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NEW YORK STATE AGRICULTURAL SOCIETY. CLASS

PRIZE MEDAL OF THE EXHIBITION

FORBES DEL. R.H.PEASE. SC.

Great Exhibition of the Industry of All Nations, 1851.

REPORT

OF

BENJ. P. JOHNSON,

AGENT OF THE STATE OF NEW-YORK, APPOINTED TO ATTEND THE

Exhibition of the Industry of All Nations,

HELD IN LONDON, 1851.

ALBANY:
C. VAN BENTHUYSEN, PUBLIC PRINTER.
1852.

MR. JOHNSON'S REPORT,

TO

HIS EXCELLENCY GOV. HUNT,

ON THE GREAT EXHIBITION,

LONDON.

REPORT.

To His Excellency WASHINGTON HUNT.

SIR—When I received the appointment as agent of the State, to attend the Exhibition of the Industry of all Nations in London, I did not anticipate that an extended report would be expected from me. The expression of a desire from your Excellency since my return, has led to the preparation of the accompanying report.

During the Exhibition, I took notes of such portions of it as to me appeared of special interest, and gave particular attention to those departments which seemed to have a practical bearing upon the interests of this country, and which appeared to be most useful and important.

In preparing the report, I have availed myself of the descriptions given by the exhibitors themselves of the articles which are specially noticed, when these could be obtained, and when these were not to be had, I have given from my own notes and recollection, such notice of them as I trust will render them intelligible.

I left New-York on the 16th of April last, in the steamer Baltic, and arrived at London the day previous to the opening of the Exhibition, and as soon as the Exhibition was opened, I took the charge of such articles as had been specially committed to my supervision, and all the attention in my power was given to their proper exhibition, and in every case these articles were brought to the notice of the Jurors, and received due examination. In addition to the articles specially committed to my care, I deemed

it my duty to call the attention of the Jurors to all the contributions from this State, so that a proper examination might be secured.

The importance of this Exhibition, in which so much interest has been manifested by almost every nation of the world, will justify a brief history of its origin, rise and progress, in connection with remarks upon the exhibition itself.

ORIGIN OF THE EXHIBITION.

Its origin may probably be traced to one held in France in 1844, somewhat similar in its character. Since that period, the subject of a National Exhibition in London, had excited much attention in Great Britain, and was frequently brought before the Society of Arts, of which his Royal Highness, Prince Albert, was the President, in 1845, and, it is mainly due to his exertions and influence that it was finally resolved upon. In order to carry out the objects of the exhibition, a Royal commission was formed, and funds to a considerable amount were raised by voluntary subscription, to aid in defraying the necessary expenses. After a large number of designs for the building in which the proposed exhibition was to be held, had been prepared and submitted to the Commission, and a plan for the building had been agreed upon, Mr. Joseph Paxton, submitted a new plan for a structure to be composed mainly of iron and glass, which was accepted, and a contract was entered into by Messrs. Fox and Henderson, on the 26th of July, 1850, to have the building completed and ready for opening to the public by the first day of May, 1851. Some faint idea of the magnitude of the work may be formed from the dimensions of the building.

Its entire length was.....	1,850 feet.
Width of nave and aisles, ...	450 "
Width of transept, ...	72 "
Length of do.	408 "
Height of do.	110 "
Height of nave, ...	64 "
Width of do.	72 "
Width of side aisle, 1st division,.....	48 "
" " 2nd do.	24 "
Height of the 1st division, ...	43 "
" 2nd do.	23 "

Total area, 18 acres or 772,784 square feet.
Total area of galleries, 217,100 "
Total cubic contents of building 33,000,000 feet.

Among the immense variety of objects of interest, which were presented from the various nations of the world, of which there were many of unsurpassed splendor, the palace itself was an object that attracted first of all, the attention of every visitor. It was a striking exhibition of the extensive resources of the British Empire, and was alike creditable to the designer, and to the contractors and artisans, who aided in its erection. It was completed in about seven months, the first column of the building having been erected on the 26th day of September, 1850. Its adaption to the objects of the exhibition was most perfect, and the arrangement of its contents was made with great facility, and showed to much advantage, and its size was found to be fully adequate to the arranging of the entire exhibition; and yet the building was in the main fully occupied. It is to be hoped, that it may be permitted to remain, not only as a memorial of the exhibition itself, but of the talent of the designer, the extraordinary tact of the contractors, and of the extensive resources of the country, which in so short a time could produce complete such a structure. A diagram of the interior of the building is annexed, showing the ground floor and the galleries, and the portions occupied by the respective countries that exhibited articles.

It has been well said, "it is impossible to enumerate the many and lasting benefits which must result from this great Great Exhibition, when carried to its full development. It will ever be referred to, as the most stupendous conception of modern times, when the conviction has practically prevailed, for the first time in the world's history, that nations do not profit by each others losses, but that they grow to be great and thriving by each others prosperity, or in other words, that each individual portion is interested in the general prosperity."

The number of exhibitors was about 17,000, of which nearly one-half were British, including the colonies and dependencies of Great Britain. The number of exhibitors from the United States entered upon the catalogue was 599. The British productions were arranged in the western half of the building, and those of foreign countries in the eastern. The exhibition was divided into four great classes: 1st, *Raw Materials;* 2nd, *Machinery;* 3d, *Manufactures;* 4th, *Sculpture and the Fine Arts.* In the location of the respective countries, a division was made according to the geographical position of the countries represented; those which were in the warm latitudes being placed in the center of the building, and the colder countries in the extremities.

OPENING OF THE EXHIBITION.

The building was formally opened to the public on the first day of May, by Her Majesty Queen Victoria, with suitable and very imposing ceremonies.

Her Majesty, Prince Albert, the Prince of Wales, and Princess Charlotte, and the members of the court, proceeded from Buckingham Palace to the great building in Hyde Park, arriving there precisely at twelve. The only special preparation for the ceremony, was a carpeted platform and a chair of State, placed beneath a canopy, suspended midway in the transept of the Palace. As the Royal procession advanced, the mighty organ and the choir gave the national anthem. Prince Albert, at the head of the Royal Commissioners, next read to Her Majesty the Report of the

Exhibition proceedings, to which the Queen graciously replied. The Archbishop of Canterbury implored God's blessing upon the undertaking, and the choir sung the Hallelujah Chorus.

A Royal procession was then formed, headed by Mr. Paxton, and Messrs. Fox and Henderson, followed by the official persons of the Exhibition, Foreign Commissioners, Foreign Ambassadors, Prince Albert and the Queen, with their attendants, and the members of the Court. The procession made the circuit of the nave of the building, which was filled with the visitors—the organs in different parts of the immense structure, successively playing at the Queen's approach.

On her Majesty's return to the platform, the Queen declared "The Exhibition opened," which was announced by the firing of a Royal Salute on the banks of the Serpentine, near the Palace, and Her Majesty, the Prince, and their attendants left the building, and returned to Buckingham Palace.

The exhibition thus opened, was no longer a private undertaking, but identified with the history of the world—and it is to be hoped that the expectation of Prince Albert, will by the blessing of Divine Providence, be realized. He remarked, "the first impression which the view of this vast collection will produce will be that of deep thankfulnesss to the Almighty for the blessings which he has bestowed upon us already here below! And the second, the conviction that these can only be realized in proportion to the help which we are prepared to render to each other—and therefore, only by peace, love and ready assistance, not only between individuals, but between the nations of the earth."

Soon after the opening of the Exhibition, the arrangement of the jurors who were to pass upon the varied contents of the palace was completed. There were thirty classes of jurors, and three sub-juries, one subordinate to class No. 5, and two subordinates to class No. 10. A chairman and deputy chairman were appointed for each jury, and a reporter. The chairmen of the

juries, thirty-two in number, composed what was called the Council of Chairmen—to whom all the awards and recommendations of the juries had to be submitted for final action. The duties of the council of chairmen—composed of nearly an equal number of British subjects and foreigners, there being 17 British and 15 foreigners—were to determine the conditions upon which, in accordance with certain general principles previously laid down by the Commissioners, the different prizes should be awarded—to frame rules to guide the working of the juries, and to secure as far as practicable, uniformity in the result of their proceedings.

The Juries were also divided into groups—the first division, *Raw materials*, was composed of *Four* Juries. The second, *Machinery*, of *Seven*. The third *Textile Fabrics* of *Ten*. The fourth, *Miscellaneous Manufactures*, of *Nine*. Before a jury could finally make its awards, they had to be submitted to the group of Jurors, and receive their favorable consideration. The group had power to confirm the awards or otherwise, and to investigate any disputed decision. Before the awards were finally disposed of, they were submitted to the council of chairmen—whose duty it was to see that the regulations had been complied with. In many cases the decisions of separate jurors were overruled by the vote of the group, and in not a few instances, the decisions of the group in recommending a council medal, was reversed by the council of chairmen.

The Commissioners had expressed themselves desirous that merit should be rewarded wherever it presented itself, but anxious to avoid recognition of competition between individual exhibitors, they had decided that the prizes should consist of three medals of different sizes—and that these should be awarded, not as first, second, and third in degree, for the same class of subjects and merit, but as marking merit of different kinds and character. The council of chairmen found that it would be impossible to lay down any rules for the awarding of the three medals, by which the appearance at least in denoting different degrees of success among exhibitors of the same branch of production, could be avoided. They requested

that one of the medals should be withdrawn—which was assented to by the Commissioners, and only two medals, were to be given. The *Prize medal*, or the second in size, should be conferred whenever a certain standard of excellence in production of workmanship had been attained—utility, cheapness, adaptation to particular markets, and other elements of merit being taken into consideration, according to the nature of the object; and this medal was to be awarded by the Juries, subject to confirmation by the groups. As it regarded the *Larger Medal*, the conditions of the award required, were "some important novelty of invention, or application, either in material, or process of manufacture, or originality combined with great beauty of design; but that it should not be conferred for excellence of production or workmanship alone, however eminent; and it was further suggested that this medal should be awarded by the council of chairmen, on the recommendation of a Jury supported by its group." These were the general principles by which the Juries were to be governed—but they did not give entire satisfaction—and in carrying them out instances occurred in which they were not in all respects fully complied with. This was scarcely to be avoided, in some instances, where the lines between the larger medal and the prize medal came very near each other. As a substitute for the third medal, the jurors were authorised to make *Honorable Mention* of such articles as were deemed worthy of special notice, though not possessing the standard of excellence required for the Prize Medal.

Each Jury was superintended by a chairman, appointed by the Commissioners, from the Jury, and a deputy chairman and reporter selected by the Jurors themselves. Each group of Juries received the assistance of a deputy commissioner and of a special commissioner to record the proceedings, to furnish information respecting the arrangements of the exhibition, and otherwise to facilitate the labors of the Juries composing the group. The separate Juries also kept a record of all their proceedings. The Juries were instructed to award prizes without reference to the country of the exhibitors, the exhibition being considered, in this respect, as recognizing *no distinction of nations*. The number

of Jurors assigned to the United States was twenty-one, leaving this country unrepresented on nine of the Juries and sub-Juries.

It will be perceived from this brief history of the arrangements made for the examination of the articles exhibited, that much care was exercised by the Commissioners, in order to secure a complete examination of the great variety of articles on exhibition. The requirements for a review of the decision of the separate juries by their respective groups, and those of the groups by the council of chairmen, were calculated to bring under review the various articles exhibited from the different nations represented. It would be too much to say, that no articles were overlooked, but I think I am justified in saying, that there were comparatively very few articles but what received an examination.

As regards the exhibition from the United States, every effort was made to bring each article under the supervision of the Jurors. Mr. Dodge, while the acting commissioner, addressed a request to each Jury in relation to the articles before them, and I did the same in respect to the articles from this State, and was assured by some member of each of the respective Juries, that the articles had been examined.

I deem it due to the gentlemen comprising the Juries, who were generally selected by their respective governments, or authorized representatives with much care, and who were men of standing in their respective countries, to state, that an earnest desire was manifested to do justice to the exhibitors. The English Jurors, who composed at least one-half of the whole number, were selected with reference to the class of articles upon which they were to pass, as being conversant with them, and they certainly evinced, so far as I had the opportunity of ascertaining, a desire and readiness to examine carefully the contributions before them, and to ascertain the facts in each case, and they yielded to evidence in relation to the merits of articles examined, where evidence was given, with a manliness that certainly did them great credit. Having had an opportunity, not only as a Juror upon an important class, "Agri-

cultural Implements and Machinery," but also as having been called before most of the other classes of Jurors, when they examined the articles in the United States Department, I think I can speak from opportunities of observation, that gave me facilities certainly equal to others for ascertaining the manner in which the Jurors discharged their important and very onerous and perplexing duties. I have considered it proper to make these remarks, because it had been suggested that there was great danger to be apprehended in reference to the awards; and since the awards have been announced, many complaints have been made, as appears from the Foreign Journals. Whatever ground of complaint there may be in regard to the articles in the British department, of which I am not competent to form an opinion—so far as this country is concerned, although articles have been omitted, which in my opinion and in that of others of the Jurors from this country, should have received prizes, and some in a higher class than they did receive; still, I think it will be found, that as a whole, the awards, to this country, are in the highest degree creditable to our exhibitors, considering the circumstances under which the articles from this country were prepared.

It should be borne in mind that the exhibitors from this country were placed in a very different position from any other foreign country. The exhibition from the United States was made by the exhibitors themselves, *without aid or assistance*, in their preparation, from the government, and although many have complained of this want of apparent interest on the part of the government in the objects of the exhibition, it is not by any means certain but that the influence of our exhibition has been far better upon the world, has more powerfully demonstrated the peculiar advantages of our free institutions, in the development of the energies of the people, than could have been done if the government had made a large appropriation for the purpose of preparing articles specially for the exhibition. Our exhibition was made by our citizens themselves, and showed their enterprize, their energy, their skill and ingenuity; and when this was known, it was a matter of surprise to foreigners that we exhibited as much as we did. The character

of our articles were such as to show to the world that we worked for the great masses, not for the luxurious and privileged few.

In articles of utility and comfort, and for the advantage of the middling classes, who are the great producers of the world, as distinguished from the nobility and gentry, there was a very marked difference between the exhibition of our citizens and all the other countries. An English writer, in speaking of the difference between their contributions and those of continental nations, says: "In those productions that imply what would here be considered, and truly so, a waste of labor, the utility of the article bearing no proportion whatever to the time spent upon it, and which only shows the degradation of the countries in which they are produced, as indicating at once the almost senseless luxuriousness of the rich, who must be the purchasers, and the starvation wages which the citizens must be brought to before such articles could be produced at all; in these productions we are unquestionably surpassed."

These remarks apply with much more justice to the exhibition from this country, as compared with the continental and eastern exhibitors, and with a very considerable portion of the English exhibition also. There was nothing from this country to compete with those splendid articles, designed only to minister to human pride, which composed so large a portion of the exhibition; as an American I rejoiced that this was so; and it will be, in my opinion, a sad day for our country when articles of this character shall attain a *preëminence* here, over the useful and necessary, as they do in the Old World. The condition of the laboring classes who perform the work is far different from that of our own population, and I trust the day may never arrive when we shall substitute for the intelligent, free and virtuous population of our country, the ignorant, vicious and degraded operatives of the countries across the Atlantic.

Our exhibition was designed to show, as it did, that in this country "genius, industry and energy find no barriers to their

career." The number of inventions exhibited which were calculated to reduce the cost of production in agriculture, manufactures and the mechanic arts, was in the highest degree creditable to us, and elicited from distinguished sources in Great Britain the admission that to "the department of American 'notions'" they owed "the most important contributions to their industrial system," and after the exhibition was closed, and its advantages to the English nation were being summed up, the following admission, in regard to our contribution, was made in their leading journal: "Great Britain has received more useful ideas, and more ingenious inventions from the United States, through the exhibition, than from all other sources.

What higher tribute could be paid to the character of our articles, as claimed by those who knew and appreciated their value, than this—especially from the admission, that "*more useful ideas*" were received through us than from all other sources. Thus showing what every unprejudiced mind must, we think, admit—the great advantages which our free and liberal institutions afford for the development of the powers of the human mind.

In the early part of the Exhibition, the U. S. Department was the subject of much invidious remark, and our contributions were considered as far behind the times. Located in the buildings as we were, adjacent to France, Russia and Austria, there was indeed a striking difference in the appearance of the contributions from the different countries. While that from the United States was mainly of a character of utility in the Implement and Machinery department, and of the productions of the soil, the others consisted of the most costly articles, wrought with exquisite taste, silks, statuary, diamonds, jewelry, &c., which attracted the eye and called forth the warmest encomiums. During the first three weeks, while the admissions comprised only the wealthy classes, the United States Department was hastily passed over—a glance given, an inquiry made at the implements, a remark occasionally, "These may do for a new country, but would not answer in England—unless *our* mechanics have the altering of them, &c.," was the principal notice which was given them. In answer

to these remarks upon our implements—the reply was frequently given that no "*English mechanic*" would have the privilege of practising upon our implements, until they were tried, and we had the opportunity of showing what our implements could perform. It was not a very pleasant position, to be met with remarks similar to these, day after day for several weeks. As the jurors, however, began to make their examinations, and as exhibitors and others interested in the articles on exhibition were called upon to explain to intelligent and practical men, what were the properties claimed for our articles, more interest was manifested in our department.

AWARDS.

The whole number of Awards, Council and Prize medals, and Honorable Mentions was 5,084—of which the United Kingdom received 2,039; Foreign countries, 2,896; the United States, 159.

Raw Materials—Classes 1 to 4.

	British.	Foreign.	U. S.	Total.	
Council Medals,.....	6	15	1	22	
Prize Medals,.....	125	399	38	562	
Honorable Mentions,.....	131	510	25	666	1,250

Machines, Implements, &c.—Classes 5 to 10.

Council Medals,.....	52	33	3	88	
Prize Medals,.....	301	166	25	492	
Honorable Mentions,.....	51	105	9	165	745

Textile Fabrics.—Classes 11 to 20.

Council Medals,.....	1	2	0	3	
Prize Medals,.....	337	483	15	835	
Honorable Mentions,.....	185	265	12	462	1,300

Metallic and Vitreous Manufactures.—Classes 21 to 25.

Council Medals,.....	14	20	1	35	
Prize Medals,.....	312	202	12	526	
Honorable Mentions,.....	208	197	2	407	968

Miscellaneous Manufactures.—Classes 26 to 29.

	British.	Foreign.	U. S.	Total.	
Council Medals,.....	4	9	1	14	
Prize Medals,.....	142	221	11	374	
Honorable Mention,.....	100	151	3	254	642

Fine Arts.—Class 3d.

Council Medals,.....	2	2	0	4	
Prize Medals, ...	27	59	1	87	
Honorable Mention,.....	41	47	0	88	
	—	—	—	—	179
					5084

The number of exhibitors in the U. S. Department was 599; prizes 159—being a fraction over one to every four, while in the United Kingdom the No. of exhibitors was about 9,086—prizes 2,039, or one to every 4½ exhibitors. We have, in this, an evidence of the attention which was given by the Jurors to the articles on exhibition from this country, as well as an appreciation of their merit.

The number of Medals and Honorable Mentions which were awarded to exhibitors from this State was forty-four. A list of the articles, which were accepted by the local committee of this State, and approved by the central authority at Washington, accompanies this report.

EXHIBITION.

In my remarks upon the various departments of the exhibition, my limits will only allow me to give a rapid, and very brief sketch, even of those articles that appear to me worthy of special notice. I shall, of course, pass by many, that to others may have appeared of more importance than those to which I may allude. I shall take up the various classes in the order in which they were awarded by the Juries. In the order of the Commissioners, the first department (A) was Raw Materials, divided into four classes

1st. Mining, &c., and Mineral products.

2d. Chemical and Pharmaceutical products.

3d. Substances used as Food.

4th. Vegetable and animal substances chiefly used as manufactures, as Implements, or for Ornaments.

Of the first of these classes, mining and mineral products, the exhibition from Great Britain, was of the highest interest, probably as perfect as any department of the exhibition, and far exceeded, in extent, the contributions from all the other countries. The annual value of the mineral products of Great Britain alone, is said to be, at this time, "independently of the cost of coinage or any manufacturing process, not less than twenty-five millions sterling;" nearly 125,000,000 dollars. The most important of the mineral products of this country is coal.

There are eleven principal coal fields in Great Britain, containing an area of 12,000 square miles—producing, annually, 32,000,000 tons, valued, at the place of consumption, at 18,000,000 sterling, equal to about 88,000,000 of dollars. Of these various deposits, there were samples exhibited, many of them of immense size. Models of several mines were exhibited, with the machinery for working and raising the coal, illustrating, fully, the whole process.

Coal was exhibited from Belgium, France, New Brunswick, India, New South Wales, New Zealand, Nova Scotia, Portugal, Spain, United States, Van Diemans Land, Zollverein. There was but a small exhibition from the United States. From Pennsylvania very fine samples of anthracite were shown, and several specimens of bitumenous coal.

The extent of the coal fields of the different countries where coal is found, is estimated as follows:

	Square miles.
British Islands,	12,000
France,	2,000
Belgium,	520
Spain,	4,000
Prussia,	1,200
Bohemia,	1,000
United States,	113,000
British North America,	18,000

It will be seen from the above statement, that the deposit of coal in this country far exceeds that of the residue of the world, so far as discoveries have been made. That in these coal formations a mine of wealth to our country is contained, is obvious to the most cacual observer.

Much of the machinery on exhibition in this class, was worthy of careful study by those in our country interested in the mining of coal. Among the most valuable of the inventions in this class, was one for washing and purifying coals, by Berard & Co., of France, to which a Council Medal was awarded. It would be interesting to dwell on this subject, but the limits of this report forbid it.

There was a large display of lead ores, and lead in various stages of preparation, with the machinery in use at the mines to carry on the various operations, until it is prepared for market. There was but one sample exhibited from the United States, which was from Missouri.

A very large share of the exhibitors in this division were from Great Britain. And among them, the Duke of Buccleugh was the largest, whose models of machinery for separating pure silver from the lead ore was very complete.

Of iron ore and preparations from ore, there was a large display from various countries. From the United States there were a number of samples both of ores and iron and steel. Those from the Essex county mine, in our own State, were very superior. Samples exhibited by A. J. Rousseau, of Troy, were remarkably fine. A Prize medal was awarded to the Adirondack Manufacturing Co. of this State, for steel and iron, manufactured from the Essex ore. This company had on exhibition some excellent specimens of their manufacture, which attracted much attention. The ore of this company has peculiar and valuable qualities for the production of iron. The adaptation of the bar iron, for making cast steel, is ascertained to be equal to any, not excepting the celebrated brand of Swedish iron. Cast steel, of a quality decidedly superior to any other now in use, and better than that from the bar iron, made from the same metal, can, it is stated, be produced from the pig metal direct, by a simple process, costing only a small amount per ton more to bring into the state of "*blister steel*," than it costs to bring bar iron into that state.

The show of Gold and Silver ore was not very extensive. Two exhibitions from the United States, one from Virginia and the other from California. In the English departments, some very choice specimens of California gold were exhibited.

SWEDEN.—Some of the celebrated steel iron, and tough iron from Sweden was exhibited, and the magnetic ores from which it was made. Its peculiar properties are attributed to the ore and the manner of its manufacture, by the use of charcoal and wood in the smelting process.

Copper ore was exhibited, very largely from Great Britain. Several exhibitors from Spain. From the United States, a mass of native copper, the largest in the exhibition, weighing 2,544 lbs., from the N. W. Mine of Lake Superior, was shown by Dr. Feutchwanger, N. Y.

The exhibition of Tin was not very extensive; LeRoy & Co., of New-York, sent over quite late in the season, and after the Jurors had completed their awards, so that it could not receive notice from them; a sample of tin pipe in continuous length, produced by hydraulic pressure. This is believed to have been its first successful application to this metal. The cost is such as to render their general introduction practicable. It is said to be much superior to lead pipe; stronger, lighter, less likely to get bruised, and will preserve the water and other fluids much purer. This attracted very marked notice among mechanics, and it is undoubtedly a very valuable invention, and one that will prove of great service.

