 1870 was 65,000,000 pounds. Tobacco is grown on 1,900 farms, or between thirteen and twenty-two thousand legislatures.

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boat in a general chase; and for two hours the sound of Liberty Bell was heard in the air, proclaiming freedom to the nation.

This bell was afterward taken down and replaced by a new one. Meanwhile the original has been seen by hundreds of thousands during the Centennial year, in its place in the room of the State House where the Declaration of Independence was written and signed.

**STAR-SPANGLED BANNER.**

Our beautiful and patriotic national song was composed by Francis S. Key, Esq., a prominent citizen of Maryland, in 1814, under the following circumstances:

The gentleman had left Baltimore with a flag of truce for the purpose of verifying released from the British a friend who had been captured at Baltimore. He went as far as Ponthom, and was not allowed to return. He was brought up the bay to the mouth of the Pataposi, and confined to the last detachment of Fort M'Henry, which the admiral had boasted he would carry in a few hours. During the day, with an anxiety better felt than described, he watched the flag of the fort until the darkness prevented him from seeing it. During the night, he watched the batteries, and at early dawn his eye was again glared upon by the proudly floating flag of his country.

The Hon. Francis S. Key died in 1846. Besides the "Star-Spangled Banner," he also wrote several fugitive pieces of considerable merit.

**AMERICAN SOCIETY FOR THE PREVENTION OF CRUELTY TO ANIMALS.**

During the first exhibition of this character ever made was the one in the Main Building, at the eastern end and a little south of the nave, and illustrative of the work which Mr. Henry Bergh of New York, has accomplished in the way of relieving society of one of the worst features of cruelty which infest it. This exhibit was much more comprehensive than would be anticipated, and covered, in fact, the methods and implements by means of which cruelty to animals is accomplished, as well as instruments used to accelerate the speed of the horse which the admiral had boasted he would carry in a few hours. During the day, with an anxiety better felt than described, he watched the flag of the fort until the darkness prevented him from seeing it. During the night, he watched the batteries, and at early dawn his eye was again glared upon by the proudly floating flag of his country.

The Hon. Francis S. Key died in 1846. Besides the "Star-Spangled Banner," he also wrote several fugitive pieces of considerable merit.

**OUR ILLUSTRATIONS.**

Near the central entrance of Machinery Hall was exhibited the novel machinery used in the manufacture of the cotton of Messrs. J. & P. Coats, of Paisley, Scotland. This machinery showed the entire manufacture from the time the thread leaves the loom until the spool is full, and is run off, or spooled, on large bobbins preparatory to winding. These large bobbins are placed on the winding machine, and the thread on them who runs it merely catching the end of the bobbin, and winding it under the guide and starting the machine at the point exactly where it is stopped, the centripetal force carrying the thread on the spool, while the guide here in exact alignment prevents any knot from being formed on the thread. The advantages of this enlarge:

First, that it places the thread evenly on the spool, and within the exact limitation of the winding; second, it breaks all knots at the point of contact between the guide and spool, and when the thread breaks it is laid in finishing the 200 yards on the spool, so that when running on sewing-machines, needles will not be bent or broken by the appearance of the knot; third, thread which has been twisted and removed from chemical treatment will not run on this machine, the tension being as strong as that on the sewing-machine; this resulting in the fact that any thread which runs smoothly on one of these winder will run on all sewing-machines. After winding, the thread undergoes careful inspection, and any imperfect speeds are immediately rejected. The next process after inspection is tiering the threads. Tickets being printed on these, are cut from them, and while held on the end of a lever are posted and placed on the end of the spool; a different one on each end and extra in the centre. Messrs. J. & P. Coats, who had already taken prizes at the exhibitions of London in 1862, Paris, 1867, and Vienna, 1873, entered their winder by receiving a medal and diploma from the Centennial Commission, with commendation in the Judges report for "superior strength and excellent quality in spool cotton."

**WEBER'S PIANOS.**

We have heretofore alluded to the description of the Main Building, to the exhibit of pianoforte by 40 different exhibitors from the United States. Present among these was Mr. Albert Weber, of New York, whose department we illustrate. The Weber exhibit was more extensive than that of any other pianoforte manufacturer who contributed. It consisted of one magnificently inlaid concert grand, especially manufactured for the Centennial; one extra Centennial concert grand, rosewood; one regular concert grand, rosewood; one parlor grand, one square grand piano, rosewood; one small upright, rosewood; one fancy one, black; gold-inlaid spruce; one fancy one, rosewood, and gold-inlaid spruce. The best popular contest of the pianos being indubitably furnished in the opportunity of hearing them—Mr. Weber gave the start of his
In 1863, the first edition of "Elliot's Indian Bible," which was wholly set up by an Indian, was three years going through the press and was the first Bible printed in America. Williams Bullock established a press in Philadelphia in 1806, and in New York in 1802. It was in existence in Charleston, S. C., in 1730. Avram Hall, (as, had one in 1762; Tennessee and Ohio in 1870; and the first printing west of the Mississippi was done at St. Louis, in 1859. But all of these premises were conditioned on the old principle of the application of the screw, the first important modification of which was that devised by Earl Stanhope, which combined the screw with the bent lever, bringing the arm at the form, which could be run in under the point of pressure and readily withdrawn. In 1796 Mr. William Nicholson, of England, took out a patent for a cylinder machine, which had also an initial apparatus. This press was never brought into use, but furnished the means of making others. The first cylinder press was run by steam was built for the London Times, by Frederick König, of Saxony, and the number for November 28th, 1814, was worked by it at the rate of 1,100 impressions per hour. In 1827 Morgan's Applegath & Coeaver constructed a press with four impression cylinders, the type being placed on the surface of the cylinder for the first time. The London Times was the first newspaper to adopt this improvement, and this was the beginning of all cylinder presses.

The web perfecting press owes its origin to Mr. Boardman Hill, chiefly famous for his advocacy of penny-postage in Great Britain, who obtained a patent in 1853 for a press of this character—that is, one capable of printing a roll of paper on both sides, and cutting and piling the sheets. Difficulties, however, occurred in the management of this, due partly to inability to dispose of the printed sheets with sufficient rapidity, and it was not until 1853 that the successful web perfecting press was established, mainly through the invention of Victor Beaumont, of New York, who patented the serrated cutting blade, set longitudinally in one of the pair of cylinders, and, by the application of elastic surfaces inserted to hold the paper on each side of the cutting blade when the sheet is cut from the web. Finally a French inventor, about 1859, devised the process of flexible papier-maché rollers, so that in practice it became possible to cut the type-plates to fit the cylinders.

The invention of the press, to the illustration of which in the Historical Register we would direct the attention of our readers, may be said to have completely revolutionized the printing art. In the year 1662 the printing-press had reached its stage when, by means of the important invention of Bullock M. Roe, of New York, a printed sheet could be laid down and dried within the time that would be required to print a complete sheet of the similar press had been carried out at one time, and had to be fed with the sheet by a separate hand to each cylinder. The invention by William Bullock of his Self-feed cylinder. The press was the final step in the progress of construction, so far as these machines were concerned, beyond which no improvement has as yet been devised.

William Bullock was born in Greene County, N. Y., in 1813. At an early age he displayed a talent for mechanical construction. His understanding of the capacity of mechanism seems to have amounted to a veritable genius—so much so that no machine could ever under his observation without an effort on his part—generally successful—to improve it. The consequence has been that he is the author of many inventions in various branches of mechanical construction other than that of the printing press; and, indeed, his first attempt in this direction was the invention of an automatic sheet-feeder, which could be applied to the ordinary hand press. This was about fifteen years ago, and that improvement still sustains a position. At one time he was the editor and publisher of a weekly newspaper, the Daily Reflector, N. Y.; and, being forced to supply a printing press for his establishment without losing the necessary money to purchase one, he was obliged to do the work of both on the same machine, and to cut the impressions with an iron and a stone, and the impression being made by a wooden roller. Even in this press he developed a novel and original idea. It was a flat-bed press, having a position of impression cylinders, connected by endless chain, by means of which they traversed over the form and around it continuously. It is an ingredient in the history of this, which he termed the Chain-running Press, that it was employed by Mr. Frank Leslie to print the edition of his illustrated Weekly. It contained the first account of the operation of the machine in the H. C. Register, and the illustrations. About the year 1849 Mr. Bullock commenced to develop
for each delivery on the receiving-tables. The New York Press; an average 30 of these rolls are used which adopted the Bullock Press in substitution for machine printing and cutting two copies for each edition of the paper. The Times was upward of three miles long, and on Chicago Press; Boston Philadelphia German Demokrat Ar ( Jews; application to the necessities of the States. The papers employing them include the New York Sun Herald and Sun. Every portion of the machinery is under the eye of the Self - feeding Press, which performs eight of the Bullock machines. remarked, further: "The Bullock Press, being composed entirely of cylinders, — the idea of the Rotary Self-feed or Web Perfecting-press, — other, so as to correspond in their respective surfaces of the press, is that it is the simplest of all printing machines, is, without difficulty kept, in good working order, and, considering the severe strain upon it, is remarkably durable. Some of them in use twelve years are still in active operation and working efficiently. The Bullock Press, in meeting the necessities of its class, and the model which all others that have since appeared have followed, without improving upon it. There is, in fact, no possibility of improving upon it by any invention in the same direction. To effect this it would be necessary for an invention to be made radically different in its conception and construction. The engravings which we give illustrating the Bullock inventors other novel movements in mechanical combination, which vastly increase the value of their machinery. Five of these boxes were on exhibition in Machinery Hall, and views of these from different positions are given on page 321. The other machinery exhibited occupied a band of stalls in front of the magnificent New York Mills building in the market. On page 324 are the celebrated sheeting machines, and the loom for making cloth of 8 yards wide and 10 yards height in 10 hours. It is stated that this later machinery could in a single hour turn out a yard of cloth greater enough old cloth to cover the entire vast area of Machinery Hall.

The advantages of the Lysell system are numerous and obvious, an important one being that the loom is adapted to any material from the finest silk to the heaviest carpet. Another important feature of this power is required in running them, and that the necessary parts are re¬duced to a minimum, one girl being sufficient to conduct the weaving of fabrics of the greatest width and the heaviest body. The Lysell gave a medal and diploma. First, for the invention of a perfect motion; second, durability and shape; third, uniformity for the purpose intended; fourth, excellence of design, construction and work; fifth, variety, extent and importance of the looms exhibited sixth, utility and economy.