A gentleman from Scotland, very extensively engaged in the manufacture of lead pipes, examined them with great care and informed me that this was a desideratum in the manufacture of tin pipes, which he had endeavored for years to accomplish but without success.

There was a very extensive display of minerals and mineral ores exhibited; Great Britain, Austria, Spain and the Zollverein being much the largest contributors.

Gov. Collyer, of Alabama, forwarded a collection of minerals, made under his direction, illustrating the mineral wealth of that State. Dr. Feutchwanger, of New-York, had on exhibition a very large collection of minerals, including ore of iron, copper, zinc, lead, &c. The New Jersey Mining Company had a specimen of zinc ore, red-oxide of zinc, weighing 16,400 lbs., taken from a mine in Sussex county, New-Jersey, and it attracted much notice. The zinc ore occurs in white crystalline or altered lime-stone; it is a regular formed vien or stratum, with an inclination or dip of about 80 degrees, and is several feet thick at the surface or out crop. No estimate can be put upon the future value of this mine, as the ore is richer and purer than any known in the world; it is utterly inexhaustible, millions of tons of ore being in sight above

water level, which, to be mined, require hardly any other means than quarrying.

The massive sample of this ore was got out accidentally in the ordinary course of mining, at a single blast, from near the surface, on the brow of the range of hills in which the vein out-crops. The mine was opened only last spring, and with a small force, nearly 3,000 tons of ore were got out and brought down to the works of the New Jersey Exploring and Mining Company, which are situated on tide water, a few miles from New-York. The Morris canal furnishes ready and cheap transportation for the ore generally; but being closed by ice last season before it was determined to send this large sample to the great exhibition, unusual means had to be adopted to get it to New-York, at an expense of about 1,000 dollars. No means of moving a mass of such immense weight being at hand at the mines, a truck of the largest size was sent for the purpose from New-York. The first attempt failed, from want of proper apparatus, and the truck returned. A second truck, fitted out completely for the service, was then dispatched, the company having determined to send this fine sample of ore to the exhibition at any cost. The task was one of greater difficulty than may be imagined, for within twenty miles from the mines three high ranges of mountains were to be crossed; it was mid-winter and the roads were bad, and in some places quite precipitous. Heavy teams of horses and oxen were required to draw the truck up the mountains, and, in descending, it had to be held back by means of strong block and tackle rigging, fastened to the trees on the roadside. Being thus transported over the mountains a distance of twenty miles the ore reached the town of Dover, the terminus of the Morris and Essex railway, upon which it was brought to the city of New-York, a distance of 40 miles. Here it was again placed on the track and taken to the Navy Yard at Brooklyn where it was shipped on board the United States frigate St. Lawrence. Having been landed safely at Southampton, it was brought to London by rail, without charge, through the very liberal arrangements of the citizens of that town in regard to articles intended for exhibition from the United States.

It was a matter of great regret that a collection of minerals from this State, illustrating our whole system, was not exhibited. Inquiries were frequently made on the subject by distinguished foreigners who, having read the reports of our Geologists, felt a very great interest in examining a complete exhibition of the Geological formation of New-York, which is more perfect than any other portion of the world. An effort was made by the committee from this State to procure from the State Cabinet a collection for the purpose of exhibition, but as there were not duplicate specimens in the Cabinet to complete the series, it could not be done.

Of mineral paint there were two exhibitions from this State: W. Blake's, Ohio paint, and Mott's mineral paint from Lansingburgh. Blake's paint is in very extensive use in Great Britain and also upon the Continent; it is found to be very valuable for a first coat for coach painting and the sales are very large. The other variety has not been introduced there.

Class 2. *Chemical and Pharmaceutical products.*—The exhibition of this class was not large; France and the Zollverein having the largest number of exhibitors. There was only three from the United States. A Prize Medal was awarded to Power and Weightman, of Philadelphia, for some very superior chemical preparations.

Class 3. *Substances used for food.*—This was a very interesting and instructive department of the exhibition, in fact one that as much illustrated the importance and advantage of this great gathering of productions from all nations as any other portion of the exhibition. The substances presented in this class, familiar to every one, attracted the attention of the great mass of those who visited the exhibition. The advantages resulting from this bringing together the products of the world, can scarcely be over estimated. It was very interesting to trace the character of the various kinds of grain: wheat, oats, barley, &c., as they were affected by the climate and soil, and different circumstances under

which each were grown, and it would be interesting to trace out these differences did the limits of this report permit.

The opportunity of exchanging products, which was very extensively embraced, and by which new varieties of grains and seeds will be introduced into all the countries represented at the exhibition, will result in great and permanent good.

I received from the French Department, through L. Vilmorin, of Paris, a collection of Wheats from Algeira, consisting of sixteen varieties, one of which was the indigenous grain of the country, which has the husks growing over nearly the whole of the head of the grain.

From J. deNottbect, Imperial Russian Commissioner, there have been received the following described grains:

1. *Crop* of 1851. Winter rye, from model farm, near Lipetzk, Province of Tamboff.
2. 1850. Wheat, from Oural Steppes.
3. 1851. do called "Kolous" from Bessarabia.
4. 1851. do called "Bielotourka," from Noro-Russia.
5. 1851. Buckwheat, from Province of Tchernigoff.
6. 1851. Millet, from farm of Harkoff.
7. 1851. Linseed, from Province of Pskoff.
8. 1851. Rye, from Province of Olonetz.

From England some very choice winter wheat called "Chidham Wheat," same as exhibited by His Royal Highness, Prince Albert, grown upon the Royal farm, Windsor—and from Charlwood & Cummings, London, 47 varieties of grain and seeds have been received.

Samples of these grains will be distributed among our farmers for trial, and the results ascertained. Returns of grain and seeds have been made to France and will be to Russia.

A full collection was promised from Scotland, which will be received during the season. Samples of those received will be found at the Agricultural Rooms.

Samples of Macaroni and Italian pastes, and prepared flour, was exhibited, manufactured from the *hard-wheats*, which are best adapted to the manufacture, containing more gluten than the soft wheats.

Among the objects of instruction connected with this department, was an arrangement of agricultural soils, prepared Geologically from the tertiary to the primary formations, being the abrasions from rocks. In connection with these, were the minerals used as fertilizers, such as phosphate, sulphate, carbonate of lime, magnesia, alumina, &c., and specimens of grain grown; the result of an admixture of fertilizing earths, on some very poor lands, illustrative of the mineral collection. The products which had been secured by this judicious admixture of fertilizing earth upon this previously barren soil, was very remarkable, and it was a lesson to many an agriculturist who examined this collection, that impressed most deeply the importance of that intelligence which would enable the farmer to avail himself of the benefits which science confers upon this great interest of the world.

In connection with this subject, I would remark, that we have in this State one of the richest and most valuable deposits of Phosphate of Lime, which has as yet been found. It is at Crown Point, Essex Co. There are deposits in Essex county a few miles from the Lake, in connection with the Iron mines, that are very rich in the Phosphate, and which doubtless will be brought into market, whenever the demand is sufficient to cause the deposits to be opened and prepared for use. At this time, there is no preparation exciting more attention in England than the Phosphate of Lime. Its effects upon the Turnip crop, the great source of England's agricultural wealth, causes an immense demand for it, and arrangements have been made for the sale of the American Phosphate in England. A very natural inquiry from the use of it in England is, may it not become as advantageous to our own

agriculture as to theirs? That it will prove so, I have no doubt, and I trust early efforts will be made to introduce it to the notice of our farmers. During the past season, several experiments have been made with it on Indian Corn, Cabbage, Melons, Tomatoes, &c., and with results as satisfactory as any that have been made in England. Having received a sample of our Phosphate during the exhibition, I presented it to the Duke of Richmond, President of the Royal Agricultural Society, with a request that it might be analyzed.

The correspondence and analysis are annexed:

Royal Agricultural Society, July 20th.

American Phosphate of Lime.—The Duke of Richmond forwarded to the Council a specimen of American phosphate of lime, received from Mr. Johnson, along with the following letter:

No. 14, *Bury Street, St. James's, July* 9, 1851.

"I have the honor to present to your Grace, for the Royal Ag. Society, a sample of phosphate of lime, received by me by a late steamer from the United States. This specimen is from a deposit on the banks of Lake Champlain, in the town of Crown Point, Essex county, N. Y. The vein of pure phosphate is from two to eight feet wide; and a shaft has been sunk between twenty-five and thirty feet and the vein continues pure, and is a true vein, having its regular walls. It has been uncovered for several hundred feet, I understand, and there is an abundant supply for all time to come. It has been analyzed in the United States, and contains, I am informed, from 80 to 90 per cent. of phosphate of lime. It is found in a trap-dyke formation, which contains a portion of iron and alumina. It has been applied to crops in the United States and has proved beneficial and marked by excellent effects. An application was made upon wheat last autumn. It was prepared with 20 lbs. of sulphuric acid, with an equal quantity of water, and 100 lbs. of the phosphate of lime. The wheat upon which it was applied presented a manifest improvement over the other portions of the field. It had a darker green with a

strong growth of leaves and much more vigor, and continues still to manifest the same improvement. I trust it will be analyzed by the excellent chemist of your society, Professor Way, and the result communicated to the society; and should it be found valuable, (as I believe it to be,) I shall take great pleasure (in behalf of Messrs. Emmons and Hammond, the proprietors of the mine,) in introducing it into this country, at a price which will bring it within the reach of all the agriculturists of Great Britain.

B. P. JOHNSON, *Secretary*,
New-York State Agricultural Society."

The council received this communication with their best thanks and referred the specimens to the chemical investigation of Professor Way, the consulting chemist of the society, who made the following report upon the subject:

August 20th, 1851.

"The specimen transmitted to me for examination was a mass of perhaps 10 or 12 lbs. weight, and of tolerable uniform character throughout. When broken it exhibited an uneven fracture, of a dull green hue, interspersed with lines of a chocolate color. Layers of quartz intersected it in various directions, and the outlines, or casts of shells, were in places tolerably numerous, (query.) The specific gravity of the mineral is 3·02. For the analysis, several pounds of the mineral, taken from all parts of the specimen, were broken up and reduced to powder, so that a fair average result might be obtained. The composition, in 100 parts, was found to be as follows.

	Percentage Composition when Dried.
Bituminous matter, and combined water, expelled at a red heat,	·69
Matter insoluble in acids, consisting chiefly of sand,.....	16·70
Silica, soluble in acids,.....	·65

Phosphoric acid, mean of four determinations, 20·50, 30·33, 29·77 and 31·23,	30·20=62·27	Bone earth Phosphate.
Lime,	40·10	
Peroxide of iron,	6·47	
Magnesia,	1·08	
Chloride of sodium,	·08	
Soda,	·20	
Potash,	·25	
Sulphuric acid,	trace.	
Fluorine,	2·41	
Loss,	1·17	
	100·00	

As the coprolites of the crag formation contain, on an average, phosphoric acid equal to about 56 per cent of bone-earth phosphate, and as the objectionable admixture of carbonite of lime with them, reduces the effective strength of sulphuric acid with which they are treated, for manure, is about counterbalanced by the equally objectionable existence of fluoride of calcium, in the New-York mineral, I should estimate the commercial value of the latter, as compared with our own mineral sources of phosphate of lime, in the relation of their relative proportions of phosphate of lime, which, practically speaking, are very nearly the same.

"J. THOMAS WAY."

Not long after my return I received a letter from a gentleman connected with some of the leading establishments in Great Britain, for preparing special manures, in relation to this Phosphate, in which he stated that he was prepared to make an offer for the whole products of the Crown Point Mine, provided the quality should prove equal to that analyzed by Professor Way. This shows with what interest this matter is viewed abroad, and should lead us here to appreciate the value of our own mineral deposits for the purpose of improving our agriculture. It is proper to remark that the average of the deposit, so far as it has been ex-

amined, has given a higher per centage of phosphate than is shown by the analysis of Professor Way. Admitting it to be, however, only equal to that analysis, its qualities are of such a character as to secure, within three months after the analysis is published in England, an offer for the whole deposit for use on a foreign soil.

The most complete contribution to this department was from Messrs. Peter Lawson & Son, of Edinburgh, seeds-men to the Highland and Agricultural Society of Scotland. Their collection was very extensive, and neatly arranged; the plants, grain, vegetables, &c. named, and complete specimens of all the grasses, Wheat, Oats, Barley, &c., on exhibition. Mr. Lawson's specimens were arranged—1. Plants cultivated for their farinaceous seed, together with their straw or haulm. Complete specimens are shown in the straw, as taken from the field, with samples of the seed, with the flour manufactured from it. In this division were shown one hundred and seventy-nine sorts of Wheat, forty-two of Barley, fifty-three of Oats, sixty-four of Peas, twenty-five of Beans, and of other plants in equal numbers, forming in variety and extent such a collection as, it is presumed, cannot be elsewhere seen. 2. Plants cultivated for the herbage and flower, including clovers, the various grasses, with samples of the seeds and plants. This was a very interesting and useful division. The number of grasses cultivated in Great Britain is very great, adapted to every variety of soil, climate and use. Mixtures for pasture, for the fattening animal, for the dairy, for sheep, &c., are given, and thus the varieties, best adapted to each purpose, are always to be had, mixed in the proper proportions. 3. Plants cultivated chiefly for their roots, such as turnips, carrots, parsnips, beets, &c. Specimens of the bulbs, dried leaves and seeds, with very fine colored preparations in wax were given. The extent to which the cultivation of roots is carried in Great Britain is surprising. Its importance, however, to the agriculture of the country, can scarcely be overestimated. That it has been one of the many improvements which has contributed to the great advance which has been made in the agriculture of the Kingdom, is apparent,—and that attention to the more general introduction of a like system in this country, so far as it

may be applicable, would be of very great advantage in improving our soils, in affording increased facilities for fattening animals, cannot, I think, admit of a serious doubt. 4. Plants cultivated for their use in the arts, manufactures and various economical purposes, such as flax, hemp, &c. 5. Plants cultivated for mechanical purposes. 6. Plants cultivated for their timber. Specimens of wood were given; the dried leaves; samples of the seeds and fruit as well as the young plants, as grown in the nursery. The seed of the plant is first shown, then the plant itself in flower, dried and mounted; and then that particular portion of it, as root, leaves or flower, in which its useful properties are innate. Specimens illustrative of their uses are also exhibited, as worsted dyed with a particular plant; flax in its various stages, linen, &c. All the plants grown in Scotland, for their timber are shown, first the seed, then a twig, showing leaf and blossom of the tree, while the structure of the timber is shown by transverse and longitudinal sections in a rough and polished state. The scientific and popular name is attached.

Rape Seed.—This is extensively grown in Europe, and is imported into England; rape seed is crushed, and the rape seed oil cake is much used for feeding purposes, being nearly equal to oil cake, and its remedy for the ravages of the wire-worm when it is used upon the land as a fertilizer, which is destroyed by it, renders it very useful. It can be easily and profitably raised, yielding as much per acre as wheat.

In the catalogue of the Messrs. Lawsons, accompanying their exhibition, a synopsis is given of the vegetable productions of Scotland, in which the nature, properties, relative value, and use of their products are given. The Museum of the Highland Agricultural Society of Scotland, prepared and arranged by the Messrs. Lawsons, and which was partially represented by the one on exhibition is of the highest interest and importance. It is a place where all classes can find objects of instruction and amusement; and where the students will have opportunities of acquiring practically a knowledge of the value and properties of the productions

of the country. It was in view of these and other considerations which might be named, that a collection for a museum in the agricultural department in our own State has been commenced, and which though in its infancy, is one of no little interest, and the attention which it receives is the best evidence that can be given of its appreciation and value.

The seedsmen to the Royal Agricultural Society of England, Messrs. Gibbs, of Halfmoon-st., Picadilly, London, exhibited upwards of five hundred samples of seeds. In this collection there was one of the best assortment of grasses for pasture-land that was exhibited, with specimens of the dried grasses accompanying the seed. In the United States department, a beautifully arranged collection of upwards of 300 varieties of indigenous plants of the State of New-York, arranged by *Miss Mary M. Chase*, of Chatham, Columbia county, N. Y., was shown, and which attracted, as it deserved, much attention, and was specially noticed by Her Majesty, in her visit to the United States Division.

In the English department were shown some very choice samples of wheat. A sample of Chidham wheat, grown on the Royal farm, shown by Prince Albert, weighing 66½ lbs. per bush., was remarkably fine. The heaviest wheat, shown, was a variety called "Lawrence's Prolixus," crystal white, weighing 67½ lbs. per bushel. This wheat has qualities which are considered to render it highly deserving of cultivation. The root is adapted to draw nourishment from an unusual depth in the soil, it produces a strong straw, and affords a prolific yield. There were several samples in the English department of white wheat, which weighed 66 and 67 lbs. per bush. A sample of wheat was shown weighing 65 lbs. 1 oz. per bushel, and the produce 40 bushels per acre, raised by the application of 3 cwt. of Peruvian Guano per acre, upon a soil that had formerly been considered worthless. A variety of wheat called "Giant Straw Wheat," which had been grown for several years by the exhibitor, is stated to have produced 60 bushels per acre, on an average. Its superiority consists in the length, size and stiffness of the straw, and in its abundant produce. Col. LeCouteur of the

Island of Jersey, exhibited a very choice collection of specimens of the most approved varieties of wheat, 104 in number, which was the most complete series of valuable wheats in the exhibition.

Hybridization.—There were exhibited two cases of wheat in the ear and straw, showing the effects of hybridization. In some instances there was an entire change and great improvement in the grain. This process is the only one by which we can permanently alter the character of cultivated plants. The process is thus described by the exhibitor: "The hybridization was effected by removing the stamens of 'Piper's thick set' Wheat, a red variety before they had reached maturity, by opening each of the glumes (the husks or chaff) and carefully picking out the stamens upon the point of a needle; the pistils of the flower being left perfect, were a few days afterwards fertilized by dusting them with the pollen from stems of the "Hopetown" variety of white wheat, entirely different from the other; this produced a great number of varieties, partaking more or less of the parent stock, and from these the few specimens exhibited were selected.

Wheat was exhibited from Russia, France, United States, Australia, Canada, Spain, Belgium, Denmark, and from nearly all the countries represented. The collection from Russia was quite extensive, and some samples excellent. The straw of the wheat generally was remarkably bright, and free from any appearance of disease. The rye was unusually fine. The arrangement of the products from Russia was very attractive, and displayed as much taste as any portion of the arrangements in this class.

Spain.—There were some very good samples of wheat from Spain—and the exhibition of grain and maize was quite extensive. Spain possesses one of the finest climates, and has a greater range of vegetable productions than any other country of Europe—still the agriculture of the country is evidently in a very low condition. The production of wheat is barely sufficient for the consumption at home, and very little is exported. A very choice

collection of plants, indigenous to the country, consisting of 105 varieties, were shown.

The whole exhibition from Spain, taken together, was so limited in extent, that it could not but lead to reflections of what once were the resources of the country—and should prove a lesson to others to avoid the course which proved so disastrous here. "When it is remembered that this is the nation that once received the untold treasures of gold and silver from the mines of Mexico and Peru—sent forth the mighty Armada to conquer England—and stood among the first upon the roll of nations—and now is reckoned among the least of the nations—and her exhibition certainly fails not to convince one that it must be so; the reflection cannot fail to arise—why is this so? The abandonment of that system of industry, which developed, not only the energies of the people but also the resources of the Empire, led to the extension of commerce, and increased, continually, the wealth of the Empire, in every direction, is doubtless the cause of the present position of the nation." Well will it be for others, if they are warned betimes and avoid the rock upon which the prosperity of Spain was so fatally wrecked.

United States.—The exhibition in this class was not large, and mostly from this State; though, in point of excellence, it was equal to any other.

Mr. Thomas Bell, of Westchester, received a Prize Medal for a very superior sample of Soule's winter wheat, which attracted much attention, and was highly commended by the Jurors. Mr. Bell exhibited four varieties of wheat, viz: Spring wheat, Soule's, Bald white flint, and Mediterranean—the latter as fine a sample of red wheat as was shown—also, Barley, Oats, Rye, Buckwheat, Flax seed, Millet, Clover, Grass seed and Indian corn. His collection was very neatly arranged and much the most extensive, from this country, and was highly creditable to him and to the State.

There was a small sample of Soule's wheat, from a crop of 63½ bushels per acre, weighing upwards of 63 lbs. per bushel, raised by Mr. William Hotchkiss, Lewiston, Niagara county, for which an honorable mention was given. This was the largest yield of wheat per acre, shown in the exhibition, for which vouchers were submitted to the Jury. This extraordinary crop of wheat excited much notice, from the fact, that a work lately published on this country, in England, had led some of the farmers there to expect that there was little danger to be apprehended from the wheat growers in the United States supplying the demands of the English market.

Mr. S. L. Thompson of Setauket, Suffolk county, L. I., had a very choice sample of golden Australian wheat, weighing upwards of 63 lbs. per bushel—yield 48½ bushels per acre. Mr. Thompson has raised during the past season, of this same variety, at the rate of 54 bushels, and upwards, per acre.

The New-York State Agricultural Society exhibited thirty-five varieties of wheat, raised by General Roswell Harmon, of Wheatland, Monroe county, in one season, on his own farm, very tastefully arranged. To this collection a Prize Medal was awarded.

A distinguished French gentleman, a member of the National Society of Agriculture of France, Mr. L. Vilmorin, who was present and examined it with much care, informed me that there were quite a number of varieties in the collection which were not known in England. This collection was presented to him, and in return he has forwarded to the Museum of State Agricultural Society a large number of varieties of wheat, as well as other grains and seeds, which will be distributed for trial, from some of which, it is hoped, we may obtain valuable additions to our wheats and other grain.

The wheat from the United States, taken together was equal in quality to that shown from any other country; and its quality for

flouring purposes was fully shown in the fine samples of flour which were exhibited.

There were from Canada West very fine samples of wheat and other grains exhibited. The wheat was very superior.

Samples of wheat from Tunis had that ricy look peculiar to a warm climate and the barley was very inferior, indicative of the locality where grown.

Australia.—One of the finest samples of wheat on exhibition was raised in Australia, called the Australian wheat—it is a white bearded wheat, very large berry, weighing upward of 65 lbs. per bushel, and was pronounced by the jurors as one of the best on Exhibition. From a comparison with that of Mr. Thompson's, from this State, I was satisfied it was the same variety. Its introduction in this State came from a few grains that were found in the P. O. at Geneva, probably from a package passing through the mail—which were cultivated by Mr. Vedder, formerly of Geneva. It proves a very valuable wheat for Long Island, is cultivated to some extent in Chester county, Pa. with success. The flour is not quite equal to our very best Genesee wheats, perhaps, but is very good.

From Van Dieman's Land, some wheat was shown of very fine quality, and similar to that from Australia.

Barley and Oats from the United States and Canada were not as heavy as the samples shown from England and Scotland. Were the same care and attention given to the selection and change of seed as is practised there, my impression is that we should much nearer approach their standard. The greatest care is there given to the selection of seed and to a change—from the high to the low country—and this, if neglected there, will be seen in the diminished weight of the grain.

Indian Corn was exhibited mainly from this country, Canada, Austria, Africa, and British Guinea. The maize grown in British Guinea commands a higher price in the English market than that from the United States, though the supply is not very extensive. Why this increased price is obtained I did not learn, but presume it is owing to the better condition in which it reaches the English market. A few samples of the Forty Days maize, raised in England was shown; the varieties were not the best; the corn, however, was ripe. Our samples were generally very superior; and it was shown in the various forms in which it is used in this country. The Atlantic Dock Mills, N. Y., had a very extensive assortment of various preparations, prepared by J. R. Stafford's Steam Drying Apparatus. And the Oswego Starch Factory had a very superior article for culinary consumption, of great richness and delicacy, and extensively in use in this country.

Mr. B. B. Kirtland, of Greenbush, N. Y., exhibited a case of Indian Corn, which contained 34 varieties, very tastefully arranged in the ear—surrounded with samples of the stalk. The various products of corn, as prepared for use, were shown in glass jars, consisting of meal, farina, starch, oil, &c., and a description of the varieties, methods of cultivation and preparation for use of the meal, &c. This case attracted much notice, and was examined with much interest by Her Majesty and the Royal party, when they visited the American Department. A Prize Medal was awarded to Mr. Kirtland.

The Oswego Starch Factory received an Honorable mention for their fecula of maize, which was subjected to trial by the Jurors and others, and pronounced a very superior article. Hecker's Farina , N. Y., also received an Honorable Mention. All the articles exhibited by this firm were of great excellence, and received commendations. Hotchkiss & Phelps, of Ontario County, presented some very fine Kiln dried Indian Meal.

The extensive and increasing use of Indian Meal, in Great Britain causes a large demand for it, and, as its value is more appre-

ciated among the higher classes, its use will be still more extensive. The agent of the Atlantic Dock Mills, had samples of the bread made from their best meal, daily, on exhibition, fresh from the bakers, and the rapidity with which the bread disappeared, gave unmistakeable evidence that it found favor with many, who before, probably, were ignorant of its use.

Flour.—Flour was exhibited by England, France, United States, Austria, Canada and Spain. There were 14 exhibitors from the U. S., 7 from Austria, 7 from England, 5 from France, &c. The quality of much of the flour was very superior. Having been desired to go with the Jurors on their examinations, I had an opportunity of testing the various samples of Flour on exhibition. That from the United States was almost all made from Genesee wheat, and most of it was excellent, showing clearly the superior character of our wheat, as well as the excellency of our mills. Samples of the varieties, from which our best flour is made, were on exhibition. A very superior article was exhibited from France, by Mons. Darblay, who has extensive mills near Paris. This flour was called "Gruaux" flour, and was considered superior to any on exhibition. A Council Medal was awarded for its peculiar mode of manufacture. The method of manufacture, I ascertained while at Paris, having met Mons. Darblay there. The wheat is first passed through the stones, which are elevated a little, so as merely to loosen the hull, it is then passed through hand sieves, by which process the hull is separated from the berry, and the grain is then floured; the head of the bolt is taken off, producing this extraordinary fine flour, which is used mostly for pastry and biscuit, and commands in the London market 10s. sterling, about $2.20 extra per sack, more than the best English flour. We have in this country a process invented by Mr. Bentz, of Maryland, by which the hull is entirely removed by machinery, and flour equal, if not superior to that from France, is produced.

The Jurors were aided in their awards on flour, by Brokers from Mark Lane, who were furnished with samples of the various lots of flour, without a knowledge as to the maker; these were examined

and tested, I think also by bakers, and on their report, submitted to the Jurors, the decision was made and was such as should be satisfactory. Two Medals were awarded to this country, one to Hecker & Brother, N. Y., the other to Raymond & Schuyler, Westchester Co. The flour was manufactured from Genesee wheat. The other exhibitors from this State, were Atlantic Dock Mills, A. Harmon, C. J. Hill & Son, M. & H. J. Leach, J. Lathrop, H. Finch, each had very superior samples. The effect of climate upon the properties of the wheat, whether starch or gluten predominated, and also the difference in that respect, in the varieties of wheat, were matters of observation among those who made careful examination of the flour on exhibition.

In this class the exhibition of cured Beef, Hams, Maple Sugar, Rice, Tobacco, &c., was, to a considerable extent, from this country, and many of the articles were of a very superior order. Prize Medals were awarded for *Hams* from Louisville and Cincinnati, one parcel being the celebrated "Duffield" Hams.

In this class a *Council Medal* was awarded to Gail Borden, Jun., of Texas, for his Meat Biscuit, an invaluable preparation. It was analyzed by Professor Lyon Playfair, and its preservative qualities pronounced perfect, and its highly nutritive qualities were fully shown by the analysis. The Jurors marked their approbation of it, by awarding the Council Medal, after a thorough trial by themselves, and the most celebrated caterers for London palates, it having been found to be, in all respects, what its inventor claimed for it. Having very frequently partaken of it prepared as soup, I can most heartily concur in the award which was given to it, and in the approbation which it received as an article of food. A preparation like this, is world-wide in its influence, and entitled to special notice. The following is Mr. Borden's description of its preparation: "The meat biscuit contains, in a concentrated and portable form, all the nutriment of meat combined with flour. It is easily preserved in all climates, and for a long period of time without change or deterioration. It is not liable to heating or molding, to which corn in grain or flour is extremely subject, in

long voyages; nor is it attacked at all by the wevil or other insects. In evidence of its value, as an article of food, it is used by the American Army, on service on our Southern frontier. The nature of the discovery consists of a new process of preserving animal food, by obtaining, in a concentrated form, all its nutritious portions, and by combining them with flour or vegetable meal, and by drying or baking the mixture in an oven, in the form of a biscuit or cracker. One pound of this preparation contains the nutriment or essence of *five pounds* of good meat."

Preparation of Butter, *preserved fresh.* This is secured by being packed in a *weak solution* of Tartaric acid; the butter is immersed in it, and sealed up in a glass or other vessel. Butter prepared in this manner in October, 1850, was opened in the Palace in July, entirely fresh and sweet. It could not be distinguished from butter newly made. The discovery is an important one, and will, no doubt, be made available by our dairy-men, who are preparing butter for California and other warm climates, as well as for residents in our large cities, who are fond of a fresh and first rate article.

Solidified Milk.—There were several exhibitors of preserved milk, but the one which to me seemed to be best adapted to the purpose, was Fadeuther's Patent, London. By this process milk is purified, and reduced to solid form—so that one pound contains the equivalent of four quarts of the most pure milk: all unwholesome and indigestible matters are abstracted, leaving only the pure and nutritious essence of new milk, from the cow. If not exposed to excessive damp, it will keep for several years, without changing in the least. On ship board, and for medicinal and domestic purposes, especially for invalids or persons who cannot digest milk in its gross state, it is invaluable. It is easily digestible, and highly and admirably adapted as food for infants. The preservation of the substance in question, is due to the entire expulsion, by evaporation, of the watery constituents of the milk. In the absence of a certain quantity of water, putrefactive changes cannot proceed; after being dissolved in boiling water, reproduced in the form of

milk, the solution will keep perfectly pure for several days. It has, I am informed, since the close of the exhibition, been introduced into this country, and it proves entirely as valuable in its qualities, as claimed for it by the inventor.

Preserved Potatoes.—A preparation from the finest potatoe, containing all the flavor and wholesome properties of the vegetable in its best state. It will keep in any climate and its cooking is effected in about ten minutes; proving a very great advantage over potatoes in bulk. Its valuable qualities are certified to by Prof. Brande, Dr. Ure and many others, and the testimony of numerous ship owners and masters of vessels who have used it. This is prepared in London and is patented in this country. Having used this preparation I am satisfied the merits of the preparation, as an article of food, are equal to the commendations bestowed upon it.

The articles of food shown from the Tropics, in considerable variety, were interesting. Specimens of meals from tropical plants were shown. That from the plantain, made by drying in the sun and then reducing it to powder, was superior to any of the other. Millet, which is used, as an article of food, very extensively in tropical climates, was exhibited in several departments, but that from Russia, both Black and Red, was superior to any other. Some fine samples of rice were exhibited. The Carolina rice from this country was awarded a Prize Medal.

Coffee.—Fine samples were exhibited from several countries. An article extensively in use in England, and perhaps elsewhere, as a substitute for coffee, and also for the purpose of mixture with coffee, was shown. This was Chicory, a tap-rooted plant of the endive family, which is very readily grown, the root of which when dried is roasted and ground and mixed with coffee. From its medicinal qualities it is considered a valuable admixture, as it counterbalances the astringent effects of the coffee; and being much cheaper, it finds great sale. By many, the coffee thus prepared is preferred to the pure coffee. It is on sale in the English coffee establishments, ground, and persons usually selected one-third chicory,

two-thirds coffee, and prepared the mixture themselves. It doubtless is, however, often sold with a much larger per centage as real coffee. It is nutritious and the flavor is pleasant. The seeds are sown in April, in drills, and managed very much like a crop of carrots, care being taken to keep it entirely clean. It is gathered in September, the roots or tubers carefully washed, cut in small pieces, either by hand or a turnip cutter, placed in canvass bags and dried upon a kiln, and then disposed of to merchants, who prepare them, the same as the coffee berry, for use. The leaves of the plant are very largely used for dyeing; a valuable dye-stuff called "Pastel" or "Imitation Woad," is mostly prepared from the leaves; it is very largely used by wool dyers, and is valuable in the dye-vat for fastening colors in cloth. The main supply for England is received from Belgium and Germany, though it is now cultivated to some extent in England and Ireland.

The exhibition of Hops from England was very extensive. The Golden hops grown in Mid Kent was superior to anything of the kind I have ever seen. The soil upon which this variety is grown, has in it an abundance of Phosphate of Lime I believe, and this, together with the treatment they receive, are among the reasons given for their superiority, and they are used for the finest ales. A number of other varieties of fine flavor and appearance were on exhibition, especially the Farnham hops. The hops grown in Canada and the United States, are not considered equal to those of Great Britain for the use of Brewers, whether owing to the climate, or the manner of culture and preparation, I cannot say, though probably each has more or less influence. They will not, as I was informed by a Canadian brewer, whom I met in London, make as fine ale, as the best English hops. He having used the hops grown in this country and in England, seemed a competent judge. I had designed to have visited the hop districts in Kent, and ascertained the particulars of their management, and the soils best adapted to the production of the fine varieties, and the peculiar process and preparation, but my time was so much occupied that I could not accomplish it. I was told, however, that a porous rocky sub-soil, covered with two or three feet of good veg-

etable mold, was considered the best soil for hops. It is all important, to secure a dry sub-soil. The finest hops are those which are picked when they are of a light yellow brown; and when great care is used as to the quality of the hops, they are divided into three sorts, the green, not entirely ripe, the light yellow brown in their prime, and the dark brown which are past their prime. There was exhibited a drawing of a magnified view of the formation and growth of the hop fungus, from its earliest to its latest stage, which was an interesting and useful study for those engaged in the culture of hops.

Oil Cake was exhibited to some extent. That from the United States is sold in England to a large amount, used chiefly for fattening animals, from two to four pounds being broken daily with their food. There was nothing peculiar in the quality of that exhibited.

There was a good collection of raw materials, and products shown from Greece, evincing an improving state of Agriculture. From Egypt there was a very good exhibition of Rice, Wheat, Indian Corn, Barley, Beans and Lentils.

In this class, Tobacco was exhibited more extensively from this country than any other, and mostly the product of Virginia and Maryland. There were samples from Great Britain, Algeria, Belgium, Russia, Spain, Egypt, Greece, Turkey, &c. The manufactured tobacco from this country, that from Richmond especially, was adjudged superior to any other, and the Prize Medal was awarded. Segars were shown of very extraordinary excellence from several of the nations exhibiting.

Teas from China far superior to anything I have ever witnessed, showing one thing at least, that the great majority of what is called and used as tea, in this country, never finds a place in the house of the celestials. The difference in all the varieties was so apparent, that no one could hesitate for a moment, in believing, that a very large proportion of what is imported into this country

and Great Britain, is of a very inferior quality, or is adulterated after its arrival. The edible birds' nests, of which we have often heard, were exhibited in the Chinese department. There was one exhibition of Tea in the India department.

Sugar was on exhibition from Great Britain, United States, Spain, British Guinea, France, Belgium, &c. There were many very fine specimens from the Sugar Cane. Beet Sugar was also exhibited quite extensively from France, Austria, Russia, Zollverein, England; and no less than two Council Medals, and ten Prize Medals, were awarded for Beet Sugar, the quality equal to the Cane Sugar. Two Council Medals were awarded to France, one of them for samples of beet sugar extracted from molasses, which was considered as exhausted by the ordinary process. The other, produced by a method, the result of which is to save valuable substances previously lost in the manufacture, and consequently to reduce, materially, the price of the sugar itself. There can be little doubt, that the production of sugar from the beet root can be made profitable, and the general introduction of the process for which the Council Medal was awarded, will enable its being manufactured in countries where the cane cannot be cultivated, at a price as low as the cane sugar can be afforded. Maple Sugar was exhibited from the United States, and Prize Medals were awarded for two samples, one from Vermont and one from Canada. A very superior sample sent by the New-York State Agricultural Society, unfortunately fell into hands, shortly after the exhibition opened, of some persons who, not satisfied with tasting, took the whole, and the Jurors were not permitted the privilege of passing upon it. It was made in Jefferson County, in this State, and was superior, in my opinion, to any other on exhibition.

E. R. Dix, from this State, received an Honorable Mention for Flax, Hemp, and other products.

Taking the exhibition in this class from the United States, as a whole, it was certainly creditable to our country, although not as large as it should have been, fully to develope our capabilities—still

it was sufficient in quantity and variety to show to those in attendance upon this Great Exhibition, of the Art and Industry of the World, that the new continent to which such multitudes of the starving of the Old World were rushing, had bread enough and to spare, and that from her fertile vales and hills their wants not only could be supplied, but a *home* could be furnished for them all.

Class 4. *Vegetable and animal substances*, chiefly used in manufactures or as implements or ornaments.

This was a very interesting and important class, including Cotton, Hemp, Flax, Wool, Silk, Furs, Dyes, Dye-woods, Starch, Gelatine, &c. The exhibitors were very numerous and from almost all the countries represented in the exhibition. Raw Cotton was exhibited largely from the United States; there were several exhibitors, and in smaller quantities, from Algeria, British Guinea, Russia, South Africa, China, Egypt, India, Portugal, Spain, Trinidad, St. Helena, Western Africa, England, &c. There was a very critical examination made of the samples on exhibition, and the same course was adopted by the Jury as in the examination of flour, by calling in cotton brokers to aid the Jurors in determining the value of the various samples on exhibition. It may readily be imagined that in relation to the cottons exhibited, there was much interest excited among the Americans and English, as to the result of the examinations. A strong desire was evident, in regard to the samples from the British possessions. The result, however, was most satisfactory to our Cotton growers. Ten of the Prize Medals were awarded to them, and only five to all the others. A council Medal was awarded to John Mercer, Accrington, Eng., for a process by which the fiber of Cotton is modified by caustic alkali, whereby the fibers become contracted and fulled, converting thin and coarse cloth into strong and fine; and at the same time giving greatly increased and improved powers of receiving colors in printing and dyeing, and also in making them more permanent. The samples exhibited fully sustained the claims of the invention, and its great value to the manufacturers of cotton goods, as well as to the consumers, was most obvious, and it

will doubtless attract attention in the right direction, from those present and who were prepared to appreciate its importance.

Wool.—There were some very extraordinary samples exhibited. The finest, and for all purposes the most valuable of the fine wools, probably were from Austrian Silesia. The texture and style of this wool was certainly very superior, and had all those qualities which, to a manufacturer, are so very important.

There was but a small exhibition from the United States: only six samples on exhibition, though four others appeared upon the catalogue, but were not sent, they were of a character, however, to attract attention, and found much favor with the Jurors and examiners, and four prizes were awarded to American exhibitors. I was with the Jury in their examinations in this department, and was satisfied, as I believe the Jury were, that next to the very best samples from Silesia, the samples from America, to which the Prize Medals were awarded, were equal to any of the fine wools. Samples from the flock of J. G. Strean, Washington county, Penn., for which a Prize Medal was awarded, (which by *mistake* were entered in the name of *J. H. Ewing*,) were exceedingly fine, and sustained the reputation, as a wool grower, which has long since been awarded him in the United States.

A Council Medal was awarded to *Jean Louis Graux*, of France, for a fleece of Merino wool of great fineness and of the best quality for combing, and possessing increased strength, brilliancy and fineness of fiber. He is described as the originator of this new and valuable quality of wool. It was certainly a very superior sample of Merino wool, and doubtless entitled to the encomiums passed upon it. It was different from the wool from the Rambouillet sheep and superior to it in the fineness of its fiber—samples of wool from the establishment at Rambouillet being shown in connection with the other wools from France. The breed of sheep which Mons. Graux has, will prove a valuable acquisition to this country, I have no doubt, in crossing with our Merinos and Saxons.

Australia had some very fine samples of wool. The exhibition from England was mainly from the sheep bred for their mutton, and of great variety—both as respects the length of the wool, and the fineness of the fiber. A few samples of Merino wool were shown from England. The fleece of a South-down ewe, which was seven years old, was shown; had never been shorn; the wool 25 inches long; its weight 36 lbs.; and this was greater than the aggregate length and weight of wool taken from any other sheep in the same flock annually shorn. The owner stated in a notice appended to the fleece, that the animal suffered no perceptible inconvenience from this enormous fleece, during the warm months of the season. In the Magdeburg department, the fleece of a one year old, fine wooled sheep, stuffed, was shown—illustrating, fully, the value of having all parts of the body well covered with good wool, of uniform quality, a property so desirable to be secured by the breeder, and to which, it is to be regretted, far too little attention is paid in this country, as well as in others. In this specimen there seemed to be no place where wool could be grown, but it was covered, and with scarcely any perceptible difference in the quality of the wool in different parts. From Spain the specimens were not equal to the reputation which the wools of that country formerly enjoyed. The reason, so far as could be ascertained, is, that for several years past, there has been far less attention given to the breeding of sheep, than was the practice at the commencement of the present century. Austrian Silesia has the best flocks, and the best managed, of the finest wooled sheep, judging from the wool exhibited, and from the descriptions given—and for the Merino wool, there was no country which exhibited any that was equal to that of Mons. Graux, from his flock at *Ferm de Hauchamp, Commune de Javin-Court*, (Aisne.) Fine fleeces of Merino wool were exhibited by William Blakeslee, of this State, which were very excellent specimens of this variety.

Flax.—The exhibition in this department was of a most interesting character. The question of the best methods of preparing the fiber for use, is exciting very great attention, not only in Europe but in this country, and it was expected, therefore, that

everything relating to the subject so far as yet developed, would be found in the exhibition. In this I was not disappointed. The show of flax, in all its stages, as prepared by the different processes—the various cloths manufactured—the process of manufacturing, were all fully exhibited. There are three methods of preparing the fiber of the flax, which are attracting much attention at present, being deviations from the old methods which have long prevailed. The *first* of these, and which as yet is the most approved in Ireland, is what is called Schenck's system of steeping flax straw in water, heated to 90 degrees—invented by Mr. Schenck, an American, several years since. By this process, owing to the elevated temperature given to the water, the fermentation necessary for the separation of the fiber from the woody matter of the flax straw, is so much accelerated that the operation requires only about sixty hours. It was supposed that this rapidity of process would weaken the fiber—but from experiments made in England and upon the continent, it is demonstrated that not only is a better description of flax secured, but a larger produce obtained by the use of hot water, than is possible by the old, slow and uncertain system of rotting. There are ten establishments upon this principle at work in Ireland.

A *second* method proposes to lessen the bulk of the flax crop, without resorting to steeping, so as to facilitate its transit to the most advantageous market, by passing the straw under a common "breaker," and separating the fiber by any of the usual methods. It is stated, as prepared in this way, without steeping, the fiber is well adapted to the manufacture of various coarse articles, such as sail cloth, &c., and that by the diminution in bulk, which the straw experiences, it could be employed with greater facility in steeping, and the operation requires less time, as the water would act more readily upon the bruised flax.

On trial, however, it is found that the previous partial separation of the woody matter of the straw, instead of shortening the steeping process, has a decidedly opposite effect. The necessary

fermentation, from the removal probably of the organic compound of the straw, being exceedingly imperfect.

The *third* method of preparation, which is now exciting very great interest, was fully illustrated in the exhibition by the inventor, Chevalier Claussen.

It is proposed as a means, not only of facilitating the separation of the flax fiber for its ordinary uses, but it is strongly claimed for it, that it is capable of converting it into a form in which its characters are completely assimilated to cotton, and in which it may be spun, either in whole or in part, on the common cotton spinning machinery, and that it will enable the flax grower to supply with profit the raw material, for the use of manufacturers, at less price than foreign cotton can be imported. It is also claimed, that the raw material can be so prepared as to be advantageously mixed with wool for the production of cloth, while any flax refuse can be converted into an excellent article for the manufacture of first class paper at a lower price than white rags can at present be obtained.

The invention is thus described by the Chevalier:

"The principle of the invention by which flax is adapted for spinning upon cotton, wool or silk, independent of flax machinery, consists in destroying the cylindrical or tubular character of the fiber by means of carbonic, or other gas, the action of which splits the tubes into a number of ribbon-like filaments, solid in character and of a gravity less than cotton, the upper and under surfaces of which are segments of circles, and the sides of which are ragged and serrated. In order to explain the nature of the process, by which this change is effected, it is necessary, first, to explain the structure of the flax plant: The stem of the plant consists of three parts: the "shove," or wood, the pure fiber and the gum, resin or glutinous matter which causes the fibers to adhere together. In the preparation of the plant for any purpose of fine manufacture it is necessary, first, to separate from the pure fiber both the woody part and the glutinous substances. The former

of these may be removed by mechanical means almost as simple as those employed in the thrashing of wheat. In order, however, to remove the glutinous substance from the fiber, recourse must be had either to the fermentation produced in the steeping process, or to some other chemical agent. The present system of steeping in water, whether cold or hot, is, however, ineffectual for the removal of the glutinous substances adhering to the fibers, a large percentage of which is insoluble in water. The first process, therefore, which is necessary in the preparation of the flax cotton is to obtain a perfect and complete disintegration of the fibers from each other by the entire removal of the substance which binds them together.

This is effected by boiling the flax for about three hours, either in the state in which it comes from the field, or in a partially cleaned condition, in water containing about one-half per cent. of caustic soda. After undergoing this process, the flax is placed in water, slightly acidulated with sulphuric acid; the proportions of acid used being one to five hundred of water. Any objection urged against the employment of such substances, even in the small proportions above stated, are at once met by the fact, that the soda present in the straw, after the first process, neutralizes the acid, and forms a neutral salt, known as sulphate of soda. This process producing, as it does, a complete separation of the integral fibers from each other, is equally adapted for the preparation of long fiber for the linen, or of short fiber for other branches of textile manufacture. When required to be prepared for linen, all that is necessary after the above process, is to dry and scutch it in the ordinary modes. The advantages which this mode of preparation possesses over any other mode in use, are stated in the official report of the Proceedings of the Royal Agricultural Society of England, to be the following:

1st. "That the preparation of long fiber for scutching is effected in less than one day, and is always uniform in strength, and entirely free from color, much facilitating the after process of bleaching, either in yarns or in cloth.

2d. "That it can also be bleached in the straw at very little additional expense of time or money.

3d. "That the former tedious and uncertain modes of steeping are superceded by one perfectly certain, with ordinary care.

4th. "That in consequence of a more complete severance of the fibers from each other, and also from the bark and boon, the process of scutching is effected with half the labor usually employed."

Complete, however, as may be the separation by this mode of treatment, the fibers from their tubular and cylindrical character, are still adapted only for the linen or present flax manufactures, as their comparatively harsh and elastic character unfits them for spinning on the ordinary cotton or woolen machinery. At this stage, therefore it is, that the most important part of the invention is brought into operation.

The flax, either before or after undergoing the process required for the severance of the fibers, is cut by a suitable machine into the required lengths, and saturated in a solution of sesqui-carbonate of soda (common soda,) a sufficient length of time to allow of the liquids entering into and permeating by capillary attraction every part of the small tubes. When sufficiently saturated, the fibers are taken out, immersed in a solution of diluted sulphuric acid of the strength of about one part to two hundred parts of water. The action of the acid on the soda contained in the tube liberates the carbonic gas which it contains, the expansive power of which causes the fibers to split, and produces the result above described. The fiber is then bleached and after having been dried and carded, in the same manner as cotton, is fit for being spun on the ordinary cotton or wool machinery.