The Lysell System is on the section in Machinery Hall below the Lysell looms. James & W. Lysell presented a fine display of their improved seaming machines, while it resembles the ordinary article in many respects, is very different in some of its essential parts. The loom having been so improved as to work with remarkable high rate of speed, this being one of its special features. Other improvements with the different working parts, the number of working parts being increased, and the metal being retained so as to require little oil and to be easily accessible for the necessary carriage and in any other press." With regard to its application to the necessities of the Herald, it may be remarked that each roll of paper used in that office is upward of three miles long, and on an average 30 of these rolls are used for each edition of the paper. The average production of the Lysell machine is 50,000 per hour, the machine printing and cutting two copies for each delivery on the receiving-tables. The New York Times, which adopted the Bullock Press in substitution for the previous press, used, commanded it by saying: "When once set, the Lysell loom is never out of order, and we can run, without extravagant account, 220,000 copies an hour." More than fifty of these presses are now in use in the factories of the Lysell interests of the United States. The papers employing them include the New York Herald, Sun, and German Press Association; Brooklyn Eagle, Boston Herald, Philadelphia Germans Donelson Press, Chicago Times, and other important machines. The New York Herald and Sun have each in use eight of the Lysell machines.

The advantage of the Lysell system is, being composed entirely of cylinders, and having no reciprocating motion, is capable of running at the highest possible speed consistent with safety. In feeding it, rolls of paper containing thousands of sheets are employed; these resting either on the press or being placed so near it as to be drawn by slight tension into it, when the paper, passing between the feeder and the impression cylinders, is printed on one side. Immediately thereafter the unprinted side is met and printed by another pair of similar cylinders — which operation com¬pletes the printing of the entire sheet, which is then removed by cutting cylinders into two complete copies of the newspaper, and then delivered on the receiving-table or fly-door. This press is only 12 feet long by 5½ high, looks about as much as a quarter of the space required by its immediate predecessor. It does double the work that one did; and, by reducing the staff of workmen which that required from 75 to 10, it effects an enormous saving of expense. Another important feature in the absolute value of this press is, that it is the simplest of all printing machines, is, without difficulty kept, in good working order, and, considering the severe strain upon it, is remarkably durable. Some of them in use twelve years are still in active operation and working efficiently.

The Bullock Press, in meeting the necessities of its class, and the model which all others that have since appeared have followed, without improving upon it. There is, in fact, no possibility of improving upon it by any invention in the same direction. To effect this it would be necessary for an invention to be made radically different in its conception and construction. The engravings which we give illustrating the Bullock New England House of Odd.
The company exhibited in Machinery Hall, and our illustration on page 295 displays a corner-boom in operation, where it stood west of the Corliss Engine. We desire to call the attention of the public to this combination of the great inventions ever made to facilitate the art of weaving. The web with every gusset and gores are woven by this operation. While the looms in a finished state between seven and five per cent per day was the capacity of the hand-looms of the German weaver, but by this machine can be produced in the same time, and of infinitely superior quality.

Deer and Cracker Exhibit in Agricultural Hall.

Among the numerous exhibitors of crackers, that of Messrs. E. J. Lorimer & Co., of Albany, New York, in Agricultural Hall, was one of the most attractive, including as it did not only a variety of the usual kinds of cracker in existence, but also various snuff and tobacco varieties. The cracker was exhibited under the immediate supervision of Mr. Edward Dowu, who is regarded by the leading connoisseurs of the art as a perfect inventor and manufacturer. The building, whose thickness—quarter of an inch—assured the cracker from injury, was furnished with a double door. The cost of the building was $3,000, and it was elegantly finished and furnished.

**The Horticultural Pavilion.**

The headquarters of the Horticultural Commission stood on the Lawrence drive, east of the Agricultural Hall Avenue, near the Restaurant Lafayette, and opposite the Floral Hall. It was a series of connected rooms, all manufactured by this firm, and a part of their regular stock. One species exhibited was so small as to require $20 to make a pound. This received the name "Curly of a Dot." The Oswego biscuit, manufactured from the Oswego prepared corn, a recently introduced article, was also exhibited, and has become deservedly popular. The cheese biscuit, in which the natural is used, on account of its beneficial effects in dyspepsia, although medicinal in its use, is also most palatable. This establishment claims to use nothing but the very best flour, carefully excluding all inferior and impure substances. Its manufacture gained a medal and diplomas for "extent, variety and skill in manufacture."

**Centennial Display of Live-stock—Sheep and Swine.**

Our illustration of the display of sheep and swine in the live-stock exhibition at the Centennial includes the following animals: sheep.

1. A merino ram, 2 years old, from Paterson's Mills, Pennsylvania.
2. A ram "Stab," from Bridgport, N. Y., 3 years and 5 months old.
3. A merino ewe, name "Sis Ewe," also from Bridgport, N. Y., 1 year old.
4. A Hampshire ram, from Gloucester, England, 5 years and 8 months old, now owned by Dr. R. Howe, of Rhode Island.
5. A South-Down ewe, one of the several exhibited by Samuel J. Sharpless, of Philadelphia.
6. No. 5, also a Hampshire, is a South- Down sheep, one of the several exhibited by Samuel J. Sharpless, of Philadelphia.

Our illustration of the display of sheep and swine in the live-stock exhibition at the Centennial includes the following animals: swine.

1. Cushiditch boar, "Tom Bush," from Cheltenham, Ontario, Canada, 2 years and 4 months old.
4. No. 9, Chester white sow, "Bette," 17 months old, with litter, from West Chester, Pennsylvania.

The National Wood Manufacturing Company's Exhibit.

This company, whose establishment is located at 600 Broadway, New York, made a fine exhibit of its peculiar manufacture in the Main Building of the Centennial, selections from which we present among our illustrations. This is an article of wood-carpeting, an invention the result of a desire for some improvement in the appearance of wood floors without resorting to costly inlaid woods in marquetry and mosaic patterns. Hard-wood finish having of late years been generally employed in the interior construction, of the better classes of dwellings, the fashion conforming the style of floor-covering to this has not unnaturally followed. This is an article of wood-carpeting, an invention the result of a desire for some improvement in the appearance of wood floors without resorting to costly inlaid woods in marquetry and mosaic patterns. Hard-wood finish having of late years been generally employed in the interior construction, of the better classes of dwellings, the fashion conforming the style of floor-covering to this has not unnaturally followed. The wood-carpeting is manufactured from woods coparable of each in thickness, bunched with caulk, and made to order. The carpeting is capable to answer the requirements of durability, beauty and economy.

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Messrs. Elkington & Co.'s Exhibit.

Our illustration represents the plaque entitled, "The Pompeian Toilette," a specimen of the manufacture of Messrs. Elkington & Co., manufacturing silversmiths in London, exhibiting at the Centennial Exposition, New York, 1876. The specialties of this firm are to be found in its proper place in this work: the "Pompeian Toilette," being the latest work in repousse by this artist. The subject is a woman which has become somewhat famous to us of late years through the artistic efforts of Alma Tadema, Coomans, and other contemporary painters.

Gas, in fact, introduced into London in 1814; Paris, 1830; Boston, 1822; New York, 1827; and Philadelphia, 1835. From its first employment, however, the inventive and mechanical spirit of the age has been utilized in its application to public and domestic employment, the most ingenious, original and ornamental and attractive surroundings. In the present Exhibition, as in those of the past, there was considerable competition in this direction, and it is the highest praise which can be given to the firm of Mitchell, Vance & Co., to say that in this last competitive display they have undoubtedly borne away the palm for beauty, elegance and completeness of work. One of their exhibits was a gas chandelier, designed in the early Greek form of ornamentation, the main stem consisting of a tapering pedestal, ornamented with female figures in low relief, supporting a gracefully designed Greek vase, garnished with laurel wreaths. From the top of the vase the stem is deeply ornamented, and is crowned with a canopy formed by a succession of lions' heads in high relief, holding gilt curlicues in their jaws. Four fluted columns, resting upon ornamental bases, surround the stem and support a domed, like structure, upon which are perched four winged animals, impossible to describe. Between the columns are seated four griffins upon pedestals, from which spring the arms, which terminate in burners, representing antique lamps of chase and elegant pattern. The chandelier is finished in the style known as verd-antique, relieved by gilding. It has eight lights, and is one of the most elaborate works of the kind ever designed or executed in this country.

Our illustrations represent specimens of their wares, and fairly display their attractive and artistic character. It is unquestionable that these exhibits were quite the handsomest in their line. They were located near the centre of the Main Building, at No. 42, and attracted general attention and commendation. When we consider that gas illumination is an affair of little more than half a century, we are surprised at the extent of the application of art ideas to the implements and processes connected with its use.

The immense factories and foundries of Messrs. Mitchell, Vance & Co., were situated on Twenty-fifth Streets and Twenty-fifth Avenue, New York City.

E. Remington & Sons' Breech-Loading Arms.

Probably none of the millions who visited the Main Building will have failed to see the magnificent exhibit of Messrs. Remington, on the north side of the building near the entrance. The artistic and mechanical character of their arms has been utilized in all its various arms was combined, so as to effect a picture, which was so novel as to be one of the features of the Exhibition.

The Remington system, as applied to breech-loading firearms, has made its first public appearance before a Board of United States Army Officers convened at Springfield, Mass., in January, 1863. At this convention the arms were represented, among them the well-known Pollux, the Robert, the Sharp and Barlow. The former with a record at least as old as 1863, and several other models since have been exhibited in this country.

The system of the Remington carbine tried at Springfield was only a suggestion of the wonderful improvements which have since been embodied in their various models. By 1866 this system was perfected, and in 1868 a Board of Officers, exercised to examine and test the best system of breech-loading firearms, ordered the Remington in preference to all others, and a commission of United States Army officers convened in 1868, and declared the Remington to be the best system for the army of the United States. This report illustrates the adoption of the single-barreled Remington pistol, and from this time onward, the Remington arm has distanced all competitors. Our illustrations display the peculiar mechanical construction of the breech system of the Remington arm. The simplicity of the mechanism, the lightness of its parts, and the natural operation, do easy with all necessity for a simple and distinct illustration. The operation of the arm is especially simple. To load the primer is first brought to full e, and the breech-piece swung back, bearing the thumb of the right hand, the backward motion of the breech-block withdrawing the discharging cap from the chamber. The fresh cartridge is then inserted, and the breech closed in one continuous motion. The arm is then ready to fire. The tests for strength which this system has been subjected by the various officers and commissions, which have very carefully examined it, and recognized same. Finally a commission of the United States Army officers convened at Springfield, Mass., in January, 1863. At this convention the arms were represented, among them the well-known Pollux, the Robert, the Sharp and Barlow, the former with a record at least as old as 1863, and several other models since have been exhibited in this country.
the articles mentioned heretofore, there were exhibited the following:

A knife, used by Patrick Doyle to cut a horse, out of revenge to the owner; three months in the penitentiary.

A horse's hoof, ripped off from the effect of a nail, driven into the sensitive hu-man of the foot by an ignorant blacksmith.