From this description of the process and the promised results, it will be apparent that this is a discovery of very great interest, if it proves successful. It has undergone various trials before the

Royal Agricultural Society of England, and other Associations, and has been reported upon favorably, and is undergoing a thorough trial at some of the best Flax mills in Ireland, reports from which will be looked for with great interest.

There was exhibited in the Palace, this invention in operation, preparing the Flax for use, and all the varieties of the fabric manufactured from it, and from the appearance of the different varieties, so far as the complete manufacture possessing the qualities described, the success appeared complete. As to the question of cost, it is not yet, I think, decided, that the manufactured article will be able to compete with cotton, but a great point is attained, if the flax-cotton and flax-wool can be obtained for manufacturing purposes, as claimed by Mr. Claussen. Samples of flax were exhibited, prepared by this process, designed to show the universal applicability of flax fiber to the purposes of textile manufactures.

The *first* samples were intended to show the various processes resorted to in the preparation of flax into a material capable of being spun alone, or mixed with various proportions of cotton on any ordinary cotton spinning machine. The samples show: 1st. The flax as pulled, cut into suitable lengths by machinery. 2nd. As it appears after having undergone the first process of saturation in a solution of soda, required to remove the glutinous substance adhering to the fibers. 3d. The fibers as seen after the removal of the "shove" or woody part of the plant. 4th. The flax transformed into a cotton-like substance, by the expansive force of carbonic acid gas produced by the action of an acid upon the soda, taken up by the fibers in the previous stage. The 5th, 6th and 7th show the same, bleached, dried, carded and ready for spinning.

There were also shown samples of mule and throstle yarn of various numbers, some of which are composed entirely of Flax, and others of various proportions of flax and cotton. Both of these descriptions of yarn were exhibited, bleached and dyed in various colors, for the purpose of showing that flax, prepared upon this process, is capable of receiving the same opaque dye as cotton,

and, in the mixed yarns, no difference can be seen in point of color or of shade between the two materials. Samples of grey and bleached, dyed and printed cloth, woven from the yarns, prepared as above, were also exhibited. This description of yarn is called "Flax cotton yarn."

The *second* series of samples consists of yarns formed of various proportions of flax and wool, called "Flax wool yarn," the flax prepared mainly, as for spinning on cotton machinery. Those exhibited, spun on ordinary woolen machinery. Flannel, woolen cloths, milled and dyed, woven from these mixed yarns of various colors were shown.

The *third* series contains samples of flax prepared for spinning alone or combined with short silk upon the ordinary silk machine. The flax so prepared, dyed of various colors, and possessing, unlike the samples prepared for the cotton machinery, the brilliancy of color which is peculiar to silk. The yarns formed of equal or other portions of flax and silk, called "Flax silk yarns," were shown dyed, and no difference in shade or color is perceptible in the two materials. Silk woven from the yarn was also shown.

In the *fourth* series, samples illustrative of the exhibitor's mode of preparing flax for spinning upon the ordinary flax machinery, and for its manufacture into linen fabrics.

A *fifth* series consists of various samples of hemp, jute and the fibrous substances prepared, either in whole or in part, as above; and samples of cloth, woven on a circular loom of Chevalier Claussen's, showing the applicability of the invention to articles of Hosiery. The advantages claimed as arising from the process, illustrated in the fourth series, for preparing flax for the linen manufacturers, are its simplicity, rapidity, certainty and cheapness. The first three samples were intended to show the applicability of the flax fiber for textile manufactures, other than linen or cambrics. It can also be spun alone, on cotton machinery, by the or-

dinary cotton process. It has long been a desideratum with woolen manufacturers of all classes, to obtain a material cheaper than wool, possessing the same felting or "milling" properties. Cotton and China grass have not this property. The flax fiber is said to be stronger than wool, and to mill equally with it. The sample shown was milled from 54 inches wide (as it fell from the loom) to 28 its present width. To prove its felting properties fully, hats have been made from the fiber, mixed with an insignificant portion of rabbits' hair. The Chevalier, also exhibited a Rotary machine for knitting, &c., which will be noticed under the head of machinery. Samples of the flax as prepared by the above process are placed in our Agricultural rooms.

I have been induced to give thus fully the description furnished by Mons. Claussen, of his process and the advantages claimed for it, believing that it is among the most important of the inventions exhibited, calculated to benefit and advance the industrial interest of our country, and though it may not in its present condition, be equal to all that is claimed for it, still it is progress in the right direction, and I shall be greatly disappointed if it is not made available by the ingenuity of our countrymen in some form, so to cheapen the production of flax for the manufacturer, as to give a new impulse to its culture, and arrest the large amount of money now annually paid for flax fabrics, from the fiber grown on a foreign soil. The imports of goods manufactured from flax in the U. S. from 1844 to 1849, amounts to nearly six millions of dollars annually. The table of the exports from England, for the years 1843, 4 and 5, which we have before us, shows the amount to be over twelve millions annually. Our trade being mainly from there, is evidence of the importance at least of our use of the article in sustaining their manufacture of flax. Samples of the "flax cotton" in yarn, and fabrics were exhibited at the Annual Fair of the State Society at Rochester, in Sep. 1851, and in the minds of practical men who gave a full examination to the articles exhibited, they fully sustained the advantages claimed for them, in the remarks we have above given.

In the awards made by the Jury, Chevalier Claussen received only a Prize Medal, probably on the ground that his invention is not yet so thoroughly demonstrated, practically, as to entitle it to a Council Medal—though, I believe many, who in all respects were well qualified to judge on the matter, differed with them in their opinion.

The Council Medal was awarded to the Belfast Flax Improvement for "the persevering and successful efforts to improve the quality of the fiber of flax." The specimens of flax exhibited by them in great variety, showed most clearly the importance of the improvements they had effected, which were in the highest degree creditable to them, and worthy of the commendation bestowed upon the society. It would be well for our State to make similar efforts for the improvement of the various crops which are grown in the State and to encourage and develope the qualities of others which might be productive of good to our whole industrial interests.

The countries from which flax was exhibited, were England, Austria, Belgium, Canada, United States, China, France, Netherlands, New Zealand, Portugal, Russia, Spain, Sweden, Norway, Van Dieman's Land and Zollverein. The flax from the various countries from which flax is imported into England, was arranged by one of the English exhibitors, in connection with hemp, illustrating very satisfactorily the qualities of flax and hemp raised in each. An arrangement of flax was also made showing the various methods in use in preparing the fibers.

Silk.—The most brilliant part of the exhibition was the silk department, especially that of manufactured fabrics. The exhibition of French manufacturers was remarkably rich and gorgeous. Those from Lyons, St. Etienne, Avignon and Nismes, showed a very large variety, from the simplest poplins to the most gorgeous and splendid patterns, unsurpassed by any other portion of the exhibition.

A very rich display was made in the English department, scarcely inferior to that from France. There were between eighty and ninety English exhibitors of silk goods, and some of them had the most attractive arrangement and display of any in the exhibition. The "Silk Trophy," which was arranged in the main avenue of the Palace, composed of the richest Tissues, Brocades, Silk Damasks and Velvets, arranged around glass mirrors, excited great attention and was thronged with visitors constantly. From Spitalfield, so long celebrated in the manufacture of silk fabrics, some peculiarly rich designs were displayed. There were exhibitions from several other countries.

There was a very extensive exhibition of Woods from all parts of the world. Mr. R. L. Pell, of this State, exhibited a very extensive collection of forest and other woods, upwards of one hundred in number, grown upon his own farm in Ulster county, and received an Honorable Mention for his exhibition, and his collection, we believe, was presented by him to the Royal Commissioners. But the most perfect collection of American woods was to be seen in the English department, in a collection of woods from various parts of the world, upwards of seven hundred in number, arranged geographically, accompanied with the scientific and local name of each, weight per cubic foot, and the uses of each. Probably never before has there been so much useful information afforded of the qualities and value of the woods of the world, as was contained in this collection. It was prepared by a Mr. Sanders of Wandsworth, England, and received a Prize Medal, to which, certainly, he was most justly entitled. It was a resort for every one who desired to become familiar with the productions of the world not only, but even with those of his own country; for there was more information in regard to the woods of America, than can be found by those who have not been favored with opportunities of travelling through the different States of our Union and examining critically for themselves.

In this class, Oils of various kinds were exhibited. A very choice sample of oil of peppermint from Messrs. H. G. & L. B.

Hotchkiss of Lyons, in this State, received a Prize Medal. Its quality was very superior, and it is understood that orders for the entire manufacture were given by a leading house in London.

Starch.—There was a very extensive exhibition of this article, prepared from a great variety of subtances—Wheat, Rice, Sago, Potato, Indian Corn, &c., Among the samples, there was exhibited from this State, by the Oswego Starch Factory, manufactured by T. Kingsford & Sons, a very fine sample which attracted, as it deserved, much attention, and was pronounced by the Jury equal to any they had seen—and it was awarded a Prize Medal. Inquiries were made by several dealers, as to the price at which it could be afforded in London—and if a supply can be furnished, there is no doubt of a market there for any surplus that can be manufacfactured. This establishment has been in operation since 1849, and furnishes employment for about 100 persons. The amount of Corn and Wheat annually converted into Starch is 150,000 bushels. From a chemical analysis, this Starch is found to be an article of uncommon purity, as will appear from the analysis made by A. A. Hays, State Assayer of Massachusetts.

Results of an analysis of a sample of Oswego Starch:

"The sample presented prismatic fragments of very white Starch granules, which, when magnified presented their forms and exhibited the appearances shown by Starch from grain. 1000 parts afforded, of matters soluble in cold water, and consisting of Dextrine, Gluten and Lime Salts 1.20; Carbonate of Lime, Phosphate of Lime and Magnesia 1.56; or, as matter apart from pure Starch, in all, 2.76 in 1000 parts. This proportion is much less than commercial Starch affords generally.

From the result here stated, it will readily be inferred that this is an article of uncommon purity. In the originate proportion of moisture, nearly absolute freedom from other vegetable principles and earthly matters, it agrees with the finest qualities, while its whiteness and absence of organic acids, indicate that excellent materials only are used in its production."

Colgate & Co., N. Y., whose Starch has long been celebrated in this country for its purity, had some of their Starch on exhibition, where its reputation was fully sustained, and a Prize Medal was awarded.

Class 5.—B. *Machines for direct use, including Carriages, and Railway and Naval Mechanism.*

Machinery.—In this department, as was to have been expected, the English display a far more extensive assortment than all the other nations. The exhibition shows what perfection has been attained, and the beauty of finish and arrangement, is certainly worthy of all praise. Of machinery, of really new principles, there did not appear to me to be much in the English department, and one of the English writers, in speaking of this department says: "We could not see any machine of new principle or construction, there are improvements here and there, rendering the machines more perfect." There was much however, showing the great progress which has been made for the last fifty years, that bears a most important part in the great progress which has been made in our world. I was informed by a very skilful mechanic from our State, who examined the machinery with great minuteness, that very many of the most valuable improvements were taken from American inventions, and the very machines were named in which they were to be found.

A writer in reviewing what has been done, says: "Steam navigation was not only practically unknown at the close of the last century, but in England was held to be visionary by Watts; now, however, thousands of steam vessels plough the ocean, and fill the harbors of every commercial nation of importance, and pass from one continent to another, with a facility and certainty that brings America and Europe within almost a week's time of each other.

"In railways, all that was practically known at the beginning of the century, was a few rude colliery tram roads, rudely constructed wood or cast iron rails, and traversed by ruder wagons, drawn by horses, at the rate of three or four miles per hour; and even as late as 1824, George Stephenson, the father of the locomotive, stated

at a meeting at Leeds, that "he *hoped* yet to move the trains at the rate of 10 *miles* an hour; and Nicholas Wood in the first edition of his 'Treatise on Railways,' published about the same time, speaks of the notion of such speed, as being by its very *extravagance*, likely to retard the progress of the railway by steam. Stephenson lived to see 80 miles an hour accomplished, and the whole system of stage coach arrangements superseded, and the manufacturer at the extreme of England, enabled to proceed to the metropolis in the morning, transact his business and return to his home the same evening. If progress has been made in these departments, so also have surprising changes been effected in the manufacturing branches." The Jaquard loom, has taken the place of the old hand-loom, exhibiting its wonder working power; and the power loom by Bigelow, for weaving Brussels carpets, has from our own country through the great exhibition, astonished the world at the accomplishment of what before was deemed inapproachable by the aid of machinery; weaving Brussels carpets by the power loom. The London Morning Chronicle in speaking of the United States department said: "This department has again received an important accession of strength, in the shape of Brussels carpets, woven upon power looms. Although various attempts have been made to adapt the power loom to carpet weaving in this country, there is not we believe, at this moment, any machinery perfected for the object; our American brethren have gained another step ahead of us, and have won another laurel, on this well contested field of industrial arts."

The printing press too, throwing off 15,000 sheets per hour, instead of 250, as formerly the extent of the hand press, and that in England, as late as 1814. But to crown all, the Electric Telegraph brought into real acting life, by our own Morse, now sends the intelligence from island to continent, as well as across continents, with the rapidity of lightning, actually annihilating time—and this all exhibited before the world in the great exhibition. These results of the advancement of machinery and engineering upon the ocean and upon the land, are truly wonderful, and are exerting an influence upon the world's progress of the most gratifying

character, and will, with the diffusion of light and truth, under the blessings of Heaven, it may be hoped, effect the regeneration of our world. The exhibition attests in its every department the advance which has been made.

The models of the Steam Engines, afford nearly every various form of the Engine which has been found useful in its application, to Manufactures, to the Steamer and Locomotive. It would be gratifying to dwell on some of these—but in a report as limited as this must of necessity be, it cannot be done with propriety. An interesting incident, related of one of the gentlemen counected with this great work, came to my notice since I left England. The *first Engine driver*, Mr. *Fox*, now *Sir* Charles Fox, the acting and main contractor for the Crystal Palace, and who, by his energy and skill has so greatly distinguished himself—*was* the *first person* who guided the engine which Stephenson built, and aided to win the prize which Stephenson received. His energy of character thus early developed, under very trying circumstances, shadowed forth the successful and distinguished man of 1851.

Most of the Steam Engines, on exhibition, were from England. A large number of oscillating engines were exhibited, in operation. These were very compact, occupied but little space, and seemed to perform well. They are used on board many of their steamers. A Council Medal was awarded for a couple of Marine Engines, by Penn & Son, of Greenwich—and a Council Medal to a Belgian for a pair of vibrating cylinder engines, in connexion with other engines and boilers. Two Locomotive Engines, by S. R. Crampton England, very powerful ones, received a Council Medal; they were designed for the London and North Western Railway. The admirable manner in which the engines were got up, was a subject of observation and remark.

The United States did not exhibit any Marine Engines—a drawing of a pair of Engines, such as are fitted in the steamer Pacific, was on exhibition and attracted much notice. Her rapid passages are well known, and regret was often expressed that the engines

were not present. That they would have reflected credit upon our country, none can doubt. Erricson, of New-York, exhibited Dunn's Patent Caloric Engine—but as it was not in operation, no opinion was given by the Jurors. The invention consists in producing motive power by the application of caloric to atmospheric air, or other permanent gases or fluids susceptible of considerable expansion by increase of temperature; the mode of applying the caloric being such that, after having caused the expansion or dilatation which produces the motive power, the caloric is transferred to certain metallic substances, and again re-transferred from these substances, to the acting medium at certain intervals, or at each successive stroke of the motive engine; the principal supply of caloric being thereby rendered independent of combustion of consumption of fuel. Accordingly, whilst in the Steam Engine, the caloric is constantly wasted by being passed into the condenser, or by being carried off into the atmosphere, in the improved engine, the caloric is employed over and over again, thus enabling the operator to dispense with the employment of combustibles, excepting for the purpose of restoring the heat lost by the expansion of the acting medium, and that lost by radiation also, and for the purpose of making good the small deficiency unavoidable in the transfer of the caloric.

A working model of this engine was expected at the exhibition, to be put in operation—but it did not arrive. If what is claimed for it shall prove to be correct, it will be a great advance on our present engines. Since my return I have heard that the engine intended for England has been put in operation, in New-York, and that its success, in the opinion of the operators, is placed beyond a doubt. Whether this be so or not, probably the public will soon be informed. If it succeeds, it will be another triumph for our engineers.

C. Starr, of New-York, exhibited two machines for book-binding—one for backing, the other for finishing the books. The machines are very powerful, a single stroke effects the embossing of the covers. They possess great advantages over machines heretofore in use for this purpose. A miniature engine, made by Master

Higginbotham, of Oneida, in this State, was exhibited, and was highly creditable to his skill.

In this class were exhibited Fire Engines and Annihilators, and Fire Escapes, to convey people from houses in flames—and systems of fire proof constructions to prevent the ravages of fire. There was nothing new in the Fire Engines exhibited, of special importance. They were shown of all sizes—a cabinet Fire Engine, resembling an article of furniture, in appearance, was in use in the exhibition, for watering the large trees enclosed within the building—an improved spreading jet, connected with the branch pipe, makes it applicable to garden purposes. The jet, by a simple contrivance, is spread out into a sheet of water, and in this form it was used in the Palace, throwing a stream of water to the highest trees. A very superior engine, from Canada, was exhibited, which, on trial, with the London Engines proved, as was claimed for it, that it could throw water nearly one third higher.

A great variety of Fire Escapes were shown—Phillips' Fire Annihilator, for extinguishing fires, by discharging incombustible gas against the flame, which is very soon extinguished, was shown. This machine was tried frequently while I was in England, and the success which attended its operation, on prepared buildings which were fired, seemed to secure the confidence of the public, so far, at least, as to satisfy them, that if the machine was at hand, when a fire commenced, it would be useful in extinguishing it. It was not pretended that it could be brought into successful use in a great conflagration, but that in the early stages of a fire, within enclosed walls, it could be made to operate with success.

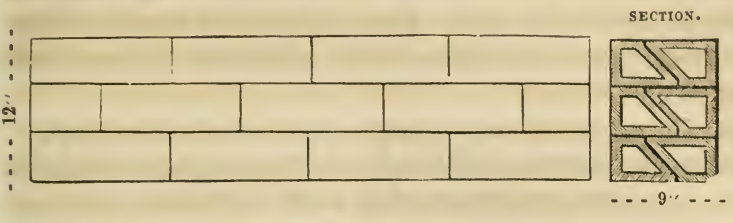
There were several models for making houses fire-proof, but the most important improvement in this respect was the plan of building with hollow bricks. There were exhibitions of these brick, in both the English and French departments. Opposite the Crystal Palace a block of model houses was erected by Prince Albert, a contribution to the exhibition. The peculiarities of the building, which was designed for four families, were the exclusive use of

hollow bricks for the walls and partitions and the entire absence of timber in the floors and roof, which were formed with flat arches of hollow brick-work, which was secured by wrought iron rods connected with cast iron springers resting on the external walls and binding the whole structure together. The building is thus rendered fire-proof and much more durable than if built in the ordinary manner.

The most important advantages derivable from the use of hollow bricks, are dryness and warmth, as well as economy of construction. The evils resulting from the absorption of moisture by common bricks and other porous materials are obviated and the battening of the walls is unnecessary. Hollow brick may be made with any good tile machine, in the same manner as ordinary draining pipes, and at about the same cost in proportion to the clay used. They are more compressed, require less drying, and with much less fuel are better burned than ordinary bricks, even when waste heat, or that in the upper part of the kiln only, is used.

The saving in brickwork effected by the use of the patent bricks, when made at a fair price, will be from twenty-five to thirty per cent. on their cost, with a reduction of twenty-five per cent. on the quantity of mortar, and a similar saving on the labor, when done by accustomed workmen. The process of drying is much more rapid than in common brickwork, and the smoothness of the internal surface of walls built with the patent bonded brick renders plastering, in many instances, quite unnecessary, whereby a further saving is effected not only in the first cost, but also in the subsequent maintenance. If glazed on the outer face, as may be done with many clays, a superior finished surface is obtainable without plaster.

The annexed elevation and section show a wall nine inches thick; the same principle, with some variation in the form of the internal bricks, will apply to any thickness of wall.



The dimensions of the bricks being unlimited, a size has been chosen which, with the omission of the headers, reduces, by about one-third, the number of joints, and greatly improves the appearance of the work, giving it more boldness of effect and resemblance to stone than that of ordinary brickwork—twelve inches in length, including the joints, three courses rises one foot in height; a size equally convenient for the workmen in the manufacture, and the use of the bricks—whilst less liable to damage in moving than bricks of larger size, their form admits of ready handling and stowage for transport.

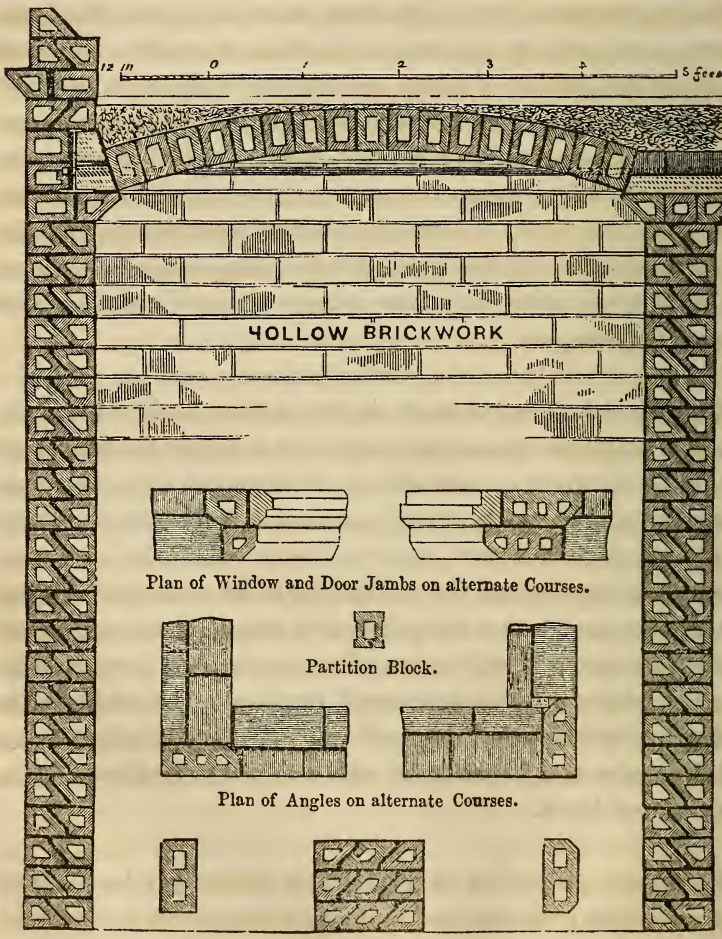
Nine patent hollow bricks of the size before described will do as much walling as sixteen ordinary bricks, whilst the weight of the former but little exceeds that of the latter, an important consideration in reference to carriage, as well as the labour in using.

When passing through the machine, or in the process of drying, any number may be readily splayed at the ends for gables, or marked for closures, and broken off as required in use; or they may be perforated for the purpose of ventilation. If nicked with a sharp-pointed hammer, they will break off at any desired line; and the angles may be taken off with a trowel as readily as those of a common brick.

A sufficient proportion of good facing bricks may be selected from an ordinary burning, and in laying them, a much better bond will be obtained than is usually given in common brickwork.

The bricks for the quoins and jambs may be made either solid or perforated; and with perpendicular holes, either circular, square, or octagonal, those in the quoins may be so arranged as to serve for ventilating shafts. Stone will be found equally applicable for the quoins and jambs, and the appearance of the work be thereby improved.

Illustrative Example of Hollow Brick Construction, as exhibited in one compartment of the Model Structure.



The above section is also illustrative of the construction adopted in H.R.H. Prince Albert's Model Houses. The span of the arches being increased over the Living Rooms to 10 feet 4 inches, with a proportionate addition to their rise. The external springers are of cast iron, with brick cores, connected by wrought iron tie rods.