A brick, used by August Zum, who was arrested for striking a horse on the body, breaking two of its ribs. The horse had to be destroyed. Offender fined $75, and one month in the penitentiary.

A hammer, used by William Starvey, who struck his horse several blows on its body; fined $25.

The above curiosities are now on permanent exhibition distributed by the Society to visitors. At the headquarters of the Society, Twenty-second Street and Fourth Avenue, New York.

For the "Creedmoor Rifle," new long-range front and rear sights have been arranged—the front sight having a windage-adjustment, and being provided with spirit-level and extra-dial of the forms in use, when so ordered. The rear sight is hinged to a base-piece secured to a long frame, and is provided with a screw-adjustment and vernier for reading the elevations to single minutes. All this is seen in our illustrations. The rear sight is graduated into degrees and minutes by means of the vernier scale. To adjust it the eye-piece is first loosened; then, after a sight is properly set by means of a screw, the eye-piece is tightened, and holds the slide firmly, irrespective of the snow, which is intended only for convenience in adjusting the eye-piece. "The Creedmoor Rifle," so called, is that used by Dulin, Fallon, Redline, Heywood, Coleman, Fuller, Canfield, Hyde, Babbie, Crouse, Smallford, and Weber. At the match between the American and Irish teams at Creedmoor, in 1874, the Remington breech-loader scored 875, the highest figure reached by any arm. At the match at Doolittle it shot closer and made more bull's-eyes than any other.

THE CHINESE POTTERY EXHIBIT.

The recent introduction of the Friedrichshall bitter water in this country has proved a veritable boon. This medicinal water is imported from Germany, and is not only greatly favored and frequently prescribed by physicians, but is being generally adopted by the public. As it has been recommended by such high scientific authorities as Sir Henry Thompson and Baron Von Lisperg, it is evident that there are good grounds for its popular accopetion. Our illustration displays the pretty and attractive form in which the exhibit was made of this water in Agricultural Hall.

WATER IN AGRICULTURAL HALL.

The recent introduction of the Friedrichshall bitter water in this country has proved a veritable boon. This medicinal water is imported from Germany, and is not only greatly favored and frequently prescribed by physicians, but is being generally adopted by the public. As it has been recommended by such high scientific authorities as Sir Henry Thompson and Baron Von Lisperg, it is evident that there are good grounds for its popular acceptance. Our illustration displays the pretty and attractive form in which the exhibit was made of this water in Agricultural Hall.

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The idea of the machine-gun is claimed to be entirely American, and to have been conceived by Dr. R. J. Gatling.
of Indianapolis, Indiana, in 1862, whose first American patent was date November 4th of that year. The conception of this gun had occurred to Mr. Gatling in 1861, and its first constructed realization of it was exhibited and fired repeatedly in 1861, in the presence of thousands of persons, discharging 200 shots a minute. From the Gatling Gun, it is alleged, was derived the mitrailleuse, which played so important a part in the Franco-German war. The principle upon which machine-guns are constructed consists in a series of barrels secured upon the main shaft. The gun is fed either by a man standing beside it or automatically from a feed-case filled with cartridges. It is exploded by turning a crank, which, by the agency of certain gearing, revolves the main shaft, carrying with it lock-cylinder, barrel, and lock. As the gun is rotated the cartridges are carried along to a point where, after the operation of a hammer comes into play, where each cartridge is exploded in turn. The latest improvement on the Gatling gun is by Mr. Bailey, of Indianapolis, and possesses the advantages of simplicity, rapidity of fire, extent of range, capacity for continuous firing, and economy. This arm was exhibited during the Centennial Exposition, in the Indiana State Building, on the Centennial Grounds. It is supplied with one lock, made in two pieces, which operates all the barrels, and the total number of pieces in the gun is less than that of any other mitrailleuse. It can be taken apart and refitted by any person of common intelligence, and while performing this function reveals likewise the time when the invention is used. By means of a sliding Vernier scale, divided into 360 degrees, the latitude of any locality can be readily ascertained, as also the degrees of any part of the earth or any of the planets. Moreover, every portion of this comprehensive instrument is utilized, the base being used to display a barometer, thermometer, and compass, altogether separate from the clock. The Time Globe will stand in any position, and while performing this function reveals likewise the time relative to the true character of the motion of the earth, and as such serving as an excellent and important property presents itself as inherent in this gun.

**Auction Sale of Ceramics and Bric-a-Brac.**

Our illustration presents a scene which was quite common in New York and Philadelphia after the close of the Centennial, when all sorts of Centennial articles—particularly in ceramics and bric-à-brac generally—were offered at public auction, and eagerly purchased by the public whose taste for this class of ware had been developed by means of the Centennial itself. According to an English writer, bric-à-brac is "an elastic expression, made to cover everything, good, bad, or indifferent, in the most remote degree, relative to art, that has fallen into its second-hand stage, or, in other words, passed out of the hands of commerce into the fluctuations of chance." Thus bric-à-brac appears in public and private museums, and in art sales-rooms, in the form of ceramics, bronze armor, wood- engravings, antique or recent jewelry, and, in fact, in every conceivable article wherein art, taste, or capacity has been displayed, and which has become rare by age or scarcity.

Within a few years auction sales of this class of wares have become very frequent, and quite a mania for collecting has begun to grow among our cultivated people. It is probable that we shall now see largely upon the collections of Europe, and, as private museums are dispersed, their contents will fall into the hands of collectors, to be immediately sold, with little or no discrimination, where a more lucrative market is certain to offer itself.

L. P. Jenet’s Time Globe.

An interesting scientific article, which was exhibited both in the Main Building and the United States Government Building at the Centennial, was the Time Globe, invented by Mr. L. P. Jenet, of Glen’s Falls, N.Y. This curious piece of machinery exhibits a miniature representation of the diurnal motions of the earth, the globe which answers for the earth being made to revolve once in twenty-four hours, by means of concealed machinery. This invention is designed to facilitate instruction relative to the true character of the motion of the earth, and while performing this function reveals likewise the time of the various meridians or localities, this being indicated on a large dial at the equator, a small dial recording in the meantime the locality where the invention is used. By means of a sliding Vernier scale, divided into 360 degrees, the latitude of any locality can be readily ascertained, as also the degrees of any part of the earth or any of the planets. Moreover, every portion of this comprehensive instrument is utilized, the base being used to display a barometer, thermometer, and compass, altogether separate from the clock. The Time Globe will stand in any position, will run eight days, and is a steamer-winder. It deserves being brought to the notice of educators as a convenient and fully adequate means for informing students in an important but little understood branch of instruction, while it is also calculated to prove practically useful in the library, the office or the counting-room.

Don Pedro and the Emperors of Brazil.

Among the distinguished foreign visitors to the Centennial, the Emperor and Empress of Brazil were of all the
SELLING CERAMIC BY AUCTION AFTER THE CLOSE OF THE EXHIBITION.
notable and the most observed. The assiduity and perseverence with which Dom Pedro made himself acquainted with the character of the Exhibition and the nature of its contents recommended him constantly to those who desire observation he meets, the possessor of many particular Maritza qualities being naturally an object of interest in this country. We present portraits of the Emperor and his wife, who were married on September 4, 1843. Dom Pedro II. was born in Rio Janeiro, December 2, 1825. He ascended the throne, July 18, 1841. The Empress was Adela Theresa Christi anna Maria, daughter of the late Francis I., King of the Two Sicilies. The line of descent of the family has been continued through the marriage of the Emperor’s daughter to Louis, Count d’Eln, son of the Duke of Neuchâtel, who was a son born in 1785, who is the highest-occupied place of the Imperial Crowns of Europe. Since the accession of Dom Pedro to the throne of Brazil that country has been steadily increasing in power and influence. The Empress possessed literary and scientific acquirements and a deep affection for her people. Her acquaintance with scientific objects is quite remarkable, and he is a member of the French l'Académie des Sciences. Dom Pedro arrived in this country in the month of April, 1876, spending a few days with his wife in the City of New York, being in the meantime closely occupied in various public institutions. It was his custom while in New York to start out very early in the morning on an investigating tour, in order to satisfy himself as much as possible. When in New York harbor, on board of the ship in which he arrived, a number of prominent men from the city proceeded to the steamer for the purpose of paying him their respects and escorting him to the city; but he failed to gratify their wishes, making a positive announcement that it was his desire to be treated as a private citizen, inasmuch as he was simply upon a tour of observation, and for other purposes. Soon after his arrival he made a rapid trip to California, returning in time to be present at the opening of the Centennial Exhibition on the 10th of May, when he, in conjunction with President Grant, may be said to have set in motion that colossal enterprise. From that time until the latter part of the Summer the Emperor traveled through various parts of the United States, investigating our public institutions, our resources, numbers and customs, and public institutions, displaying an interest in our political and social economy which would scarcely be expected of any foreigner, and kind to a just and liberal heart. Dom Pedro was distinctly recognized by the public, and a achievement in the United States which has seldom been reached by any of the foreign visitors. On leaving this country went to Europe, and continued his travels into Egypt, Palestine and Syria, visiting the Suez Canal and other noted places in that section of the world. It is his intention to continue his touring expedition during the remainder of the year 1876, at which time he expects to return collected his letters to the Press and Chronicle, under his name. In 1837 he became Editor and proprietor of the Lancaster Intelligencer, and in August of that year founded the Press as an Independent Democratic daily journal in Philadelphia, which he became one of the organs of the Northern or Douglas wing of the Democracy. Mr. Forney’s opposition to Mr. Buchanan’s administration arose out of the refusal of the President to allow the people of Kentucky to have a free vote on the extension of slavery into that Territory without interference, a policy which he had solemnly pledged himself before his election. Mr. Forney was again on the Clerk of the National House of Representatives in the Thirty-sixth Congress, and served from 1853 to 1861. At the beginning of the Civil War he took strong grounds in favor of its vigorous prosecution. In July of 1861 he was chosen Secretary of the United States Senate, and held this office until 1868, when he resigned. While proprietor and corresponding editor of the Press during those years, he started in Washington, and personally edited, a weekly paper entitled the Cirrus, which he converted into a daily in 1862. In 1867 Mr. Forney made an extensive tour in Europe, and on his return collected his letters to the Press and Chronicle, under the title of “Letters from Europe” (1869). In 1870 he disposed of his property in the Washington Chronicle, and has since confined himself to the Philadelphia Press. Shortly after Mr. Forney’s return to his editorial chair in Philadelphia, General Grant tendered him the important position of the collector of customs at that port, a position which he accepted with much reluctance, owing to his earnest desire to have nothing to do with political appointments. He therefore, at the end of eleven months, having proved himself an admirable officer, he returned the commission to the President with warm thanks for the honor
he believes the Republican organization, with all its errors, the best we have, and therefore entitled to his consistent support. He believes the Republican organization, with all its errors, to be the most eligible. He has since then published a line in Europe. Elsewhere will be found a description of the now celebrated "Century Vase," manufactured by the Gorham Manufacturing Company, of New York, and also the Gorham silver casters from three sheets; while another process consisted in laying the silver alloy on the metal and pressing this upon the metal, using a hammer and anvil, until the metal was first produced in sheets plated each one on the other. The improvement in this manufacture through the medium of electro-plating originated in the fact that, when a voltaic current is passed through a metallic solution, the metal, in a reduced form, adheres itself to the negative pole or electrode, while the acid or alkalies goes to the positive pole. Although this fact is not generally known that in the processes of electro-plating the metallic basis selected, for the reason of its most approaches in this to silver, was that which has been extensively manufactured in our home manufacture, and it has been stated by a prominent manufacturer in silver and silver plate that in his experience an alloy is used, varying according to the peculiar process adopted by each manufacturer. The standard silver of England consists of 925 parts of silver and 75 of copper in a thousand parts; and in that country all vessels of silver are required to be stamped by the Goldsmith's Company, who are authorized to search the shapes of articles received and set the articles which do not bear the hall mark of the company. The company makes a charge of one shilling and sixpence per ounce on the weight of the object for the assay thereof and the impression of the hall mark. The composition of the alloy, however, is always the secret of the manufacturer, and varies according to judgment derived from experience.

The first practical experiment in galvanoplasty was the simple one of transferring by its means the image and superscription of a copper coin to a copper deposit. In 1839 a Russian announced his ability to produce, by means of galvanism, a copy of any line, however fine, engraved in a metal plate. A larger portion of this sum is paid over to the Government as a tax, a small deduction being made for the maintenance of the gold hall mark of the company. The company makes a charge of one shilling and sixpence per ounce on the silver which had hitherto been used. In the processes of electro-plating the metallic basis selected, for the reason of its nearest approach in this to silver, was that which has been extensively used as sheet-brass, but is a more efficient conductor of electricity, follows the electrical current approaches in this to silver, was that which has been extensively used as sheet-brass, but is a more efficient conductor of electricity, follows the electrical current.
and a interchange of elements in the solution takes place. The articles are suspended in the vats for access both for thorough washing and for interchange of elements in the solution, then taken out, and dried in cold water, and dried.

In the manufacture of mixed or exposed work the operation is performed by means of a burner, under various circumstances more or less complicated, though works in low relief are produced by means of the burner in hardened steel or lead. In one of the most novel and remarkable ways of raising detail, work as enameled, having, etc., are mutually attacked by the vessel or article has received its general form. The case with regard to chasing and other ornamentation.

The Gorham Manufacturing Company are silversmiths, manufacturers of electro-plating, and their success in this manufacture being given through their name. In the early times of manufacturing silversmiths, coin was the basis of the art, but the Gorham Company use a standard which is twenty-five one-thousandths higher than coin. This company have manufactured silver alveolate for more than thirty years. Their works are at Providence, R. I., where they employ about 450 hands. Here they have an entire block of buildings, filling, washing, and belting from steam engines of the largest size, connected by steam elevators for forwarding by castings in iron, tin, gold, silver, and other metals; machine-shops, shops for wood-work, blacksmith-shops rolling-mills, planing-machines, molding and refining furnaces, apartments for electro-plating and gilding, etc.

Besides the "Century Vase" (see page 283), there was exhibited at the Centennial a massive silver vase, ornamented with an elegant fretwork border seven inches in breadth, exhibiting an appropriate design in the style of Hevera-Collini, which was purchased by a gentleman of New York for $8,500. Among other articles exhibited, were a bridal outfit and silver service of 520 pieces, and numerous complete sets, of great richness. An important feature in this manufacture is the introduction of electro-plating into their work, and silver service of 320 pieces, and numerous complete sets, of great richness. In addition to their manufacture in solid silver, this company have ornamented with silver corner-pieces. and handles. All these are of pure silver, just as pure as the metal in the articles of manufacture in solid silver, this company have introduced electro-plating into their work, and are widely known for their finely plated ware called the "Gorham Ware." The resemblance of the articles to the pure metal is so close, that marks have been rebelled at for imitation. Besides their factory in Providence, the Gorham Company have a warehouse sale established in the business, and a magnificent retail store at 7 Union Square, New York City.

The firm of Reed & Barton, who manufacture fine electro-plated ware, was established in 1824, and has its factory at Taunton, Mass.—a grand establishment, covering four acres, and employing 300 hands. Their salesrooms in New York are at No. 60 Broadway—a large and handsome store, 40 by 130 feet, with basement, where they are constantly displayed the most elegant and expensive articles in the line of electro-plated work. The manufacture of this house is characterized by the use of the finest and more costly and elaborate pieces produced by this manufacture.

Mr. Bryant received the gift thus pleasantly and appropriately offered in a few words of thanks, in which he alluded to the great interest which he has always taken in the arts and manufactures of America, and read, when the works of William Cullen Bryant, who may justly be termed the Wordsworth of America, will be either forgotten, neglected or misinterpreted.

The illustration of the Bryant Vase which we offer in the Historical Register is especially appropriate to this work, both as account of its position among the art exhibits of the Centennial and because of its being equally a representative work of American art, and a testimonial of America's greatest poet, happily presented in the Centennial Year. Some account of the pontifications of the elaborate designs of this work will be appropriate, and doubtless interesting both to those who have seen the vase and those who are only able to judge of its character by a re representation of it. In endeavoring the best method of illustrating the life and work of Mr. Bryant in the required vase, the artist necessarily devoted much contemplation on the great character which he wished to illustrate. Viewing Mr. Bryant's life as a symmetrical and rounded, although unfortunately not completed, work of art which is naturally struck with two prominent features which had, as it were, entwined themselves alike with the character and labors of the poet. These features the artist sought to perpetuate and embody, first, in the classical outline of the vase, and second, in the wealth and exuberance of nature's symbolism, which he introduced into its ornamentation. Thus the Greek form adopted symbolism in the execution of the vase, giving it at first sight a somewhat crowded and over-luxuriant aspect in this particular; but as we devote to the matter some degree of analysis, we find that there is a harmonious union of reason and sensibility involved in the selection made for the illustration, which relieve it of this suggestion. Mr. Bryant, more than all other American poets, and perhaps more than all other poets whatever, excepting Wordsworth, is the poet of nature. It is, therefore, most proper and sym pathetic, to so speak, that the field which he has chosen for his literary effort should be lavishly drawn upon in illustration.

The use of the vase is made of oxidized silver, is 30 inches in height; and entirely covered with a fretwork, the chased lines of which are composed of forms suggesting the apple-blossom. We see the child being instructed in the art of versification by his father, who indicates Homer as a suitable model. Homer, and the union of reason and sensibility in the matter some degree of analysis, we find that there is a harmonious union of reason and sensibility involved in the selection made for the illustration, which relieve it of this suggestion. Mr. Bryant, more than all other American poets, and perhaps more than all other poets whatever, excepting Wordsworth, is the poet of nature. It is, therefore, most proper and sym pathetic, to so speak, that the field which he has chosen for his literary effort should be lavishly drawn upon in illustration.

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lines from Thanatopsis," one of the most charming of
Mr. Bryant’s poetic effusions:

"To him who, in the love of Nature, holds
Communication with her visible forms, she speaks
A various language."

The third medallion presents a representative scene from
the life of Mr. Bryant as an editor, and the fourth shows
him just rising from his chair after concluding his transla-
tion from Homer. Above the head of the poet is a water-fowl.
This last is occupying a prominent position, is a
symbol of eloquence bordered with the water-lily
—significant of his poesy; and beneath it the
lyre—indicating that his teachings must have been imbued
with humanity until all record were lost
among the broken shackles, in recognition of the poet's
fulfillment of the prophecy of Psalm cxiv.

The emblem of eloquence which it furnishes itself, were blotted
out of the cause of emancipation. This completes the
design.

It is not unjustly claimed for this work of art by its
designer that if by some corroboration of nature it were lost
to humanity, yet all record of its existence, save that
which it furnishes itself, were blotting out its nature and
intention could be readily gathered by the archivist through the
character of its design and the symbolical method of
which it ornamentation. Thus the head and the lyre
would indicate a poet of renown, while the
Indian com and cotton would signify clearly his nationality. The wealth
of folk decoration would announce him as a lover and
deponent of symbols which were lost
his teachings must have been imbued with
faith which has ever
bearing that name,
been a special characteristic of Mr. Bryant:

The two towers contain elevators, which were prominent objects in connection with
the Centennial Exposition. From their lofty
summit a magnificent view was presented in all directions, including
the Schuylkill and Delaware Rivers, the mountains in the distance, the
magnificent city of Philadelphia, and imme-
lantly beneath, Fairmount Park, in all its natural beauty,
with the marvelous architectural and horticultural effects of
the Centennial Grounds as the crowning glory of the
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Our illustrations represent the two towers-containing el-
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period from Benjamin West to F. E. Church, and our engravings will serve to avoid some of the more pleasing works in the collection.

**RECEPTION OF LORD DUFFERIN AT ST. GEORGE’S HALL.**

We illustrate the cordial reception given to Lord Dufferin on the occasion of his visit to the Centennial Exposition, and which took place at St. George’s Hall, the headquarters of the British Commission. The Earl of Dufferin succeeded to the title in 1841, and was for some years a Lord-in-Waiting to the Queen. He made his noted yacht voyage to Iceland in 1829, and in 1850 was sent out as British Commissioner to Syria. Later he was Under-Secretary of State for Ireland, and Under-Secretary for War; and in 1872 was appointed Governor-General of the Dominion of Canada. Lord Dufferin has proven a most excellent administrator of affairs in the Dominion, where he is deservedly popular. His writings have been quite numerous, including several works on affairs of importance and political subjects.

**THREE BRAZ, VIENNA EXHIBIT OF BENT-WOOD FURNITURE.**

The bent-wood furniture in the Austrian Department of the Main Building was exhibited by Messrs. Thonet Bros., of Vienna, one member of the firm—Mr. Francis Thonet—being also honored by an appointment as one of the judges in Group VII, “Furniture, upholstery, etc.”

The manufacture of this graceful class of household wares will be found fully described on page 234 of the Historical Register. The articles which we illustrate include a rocking-chair, table and table-glass selected from those which give a fair representation of the character of the exhibit, and will remind the reader of the early influence of the North of Ireland, in 1821, and educated at the Charterhouse School and Trinity College, Oxford, graduating from the latter university in 1844 as B. A. and B. B. in classics. He was elected to a fellowship of Brasenose College, and from 1847 to 1851 was President of the University of Corfu, in classics. He was elected to a fellowship of Brasenose College, and from 1847 to 1851 and first-class university in 1844 as B. A.