The French hollow brick, which were made in the Palace by their brick machine, constructed after the plan, somewhat of the tile machines, were different in form from the English. They are about 5 inches by 6, with square holes through the brick. They are much stronger than the English. When put under pressure, it required about one-third more pressure to crush the French brick, than it did the English. The expense of manufacture is about the same. It is said, that in some late excavations in England, hollow brick have been found among the Roman remains in good preservation, and portions of wall joined together not materially different from those of the present day.

From the observation I was enabled to make in relation to this improvement, it seems to me one of great practical importance, and which can be readily introduced into this country, and is certainly of as much importance to us as to any other nation.*

Compressed Tree-nails for Railroads.—In this class, Ransom and May, of Ipswich, England, exhibited patent compressed tree-nails and wedges for railways, for which a Medal was awarded. This is a very valuable improvement, and is being very generally introduced upon the Railroads in Europe, more than 2,000 miles being laid with them, and would doubtless prove equally advantageous in this country. A railway chair, as it is called, in which the rails rest, of cast iron, of from 20 to 40 lbs. weight, is secured

*Note.—Since this report was prepared, I have been informed that arrangements are already making for the introduction of hollow brick in this State. Mr. Joseph E. Holmes, of Fishkill Landing, who was at the World's Fair as the representative of Dicks' Anti Friction Presses, and a most intelligent and observing mechanic, has since his return, in connection with Mr. F. B. Taylor, invented machinery for the manufacture of hollow brick for building purposes. I am rejoiced at this, and cannot doubt Mr. Holmes' success.

by wedges of compressed wood, the chairs being fastened to sleepers of wood by compressed tree-nails. These latter are cylinders of dry oak, compressed by forcing them into iron molds with a conical orifice; whilst in the mold, steam heat is applied, and the whole afterwards allowed to cool; the wood is afterwards forced out, and is then a cylinder of $1\frac{1}{8}$ inch drum for $4\frac{1}{2}$ inches of its length, and conical for $1\frac{1}{2}$ inches more. These tree-nails or pins are used for nailing the chairs to the sleepers; and as they swell with the moisture of the earth, they form a tight but slightly elastic fastening; and railways thus fastened are smoother than those in which metal fastenings are used.

The Great Hydraulic or Brittania Press, part of the great hydraulic apparatus with which the Brittania bridge over the Menai Straits was elevated, was on exhibition—said to be the most powerful ever constructed. The greatest weight lifted by the press at the bridge, was 1,144 tons—the quantity of water used for each six feet lift, $81\frac{1}{2}$ gallons. The Engineer, Mr. Edwin Clark, in his work on the Brittania and Conway Bridges, says, that "the pressure at three tons per circular inch equals 3,819 tons per square inch, which would raise a column of water 5.41 miles in height: this pressure would, therefore, be sufficient to throw a column of water over the highest mountains on the globe."

A Centrifugal Pump, called Appold's, was awarded a Council Medal. It was of great simplicity, and performed its work with a rapidity and power that was astonishing.

The principle is thus illustrated:

"By means of a little wheel 12 inches in diameter, and 3 inches in width, with twisted apertures, radiating from an open central space, there was made to rise to the roof of the department where the pump was in operation, a mass of water, which produced a broad and continuous waterfall, sufficient to turn a powerful water wheel. The wheel was driven by an oscillating engine of the requisite power to produce the rapid revolution in the little wheel which did the work. The wheel itself contained one single gallon

of water, when its apertures were full; yet, by being made to revolve at the rate of 607 revolutions in a minute, it lifted no less than 1,800 gallons in the course of that time, so that it must have been filled and emptied about three times in the course of every revolution. In fact, the disc once under water, when it worked, may be said to carry the water through its apertures, in continued streams or threads, or more properly, *cables* of water, forced out at several spaces by the centrifugal power of its rapid rotation. The main use of this invention was for the purpose of draining fen or marshy land, for which it must prove of great value. J. Stuart Gwynne, of New-York, exhibited his Centrifugal pump, which he claimed was equal, if not superior to Appold's. His pump was received with great favor by practical men, and Mr. Gwynne has commenced their manufacture in England, and with every prospect of success. Its great simplicity as well as its power, certainly gave evidence of its acknowledged worth. In cases of fire, a pump on Mr. Gwynne's plan, with a discharge pipe of 9 inches in diameter, will throw 4,000 gallons per minute, and with a piston of 48 inches diameter, (the pump making 400 revolutions per minute,) the water could be raised from mines to a height of 120 feet. In mining districts, when water is required to be elevated to large heights, this pump promises many advantages over any we have seen.

Carriages.—In connection with this class a sub-jury had charge of the carriages. There was a very extensive exhibition of these from various countries, illustrating the styles which pertain to each. There were several on exhibition from the United States, which were much lighter in their construction than those from other countries, especially those from England. A Prize Medal was awarded for a slide top buggy, and for a sporting wagon. Taking the whole exhibition in this sub-division together, it did not appear to be the most attractive, nor showing the progress which really has been made.

Sleighs were exhibited from Russia, Canada, United States, &c., in considerable variety, and attracted much notice from visitors,

but do not appear to have received awards from the Jurors. A very neat and highly finished pony sleigh, was sent from this city by James Goold & Co., which was much admired.

Class 6. *Manufacturing Machines and Tools.*—This department was the most interesting and important of any portion of the machinery in the Palace, and a very large number of Council Medals were awarded—the number being twenty-two, one of which to the United States for *Dick's Anti-friction Presses*, manufactured under the direction of Joseph E. Holmes, of Fishkill Landing, Dutchess County.

The anti-friction presses are modifications of a highly ingenious arrangement of cams and levers, by which any degree of purchase may be obtained, with comparatively, the absence of friction. The principal peculiarity is the employment of pairs of eccentrics or cams, which, on being made to perform a part of a revolution, increase the distance between the centers, and exert an effort in doing so, dependent on the degree of difference between the curve of the cam and a true circle, or in other words, on the rate of increase of the radius. An advantage belonging to this description of machine is, that by modifying the curvature of the cams, the leverage can be regulated to suit the work to which the instrument is applied. Thus in compressing cotton, hay, tobacco, or any other kind of goods, an increasing leverage is requisite, so that the power increases with the resistance. This, the hydraulic press cannot do, and this machine has great advantages in this respect. It is much cheaper, lighter, and less liable to get out of order than the hydraulic press, and works with the minimum of friction, and therefore with the greatest amount of available power.

The presses of various sizes and for different purposes exhibited, excited no little interest among scientific and practical machinists, and the universal tribute to its importance, was given by the unanimous award of the Council Medal by a Jury composed of the most distinguished men from various countries. The right to use it, a patent having been obtained in England—was disposed

of in London, for a very large sum of money. This improvement reflects great credit on our country—and whatever differences existed as to other articles, as to the anti-friction presses, there was but one opinion, among men competent to judge, of their great superiority.

The following flattering testimonial to the value and superiority of one of Mr. Dicks' Presses, over any in use in England for blind stamping book cases, was given during the exhibition by one of the leading houses in the trade in London:

SHOE LANE, LONDON, *August* 18, 1851.

"Dear Sir—We have now had sufficient experience in the working of your press at the Exhibition, to be able to form an estimate of its merits for blind stamping book covers, and we have no hesitation in saying, that it is vastly superior to any machine for that purpose now in use in London. We consider that it supplies a want which we have felt for some time, no improvement having been made in the machinery in use in London, for the last *twenty years*, which is now quite inadequate to the wants of the trade.

We have been working a large die in the Exhibition, with your machine, and have taken impressions at the rate of 20 per minute, or 1,200 per hour. Our own press will enable us to take only five impressions per minute, or 300 per hour; and to obtain this we require three powerful men, two to work, and the other as a relay to relieve the other two, every half hour or so. Your press being worked by steam power, we cannot draw a comparison between them as to the labor required, but our opinion is, that if your press was worked by hand, a man and boy would do more work than three men could do at our own press.

We remain, sir, yours truthfully,

LEIGHTON & HODGES."

J. E. HOLMES, ESQ.

The Jacquard loom, invented by Barlow of London, for the expeditious weaving of figured goods, received a Council Medal.

The work of this truly wonderful loom seemed to be the perfection of inventive power—and is only excelled, probably, by the Brussels carpet loom of our own countryman, Bigelow.

Hibbert, Platt & Sons, in the English department, exhibited a complete series of machines employed in the cleaning, preparation and spinning of cotton, showing the whole process to the weaving inclusive. A Council Medal was awarded.

The cotton machinery in operation was a very interesting feature in the Exhibition; and everything that relates to the advance made in this branch of industry cannot be otherwise than interesting to our country. It is the great and important manufacturing interest, which in connection with the other branches of manufactures, has given to England much of her importance and wealth. It is important to the United States, not only as regards our own manufactures, but also the supply which we are able to furnish to England in the shape of raw material. In 1849–50, the exports were $71,948,616—of which England received $46,876,098—and for the year 1851 the exports have been about $112,000,000—and probably a proportionate amount to England. A brief account, therefore, of the progress of this branch of industry, as illustrated in the exhibition, it is conceived, will not be devoid of interest.

The description of this machinery, as given by an English writer, is interesting from its history, presenting a most strange series of struggles, vicissitudes and successful results. In tracing its history, however, it is unpleasant to find those who gave birth to the first ideas of improvement, those who have real claims to originality of invention, deserted and ruined in consequence—whilst others, taking up the same ideas, with means at command, carry them to perfection and secure fortunes. But this has been ever thus, in every period of the history of the inventive portion of the world. As late as 1760, the machines used for the manufacture of cotton in England, were as simple as those used in India, of which specimens were seen in the exhibition. In 1738, the fly shuttle was contrived, which simply consisted in the weaver

sending the shuttle backward and forward through the warp by means of strings in each hand. This was a great improvement, because, one man could weave cloth of such width, that previously required two persons. But this was not applied to cotton generally until 1760, having been first used in the woolen manufactures. Spinning by machinery, is said to have been invented by John Wyatt, for which a patent was taken out in 1738. Yet, Sir R. Arkwright, perfected the machine and took out a patent for his spinning machine in 1769. In 1770, the spinning Jenny was patented by Hargreaves. It is said, he obtained the idea from seeing a one thread machine overturned upon the floor, when both wheel and spindle continued to revolve. This threw the spindle from a horizontal to an upright position. He concluded that a number of threads might be spun at once, by having a number of spindles placed side by side in an upright position. The Jenny was then invented by which the roving, which is a loosely twisted thread, about the thickness of the wick of a candle is drawn out, and spun into fine yarn. In carding, the greatest improvements were perfected by Mr. Knight, in 1775

In 1776 the mule was invented by Samuel Crampton, but was not generally known until about 1785, and it was sometime before it was brought to perfection. The most successful self-acting machine in England was invented by Mr. Roberts of Manchester, in 1825.

An immense impulse was given to the cotton manufacture by the introduction of the steam engine by Bolton and Watt. Their first engine was applied to a cotton mill in 1785.

The cotton machinery in the exhibition shows the progress which has been made; the principle is not materially different, but the cotton undergoes a greater number of operations, so that the fibers may be in a better condition to undergo a more perfect process of spinning, but the machines are substantially the same except having kept pace with the improvement of mechanism, rendering the machines more perfect. From what I have seen of our cot-

ton machinery I am satisfied that it is in every respect equal, if not superior, to that shown in the exhibition.

WOOLEN MACHINERY and Silk Machinery was exhibited in operation, most perfect of its kind, and admirably adapted to the work required.

COINING PRESSES.—A very ingenious coining press, acting by an eccentric, which coined at the rate of from thirty to forty pieces per minute, completing the coin and *milling the edge in letters* at one motion, was exhibited from Cologne, Germany, and received a Council Medal. In the English department one was shown which also received a Council Medal, but that only gave the impression on the face of the coin. It was, however, an improvement upon former presses, and had it not been for the German press would doubtless have been considered the most perfect of its kind.

In this class, prize medals were awarded to the United States exhibitors, Lerow& Blodget, for their Rotary Sewing Machine; C. Starr, New-York, for his Book Binding Machine; to Woodbury, Massachusetts, for his Planing Machine; to Earl & Co., for Card Clothing; Eastman's Stone Cutting Machines; Lowell Machine Shop, for a self acting Lathe and Power Loom; Hayden, for a Draining Regulator for cotton.

LEROW & BLODGETT'S SEWING MACHINE.

Fig. 1.

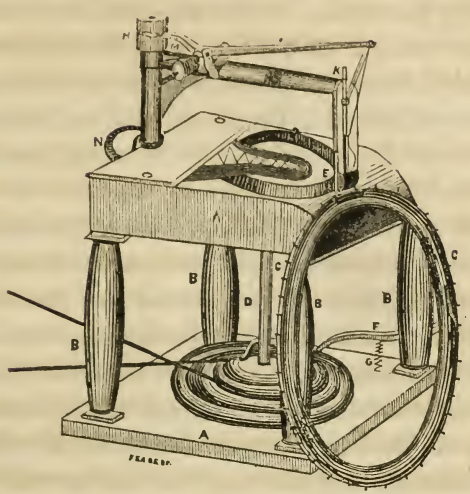
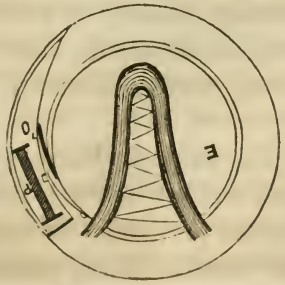


Fig. 1 is a perspective view, and fig. 2 is a plan view of the shuttle race: the same letters refer to like parts.

This machine is represented as driven by a band from a line of shafting. A is the bed-plate of the machine; B B are the posts; C C is a feed ring with fine teeth on it, to feed the cloth, to be sewn into the needle. This ring has not a horizontal motion, like the old machine, but is vertical, and much more convenient. It is moved round by a ratchet, F, which has a spring, G, attached to it. This ratchet catches into teeth on the back part of said ring C, and is operated by the revolving cam pulley driven by the band. This ratchet moves the ring so as to move the cloth forward

Fig.



every stitch length exactly. D is a vertical spindle moved by the band passing round the pulley below. This spindle drives the shuttle and operates the needle. On its top under the crown-plate, there is a pinion gearing into the pinion, N, on the needle spindle, H. M is the spool of thread on the fixed bracket; I is the needle arm, and K is the needle head. The thread will be observed passing down and through the eye of the needle, which is near the point, being thereby different from common needles; the needle is a peculiar and improved one; it has a vertical groove on both sides, running to the point, whereby the thread lies close, and forms a round needle altogether. There is a cam groove on the top of the spindle H. It will therefore be observed that, as the said spindle revolves, the groove will guide the end of the needle arm to give the needle a reciprocating up and down motion. E is the shuttle disc; the shuttle is a crooked instrument, represented by O, fig. 2; it has a spool of thread, P, in it, like a weaver's shuttle; it moves round in the outside circle, but is moved by the inside disc, E, which revolves, and there are two side springs and notches, which enable the said disc to hold on, as it were, and carry round the shuttle. When the needle goes through the cloth it carries its thread double along with it, which is slightly held by the cloth in return, and forms a loop inside, then the shuttle comes under it at that instant, passes through the loop, and thus the two threads are locked; and when the shuttle is on the opposite of the circle of its course, the needle is farthest drawn up, and this action tightens the stitch, which is then drawn tight, nearly like a saddler's. The laced work seen in figures 1 and 2 is a piece of cloth sewn on a projection for slightly resisting the motion of the shuttle thread underneath, to make it draw tight across the circle while the shuttle is passing around. It will be observed that the great space between the needle and the back spindle, allows large folds of cloth to be sewed with great facility.

Applegate's Vertical Printing Machine, which was at work during the exhibition, received a Prize Medal. This machine printed 5,000 impressions per hour. But one by the same gentleman, made for the London Times, prints 10,000 sheets per

hour. From an examination of Hoe's press in this country, it is I think, decidedly superior in work to Applegate's. Claussen's Circular Loom for Hosiery received a medal. By this loom, Hosiery and other stuffs may be woven without a seam. It was operated by very small power, and performed its work with great rapidity. It was a very ingenious invention, and certainly entitled to the award which was given.

Class 7.—*Civil Engineering, Architectural and Building Contrivances.*—This class was not very extensive. His Royal Highness Prince Albert, for his model cottage already noticed; Messrs. Fox and Henderson, and Sir Joseph Paxton for the execution and design of the Palace, were honored with Council Medals. Models of bridges were exhibited, for which medals were awarded; one for the Brittania bridge, and one for the Iron bridge Co., New-York, for a model of Ryder's patent Iron bridge. Models of ships and railways were also noticed.

In Class 8.—*Naval Architecture and Military Engineering, Ordnance, &c.*—A large number of prizes were awarded. The United States had awarded one Prize Medal to the National Institute at Washington, for models of ships of war and large merchant vessels.

A considerable number of Prize Medals were awarded for guns, rifles, &c., but strange to say, Colt's celebrated Revolvers, were only favored with an *Honorable Mention*, as appears from the returns I have. This is the more singular, when it is recollected, that the English press without an exception, so far as I am informed, gave great prominence to this most important and invaluable improvement of Mr. Colt, which has found great favor in England, and his rifles and pistols have been largely ordered for the use of the British army. There was an attempt made during the exhibition, to show, that Colt was not the inventor of the revolvers, one having been found in Paris, I believe of very ancient date. That may be so, for aught I know, but it is not the less true, that so far as giving efficiency and practicability to the invention,

the world is indebted to him, and he is as truly and justly entitled to the credit of the invention, as if it had never before entered into the mind of another. Honorable Mention was also given to W. R. Palmer, for a Target Rifle, and to Robbins & Lawrence for Military Rifles.

There was awarded a Prize Medal, for specimens showing the advantages of *Marine glue*, as a substitute for pitch, and for other purposes connected with ship building, the invention of an English exhibitor. This appeared a very valuable invention. There was exhibited the piece of a mast of a vessel, which had been joined by this glue, which was inseparable by the wedge, driven with all the power that could be applied. Another piece tested by the Hydraulic press, 22 tons power required to move one splinter, but the joints remained perfect, giving an additional strength, dispersed over the surface of the main-mast of a first rate man of war, of 3,000 tons and upwards. Its use also for securing the joints between the planks forming the floors and decks of ships, is invaluable. The advantages over pitch were fully illustrated, by the exhibition of two seams, one payed with glue, the other with pitch, exposed to the same temperature in a tropical climate. There were a variety of samples in various forms where this had been used, which showed clearly its great value.

Yachts.—In this class were exhibited models of the Yachts belonging to the Royal Thames Yatch Club—and others, by the builders and designers. It would have added greatly to the interest and usefulness of the exhibition in this class, if the model of Steers "America" had been exhibited, especially after the match at Cowes had attracted so much attention, and caused multitudes to visit her for the purpose of ascertaining the peculiarities which had enabled her to vanquish the most celebrated Yachts of the Kingdom.

The designs of Life Boats which had been procured by the Duke of Northumberland, showed some very excellent ones—and in the severe gales which have prevailed on the English coast during the

winter, the prize boats, it is said, have fully sustained the propriety of their selections.

Class 9. *Agricultural Implements and Tools.*—There was probably no department in the Exhibition which illustrated, in a more striking manner, its true object "that of showing the point of developments which the nations of the world have reached, in the great task of subduing nature to their use," than that devoted to the display of Agricultural Implements. The bringing together of the Agricultural Implements and products of all countries cannot be otherwise than productive of mutual benefit to all, enabling a comparison to be made of those adapted to each particular location, and thus the careful examiner was placed in a position to ascertain and learn, during the exhibition, that which would require years of travel to obtain as satisfactorily. In the English department, there was a most perfect exhibition of implements of husbandry. "But in passing from this area, filled with the results of human ingenuity and the skill of the mechanician and engineer, to the compartments of India and other less favored countries, contrasting their rude implements of husbandry, with theirs—and perhaps in no department of the exhibition will a more striking lesson be conveyed, or the progress of the human race more completely demonstrated."

"In the Indian compartment are to be seen models of the old plow, fashioned in the same rude manner as it was centuries since, with the driver standing upon the frame work; the oxen are yoked in the same ancient style as when Elisha was seen "plowing with twelve yoke of oxen," or as when, in the time of Samuel, "an half acre" was considered as much as a pair of oxen could plow in a day.

We there see the model of a squalid and wretched looking sower scattering and wasting the seed; and the hoofs of oxen tread out the grain after the same fashion as existed centuries ago—while in England and the United States, the steam engines, improved drills, horse hoes, and thrashing machines perform the

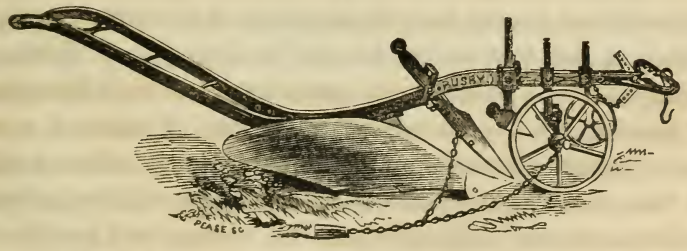
work which is badly and tardily accomplished by the Indian peasant. The exhibition shows that, in matters of husbandry, the vast majority of the natives of the Indian empire are stationary, while Great Britain and the United States of America, on the other hand, indicate the most striking improvement in this respect. "The same remark applies, but in a more qualified manner, to most of the continental states of Europe; they have advanced beyond the rude and earlier stages, but it is not too much to say, judging from their display at the exhibition, that they are still much in arrear. There is probably no implement which has received a greater amount of attention on the part of the implement makers, than the plow. During the last twenty or thirty years, the improvements which have taken place, have been of the most extensive and practical character; a circumstance which is no doubt mainly attributable to the impulse which has been given by the practical tests to which they have been frequently submitted, before practical judges at Agricultural exhibitions, for the purpose of ascertaining which peculiar construction of plow did its work in the best manner, and at the least expenditure of labor and money. To the solution of these questions the most eminent agricultural engineers have devoted their time and attention, and, as the display of this kind of instrument proves, with very great success.

The English Plows which received the prizes from the Jurors were made principally of wrought iron, and did excellent work. They were most of them, however, complicated and very expensive, and one of the greatest merits claimed for some of them on exhibition was, that they were *now* so constructed that a plowman "could remove or replace the irons, subject to wear and breakage in the field, *without the assistance* of a mechanic." Nothing can, more forcibly than this, show the main objections to the English Implements. They were most admirably got up, highly finished, well calculated to do their work, but were in most cases too complicated to be managed by an ordinary laborer; and connected with this was, the price of most of them, far beyond the means of ordinary farmers. The outlay for a complete sett of

English implements for a farm, of from three to five hundred acres, would amount to a very large sum; much more than was desirable in any case; and most of which might be obviated by more simply arranged implements, equally effective.

In regard to the merits of the English implements which were tried in the month of April, previous to my arrival and before the exhibition opened, I of course have no means of judging from the trial itself; but the sub-Jurors who made the trial, were gentlemen familiar with the English implements and the wants of the English farmer, and selected from those on trial such as they deemed best adapted for general use in that country, and from such opportunities as I had to ascertain their merits, I have no doubt they judged wisely.

I give the cut of Busby's plow, which was decided by the English Jurors as being the best of their plows, and was included, with other implements exhibited by him, in the Council Medal award. To no other plow from England was this distinction given. This plow is a very good representation of the plows shown and for which prizes were awarded. The price of this plow is £4,10.0—about $21.60.



The following remarks from an English Journal, in review of the plows on exhibition, are far more just than the notices usually taken of the foreign contributions, and I give it entire, as in the main, the subject is treated with great fairness, and with a commendable regard to the merits of American implements.