**THE UNITED STATES CORSET COMPANY’S LOOM NO. 7, IN MACHINERY HALL.**

Wood FURNITURE.

The Centennial Race Cup of the New York Jockey Club.

This cup was made by Messrs. Tiffany & Co., of New York, for James Gordon Bennett, and by him presented to the New York Yacht Club. The design is highly appropriate for a yacht prize; the handles are formed of the prows of vessels winged with plumes suggestive of speed, and at the feet is the dolphin that follows in the wake of lucky Hesperus. "The skipper he stood beside his helm; Ill's pipe was in his mouth; and he watched how this vessel far did go; the smoke, now west, now south."

The remaining figure represents Columbus with the globe he traversed at his feet, and pointing with his index finger to the fair land that he first discovered.

**THE CENTENNIAL RACE CUP OF THE NEW YORK Jockey CLUB.**

The Centennial Race Cup of the New York Jockey Club connects the two subjects of patriotism and horses in a most appropriate manner for the Centennial Year, by illustrating Washington's well-known love for fine stock, and representing him as a rider of horses.

The Gentleman of Washington’s character is shown to have won the confidence of the beautiful mare, and even the timid colt reaches shyly forward to receive a caress.

In the bas-relief shown, horse and rider are represented in the heat of battle, and on the reverse side of the pedestal, another bas-relief shows Washington’s triumphal entry into Trenton, and his reception by the people.

**MEREIN BRITANNIA COMPANY.**

The exhibit of the Meriden Britannia Company was located at N 43 in the Main Building, and consisted of a magnificent display of silver-plated goods with ornamented work and articles of verse. This company has manufactured plated ware only until recently, and has held a high position in the production of this class of goods. All this company’s plated articles are stamped with its trade-marks, which—that of the Goldsmiths Company of London—give assurance of the genuineness of the manufacture and of the excellence of its quality.

In the annex of Agricultural Hall, and continued from October 27th to November 6th. This exhibition was the finest ever held in the United States; and in the matter of pigeons, is said to be the largest and most comprehensive which has ever occurred anywhere.

The display of poultry proper comprised Asiatics, Hamburgs, Spanish, Derkings, Frueh, Polish, American, bantams, turkeys, geese, ducks, besides eight cages of emu-birds. There were also, in the classes "ornamental" and "sunday," white and has met with marked success. A peculiar method of triple-plating knives and forks is a specialty of this company, as is also their porcelain-lined ware, such as ice-pitchers, pails and pudding-dishes, etc. The Meriden Company’s factory is at Meriden, Conn., and its New York sales establishment in the fine building at No. 500 Broadway.

**INTERNATIONAL Poultry Show.**

The international display of poultry held was in the Poultry Building, an annex of Agricultural Hall, and continued from October 27th to November 6th. This exhibition was the finest ever held in the United States; and in the matter of pigeons, is said to be the largest and most comprehensive which has ever occurred anywhere.

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Guinea fowls, pea fowl; silver, golden, and English ringnecked pheasants; American quails; prairie chickens; rabbits, and Guinea pigs. All of the exhibits mentioned thus far were American. Next to these came pigeons, including carriers, postens, passenger pigeons and fantails. There were also turkeys, Japonica turkeys, Antwarpers, and trumpeters, fifteen specimens of African owls, two Chinese owls and twenty-seven English owls, besides nineteen exhibits of swallows and various species of magpies. After these came mice, rats, arachnids, bats, etc.

To go back to fowls proper, there were sixteen exhibits of light Brahmas over one year, and forty-five under one year, twelve-caul dark Brahmas, forty-two of partridge Cochins, fourteen of buff Cochins, eighteen of white Cochins, eight of black Cochins, and nine of other varieties. In game, there were seventy coops, chiefly from Pennsylvania and New Jersey. There were sixty-eight coops of Hamburgs, eighty-two of Spanish, eighty-five of Dockings, twenty-one of French, fifteen Polish, forty-six French, and one hundred and three bantams. The turkeys included light-bronze, dark-bronze, white Holland, slate, and three exhibits of wild turkeys. Altogether, there were twenty-eight coops. Of geese there were also nine coops, including Tou- lows, white Cloons, Hong-Kong, wild geese, and Egyptian. The ducks numbered forty-five coops, comprising Ayledsmores, Cayugos, Roman, Pekin white and colored, Muscovy white, crested and wood.

Great Britain furnished these exhibits of game fowl, and five coops of Hamburgs, Canada and sixteen coops of Dutch, nineteen of geese, eight Hamburgs, thirteen Spanish, eight Dockings, ten French, sixteen Polish, and thirty-two coops of bantams; also four coops of geese, including white and bronze Cloons and Brahmas; thirteen coops of ducks, and thirty-six coops of pigeons.

The Poultry Building, a structure 182 by 192 feet in dimensions, constructed of wood, one story high, and built out of materials upon the floor being then only thirty-eight years of age. The administration of Governor Bigler was characterized by the exhibition of virtues which the administration of that body in 1872. In the specially important department of the affairs of life in which he has been engaged. These were rigid economy and strict accountability in the use of public money. In 1855 Governor Bigler was elected President of the Philadelphia and Erie Railroad Company, and in the same year to the United States Senate, where he served for six years. In 1857 he made himself prominent in the Kansas-Nebraska troubles, traveling over the greater part of Kansas, advocating a Free State policy. After the election of Mr. Lincoln, Governor Bigler was uniting in his efforts in the direction of a peaceful solution of the pending troubles. He was a member of the Committee of Thirteen, and, in the early days of the war, of the Committee of Thirty-three. He was elected Governor of Pennsylvania in 1844, and was elected Governor of the State of Pennsylvania, being only thirty-eight years of age.

The subject of this sketch was born at Shermansville, Lebanon County, Pa., on December 25, 1813. His father being a farmer, and not very successful in that avocation, young Bigler received but a meagre common-school education, though he fortunately drifted into a printing-office, which stood for him in place of school. About 1833 he commenced the publication of a political paper, writing editorials, setting type, working the press, and in fact comprising in himself his entire staff. In 1836 Mr. Bigler married, and shortly after sold out his paper and started in the lumber business. He, however, devoted himself strenuously to politics, and has been coming popular among the people of his State ever since he was associated with him, was elected to the State Senate in 1841. Ten years later Mr. Bigler was elected Governor of the State of Pennsylvania, his office being then only thirty-eight years of age.

To go back to fowls proper, there were sixteen exhibits of light Brahmas over one year, and forty-five under one year, twelve-caul dark Brahmas, forty-two of partridge Cochins, fourteen of buff Cochins, eighteen of white Cochins, eight of black Cochins, and nine of other varieties. In game, there were seventy coops, chiefly from Pennsylvania and New Jersey. There were sixty-eight coops of Hamburgs, eighty-two of Spanish, eighty-five of Dockings, twenty-one of French, fifteen Polish, forty-six French, and one hundred and three bantams. The turkeys included light-bronze, dark-bronze, white Holland, slate, and three exhibits of wild turkeys. Altogether, there were twenty-eight coops. Of geese there were also nine coops, including Tou- lows, white Cloons, Hong-Kong, wild geese, and Egyptian. The ducks numbered forty-five coops, comprising Ayledsmores, Cayugos, Roman, Pekin white and colored, Muscovy white, crested and wood.

Great Britain furnished these exhibits of game fowl, and five coops of Hamburgs, Canada and sixteen coops of Dutch, nineteen of geese, eight Hamburgs, thirteen Spanish, eight Dockings, ten French, sixteen Polish, and thirty-two coops of bantams; also four coops of geese, including white and bronze Cloons and Brahmas; thirteen coops of ducks, and thirty-six coops of pigeons.

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great object to which he now devoted all his time and efforts. Enthusiastic in his own confidence in the prospects of the Centennial Exhibition, he infused a similar belief into the minds of all with whom he came in contact, and by constant correspondence and personal solicitation was largely instrumental in advancing the interests of the Centennial at a time when even many of its strongest friends held back, dismayed at the formidable opposition which it so generally encountered.

As financial officer of the Centennial direction, the task of obtaining an appropriation from Congress was intrusted to Governor Bigler. In view of the contest between the United States Government and the Centennial Board of Finance, it is only fair to state that had the original bill passed as it was framed by Governor Bigler, the Government would have received $800,000 without a contest, since by that bill it was defined as a creditor on the same basis as the stockholders. But by means of an amendment framed by the opponents of the bill, a definition was given to the relations between the Government and the Centennial direction, which was so bunglingly constructed as to leave the former without any legal claim for anything. Governor Bigler fought this amendment earnestly, and no reason exists for charging him with any of the responsibility for the final conclusion.

In two letters which lie before us, written, respectively, to Senators Davis and Morrill in 1874, Governor Bigler foreshadowed the results of the international character of the Exhibition with a precision that is positively remarkable.

Governor Bigler is a man of dignified yet genial appearance, affable, courteous and obliging, determined and energetic in any course of procedure which he adopts, and qualified by integrity of purpose and largeness of understanding to sustain and advance any movement with which he allies himself. He is, in fact, typical of the highest stamp of pronounced American manhood.

**United States Field Telegraph Train.**

The exhibit of the United States Signal Service, which we illustrate, consisted of a field telegraph train, with battery, wire-wagon, lance-trucks, running-gear, a portable signal-tower, and other signal appliances. It was placed on State Avenue, on the Centennial Grounds, facing the New York State and British Government Buildings. The lance-wagon is 17 feet 7 inches long, and has a tool-box on each side, 7 feet long and 7 inches wide. The running-gear included a pole 9 feet long, and wheels 3 feet 4 inches and 4 feet in diameter. The wire-wagon has 8 feet 3 inches long, is all open at the back, and all its framework is made of white oak, ash, and poplar. The battery-wagon has a body of the same dimensions as the wire-wagon, and has three battery-boxes on each side, 2 feet 7 inches long, 7 inches wide and deep. It is supplied with a black canvas top and white duck curtains. Besides these appurtenances, there is a reel for the wire-wagon. The measurements of the signal tower are not at hand, and we are indebted to the United States Signal Service Department for the full schedule of dimensions, a portion of which only we are enabled to find space for in the Historical Register.

**Miscellaneous Objects.**

Among the many articles which we illustrate, a large number will be found fully described in the remarks upon the sections of buildings where they were placed. Such are the statues "Flying Time" and "Love's Messenger"—the former appears on page 229, the latter on page 233. The Segur exhibit of paie de foie gras was made by Messrs. Segur & Ober, Périgueux, Bordeaux, France, and was in Agricultural Hall. The Belgian Carved Pulpit and Belgian Furniture, of
HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.