"In the Zollverein, Dr. C. Sprenger and M. H. Hartman exhibited ten interesting models of German Agriculture, several of

which are novel in their character. Among them are, the model of a plow with sixteen shares; a sub-soil plow, adapted for plowing from 18 to 22 inches; a Pomeranian fan plow, and a Belgian plow. A model of an apparently good implement is shown by the Agricultural Society of Darmstadt. The Belgian plows displayed, appear somewhat heavy, they are strongly and stoutly made, but show a want of finish.

"Several plows are shown in the Austrian department, from the manufactory of Agricultural implements of Prince F. Von Lobkowitz, which are stated to be the inventions of the Chevalier Von Infield, the manager of the works; many parts of the implements appear open to grave objections, while in several instances undoubted improvements might be pointed out. In the absence of any data, however, we are unable to form any opinion upon their merits; as a whole, they do not tend to convey a very good opinion of the state of Agricultural mechanism in Austria. (On a subsequent trial of these plows, they were found to be very defective in their work.)

"On the foreign side, the department which makes the best show of plows, is that occupied by the United States; and the implements exhibited possess many strong points of contrast, even with all others in fact, that are put forward for competition. Without entering into the question of the comparative merit of European and American plows, the satisfactory solution of which is to be found in actual use only, we will briefly describe those which have been furnished by Boston and New-York exhibitors, these two sections having made up mainly the Agricultural portion of the United States division of the exhibition.

"These plows are made from patterns of peculiar construction, and are of great variety in size, form, fixture, and adaptation to different conditions of soil and modes of culture. The wood part of these implements is in most cases made by machinery, and can be readily taken apart for repairs, or put up for conveyance to distant parts. The timber is, in nearly all cases, a second growth

white oak, of peculiar toughness. The iron used, is composed of an admixture of several kinds, producing a metal of greater strength and durability than the ordinary iron, and which will endure the chilling process, applied to the point of the share and the base of the landside, with safety. The mold board, land-side and point of some of these plows are ground and polished, and coated with blue varnish, making them resemble blue steel, to prevent rusting. They are also better fitted for adhesive soils by this process, the dirt being prevented from sticking upon them, and impeding their progress.

"Among the plows exhibited, are the root-breaker, sward, stubble, center-draught, corn, double mould board, ditching, side-hill, &c., &c. They are of various sizes, and are calculated for all kinds of soils. Some are intended to have the common, some the Scotch clevis; some have the draught-rod, and others the crane clevis attached, so that the team can walk on the sward instead of a wet furrow, or so that the plow can run close by the side of a fence or ditch. The advantages claimed for many of these plows are, that they are smoother and better made, and more durable and cheaper than the common plow in use; that they work much more effectually, cutting a deeper, wider, more even and truer furrow: and that they will do their work with less expenditure of team power. They will also pulverize the earth as they lift and turn it over, thus effecting that minute and general separation of the particles of the soil, which is so essential in preparing it for the ready admission of the rootlets of the plants, and enabling them to draw their food from every portion of it.

One principle alluded to above, in these plows, is too important to be passed lightly over. From the complicated structure of the plow, and the manner in which the draught must be applied to it, many misconceptions have arisen as to the true operation, and proper application of this draught. Too little is understood of the principle involved in this, to enable the plowman to attach his team and arrange his clevis so that the instrument shall do its work, with the least force and power. The draught is not the end in view, but

merely the means by which the end is accomplished—the former being made to subserve the latter; so that if it be not rightly applied, good work can not easily be done. If, for example, the plow inclines out of the ground too much, or takes too wide or too narrow a furrow slice—both evils usually arising from a wrong application of the draught—the plowman must exert a force to direct it properly, in addition to that which is required to overcome the inequalities of the soil; while, on the contrary, if the draught be rightly applied, the plow will move so accurately as not only to perform good work, with more ease to both plowman and team, but in soil free from obstruction, even without being guided. This application of the draught to the plow, is claimed to be superior in the American plows to that in any others. This claim of superiority can be easily tested by the application of the dynamometer—an instrument made for measuring the amount of power employed; and we understand that the exhibitors are willing for a trial of competition whenever this shall be allowed, as one of the elements of excellence. In a recent and carefully conducted trial in the United States, upon the merits of plows, it was found that a difference of power even among the best and most modern inventions existed to the extent of more than one-sixth—that is, as 412 lbs. to 596 lbs.*

"The American Side-Hill, or "Starbuck" plows we understand, are being used here with much acceptance. They are so constructed that the mold-board can be instantly changed from one side to the other, which enables the plowman to perform the work horizontally upon side-hills, going back and forth on the same side, and turning all the furrow slices, with great accuracy downwards. They are employed also for level plowing, as the work leaves the field without any center-dead or finishing furrow, and without the banks or ridges from turning two furrows towards each other. They also save labor by allowing the team to turn short about at the end of the furrow instead of obliging it to travel across the wide ends of each land in the field. For plowing down the banks of ditches they are the only plow that will turn the fur-

* Note.—In the trial had in this State in June, 1850, on stiff clay soil, the furrow 7 inches deep by 10 inches wide—the difference was from 380 lbs. to 550 lbs.

rows from the ditch, thus carrying the earth upon the level ground.

"Althougn the number of each kind of agricultural implements exhibited from the United States is small, the variety is very considerable. The remaining specimens include harrows, rakes, hoes, potatoe hooks, (a good invention to save the potatoe from injury in uncovering the soil,) scythes, forks, shovels, spades, fanning mills, (one especially of a new and valuable kind,) grain reapers, mowing machines, seed-sowers, axes, &c. Of the latter article, as we should expect from a country where a skill is obtained in the felling of trees by the backwoodsman which is unknown elsewhere, there is an excellent contribution, formed and finished with a degree of perfection which leaves the Americans nothing to learn in this portion of their business and little to fear from competition."

By an arrangement of the Royal Commissioners with the Royal Agricultural Society of England the trial of agricultural implements was put in charge of a Jury, appointed or nominated by them, and the trial took place in the month of April, *before* the exhibition was opened and before many of the implements had reached London. Why this was so arranged I did not learn.

The gentleman who at that time had charge of the United States department very properly declined having our implements tried, as there were no persons present representing them or who were familiar with their use. The trial at this time, only included the English implements and a few from Belgium.

Trial of Plows at Hounslow.—Some time after the exhibition was opened, and after the awards on the English implements had been made by the Jury, application was made by Jurors of three foreign powers: Barron Mertens de Ostin of Belgium, Prof. Moll of France, and B. P. Johnson, United States, for a trial of the foreign plows with the English prize plows, the draught to be tested by the Dynamometer. This application was successful, so far as a trial was concerned. The plows of each nation were judged separately,

and an opportunity was thus afforded those present to compare the work of the several plows, and form their own opinions in relation to their merits. The trial of the plows from France, United States, Belgium, Canada, Germany, Bohemia and Austria, together with the English plows, was had at Hounslow, a few miles from London, on the 19th of July. There were twenty-one plows tried from foreign countries and five English plows, one more than those to which the prize had been awarded, belonging to Ransoms & May, of Ipswich, which, not being entered in time for the first trial, was then excluded.

As the chairman of the Jury, Hon. Mr. Pusey, was not present at the trial at Hounslow, and has not alluded to it particularly, in his report, it may not be deemed inappropriate to give a somewhat full account of the trial.

From my notes, taken at the time of the trial, I give the order in which the plows were tried and the impression made as to the work of each, and the awards of the Jurors.

No. 1—French plow, with large wheels nearly as large as the fore-wheels of a wagon, with a single short handle. This plow worked badly, was very difficult to manage, and although the patentee of the plow was present, he found it extremely difficult to keep it in the ground. It operated without a person to hold, being governed by the wheels. It was adjudged as of little value.

No. 2—Starbuck's plow No. 6. Troy, N. Y. This plow cut the requisite depth with a good sole to the furrow; but the furrow slice was wider than that required; in every other respect, the work was well done.

No. 3—Prouty & Mears, No. 40, Boston Center Draught. This plow worked well in every respect, and turned a good furrow slice, though the English Jurors thought it did not lay the slice flat enough; but in the kind of soil in which the trial was made, the breaking of the furrow slice and thus pulverizing the soil, was a decided advantage.

No. 4—Talbot's French Plow, with wheels. This operated better than No. 1, and did good work; it was rather too complicated, though an arrangement by which the fore carriage was raised or lowered without stopping the plow, was convenient. No. 5—Another French plow, very indifferent and was rejected.

No. 6—Rogers' Cast-steel American Plow. This worked indifferently and could not be brought within the requirements.

No. 7.—Starbuck's Troy No. 4 with coulter on share. This plow was without a wheel; it performed its work well, was of very light draught. The bottom of the furrow not quite as even as No. 2.

No. 8.—A Belgian plow, which was very rudely made and worked very indifferently, was rejected.

No. 9—A. B. Allen & Co. of New-York, plow No. 20. This plow worked well, cut a good furrow, though wider than the requirement.

No. 10.—Belgian Plow. This was a short plow, that did good work and was of very light draught.

No. 11.—Canada Cast Iron Plow. This was an Iron Beam Plow, very short—its work did not answer the requirements. No. 12, Flecks Wilkie Scotch Plow, from Montreal. This plow did good *Scotch* work—but as the sole of the furrow was uneven, the Jurors did not approve of the manner in which its work was performed.

No. 13.—Another Belgian Plow, very defective in its work. No. 14.—A Belgian Turn-Wrest Plow, governed by a spring on the top of the beam, so that it could be very easily turned by the holder, while the team was coming about. The mold-board was convex. It did very good work, and its draught was light.

No. 15.—French Plow very indifferent, and work badly done.

No. 16.—A Belgian Plow, tried in April, and on this trial performed very well—the draught light. No. 17.—Belgian—similar somewhat to No. 14, but not as good.

No. 18.—Plow from Netherlands—very plain in its appearance, but operated remarkably well. Its furrow was quite equal to any tried. Its draught light, and the plow very easy to hold.

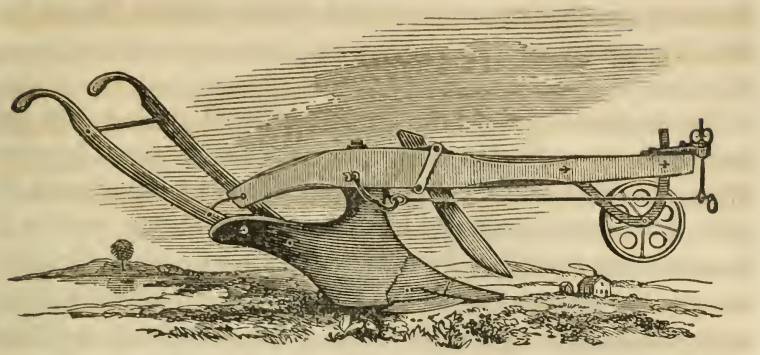
No. 19.—Bohemian Plow.—This plow had a square sheet iron mold board—could only be worked in very light sandy soils—and entirely failed in the trial.

No. 20 and 21.—Austrian Plows—very defective, and their work bad—rejected.

The English plows tried, were Busby's two or four horse; Howard's XX; Ball's; Hensman & Sons' four horse; and Ransoms' Plow. These all laid their furrow slice with great neatness, almost entirely unbroken, the teams guided by two men, generally at the very slowest pace.

The Jurors present at the trial, consisted of Captain Shelly, Mr. Miles, and Mr. Hammond, English Jurors; Baron Mertens d'Ostins, Belgium; Professor T. Moll, France; B. P. Johnson, United States. The Jurors awarded a Prize Medal to Prouty & Mears, U. S. Center Draught Plow; No. 4, Talbot Brothers, French No. 18, Jenkin, Netherlands; No. 10, Delstanche, Belgian plow. The awards were made, without reference to the comparative merits of the plows of the different nations, which were tried.

Prouty & Mears' Plow, No. 40. Price $12.50.



Previous to the trial of our implements, a very erroneous idea generally prevailed among those who visited the Exhibition, as to what they could perform. They were so different from the English plows, so light in their structure, and so much shorter, the impression was very general, that they would not succeed. The following description of our plows, as compared with the English implements was given during the Exhibition, in the leading Agricultural Monthly Magazine published in England.

After describing the defects of the implements exhibited from the Continent, the writer remarks, "This is also particulary noticeable in the American plows, which with the *exception* of the varnish and high finish, reminded us of the prints in agricultural works intended to represent plows that were used *several hundred years ago.* They also show us that the Americans must have a very friable soil to cultivate, or that their tillage operations are executed in a very imperfect manner."

It was under all these disadvantages that the trial was had; but the result proved, that what had been affirmed by us of our plows, was practically demonstrated to be true. There were present at the trial, a large number of practical farmers and land proprietors who felt a deep interest in the result; for if the American plows succeeded—their cheapness, as well as lightness and diminished draught—were objects of no small moment to the English farmer, struggling with exorbitant rents, taxes, and poor rates, as well as

with the foreign competition induced by Free Trade, which called for every possible improvement that would cheapen the production of grain crops.

The trial ground was a moderately stiff soil, with a light sod, and the depth and width of furrow was fixed at 6 and 9 inches. When the first American plow was brought on to the ground for trial, the interest manifested was very great. A large number of farm laborers as well as farmers were gathered around the plow, and the expressions I heard from many were—"that plow won't go in;" "that plow will break;" and other remarks of a similar character. I had an American with me to hold the plow—but the gentleman upon whose land the trial was made, advised that his plowman who was well versed in his work, should hold the first one—and I consented. The plow was set to the required depth and width, as near as it could be done, and the team started. The plowman, unused to the plow, pressing his whole weight upon the handles, *to keep it in*, was desired to let the plow take its own course, merely steadying it, and it went through its work with great ease, both to the plowman and team. As we returned to the starting point, it was settled that our plow *would do its work*.

We tried several American plows: Starbuck's, of Troy; Prouty & Mears', of Boston; Allens', of New-York, and one from Philadelphia. The work was well done, the sole of the furrow was as well finished as by any plow upon the ground and the only objection made by the Jurors, to the work of our plows was, that the furrow slice was broken too much. It was evident to those familiar with plowing such soil, that this was an advantage in favor of our plows, as a stiff soil needed to be broken to prepare it for the seed, and if not done by the plow, it would require much more labor with the harrow or cultivator to prepare it; and this was sustained by the judgment of practical farmers on the gound, whose attention was particularly called to the work done by our plows and who admitted that it could be prepared for the seed at much less expense and labor, than when the furrow slice was laid over smoothly and unbroken.

An extensive English farmer, Mr. Peter Love, of Northamptonshire, who has had in use upon his farm American plows, for several years, published an article soon after the trial of plows at Hounslow, upon the proper manner of plowing, in which he strikingly exhibits the difference between the English and American plows, and the superiority of the manner in which our plows do their work, breaking in pieces the furrow slices, as he suggests it should be done.

Mr. Love remarks—"If it be the fact that the primary object of cultivation for the production of the various agricultural crops is a well pulverized soil and porous subsoil, then the farmer ought to draw out the ingenuity of our agricultural mechanics, by giving prizes for those plows that will invert and break in pieces the soil without smearing the under strata, and most effectually pulverize the greatest quantity of land a given depth with the least amount of power, instead, as the present practice is by all our agricultural societies, awarding prizes to those plows that cut out a furrow with all three of its cut sides well smoothed and smeared up, and turned over in as unbroken a state as possible, so that it will shine from one end to the other like a well moulded piece of concrete, and the bottom of the furrow well polished over by the friction of the broad-soled land-side and wrest, thus rendering the under strata almost impervious either to air or water; indeed, it is no uncommon thing to see land that has been well drained, as well as that which is naturally dry, dressed up in a suit of corduroy, so as to leave the furrows frequent enough to allow the rain that falls to fertilize the earth, an opportunity of washing away all the virtues of the manure that has been applied, to the nearest river.

"If we could have a plow so made that it would, in the act of inverting the furrow slice, break it into pieces, and pass over the bottom of the furrow without the friction of any smooth surface of iron or other material being drawn over, closing up all the pores and fissures in the under strata, I think there is little doubt that such a plow's cultivation would approach, when performed at equal depths, fork cultivation.

"Let all farmers of those countries who go to the Great Exhibition unprejudicially, look carefully into the merits and demerits of the various plows used in these and other nations, and inquire why there are such differences in the conformation of the different parts, of, not only the plows used in the different districts of these countries, but in those of other nations, where there are, I may say daily, some of our practical farmers settling; and yet they adopt the use of the plows of that country, and we know by experience that in the majority of instances of farmers leaving one county for another, in these countries, they take their plows with them, and, in not a few cases, they are found superior to those in general use in that locality. It would appear that these foreign plows are so constructed that they can plow up the prejudices of our brother farmers, (who have been obliged to depart with the wreck of their fortunes to the Far West, after experiencing some severe lessons in the school of economy,) or else we would have many instances of some of them sending here for plows and using them after they are taken there; but "it is a well known fact that those who take plows with them in but few cases use them at all; and if used, it is but for a very short time, as the comparative merits of the state of the land at sowing-day satisfies the prejudices against those plows used in the new country. And after a few weeks' growth of the crop, the most prejudiced are convinced by the superior appearance in the more full development of crop, especially in a dry season." This I received in answer to a letter written to a brother who is in the Far West and who was a prize plowman before he went there and who was one of the great promoters of the fine, clean, well-smoothed-up furrow slice system."

These very judicious remarks of Mr. Love show the difference between our system of plowing and the English, and the advantages which would result from the use of our plows; and which was evident at the trial, so far as the pulverization of the soil and a porous subsoil was concerned.

But a most satisfactory evidence of the adaptation of our plows to the work required there, resulted from a trial of one of Star-

buck's Troy plows, with a single horse, in the same field, with the same width and depth of furrow, as was required on the trial. An English farmer made the trial himself. The plow was drawn by one of the large English farm horses, with entire ease, and when he had plowed so as to satisfy all present, that one horse would do the work, even in soil of the kind we were engaged in at the trial, it was remarked by many of the persons present, that "that is the plow the English farmer wants." This plow was sold on the ground, and ten more were ordered in the very same neighborhood, and a very large number have since been sent to England as well as the Continent, "as the American plows found great favor among the English farmers, on account of their extraordinary cheapness and lightness of draught."

Owing to the weather, which was very soft, the rain falling most of the time, the plows were not tested by the Dynamometer until a subsequent day, and the following is the statement of the trial, reported by Baron Mertens, on behalf of the Sub-jury, consisting of Baron Mertens, Col. Challoner and B. P. Johnson:

Plows.	Name.	Points of resistance.	Remarks.
1. Belgian,.....	Odeurs, ...	527	Land very hard going up hill, coming down in Balls furrow.
2. American, .	Hall & Spears,	530	Land hard.
3. English,....	Busby, ...	540	Land worked well.
4. French,.....	Bodin, ...	546½	
5. Holland,...	Jenken, ...	550½	
6. Belgian, ...	Delstanche, ..	568	No plowman to use this well.
7. English,....	Howard,.....	569	Hard land.
8. American, .	Prouty&Mears	579	"
9. French,....	Talbot, ...	580	"
10. English,....	Ball,.....	646	Very hard ground; very good furrow.
11. do	Ransoms&May	659	Very hard piece of land.

The ground on which the trial was had was very hard and stubborn, and the average power of draught was high.

It may not be uninteresting to give the opinions of the English farmers as to our plows *after* they had been tried, and in use in England, which appeared, since the exhibition, in the proceedings of a farmers' club, in the very *same* journal which had said "that they reminded them of the prints of plows that were used several hundred years ago." The subject for discussion before the Torrington Farmers' Club was "Agricultural Implements and Horses." In the course of the discussion the heavy implements, carts, &c., in use in England, were the subjects of remark, and one gentleman, Mr. Lear, said, as in contrast to their heavy implements: "I will just draw your attention to the American plows, which perhaps most of you have seen at the exhibition. That they have been pretty well ridiculed, I know; but that does not detract at all from their value; and I am inclined to think that they are well adapted for the work they are intended for. The turn-furrow is exceedingly well shaped, and in fact it is a business looking thing altogether." Another gentleman, Mr. Battock, says: "Mr. Lear had spoken of the American plow seen at the exhibition, but if they had any inclination to inspect one of those plows they might see one at Maj. Sandham's brick yard, and also some work it had performed. He (Mr. B.) was perfectly satisfied of its usefulness on light soils for preparing the Barley and Turnip season. It required but one horse to draw it! (Hear, hear. That's the sort we want.) He was aware this could not be done on heavy stubborn land, (with one horse,) but for the purpose he had mentioned it appeared to him an excellent article."

Reaping Machines.—The favorable results of the trial of the plows, called more especially the attention of the public who visited the exhibition, to the value of the American Implements. On the return of the plows to the Palace, the one upon which the award was placed, as well as the others, excited much interest, and the reaping machines, which were soon to be tried, excited far more attention than before. The impression now seemed to prevail that these American Implements *may*, after all, do what has been promised.

Trial of the Reapers at Tip-tree Hall.—Succeeding the trial of the plows came that of the Reapers, on the 24th of July. There were three machines on exhibition. McCormick's Virginia Reaper, Hussey's American Reaper, and an English Reaper, made after Hussey's, but which, I believe, had not been tried. The place selected for trial was at Tip-tree Hall, Kelvedon, Essex, the farm of Mr. J. J. Mechi, about forty-five miles from town. The day selected was the annual gathering of gentlemen at the farm of Mr. Mechi to inspect his crops and method of farming, which is exciting much interest in England. The day proved a very unfavorable one, as it rained during the whole day. The wheat upon which the trial was to be made was quite green and remarkably heavy, and everything as unfavorable as could well be. There were from 150 to 200 gentlemen present, many of whom had come upwards of 300 miles to witness the trial.

The Sub-jury assigned to conduct the trial was composed of Colonel Challoner, one of the English Jurors, Baron Merten d'-Ostins, of Belgium, and B. P. Johnson, United States, and W. Fisher Hobbs, Esq., though not a member of the Jury, was present by invitation, at the trial, The first machine tried was Hussey's, which did not succeed, as it clogged very soon, and passed over the grain without cutting it. After this had been tried two or three times and failed, it was proposed by one of the Jurors that no further trial be made by the Reapers—but it was insisted that the other American Reaper should be tried. The gentlemen present expected it, and I was not willing they should leave the ground without satisfying those present that the American Reapers would perform the work which it had been affirmed they could do. Mr. McCormick's Reaper was then brought up, managed by D. C. McKenzie, of Livingston county, in this State, who is entitled to no little credit for the successful result of the trial. This was a moment, as may well be imagined, of no ordinary interest. One reaper had not operated as was expected—another, and the only remaining American reaper to be tried, was now to be tested. The gentlemen present were anxious that something should succeed that would cheapen the gathering of their crops—but from expres-

sions made around me, I was satisfied they had no confidence in the reaper. They said, after the first trial, "It is as we expected—they will not work until *perfected* by an English mechanic." The laboring men, too, when the first one was started, seemed perfectly astonished, fearing their vocation was gone—but when it failed to work, they brightened up and would doubtless have given vent to their feelings, if another one had not been found ready for the trial, and might succeed. It can well be imagined that the Americans, of whom only three were present, beside myself, were in quite as great a state of excitement as the others. The machine was started. After it had passed its length, the *clean path* made by the reaper—the grain falling from its side, showed that the work was done, and the reaper was successful. After proceeding as far as was deemed necessary, the team was stopped, and Mr. Mechi jumped upon the platform and said, "Gentlemen, here is a triumph for the American Reaping Machine. It has, under all its disadvantages, done its work completely. Now let us, as Englishmen, show them that we appreciate this contribution for cheapening our agriculture, and let us give the Americans three hearty English cheers." They were given, and with a fourth added, satisfying all that they were heartily given. Another trial was then had, and the reaper timed—cutting, in 70 seconds, 74 yards in length, entirely clean, and to the satisfaction of the Jurors and the gentlemen present. The Jurors recommended the award of a Medal to Mr. McCormick.

The result of this trial gave a new turn to affairs, and on the return of the Reapers to the Palace, crowds were continually examining them, and the American department from this time to the closing of the exhibition, was no longer the "Prairie ground," but was thronged with inquiring visitors. The London Times, whose Agricultural reporter was present, gave a very full account of this successful trial; and in an article published soon after the trial, it was said, "That every practical success of the season belonged to the Americans, their consignments showed poorly at first, *but came out well upon trial.*" And again, "it will be remembered that the American department was the poorest and least interesting of all foreign countries. Of late, it has justly

assumed a position of the first importance, as having brought to the aid of our *distressed agriculturists*, a machine, which if it realizes the anticipations of competent judges, will *amply remunerate* England for all her outlay connected with the Great exhibition. The reaping machine from the United States is the *most valuable contribution* from abroad, to the stock of our previous knowledge, that we have yet discovered."

Previous to the trial of the reaper, the same observations as to the value of the reaper if successful, were made to me by several distinguished agriculturists of Great Britain. An attempt has been made since the close of the Exhibition, to show that the reaping machine is an English invention, and that those from this country are mere imitations of theirs. It requires no great sagacity however to perceive, that so far as grain reapers were a *practical reality*, they were unknown in Great Britain, until the successful trial of those from this country. For surely the London Times, ever posted up on every thing that pertains to the advance of England, would not have hazarded the assertion, "that the American Reaper will amply remunerate England for all her outlay connected with the exhibition;" if, England had anything like a *living, working reaper*, known among her distressed agriculturists. The truth is, that until the American reapers were exhibited with their improvements, reaping by machinery was not even spoken of among the agriculturists of Great Britain, so far as I had an opportunity of ascertaining. The unbelief in the success of the reapers must satisfy every one, that there was no expectation in England of a reaper to do their work unless ours succeeded. If England had a practical working reaper in use, one would have supposed that it would have been on exhibition at the Palace, and that Garret, one of the most celebrated implement makers in England, would have exhibited an English grain reaper, instead of one copied from Hussey's American reaper, and which he is now manufacturing and vending as the American Reaper.

The late Chancellor of the Exchequer, Earl Granville, one of the Royal Commissioners, who devoted himself constantly to his

duties as Commissioner, and to whom the exhibition is greatly indebted for its success; in speaking of the success of the Americans at the exhibition, alludes to "two other American gentlemen, who, are at present *teaching us how to cut corn*, an act which we have been practicing for some hundreds of years in this Island, *but of which it appears, we are ignorant of the first principles.*"

Subsequent to the trial at Mr. Mechi's, another trial was had before the Chairman of the Jury, Hon. Mr. Pusey, Mr. Miles, M. P. and Baron Hlubeck, of Austria; I give the report of Mr. Pusey, the Chairman, in which it will be noticed, that he speaks of an English machine, as too intricate, and that it had fallen into disuse 50 years since.

Mr. Pusey's Report.—"At the opening of this century it was thought that a successful reaping machine had been invented, and a reward was voted by Parliament, to its author. The machine was employed here and abroad, *but from its intricacy fell into disuse.* Another has lately been devised in one of our colonies, which cuts off the heads of the corn, but leaves the straw standing, a fatal defect in an old settled country, where the growth of corn is forced by the application of dung. Our farmers may well, therefore, have been astonished by an American implement which not only reaped their wheat, but performed the work with the neatness and certainty of an old and perfect machine. Its novelty of action reminded one seeing the first engine run on the Liverpool and Manchester Railway in 1830. Its perfection depended on its being new only in England, but in America the result of repeated disappointment, untired perseverance. The United States Patent Commissioner says of Mr. McCormick's reaping machine:—

"In agriculture it is, in my view, as important, as a labor saving device, as the Spinning Jenny and Power Loom in Manufactures. It is one of those great and valuable inventions which commence a new era in the progress of improvement, and whose beneficial influence is felt in all coming time."

"Besides difficulties common to all inventions, the machine could be tested but for two or three weeks in each year when a defect was discovered, before the remedy was applied to the instrument the harvest was over, and the new form had to wait a whole year for its trial, when some fresh failure required a fresh year's postponement of final success.

"As to the practical working of the reaper, two horses drew it at the trial very easily round the outside of the crop until they finished in the center, showing that they could easily cut 15 acres in 10 hours. One man drives sitting and another stands on the machine to rake. It is hard work for him, and the men ought sometimes to change places. The straw left behind at the trial was cut very regularly; lower than by reaping, but higher than by fagging. The inventor stated that he had a machine which would cut it two inches lower. This is the point, I should say, to attend to, especially for autumn cleaning. Though it seems superfluous to bring this machine to the test of economy, we may estimate the present cost of cutting 15 acres of wheat, at an average of 9s. per acre, to be £6,15s. Deduct for horses and men 10s. 3d, and for binding 2s.6d per acre, the account will stand thus:

Average cost of reaping 15 acres, 9s.....		£6,15.0
Horses and men for Reaper,.....	£0,10.0	
Binding, 15 acres, 2s.6d,.....	1,17.6	2,7.6
Saving per acre 5s.10d,.....		£4,7.6

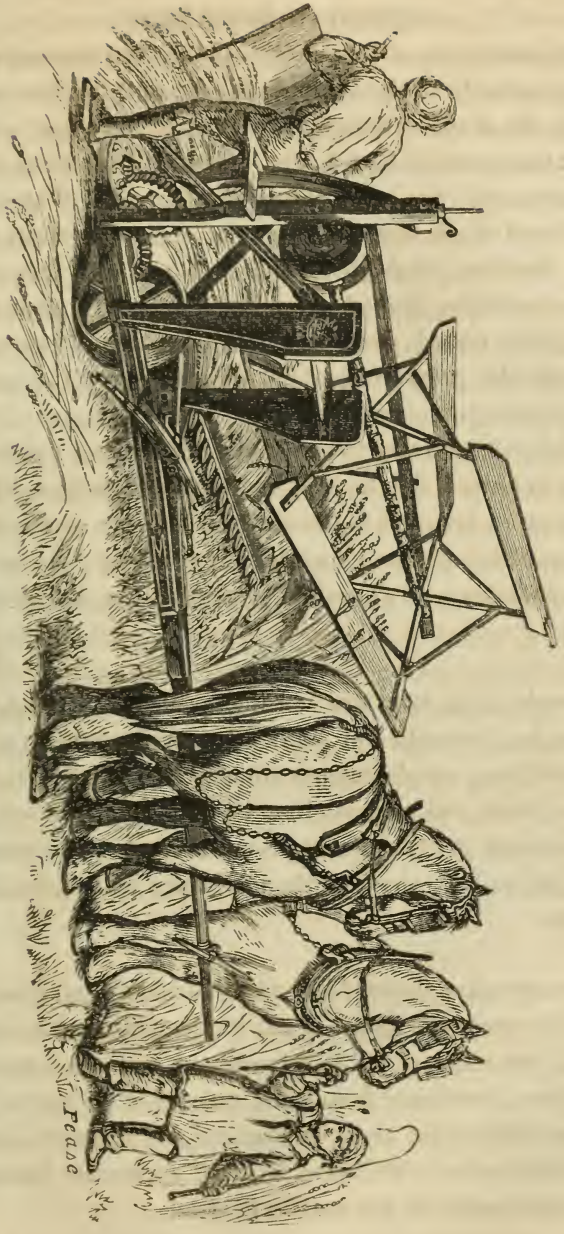
"The saving in wages, however, would of course be an imperfect test of the reaper's merits, since in bad seasons and late districts it may often enable the farmer to save the crop.

"Since this statement was written, fresh trials have been made of Mr. McCormick's reaper, as also of one of Mr. Hussey; and as the award under the Commission has been called in question, it is right that some statement should be made on the subject. In the first trial, at Tiptree Hall, Mr. McCormick's reaper worked well;

the other did not act at all. As the corn, however, was then green, it was thought right to make further trial, and special leave was obtained from the Council of Chairmen to give two Council Medals, one to each reaper, if on further trial their respective performances should be found to deserve one. The object in our second trial was not to decide which was the best implement, but whether either, or both, were sufficiently good to receive the Council Medal. Mr. McCormick's in this trial worked, as it has since worked at Cirencester College and elsewhere, to the admiration of practical farmers, and therefore received a Council Medal. Mr. Hussey's sometimes became clogged, as in the former trial at Tiptree, and therefore could not possibly obtain that distinction.

"Further trials, however, have since been made by other persons elsewhere, in which Mr. Hussey's machine worked well; and one of our colleagues, Mr. Thompson, informs me that it had been used for a week by a practical farmer, on his own farm, who was perfectly satisfied. Its inventor states that at the trials for the commission the failure arose from a mal-adjustment; and Mr. Thompson informs me that at one of the subsequent trials a similar mal-adjustment impeded its action, until Mr. Hussey arrived to set it right. I am bound, then, to express my own individual opinion that the merits of the machine are such as to entitle it to a Council Medal, and my regret that it should formally be disqualified to receive one.

"We have, then, two good American reaping machines. Their respective merits time will discover; but there is one caution which applies to the introduction of both into England. They both cut by a sidelong vibration, the frequency of which must be determined by the number of straws to be cut in passing over a given space. Now, as the acreable yield of England, is nearly double that of America, our straw, it is probable, stands much thicker than in the crops these reapers have been accustomed to deal with, so that both implements, when applied to heavy crops must be adapted to the superior farming they will have to encounter. At present we only know that McCormick's machine is best for Barley



McCormick's Reaper.

and Oats, when not intended to be bound up in sheaf; Hussey's for corn laid by the weather or standing upon steep ridges."

GENERAL REMARKS.

I have dwelt more at length on this class, on account of its importance, not only in the exhibition itself, but, for the reason that it was, so far as the exhibition from this country was concerned, the most important in its results. Until the trial of the American implements, and the most triumphant success of McCormick's Reaper, the United States department was comparatively overlooked. But our triumph here, gave a new direction to public attention, and that part of our exhibition which previously had been slightly passed over, now attracted the notice of every visitor, and the press of England was prompt in admitting the complete and triumphant success of the Americans. It was no longer deemed necessary to say of our implements, "they may do for a new country," for the trial had satisfied the most prejudiced, that they were designed to advance the interests of the best cultivated countries of the old world, and "taught them how to cut corn by machinery, of whose first principles it appeared they were ignorant."

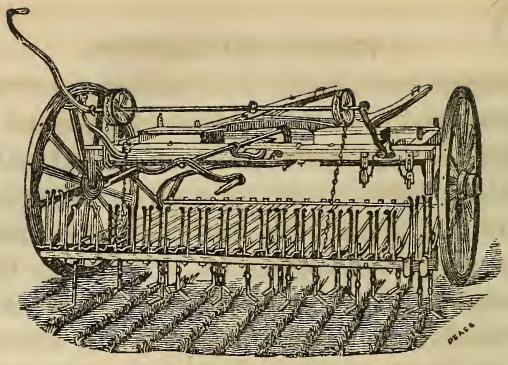
The result of this trial was not unexpected to those Americans who were familiar with our implements, and to them was peculiarly gratifying, as placing our country in the position to which it was entitled and commanding that attention for our exhibition, which was justly due to it, from the character of many of our articles, particularly those in the machinery and agricultural departments.

In my account of the exhibition in this class, I have endeavored fairly to represent the merits of our implements, and am gratified, that their merits were publicly admitted and acknowledged by distinguished gentlemen from every quarter of the world, and the extensive demand for them in England and upon the Continent, shows, that practical, intelligent farmers, appreciate the contributions we have made to the world's progress.

ENGLISH IMPLEMENTS.

In the English Department, there were many very valuable machines and implements that would prove highly useful in this country. Their Scarifiers, Grubbers, Cultivators, and Clod Crushers, of various forms and sizes, which are greatly advantageous in bringing the land into proper tilth, and materially diminishing the expense, are very useful implements. The Horse Hoe, which is used for drilled crops, in removing the weeds and stirring up the land, is in use in many parts of England—and although at first sight it might appear doubtful whether it would answer in the young and tender crops—yet on trial, it has proved one of the most useful implements of the present day. It is adapted to all the prevailing modes of culture, either for cleaning crops drilled on a level surface, or on ridges—the axeltree of the wheels being movable at both ends, to suit the varied intervals between the rows of plants, and as each cutting hoe works on a separate and independent lever, the weeds are effectually destroyed, however uneven the surface, the hoes being kept at a uniform depth, by the means of regulating keys. The hoes penetrate to such a depth as to give fresh life and vigor to growing plants, by stirring the earth around them. It can be used for any kind of drilled crops. From ten to fifteen acres may be hoed in a day with a man, boy, and horse. Its steerage arrangement is such, as to be entirely under the control of the holder, and the hoes may be guided with the greatest precision, perfectly hoeing the intervals without injuring the plants.

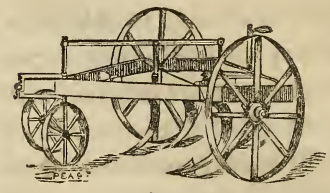
As the practice of drilling the crops is increasing in this State, it cannot be long before our farmers will appreciate the importance of extirpating the weeds—for few of our farmers, I imagine, will, for any length of time, feel that they can *afford to grow weeds.* I give a cut of this implement which will convey some idea of its construction.



Garrett's Patent Horse Hoe.

Of the Scarifiers, that called Earl Ducies Prize Drag Harrow, or Uley Scarifier and Cultivator, of which a cut is given, appears to be a very effective and highly useful implement. It has an iron frame fitted with five tines, each covering a space of eight inches, and so placed as to be two feet from each other: this, with their curved shape and length, prevents the drag clogging in the foulest weather. The points or grubbers are for breaking the land, and the broad shares for scarifying or working stubble land, with an extra set of steel shares for paring. The machine is quickly raised and lowered, by turning a handle, the axle of which has a worm fixed upon it, worked into the cranked axle of the back wheels. By simply turning the handle to the right, the drag is lifted up, and to the left let down. A dial plate indicates the number of inches in or out of the ground.

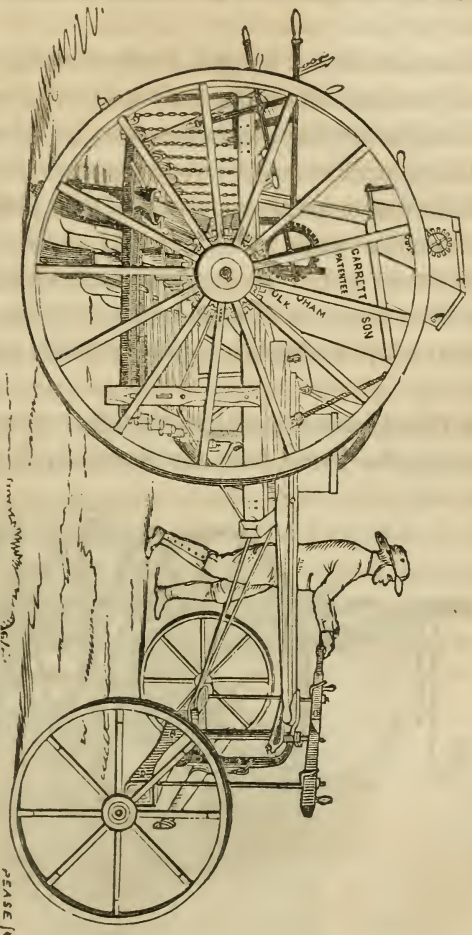
This implement is in very extensive use, and for working over stubble land, whether light or heavy land, and however full of grass or weeds, will thoroughly pulverize and clean it, and will, it is said, leave the land in a far better condition for a crop than bythe ordinary method of plowing and harrowing, and with a very considerable saving of expense, performing the work of a drag and scarifier most successfully. It can be adopted here, I think, with advantage, and may be constructed at a price, probably, that will secure its introduction into practical use.



Uley Scarifier.

There were various drill machines, very perfect in their construction and arrangement, yet too complicated and expensive for introduction into this country. They do not possess any material advantages over our own drills, which are afforded at one-third the price of the best English drill.

A drill called the "Suffolk Drill" which has been awarded many prizes in England, was fitted with a steerage arrangement that renders its work very perfect. A swing steerage in front guided by hand, enables the man to keep the rows perfectly parallel with the preceding course of the drill. This is done by the man's holding the steerage handle as it is shown in the annexed cut, and keeping the small fore wheel in the track of the former large one. This insures perfect regularity, and prepares the whole field, so that the horse hoe can be used to great advantage and without injury to the grain. This arrangement could very easily be adapted to any of the other drills, and would greatly add to their usefulness.

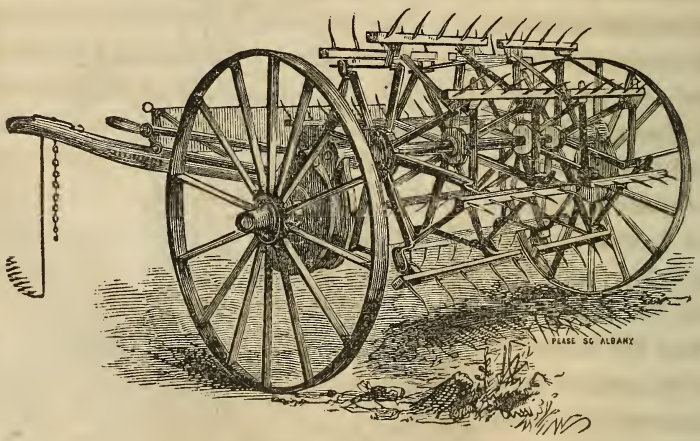


Suffolk Drill.

A Prize Medal was awarded for a BELGIAN DRILL, which was a very simple one in its arrangement, the seed delivered by flat iron paddles and not by cups. The coulters are fixed to the beam, and do not work on levers, but a small coulter to cover in the seeds does. It is so arranged that the quantity of seed delivered can be varied without stopping the machine. As it costs only $12, it had certainly advantages over many drills exhibited.

RANSOMS & MAY of Ipswich, England, exhibited a cheap drop drill, for depositing seed similar to a hand drill, at equal distances, which it accomplishes with great exactness. A Prize Medal was awarded, and it appeared to me for certain purposes superior to any exhibited. The feeding cups are so arranged that their action ceases when the machine stops. The quantity of the seed deposited may be varied from 3½ to 5 pecks per acre by a change of the cups. The depositors have a motion independent of the coulters, which enables them to adapt themselves to any inequality in the surface of the soil.

A HAY MAKING machine, though somewhat complicated, has received the Prize from the Royal Agricultural Society, and is



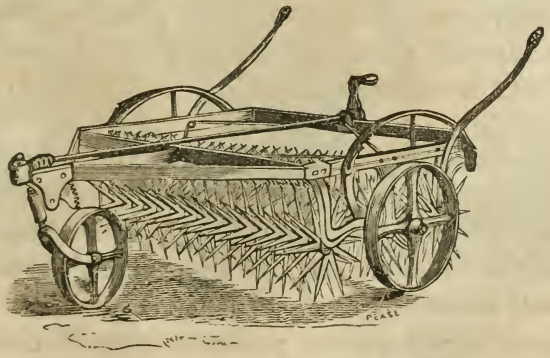
HAY MAKING MACHINE.

undoubtedly a very valuable improvement for England, and may be made useful in this country; one man can work it, and raise or lower it to its work instantly, and throw it in or out of

gear or reverse its action. It is claimed for it to do the work of twenty men, and from seeing it in use, I doubt not, it is a great labor-saving machine, and a very efficient helper in the field.

Of *manure* distributors for liquid or solid manures, there was a very great variety, some of them very effective. One exhibited by Croskill, holding about eight bushels of manure, has a motive power which passes the manure to a revolving notched roller, which regulates its equal delivery in a dry or moist state without clogging, and is so arranged as to increase or decrease the quantity sown to any number of bushels per acre; price about $50.

The Norwegian Harrow is used immediately after plowing. It breaks and pulverizes the furrow, leaving three or four inches depth of fine mold, admirably prepared for seed. It saves the use of the ordinary sized harrow, a very light implement only being used after sowing. It thoroughly pulverizes without consolidating the soil, and it prepares the roughest land, whether moist or dry, without clogging. This implement was originally introduced from Norway, has been much improved and is very valuable and effective one, and although too expensive, (costs $65.00,) for general use in this country, it seems very desirable for our stiff soils, and I have no doubt, it could be very much lessened in price here. Having seen it in use, and obtained the testimony of many practical farmers who have it on their farms, I cannot doubt its great utility.



Croskill's Improved Norwegian Harrow.

A very valuable implement in use in England is CROSKILL'S ROLLER and Clod Crusher. It consists of cast metal discs or roller parts, placed loosely upon a round axle so as to revolve independently of each other. The outer surface of each roller part is serrated and has a series of sideway projecting teeth, which act perpendicularly in breaking clods. The size, 6 feet wide by 2½ feet in diameter, consists of 23 roller parts. Each alternate ring is made larger in the eye, and in revolving causes an up and down motion along the entire surface of the roller, thereby increasing its power and effecting the best means of self cleansing. It is used only when the land is dry. When taken to the field, dig a hole under each travelling wheel, until the roller part rests upon the ground, then take off the road wheels.

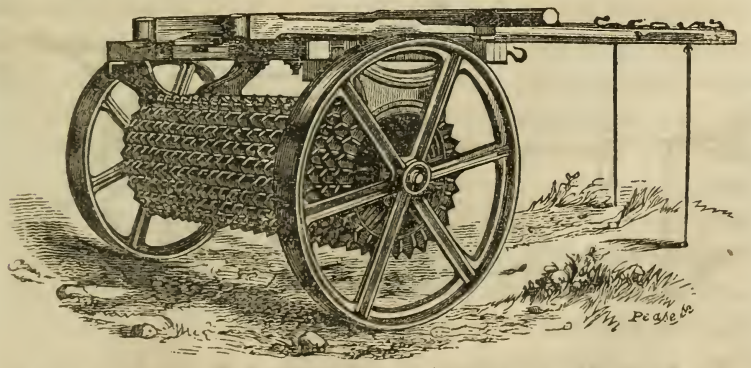
By the use of this roller crops of Wheat, Turnips, Beets, &c., are annually grown in England upon land which without its use cannot be cultivated; and a very beneficial effect is produced upon the grain plant by its seasonable application, and it causes a more healthy plant and a larger yield per acre. It ensures the destruction of the wire-worm and the grub, which are so detrimental, often destroying the entire grain crop. Its use on many varieties of grass land is most beneficial. It works admirably. The number in use in Great Britain, in 1850, was about 2,500.

I had an opportunity of witnessing this roller in use on several farms, and became satisfied of its great utility, and its introduction to this country, would prove of immense advantage to our farmers. The following testimonial from a practical Scotch farmer shows in what estimation it is held:

"The deep indented points of this ponderous machine penetrate and crush the hardest clods; reduce big masses of clay baked soil into a fine mold, and rapidly converts many acres of land into the finest condition for the reception of grain or the smallest seeds. It is not only valuable as a pulverizer, but is unequalled as a *compressing roller* for rolling young grain crops when the plant is from three to eight inches out of the ground. The practice of driving

sheep over the fields to give solidity to the soil, is entirely obviated by the use of the machine, as it is more equal, effective and rapid in its operations, like the action of a gardener who presses the soil with his fingers around the roots of the plant—while the action of smooth rollers is like placing the foot only upon the plant. It might be supposed that this implement is limited in its use only to stiff soils. This, however, is not the case, for, on light lands, where, from want of clay and finely divided matter to give body and firmness, the soil is too loose to carry wheat, and on soils too puffy to carry clover, the Clod Crusher used as a compressing roller, has produced the most valuable results, giving firmness and tenacity to the soil, aiding the plant to strike its roots firmly, and to produce a firmer, stronger and more healthy and fruitful plant."

Another most important attending benefit on the use of the implement is, that the ravages of the wire worm and grub are most effectually arrested. By the indented points of this heavy machine, the slug is crushed to death, while the burrows made by the wire worm from root to root are destroyed, the free working of this voracious enemy prevented, and the means of its support intercepted; the natural consequence is proved to be a decrease of the wire worm by starvation. I have dwelt more at length on this implement than I should have done, had I not deemed it a most valuable one to be brought into practical use.