THE MICHIGAN STATE BUILDING.

which we give illustrations, were in the Belgian section of the Main Building, and attracted constant attention from those who delight in carved furniture. A Japanese Tree and Sandwich Island Fruit are each illustrative of the industry of the country represented. The Blowing Machinery, in Machinery Hall, will be remembered by all who experienced its wonderful force, and has been fully noticed elsewhere. Treasure Hall is fully described on pages 158 and 159. The exhibit of the "Society for the Prevention of Cruelty to Animals" is considered at length in the latter days of the Centennial, as was the exhibit of the "Society for the Prevention of Cruelty to Animals." The illustrations of the exhibits of Messrs. Tiffany & Co. are each about 600 pounds, and have been grown on a constant scale. The superb ornament in the form of a feather, studded with diamonds, which has been so greatly admired by those who were privileged to see it.

CALIFORNIA AND ITS RESOURCES.

Extending from latitude 22 deg. 30 min. to 24 deg. in parallel, and between 114 deg. and 124 deg. west longitude, California has a coast-line of about 750 miles, with an average breadth of 230 miles, and comprises within its limits an area of 134,116 square miles, or nearly twice the extent of Great Britain. The general character of California is mountainous, and a remarkable feature of the State is the existence of two great mountain ranges running north-west and south-east—the Sierra Nevada, and the Coast Range Mountains. Near the northern boundary of the State is a longitudinal range, in which stands the grand and majestic Mount Shasta, 14,442 feet above sea-level, its summit being within the limits of everlasting snow. The average height of the Coast Range is 23,000 feet above sea-level, and it is intersected by numerous long, fertile, and narrow valleys—namely: Los Angeles, Salinas, Santa Clara, Sonoma, Napa, and Russian River Valley. The Sierra Nevada Mountains of California are clothed with valuable forests, while beneath are strata of inexhaustible mineral wealth. Between the two ranges of the mountains lie the extensive and productive valleys of San Joaquin and Sacramento, extending from north to south a distance of about 500 miles in length, and from 50 to 250 in breadth. The principal rivers in the State are the Sacramento and San Joaquin. The former takes its rise near the lofty Mount Shasta, and the latter in the Sierra Nevada. They are each about 350 miles in length. The climate of California is varied, differing greatly in different counties. This year is divided into two seasons, the hot and dry season. The latter season commences in the month of May and continues until about the middle of November, when the wet season commences and lasts until April or May. California is undoubtedly one of the most productive countries in the world. Entire counties are completely covered with wild oats, and are suitable grazing grounds for numerous herds during the dry season. The soil does not require cultivation and manuring, as is usual in other countries.

From 15,000,000 to 25,000,000 bushels of wheat are produced annually in the State, the average yield being about 17 bushels per acre, although the best wheat-producing counties exceed 20 bushels per acre. In addition to wheat, barley, oats, rye, buckwheat, and Indian corn are extensively raised. The yield of agricultural products in the year 1873 was: wheat, about 25,000,000 bushels; barley, 8,000,000; oats, 2,000,000; rye, 10,000; beans, 1,000,000; buckwheat, 10,000; potatoes, 1,500,000; hay, 325,000 tons; butter, 5,610,000 pounds; cheese, 300,000 pounds, and cheese, 8,000,000 pounds. The wheat-growing farms are of an immense size, ranging from 500 to 15,000 acres. The entire agricultural products for 1873 are valued at $150,000,000; during 1873 there were manufactured in California 85,000,000 dollars, comprising nearly 2,000,000 pounds of beef-tobacco. Cotton has been grown on a considerable scale for several years. During the year 1873 about 2,000 acres were under cultivation, the quality being superior. Carden produce of all descriptions is largely raised in the State, a peculiar feature being the enormous size of the fruit and vegetables. Pumpkins have been grown weighing 250 pounds; squashes, 200 pounds; and cucumbers weighing 30 pounds. The figs, olive, and pomegranate trees give inordinately in the southern gardens of the State. All varieties of European fruits and vegetables are produced to sell; in the northern

THE IOWA STATE BUILDING.

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The State has been greater than that of its mines by millions of dollars. Silver exists in large and extensive deposits in the counter end of the Sierra Nevada.

The first railroad in California was constructed between Sausalito and Felona, a distance of 22 miles, and was opened in 1856. The Central Pacific Railroad Company filed their certificate of incorporation June 25, 1861, and was incorporated with the Union Pacific Railroad Company two years after. The Central Pacific broke ground January 9th, 1863; the Union Pacific on the 2nd December following; the first at Sacramento and the other at Omaha. In May, 1869, this line was opened.

The total population of California at the end of 1874 was about 760,000. Of these a large number are Chinese, the Chinese population in 1879 being estimated at about 60,000. From 1852 to 1879, 90,000 Chinese passed through the United States. The great Mammoth Japanese Bronze Vase.

The forests of California are noted throughout the world, and the big trees of Mariposa and Calaveras rank among the natural curiosities of the United States. The sugar pine grows about 300 feet in height, and measures 12 feet in diameter. The red-wood grows only on the coast, within 50 miles of the Pacific Ocean, and there is a giant plant of this species in Santa Cruz County. 257 feet high, and 19 feet in diameter 6 feet above the ground near the Klamath River there is said to be one as much as 30 feet in diameter and one hollow red-wood stump is mentioned which was 28 feet in diameter, and in which 50 pack-mules were counted at one time. The lumber is one of the most beautiful trees of the coast valleys. The mumms is another striking tree, while others are the juniper, yew, sonoma, etc.

California is a great steel-making country. Formerly all the cattle were of pure Spanish blood, but for the last ten years this stock has been decreasing. Sheep-raising is one of the most important as well as profitable inventions in the State, and the business of wood-growing one of the most valuable. In 1872 the clip of wool was 36,000,000, and there are over 5,000,000 head of sheep in the State. There are from 20,000 to 30,000 common goats, and from 10,000 to 15,000 mohair goats. Gold and silver form the chief-mineral wealth, although extensive deposits of copper exist in some counties, and several kinds of iron ore are to be found in the Coast Range. There are also three or four beds of coal of the variety called lignite. Gold was discovered in a hillside creek by General Sutter in 1848, and in a few months thousands of adventurers were on their way to the new El Dorado. In 1849 the produce was nearly $5,000,000; in the following year it was five times as much, and by 1850 it had increased to 650,000,000.

Pottery and porcelain.

Ten numerous and beautiful exhibits of pottery and chinaware in the Main Building of the Centennial attracted so much attention, and awakened so much interest in the whole subject, that some classification of the history of the ceramic art will not be inappropriate in this place. The word "ceramic," by-the-wort, is a Greek word signifying "potter's earth," the corresponding descriptive word from the Latin being "faience," from faex, to form.

The features of tests and the claying and baking of them, either by sun or by fire, is unquestionably one of the earliest arts applied by humanity, evidences of this coming down to us from the remotest periods. By the ancient Egyptians the art was attributed to the gods, which shows that its origin must have been of a date preceding their records. Frequent allusions are made to it in the Old Testament, and among the articles of the different Eastern countries, as well as those of ancient nations which people America, relics are found illustrating this manufacture. Among the Egyptians vases of clay are described with the prevailing intent to a great variety of purposes. They were of all sizes, from several feet in height down to ten or twenty inches, some being water-jars with wide mouths and very flatly shaped, being made to contain wine, oil, honey, milk, drugs, confections, and numerous other articles. These vases were made in terra cotta, glazed common ware, the color being red, and some of the finer articles appearing to have been polished by some mechanical process. The date of these goes back to from 2,000 to 5,000 years before Christ. The glazed ware appears to have been formed of pulverized rhyolite and soda, and colored by various metallic, chalky and earthy ingredients. The piece of Egyptian pottery which have been preserved to us are the most part bricks, tiles, cylinders, etc. Among the Babylonians relics were bas-reliefs in terra-cotta, glasses formed in molds representing figures of men and animals. In Europe the most ancient pottery worthy of notice was that of the Etruscans. As far back as the seventh and eighth centuries before Christ, their vases—of coarse dark-brown ware—in great variety of sizes, ornamented with figures in relief, were produced in forms of such perfection and beauty as to entitle it to the rank of works of art.

CENTENNIAL BUREAU OF PROTECTION.

Ten Police arrangements of the Centennial were organized with wise forethought and judgment, and completely accomplished the purpose for which they were designed. The date of these goes back to from 2,000 to 5,000 years before Christ. The glazed ware appears to have been formed of pulverized rhyolite and soda, and colored by various metallic, chalky and earthy ingredients. The piece of Egyptian pottery which have been preserved to us are the most part bricks, tiles, cylinders, etc. Among the Babylonians relics were bas-reliefs in terra-cotta, glasses formed in molds representing figures of men and animals. In Europe the most ancient pottery worthy of notice was that of the Etruscans. As far back as the seventh and eighth centuries before Christ, their vases—of coarse dark-brown ware—in great variety of sizes, ornamented with figures in relief, were produced in forms of such perfection and beauty as to entitle it to the rank of works of art.
At a later period the art of porcelain was introduced into Europe. The Chinese porcelain articles, whose quality, however, was much inferior to that of the greatest specimens of majolica, were produced at the factory of Meissen, founded by the Elector Frederick Augustus I., is the height of mania. In Dresden, at the Japanese palace, there was one of the most notable exhibits of the Seven Years' War, which were particularly fine. One of these, repre- senting the colors being brilliant, and effectively dotted over the intervening surface. The modeling of the pinks and blue of the sky, were exceptionally excellent. Among the smaller pieces of majolica was a fine vase, supported at the base by thin, brood lily-tree trunk, were excepted. The Elector Frederick Augustus, was so much pleased with the colors being particularly fine. One of these, repre- senting the colors being brilliant, and effectively dotted over the intervening surface. The modeling of the pinks and blue of the sky, were exceptionally excellent. Among the smaller pieces of majolica was a fine vase, supported at the base by thin, brood lily-tree trunk, were excepted. The Elector Frederick Augustus, was so much pleased with the colors being particularly fine. One of these, repre- senting the colors being brilliant, and effectively dotted over the intervening surface. The modeling of the pinks and blue of the sky, were exceptionally excellent. Among the smaller pieces of majolica was a fine vase, supported at the base by thin, brood lily-tree trunk, were excepted. The Elector Frederick Augustus, was so much pleased with the colors being particularly fine. One of these, repre- senting the colors being brilliant, and effectively dotted over the intervening surface. The modeling of the pinks and blue of the sky, were exceptionally excellent. Among the smaller pieces of majolica was a fine vase, supported at the base by thin, brood lily-tree trunk, were excepted. The Elector Frederick Augustus, was so much pleased with the colors being particularly fine. One of these, repre- senting the colors being brilliant, and effectively dotted over the intervening surface. The modeling of the pinks and blue of the sky, were exceptionally excellent. Among the smaller pieces of majolica was a fine vase, supported at the base by thin, brood lily-tree trunk, were excepted. The Elector Frederick Augustus, was so much pleased with the colors being particularly fine. One of these, repre- senting the colors being brilliant, and effectively dotted over the intervening surface. The modeling of the pinks and blue of the sky, were exceptionally excellent. Among the smaller pieces of majolica was a fine vase, supported at the base by thin, brood lily-tree trunk, were excepted. The Elector Frederick Augustus, was so much pleased with the colors being particularly fine. One of these, repre-
The Grand Lodge of Pennsylvania met at the National Grand Hall, Race Street, below Sixth. The first Grand Division was formed on Broad Street, the right line extending on Sprague, and the remaining divisions extended as far north as Columbia Avenue. After being properly formed, the procession marched in a straight line to the Stand near the Main Building, where the concluding exercises took place.

The ceremonies were of a most imposing and attractive character. Four stands were erected near the eastern and near the Main Building, and from each of them orations were delivered. The programme was opened with instrumental music, when the Handel and Haydn Society sang a festival hymn. This was followed by prayer, and an ode sung by the Handel and Haydn Society, after which orations were delivered from the four different prescribed points by William Elliott, Past Grand Sire of Massachusetts, representing the East; Wilfrid G. de Sausseur, Past Grand Sire of Canada, representing the West; and John A. Favor, Past Grand Representative of Minnesotta, representing the North. A further consideration was the promulgation of the constitution of Oddfellowship. They were all eloquent and comprehensive. The ceremonies concluded by singing "America," and the promulgation of the constitution by the Grand Chaplain.

The Order of Oddfellowship is purely an American institution. It was established in Baltimore on the 26th day of April, 1839, by Thomas Wildy, John White, John Dunn, John Chester and Richard Rushworth, who met in a poor room of a small, unoccupied building in an infested street near the docks of Baltimore. Here they organized the first lodge recognized by the Order of the present day, to which they called Washington Lodge No. 1. The founders were all foreigners. At the end of two years the Order had been planted in Maryland, Pennsylvania, New York, Massachusetts and the District of Columbia, but its condition was comparatively feeble. About 1850, however, it began to grow into a more vapid shape, and from that period progressed with unparallelled rapidity. In 1858 it was introduced into Missouri; in 1859, into Mississippi and Illinois; in 1862, into Arkansas and Texas; in 1865, into Arkansas and Connecticut; in 1866, into Tennessee and South Carolina; in 1841, into North Carolina and Florida; in 1842, into Georgia; in 1843, into Maine, New Hampshire and British America; in 1844, into Vermont, Michigan, Iowa, Great Britain and New South Wales; in 1846, into the Swedish Dominions; in 1854, the Grand Lodge of Pennsylvania went to the Grand Lodge of Great Britain; it was established in New Jersey in 1855, in Oregon in 1855, in Nebraska and Washington Territory in 1857, in Kansas and Nebraska in 1856, in Utah in 1857, in Montana in 1860, in Kentucky and Arkansas in 1857, in Germany.

The Order now numbers in the United States nearly half a million members.

NATIONAL SPELLING REFORM CONVENTION.

A very interesting occasion was the meeting at the Atlas Hotel, Philadelphia, on the 27th, of the officers and friends of the National Institute of Orthography, embrasing representatives of Brazil, Sweden, and the United States of America. The meeting was preceded by the presentation of a memorial to the President of the United States, by the delegates from the various institutions connected with the cause; also by the presentation of a beautiful copy of "National Spelling Reform," which was presented to the President of the United States, by the delegates from the various institutions connected with the cause.

The meeting was held under the auspices of the National Institute, and the proceedings were opened with prayer, after which Professor S. S. Haldeman, of the University of Pennsylvania, praying officer, upon taking the chair, spoke apropos of the importance of the phonetic movement. According to him, we should take as the basis of the new

orthography the original powers of the letters, or so far as we could find them, and form a scheme which should tend so far as possible to simplify the system of spelling now in vogue, and which, in his opinion, corrupt. The gentleman gave several illustrations of the number of letters, comparing the English with other lan-

This content is from the "Historical Register of the Centennial Exposition." The document contains information about the Oddfellow's Celebration, the National Spelling Reform Convention, and other topics. The text is a mixture of historical and educational content, discussing topics such as oddfellowship, spelling reforms, and the growth of various institutions in the United States. The page also includes a section on the Oddfellow's Celebration, mentioning the Grand Lodge of Pennsylvania and its history. The National Spelling Reform Convention is highlighted, with a focus on the introduction of a new orthography system. Overall, the document provides a comprehensive overview of the Centennial Exposition and related events.
improvement in the art of Forestry.

train for this occasion. The members of the New York Liederkranz Society also visited the Exhibition, in com-

Of Forestry. Addresses were also made—

Spain were present, and two from the

President John A. Warner, of Ohio,

the Centennial Exhibition was not likely to

fornians took place at the Pacific Coast

two excursions from Toronto and Hamilton, Canada,

and on August 28th, a delegation of the New York State

buildings, afterward inspecting the prin-

Professor E. B. Northrop, and others. On the 24th these young

Professor J. N. Carleton, of the State Normal School, Pro-

Chinese Educational Commission. They were accompanied

for Philadelphia, to attend the Exhibition. They were

to Philadelphia by a native interpreter, native teacher,

Chinese 对 the various branches of the palm-

Egyptian cloth, white and red, with

The usual plan in journeying through the Holy Land is to

Palestine to Damascus there are no hotels, and only one

camp together generally requin

mottoes in Arabic, referring chiefly to the

white, with mats. The sleeping tent, for two persons, was much

The usual plan in journeying through the Holy Land is to

Another most interesting and charac-

Another most interesting and charac-

and establishment of this institution was an entire success,

were next entered into with

builders for the erection

and the usual arrangement of rooms, bay, or

mayfker was the bedroom

at the crossroads, with

The third tent, used as a kitchen, was also made of

trees,

tents are constantly needed. The

The usual plan in journeying through the Holy Land is to

The usual plan in journeying through the Holy Land is to

Palestine camp together generally requin

fifteen to twenty mules.

The usual plan in journeying through the Holy Land is to

and in which was rocked little Peregrine White, the first

of old china and antique Venetian glass. There was also

and on August 28th, a delegation of the New York State

and on August 28th, a delegation of the New York State

buildings, afterward inspecting the prin-

Professor D. E. Bartlett, of the American Asylum, Hartford,

and other attractions for the gratification of

National Guard arrived from Troy, N. Y., numbering 85

and on August 28th, a delegation of the New York State

buildings, afterward inspecting the prin-

was Miss Emma Southwick, of Boston.

Miss Emma Southwick, of Boston,

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there were two who deserve

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CONTINUATION OF ITS HISTORY.

We resume the historical portion of our consideration of the centennial exposition at the point where we concluded with the ceremonies of the opening on May 10th, 1876, as presented in the historical register of the centennial exposition.

In order to enable the reader to obtain a glance at a view of the more prominent features and incidents connected with the history of the centennial, we will recapitulate those here.

On March 31, 1871, Congress passed an act providing for the celebration of the one hundredth anniversary of American independence, by holding an international exhibition of arts, manufactures and products of the soil and mine in the City of Philadelphia during the year 1876. This act created the United States Centennial commission, consisting of two delegates from each state and territory, the commissioners being duly appointed by the President of the United States on the nomination of the GOVERNERS OF THE REPUBLIC AND THE TERRITORIES in the following order: Pennsylvania, New York, Massachusetts, Connecticut, New Jersey, New Hampshire, New York, Delaware, Michigan, New York, Ohio, Illinois, Indiana, Kansas, Missouri, Missouri, Minnesota, Oregon, and Washington.

The record of admissions on these days are as follows:

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<thead>
<tr>
<th>State</th>
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<td>Rhode Island</td>
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<td>New York</td>
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<tr>
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<td>Sept. 30</td>
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Besides the ceremonies connected with the exhibitions on these days, the following were also held at Philadelphia and other points:

- Mass meeting of the people of the United States, State and Municipal Governments, the public Press, and a procession of 200,000 people.
- The number of paying admissions on the day was 79,172. The number of free admissions was variously estimated at from 150,000 to 200,000.

The special feature of the day was a grand concert held in the Crystal Palace, with speeches and addresses. May 10th, the banks of the United States assembled to open their special building.

SUMMARY.

In order to enable the reader to obtain a general view of the more prominent features and incidents connected with the history of the centennial, we will recapitulate those here.

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On May 10th the Exhibition was opened at the appointed hour by the President of the United States in the presence of distinguished officials of foreign countries and the representatives of the United States, State, and Municipal Governments, the public Press, and a procession of 200,000 people.

The purpose of the President's invitation to cooperate in the Exhibition was to perfect a collective exhibition which should be subject to the Act providing that all articles imported for the Exhibition should be subject to the duties in force at the date of importation. The appropriation mentioned to the stock of the Board of Finance, besides providing $35,000 for the erection of the special building to contain an international exhibition of women's work, were afterward issued a proclamation declaring that all articles imported from or withdrawn from the exhibition for consumption here should be subject to the duties in force at the date of importation.

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INTERIOR OF THE SHOE AND LEATHER BUILDING.

HISTORICAL REGISTER OF THE CENTENNIAL EXPOSITION.
of the English building known as St. George's Hall to the city of Philadelphia.

On the 9th of November, 1876, the International Court of Fireworks took place on the Centennial Exhibition Grounds, between Messrs. C. T. Brock & Co. of London, and Professor Samuel Jackson, of Philadelphia. This event was the fruit of a long, patient, and persevering effort on the part of persons in the Gronmla. The programme was commenced by the Messrs. Brock, with a grand salute of aerial pieces. This was followed by the firing of an immense number of rockets, and the period, covering an area of over 200 acres, during which 100 large rockets, 20-inch shells and six large magnesium balls were used. This Was followed by a magnificent picture. The entire number of pyrotechnic exhibits by the Messrs. Brock was eighteen, including large rockets, shells, magnesium stars, enormous set pieces, golden fountain, colored Roman candles.

At the close President Jackson commenced his display with an ascension of gas-balloons filled with fire and shot from a rocket. It rose to the height of 3,000 feet, where 13 stars were liberated, culminating in the opening of the original thirteen States of the Union. Grand flights of signal rockets, batteries of signal rockets, and picturesque pieces followed; the while being concluded by a grand display, covering an area of 10,000 feet. This commenced with a spiritual benediction, after which an immense pyrotechnic temple appeared, supporting a dome studded with 38 stars, surrounding the seal of the United States. Upon the apex appeared Liberty pointing to the American Eagle, soaring aloft with the starry banner in his beak, while rockets and bombs lighted up the entire area; the temple being flanked at the right and left by two gorgeous fountains, pouring out streams of golden fire. As to the competition between the two distinguished experts, in pyrotechny, it was generally concluded that while Professor Jackson excelled in his production of large combination pieces, his English competitor had exhibited more brilliant rockets, bombs, etc., and displayed a greater variety of coloring.

November 1876 opened gloomily, and throughout the day the descent of rain was continuous and increasing. Yet the unfur¬nished tent did not deter the public from making an early appearance of themselves at the gates of the Centennial Grounds, thanking the individuals or families who had been in the open air and the various buildings were gathered in the open air and the various buildings were kept open by two long lines of the Centennial Guard, effectually barring the entrance of any one unprovided with a ticket, and few of the vast masses were aware of the change in the programme until the latter had occurred by ticket, and few of the vast masses were aware of the change in the programme until the latter had occurred.

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MAIN BUILDING - MAIN AVENUE, LOOKING EAST.
nud gentlemen, I have now the honor to declare the Ex-

hibition closed." The President then turned to the left and waved his hand to the operators of the telegraph in-

strument to give the signal for stopping the Corliss Engine and machinery in the Hall. The operator touched the key of the instrument, and the characters "5-6" were signaled to the main telegraph office.

The same current caused the hammer to strike the special gong stationed beside the Corliss Engine; which, was the signal to stop, and at the moment all the gongs in the Machinery Hall experienced the effect of the electric current, and gave notice to the exhibitors that the Exhibition had been declared closed. Simultaneously in the main telegraph office the following dispatch was placed on the wires and sent to London, Liverpool, Paris, and the principal cities of Europe, the United States, and Canada:

The ceremonies closed by all present singing the long-

meter Doxology to the words:

"Hosanna, O God! exalted high,
And as on earth displayed.
Till Thou art here as there before."  

While the ceremonies just described were progressing in the Machinery Hall, the location immediately surrounding the Corliss Engine had been gradually filling with people, and by two o'clock not less than 10,000 persons were gather-
ing there, under the impression that the President would personally arrest the movement of the engine, in the same manner as he had started it on the 10th of May. By three o'clock a vast sea of upturned faces looked in the direction of the iron and steel engine which controlled the endless revolving wheels, the whirring belts, and the operation of the mechanism of machinery. Just before four o'clock, two engineers took their position near the lever of the engine, with their eyes resting on the gong, which was to notify them when to apply the touch which should end the work of the machinery, the signal of the closing of the Centennial. A moment later the peal of the gong, attached to the office of the President, was heard. Two years later, his remarkable energy and administrative ca-
pacity having attracted attention, Mr. Scott was appointed Superintendent of the Western Division, which position he continued to hold until 1847, when it was transferred to the Collector's office at Philadelphia, where he resided three years, becoming then first connected with the Pennsylvania Railroad. Two years later, his remarkable energy and administrative ca-
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THE FINAL CEREMONIES IN JUDGE HALL.—MR. JOHN WELSH, PRESIDENT OF THE BOARD OF FINANCE, DELIVERING HIS CLOSING ADRESS.

all recompense. The choice, in fact, was a delicate compli-

tection to the immortal Washington himself.

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TRANSPORTATION.

The question of transportation has been one of the most important to be considered in connection with the great Exhibitions of the world. It has, in every instance, been surrounded with difficulties; and both at Paris and Vienna, these difficulties interfered materially with the success of the enterprise. In Philadelphia this subject was taken in hand at the earliest moment practicable, under the direction of Captain Dolphus Torrey, Chief of the Bureau of Transportation, whose railway enterprise and natural administrative capacity insured every possible advantage being taken to secure rapidity, care, and certainty, both in the delivery and passage of the goods. Captain Torrey commenced his duties early in 1875, and, by a series of circulars to the exhibitors, which clearly explained the necessary action to be taken by them in the premises, opened the way for delivering goods never before equalled in promptness and care. It has been estimated that the number of cases and packages transported to the Centennial numbered between 40,000 and 50,000, with an aggregate weight of about 26,000 tons. It is gratifying to know that the Foreign Commissioners have recognized the admirable management of this department by an unannounced expression of their satisfaction. In regard to the passenger-transportation, as early on July 4th, 1876, Captain Torrey made an experiment to test the carrying capacity of the railroads running into Philadelphia, and also that of the city passenger-roads. The result of this experiment proved that there was at that time a carrying capacity equal to 150,000 persons, as that number was taken to the Centennial Grounds without difficulty on that day. The most extraordinary feature in passenger-delivery occurred on "Pennsylvania Day," when nearly 275,000 persons were transported to and from the Centennial; the larger number being delivered in a period of time not exceeding three hours. In addition to this it is to be remembered that there was an average delivery of from forty to fifty thousand persons per day, and that without a single accident during the entire six months. It is believed that the transportation of passengers on the Pennsylvania Railroad alone, to and from the Centennial Depot, aggregated as much as 4,000,000. The regularity of the arrival and departure of trains, the system, and method, and velocity with which passengers were deposited and taken away by this railroad, occasioned the most favorable notices on the part of foreign correspondents. Meanwhile it is estimated that as many as 1,000,000 additional arrived at the Pennsylvania Depot at West Philadelphia, Kensington, and Camden, making a total of 5,000,000 persons received in and taken away from Philadelphia during the period of six months. The largest number on one day arriving at the Centennial Depot was on the 19th of October, when 34,919 were safely deposited within a few hours' time. On the Philadelphia and Reading R. R. the transportation figures are as follows: May, 1876, 169,363; June, 205,714; July, 306,281; August, 388,979; September, 801,139; October, 810,000; total, 2,783,669. The largest number delivered by this road was on Pennsylvania Day, and amounted to 185,800. The largest extent of the grounds occupied by the U. S. International Exhibition, and the distance from one building to another, rendered it necessary to secure some convenient method of transportation, and a narrow-gage railroad was adopted. The track was laid as to conveniently reach all buildings, and, with the sidings, was little less than seven miles in length. The number of daily trains upon this road was eight. The number of trips per train, fourteen; the number of persons carried as was followed: From May 15th to 31st, 325,993; in June, 305,714; July, 466,550; August, 589,341; September, 1,054,465; October, 1,086,718; total to November 14, 5,784,142. The largest number were carried on Pennsylvania Day, viz., 68,273. The general approximate total of all arrivals and departures may be estimated as follows: By railroads, 10,000,000; horse-cars, 4,000,000; all other conveniences, 2,000,000; on foot, 4,000,000; total, 20,000,000.

MEDICAL SERVICE.

The Bureau of Medical Service was organized in anticipation of the accidents which might occur during the erection and removal of the Exhibition buildings, as well as for the relief of visitors taken sick while in the Exhibition grounds. It may be mentioned that there was an average of 1,531 persons, including the guard, members of the Fire Department, and others, domiciled within the grounds. The Bureau of Medical Service was under the charge of a director, aided by a staff consisting of seven physicians, one of whom constantly resided upon the grounds, while the others were on duty in rotation, two doctors being constantly on duty—the organization of this department comprising Dr. William Pepper, Dr. Theodore Herbert (Resident Physician), and the following medical officers in attendance: Dr. Jacob Roberts, Dr. Horatio C. Wood, Jr., Dr. Samuel W. Gross, Dr. Edward J. Burton, Dr. Milton Osgood, Dr. D. Forrest Willard, Dr. Harrison Allen, besides a skilled corps of five attendants. The department was provided with a comfortable building, furnished as a

The Closing Ceremonies on Friday, November 24th.—The Crowd Waiting for the Arrival of the Official Guests.
hospital and dispensary, including a waiting-room. The officers were furnished with a supply of medicines and surgical appliances and dressings, and the male and female wards were each provided with a bath and every necessary convenience. Stretchers were kept at various points throughout the Exhibition and the Grounds, while an ambulance was in constant readiness at the hospital. During the Exhibition the Department treated 6,016 persons, up to October 31st. A few cases were serious, though, as a rule, the complaints were of a trifling nature, such as are commonly incident to large assemblies. It was demonstrated by the Medical Director that, although the heat of the Summer was of almost unprecedented severity, and although Philadelphia had constantly during the time an enormous floating population added to her inhabitants, the average healthfulness of the city was maintained.

### Gross Receipts of the Centennial

During the progress of the Exhibition there were received by the managers the following sums: From admission fees, $3,819,497; from concessions, $290,000; from percentages and royalties, $205,010.75; total, $4,314,507.75. The gross amount ($290,000) of the concession contracts were divided as follows among the parties purchasing privileges:

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Centennial Catalogue Company</td>
<td>$106,000</td>
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<tr>
<td>Restaurants</td>
<td>70,000</td>
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<tr>
<td>Fleming Tobacco</td>
<td>18,000</td>
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<td>Oilings Chair Company</td>
<td>13,000</td>
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<td>Soda Water Vendors</td>
<td>9,000</td>
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<td>Department of Public Comfort</td>
<td>3,000</td>
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<tr>
<td>Centennial Photographic Company</td>
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<td>Centennial Guide Book Company</td>
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<td>Department's Association</td>
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<td>Restaurant</td>
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<td>Wistar's Pharmacy</td>
<td>8,000</td>
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<td>Proprietor of Popcorn Stands</td>
<td>3,000</td>
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<td>Gilmore &amp; Sons, Glassworks</td>
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<td>Wistar's Confectionery Stands</td>
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<td>Centennial National Bank</td>
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<td>Globe Hotel</td>
<td>1,000</td>
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<td>California Wine Booth</td>
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<td>Miscellaneous</td>
<td>30,000</td>
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In addition to these, the Pacific and Atlantic Telegraph Company paid to the Commission 20 per cent. of their receipts for messenger service, and 50 per cent. of all other receipts; and the American District Telegraph Company paid 10 per cent. of its receipts for messenger service. Including the royalties on beer and soda-water, the percentage on sales and other business, the total receipts of the Committee on Concessions amounted to $590,000.

### Conclusion

Here we close our chronicle of the Centennial Exhibition. Commenced at a period when public affairs were embarrassed to an extent to seemingly preclude the possibility of success, this vast undertaking was faithfully continued to a conclusion of glorious triumph.

Frank Leslie's Historical Register has sought to display before its readers the history of this magnificent enterprise, not only in its own immediate details, but with such added resource of collateral illustration and description as should best indicate its promised results, as well as its intention. If this purpose be fulfilled in the present work, the design of its projector will have been effected.
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Century Views, 27.

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