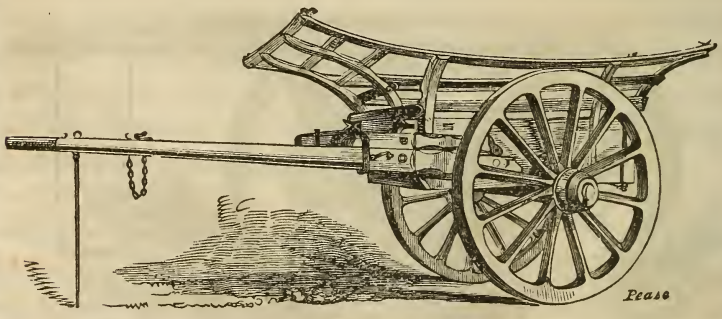


Croskill's Prize Roller.

Price from $70 to $85. For the Norwegian Harrow and Prize Roller, a Council Medal was awarded Mr. Croskill.

The Carts in use upon the farms in England where the improved ones, have been introduced, appeared to me very useful for farm purposes, and certainly worthy the attention of our farmers. Carts are constructed for a single horse, to carry 30 cwt. They are very convenient and prove, in every respect, very serviceable. Having been one of the Sub-jurors to whom was referred the carts, wagons, &c., on exhibition in the Agricultural Department, I was greatly gratified with the improvements which have been made in them. There were, on exhibition, several of the ancient ones which still are common in every part of England, of very great weight, with hubs as large as those of ox carts with us, and in every respect, very cumbersome. The improved ones, of lighter make, and of less price, were, however, most prominent, and to those only were the prizes awarded. I give the cut of Mr. Busby's Cart, which was conceded, by the Judges, as upon the whole, more correct in the principle of construction than any other on exhibition. This gives a very good idea of the cart arranged for field services—the arms and the wings are removed, when it is desired, for the ordinary purposes of the farm.

Having witnessed the operations of these carts, in various kinds of farm work, I am strongly inclined to the opinion that their introduction into more general use in our country, would be highly advantageous, both in point of economy and convenience.



Busby's Cart.

An American, for many years a resident in England, Mr. H. Pinkus, had on exhibition many of his inventions, among others, what was called his new system of Agricultural Tillage, by sta-

tionary steam and atmospheric motive power, giving motion to plow shares and other implements by ropes from the engines intermitingly stationary in the fields. This showed great ingenuity, though, as yet, it has not been reduced to practical use.

Fowler's Improved Draining Plow

There was exhibited also, another steam arrangement for plowing, in the English department, called Lord Willoughby DeEresby's steam plow, but as yet it has not been brought into practical operation, so as to determine its value.

Fowler's Improved Draining Plow was shown, and one was also exhibited in operation a few miles from the exhibition. It is stated to execute any drainage above four feet deep, at less than half the cost of the present system, and without disturbing the surface soil. In commencing the work, the plow is taken to one end of the field, and to the other the capstan, off the drum of which is run a wire rope attached to the plow. The plug and coulter are then dropped into a hole prepared for them, and the drain pipes are threaded upon a rope attached to the back of the plug; when the horses attached to the levers of the capstan, by walking around, wind the wire rope on the drum and pull the pipe forward with the drain pipes, which are thus laid, when the soil is suitable, free from stone, more

accurately than by hand. It has been in operation for a few years, and the improvements which have been made, as exhibited in the one on trial seemed to promise its practical adaptation for that country. It is thus referred to in the report in this class: "But for the American reapers, Mr. Fowler's draining plow would have formed the most remarkable feature in the Agricultural department of the Exhibition. Wonderful as it is, to see the standing wheat shorn levelly low by a pair of horses walking along its edge, it is hardly, if at all, less wonderful, nor did it excite less interest or surprise, among the crowd of spectators, when the trial was made at this place, to see two horses at work by the side of a field, on a capstan, which, by an invisible wire rope, draws towards itself a low frame-work, leaving but the trace of a narrow slit on the surface. If you pass, however, to the other side of the field, which the frame-work has quitted, you perceive that it has been dragging after it a string of pipes, which, still following the plow's snout, that burrows all the while four feet below ground, twists itself like a gigantic red worm into the earth, so that in a few minutes, when the frame-work has reached the capstan, the string is withdrawn from the necklace, and you are assured that a drain has thus been invisibly formed under your feet." The Jury decided as follows:

The implement went through the trial very well, laying in the tiles with great apparent ease, worked by two horses, with a capstan which was firmly and easily fixed into the ground, and afforded a firm traction to the plow by means of a wire rope and pulley. Progress has been made, since the implement was exhibited at Exeter, in rendering the level of the drains in a degree independent of the level of the surface, "but there is still room for further improvement in giving to the drain an uniform incline." The award, therefore, of the Jury was Honorable Mention.

Churns formed a very numerous class in the exhibition; of the four prizes awarded, one was for Anthony's American Churn, called the "Improved American Churn," well known in this country, exhibited by an English firm who have the patent for

England. All the prize churns churned the butter in *less* than ten minutes. There was nothing peculiar about these churns that gave them pre-eminence except the rapidity with which the butter was made. My own opinion on that subject is, that butter thus rapidly produced is not equal in its quality to that produced in the ordinary manner, for keeping purposes, and such, I believe, is the united testimony of a very large proportion of the best dairymen in this State. In the American department there was shown from New Hampshire "Davis Self Adjusting Churn," of the same principle substantially as the "Improved American Churn" to which a prize was awarded. This churn was received late at the exhibition and was not tested at the trial.

The American Scythes, Axes, Hay and Manure Forks, &c., were very much approved, and so far as I have heard from those familiar with these implements they were considered decidedly superior. The assortment of the Messrs. Allen's of New-York, was much the most extensive of any in the American department.

In the Tunisian department was exhibited a Thrashing Machine, composed of a frame of circular iron plates fixed to wooden cylinders of smaller dimensions, which run over the grain. It is probably similar to the corn thrasher mentioned in the Bible, and was certainly an object of no little interest, showing the contrast most strikingly between the earliest times and our own. The exhibition in its implements and models of implements show, how our ancestors lived. Referring to the articles from different nations on exhibition, we have but to make "distance in leagues take the place of distance in years," and we have in the rude implements from India and Tunis the evidence of what was the character of the implements of tillage in England in its earliest history.

Turnip Cutter.—The one exhibited by Burgess and Key of London, called the double acting Turnip Cutter, received a Prize Medal. It was novel in its movements, the cutter being fixed and the motion of the boxes being horizontal. It was simple, cheap and durable, and cut three different sizes at the same time

if desired, delivering each size at a different place. It did its work remarkably easy and quick, and was superior, I think, to any exhibited. One of the machines was purchased by an American gentleman at my suggestion, and I hope we may have it introduced into this State, as it will prove, I doubt not, a real improvement.

Steam Engines.—Of these there was a great variety, remarkably well got up, both stationary and movable. They are in use in many parts of England. I saw them at work on several of the large farms and they were very much approved. For this country, however, I did not see any that I consider as useful as those manufactured in our own State by Hoard & Bradford, of Watertown, which for simplicity, lightness and cheapness, as well as efficiency, possess decided advantage over any I saw.

Of the Thrashing Machines, there was a great variety exhibited; none, however, except one in the United States division, from Messrs. Allen New-York, operated by a single horse. Those in the English department that were operated by horses required from four to eight. The steam power is fast superseding the use of horses for this purpose.

Of Smut or grain cleaning machines there were quite a number exhibited, but none which, so far as a judgment could be formed from a careful inspection and without a trial, which should have been had, was superior to those shown in the United States department by Leonard Smith of Troy, N. Y.

A number of Fanning and winnowing Mills, of various patterns, were shown. Grant's, from this State, which has stood pre-eminent for its superiority, was exhibited, and was bought by a gentleman from Scotland, after a very careful examination—he being satisfied that it was the best machine he had ever seen.

Dynamometers, for testing the draught of plows, and other implements, were shown. One from France, a self-registering

one, promised to furnish what was desired, correct indications—but unfortunately the days on which the implements were tested, were so moist that it could not be used. One, by Bentall, patented in England, was used on the trial—and did tolerably well—but I do not consider it an improvement upon those in which the strain is indicated by the compression of a spiral spring which we have in use here.

The trial of the implements having been made mainly previous to the opening of the exhibition, may account, in part, for the want of notice being taken of many very useful articles in the United States Department—though the assurance was given after the trial had been made of the plows and reapers, that the principal collections in the United States Department, should receive an Honorable Mention. Why this was not done, does not appear in the report made.

Ide's Wheel Cultivator, exhibited by Levi Wells, Rochester, is a very useful implement here—but no opportunity was given to test its capabilities at the exhibition.

Charles Ross of Rochester, had on exhibition two of Fitzgerald's Portable Grist Mills, with his improvements—but they were not in operation. The Jury examined them, and their cheapness were recommendations which attracted the notice of farmers. There were a number of mills on exhibition, and the Prize Medal was awarded to one exhibited in the English Department, which was composed of metal—and which had, I think, an apparatus for supplying air to the grinding surface of the mill stones, which is considered important and useful.

Eddy & Co., Washington County, N. Y., had a model of Taplin's Horse Power, on exhibition, which, in this country, is much approved.

Class 10.—*Philosophical Instruments* and processes depending on their use.

The exhibition in this class was very extensive and of great variety, and comprised many articles of ingenuity, &c. Of the 30 Council Medals, only one was awarded to the United States, and that to W. Bond & Son, of Boston, for the invention of a new mode of observing astronomical phenomena, &c. The great Equatorial Telescope, of Ross, which was said to be the most powerful instrument ever made, received a Council Medal. "The diameter of the object glass is 11½ inches—and a magnifying power of six hundred times in diameter, may be used without prejudicially darkening the field of vision." There were many other Telescopes of great merit, exhibited—several from France, of peculiar excellence. The French exhibition, in this class, was very numerous and of acknowledged merit, and received a large number of prizes. A Council Medal was awarded to Count Durrin of London, for the extraordinary application of mechanism to his steel expanding figure of a man. This piece of mechanism was designed to illustrate the different proportions of the human figure; it admits of being expanded from the size of the Appollo Belvidere to that of a Colossal Statue. Its immediate object is to facilitate the exact fitting of garments, more especially in cases where great numbers are required, as in the equipment of an army.

Personal attendance is not required, as there is adapted to the figure a new system of measurement, which enables any person to take the exact size and form of an individual—and from the measurement so taken the figure can be so adjusted as to represent, correctly, the person to be fitted. An establishment provided with a few of these figures, would be able to fit, perfectly, the clothing of an entire army. This was a most ingenious piece of mechanism, and in addition to its ingenuity, can be made of great practical utility.

J. R. St. John, *of Buffalo, Self-Determining Compass.*—To this was awarded a Prize Medal. This compass is so constructed

that the deflection of the principal needle is always shown, by indicators, upon graduated scales. This result is obtained from two small or sattelite needles suspended upon axes fastened in the disk or compass cord, at equal distances, and right angles to the center of the main needles. The extremities of the graduated arcs or scales, are marked with the letters E. and W., by which the character of the deflection is known, while the quantity is read upon the scales. It shows the presence of any disturbing forces upon the needle, and also the amount of deflection resulting from these causes. It was admitted to be in advance of any instrument in use. Many were decidedly of opinion that this should have received a Council Medal.

The Aquatic Velocimeter, shown by the same gentleman—which gives the true velocity of a vessel through the water, and the aggregate distance traveled at any time, was very ingenious.

Erricson, New-York, exhibited a variety of very ingenious and useful nautical instruments. His Sea Lead, a valuable instrument for taking soundings at sea without rounding the vessel to the wind, and independently of the length of the lead line.

Pyrometer, an instrument intended as a standard measure of temperature from the freezing point of water up to the melting point of iron; the tension of a permanent volume of atmospheric air or azote, measured by the height of a column of mercury under a vacuum, being the indicator.

Rotary Fluid Meter—For measuring fluids by the velocity with which they pass through apertures of definite dimensions.

Reciprocating Fluid Meter—For measuring the quantity of water which passes through pipes during definite periods.

Alarm Barometer.—Whenever the mercury sinks below any given altitude, the falling of the column causes a gong to be struck

and being near the helm of the vessel gives instant warning to the helmsman, and the danger of an approaching storm can be averted.

Distance Instrument—To measure the distance of an enemy's ship, to enable the officer measuring to elevate his gun with precision. Hydrostatic Guage, and Hydraulic Machine for testing the same.

These instruments were all valuable and were examined by nautical men with great interest. They were most creditable to Mr. Erriccson, and elicited from the Jurors the Prize Medal.

Professor Bache, of Washington, received a Prize Medal for his Standard Weights, Measures and Balance. They were admirably prepared, and few articles in the United States Department attracted more attention. Mr. Burt, of Michigan, for a solar compass and instruments, received a Medal. They were of great excellence, and justly entitled to the award given.

Daguerreotypes were extensively shown. Those from the United States were conceded to be superior in general effect, to those from any other country. Brady & Lawrence, of New-York, each received a Prize Medal—and one was awarded to a Mr. Whipple, of Michigan, for a daguerreotype of the moon. There were several other exhibitors whose pictures were very superior. Those of Evans, from Buffalo, were much admired, as were those of Meade & Brothers, New-York. The following article, from an English literary journal, shows in what estimation our exhibition was held. "Daguerreotypes are largely displayed by the French, as might have been expected, that country being proud of the discovery; but the examples exhibited by the Americans surpass, in general, beauty of effect, any which we have examined from other countries. This has been attributed to a difference in the character of the solar light, as modified by atmospheric conditions; we are not, however, disposed to believe that to be the

case. We have certain indications that an increased intensity of light is not of any advantage, but rather the contrary, for the production of daguerreotypes; the luminous rays appearing to act as balancing powers against the chemical rays. Now, this being the case, we know of no physical cause by which the superiority can be explained, and we are quite disposed to be sufficiently honest to admit that the mode of manipulation has more to do with the result than any atmospheric influences. However this may be, the character of the daguerreotypes executed in America is very remarkable. There are a fulness of tone, and an artistic modulation of light and shadow which, in England, we do not obtain. The striking contrasts of white and black are shown decidedly enough in the British examples exhibited in the gallery—but here are coldness and hardness of outline. Within the shadow of the eagle and the striped banner we find no lights too white and no shadows too dark; they dissolve, as in Nature, one into the other, in the most harmonious and truthful manner—and the result is more perfect pictures."

A Calculating Machine, by Staffel, a Polish Jew, in the Russian Department, was a very ingenious contrivance, for which a Medal was awarded. It was about 17 inches by 9, and 4 inches high. The upper row contained 13 figures, and is immovable. The second and third, containing seven figures each—movable. The words Addition, Subtraction, Multiplication, and Division, are engraved on a semi-circular ring to the right; and underneath is a hand, which must be directed to whichever operation is to be performed. The figures being arranged, a handle is turned—the operation instantly performed. If a question be wrongly stated, the error is instantly detected and announced by the ringing of a small bell.

Balances were exhibited, of great perfection—a magnetized one from Falmouth, England, would weigh the ten thousandth part of a grain—and a very superior one from France, which was affected by the slightest breath of air.

Electric Telegraph Instruments, in great variety, were shown, each kind in operation. The American printing Telegraph was exhibited by an English party. Bain's Telegraph was awarded a Council Medal—as was Bakewell's copying Telegraph—and the same was awarded for an instrument from Prussia—and Prize Medals to several other exhibitors.

A Prize Medal was awarded to Mr. Ward, an English exhibitor, for closed cases, by which plants may be grown in any locality, even in crowded cities, or conveyed from one country to another, with complete success. The use of the cases was suggested to the inventor in 1829. Wishing to obtain a perfect specimen of a sphinx (while residing in London) he had buried its chrysalis in some moist mold in a bottle covered with a lid. Two or three days before the insect assumed its perfect form, a seedling fern and a grass made their appearance on the surface of the mold. In this condition all their wants were supplied. They had sufficient light—whilst the lid, at the same time that it excluded the noxious soot, prevented the escape of the moisture. The law which enforces the diffusion of gases secured a constant circulation of the air, and its quiescent state, enabled the plants to bear variations of temperature which, in open exposure would have proved injurious; various experiments carried on with a great variety of plants, established the conclusion that all plants, whose natural conditions can be fulfilled, can be grown in those cases, in any locality, even in the center of the most crowded cities, or conveyed from one country to another, with complete success.

Mr. Fortune, who was sent out to China by the Horticultural Society of London, put 250 plants in these cases, and landed 215 in good condition—while in the old plan of carrying plants, it is stated that only one plant in a thousand survived the voyage from China to England. The same pure and moistened atmosphere which favored the growth of the most delicate plants in the heart of the most crowded city, would be of incalculable advantage in numerous diseases.

Atmospheric Recorder, by Dollond, in the English department. This was a self-registering instrument, which registered on paper the varying processes of the atmosphere, the changes of the temperature of air and evaporation, and those of the electrical states of the atmosphere, the fall of rain, the amount of water evaporated from a surface of water and the force and direction of the wind. It is a very ingenious, as well as useful instrument—particularly in meteorological investigations—noting every change, however minute, and registering those at night as well as those happening during the day. It received a Council Medal.

Cotton's Sovereign Weighing Machine.—A machine which I saw in use at the Bank of England, weighing sovereigns with great rapidity and perfect accuracy, was represented in the Exhibition. It separates with unerring accuracy coins of standard weight, from those that have not that weight. A pile of coins being placed in a tube—the lowest is pushed out by a lever on the end of a beam, which, if the coin is of full weight, is depressed through a small space, but if it be too light, the beam remains stationary. A small piece of steel now advances from one side, on a level with the position that the heavy coin assumes, and immediately afterwards another advances from the opposite side on a level with the position of the light coin. If the coin is full weight the first advancing piece pushes it into a receptacle, and the second has no effect; if, on the contrary, the coin is light, the first passes under it, and the second strikes it into another receptacle. This is operated by steam power, and there are a dozen at the bank frequently all in operation at the same time, and the rapidity and certainty with which they work is truly wonderful. This was introduced late into the exhibition, but I believe received a prize medal from the Jury.

Musical Instruments were also in this class, submitted to a sub-jury. In this division there was a great variety of instruments exhibited. Organs of immense power—one by Willis, of London, which is said to weigh 30 tons, with 5,000 pipes—a great variety of piano fortes, &c. From the United States there were a number of

pianos exhibited, and although in the early part of the Exhibition they were slightly noticed by the press, every one of them received an award of a Medal or Honorable Mention. Chickering, Meyer, Nunns & Clark, received medals. Gilbert & Co., Heers & Pirsson, Honorable Mention; and Wood of Virginia, a money award of £50, for his Piano Violin, which attracted attention from its ingenuity, and was in constant requisition to satisfy the eager curiosity of visitors. Goodyear, of the United States, received Honorable Mention for an India Rubber flute.

Horological, *Clocks and Watches.* The number in this sub-division was immense, and of every conceivable size and variety. France and Switzerland exhibited very largely, and received a large portion of the prizes. Dent, of London, celebrated for his superior work, received a Council Medal for a Turret clock. In the French department, were a very great number of very elegantly finished clocks, of almost every imaginable variety of form. In the Austrian department, was exhibited a clock for which is claimed the realization of perpetual motion—continuing to move until its materials are worn out; the power which winds it up, being the varying pressure of the atmosphere acting on quicksilver, which turns a wheel and accomplishes the work. The American exhibition of clocks was of considerable variety, and unusually cheap—these found more favor with purchasers than they did with the jury. Geneva, so long celebrated for miniature watches, exhibited the smallest watch ever made. It was inserted in the top of a gold pencil case, was $\frac{3}{16}$ of an inch in diameter, which on its dial gave the seconds, minutes, hours and days of the month. A magnifying glass was by the side of it, to enable all to see its perfection of finish, which many, by the naked eye, could not clearly distinguish. In connection with this, was exhibited a piece of tiny mechanism—very ingenious—a small pillar of a few inches in height, the top of which opens at the touch of a spring, and a little bird, most perfect in its construction, in the very motions of life, sings a brief song and then retires. Price $80. There were many curiosities in this division, that attracted much notice, several of them constructed by persons not connected with the trade.

There was one clock which gave the time of the day in every part of the world, which occupied 34 years in the manufacture, requires to be regulated once in 130 years. A clock made by a *tailor*, gave the days and months, the motions of the sun and moon, the state of the tide in various countries, and runs for 12 months; and a musical clock, made by a *blacksmith*, played a tune every three hours.

Surgical Instruments.—In this sub-division, there was an exhibition of the improvement made in this department—no Council Medals awarded, and not a very large number of Prize Medals. *Palmer's artificial leg*, from this country, received a medal, to which it was most justly entitled. Among the great number of preparations there was none that compared with this—and I was informed that the Marquis of Anglesea, who left one of his limbs at the battle of Waterloo—had Mr. Palmer before him, with his leg, and, in the midst of a collection not numerous enough to supply a large army, yet very extensive—this was pronounced superior to all. I did not learn whether one was prepared for the Marquis—but probably he has, ere this, tried its quality. In the French Department, the collection of superior instruments were of great variety and finished most perfectly. The anatomical models from France were very perfect, and are now generally introduced as aids to the study of Anatomy. These comprised not only the human figure but those of domestic animals. Various instruments for aiding the hearing, which may be worn without being noticed, were shown.

In the English department, one exhibitor presented a complete cabinet of surgical instruments, containing all that was necessary for general operations in surgery, with the latest improvements. The collection was very admirably executed, and was, in all respects, most perfect, and was awarded a Prize Medal, to which it was certainly entitled, from its great excellence. Dental instruments were exhibited by several exhibitors from this State, of very high finish and equal to any shown.

Class 11. *Cotton Goods.*—The exhibition in this class, considering the importance of the manufacture, was not large—yet all the various departments of it were sufficiently illustrated. The exhibitors were from England, United States, Switzerland, Portugal, France, Belgium. As illustrative of the manufacture, were shown the preparations from the raw cotton, in all its stages, to the finishing of the cloth, in every variety in use. A Manchester firm had a collection of this description, of 48 preparations, from a sample of New Orleans Cotton, to the most beautiful and exquisitely finished white, printed and figured lace.

Prize Medals were awarded to the United States for an assortment of drillings, tickings, shirtings, sheetings and cotton flannel, exhibited by the Amoskeag Manufacturing Company, Manchester, New Hampshire, and the Willimantic Duck Manufacturing Company, for cotton sail cloth; the same material, I think, of which the sails of the American Yacht were constructed. As there was nothing very special in this class, and as I have given a full account of the progress of the cotton manufacture, under the head of machinery, I shall not dwell upon it. I regretted we had not a much more varied representation in this class—as we might have shown a variety of cheap fabrics that would have given more fully evidence of what we are doing, as well as what we may be enabled to do in this department of Industry. The number of persons employed in the manufacture in England is estimated at upwards of half a million persons—and the total annual value of the material manufactured at 36 millions sterling.

Class 12. *Woolens and Worsteds.*—The exhibition in this class was extensive, and of surpassing richness in many of its branches. Broadcloths, Flannels, Tartans, Worsted, Alpaca, &c., in great variety, and from various countries displayed to great advantage, the skill and perfection of the respective countries. The exhibition from England, Scotland and Ireland, was particularly interesting, as there were shown the extremes, from the finest products, that the skill and inventive talent of the country has produced, to the primitive manufacture of the coarsest woolen

goods made upon the hand-loom in Ireland and the Highlands of Scotland. There were many competitors for supremacy in this class from the Continent, and the beauty and excellence of their goods, secured a very liberal distribution of prizes. The French manufactures were peculiarly fine and highly finished, and Russia, Saxony, Prussia and Belgium, exhibited fabrics of very great excellence. Samples of Flannels from Massachusetts, which were very fine, received a medal, and Honorable Mention was also made of Blankets exhibited. There was but a small exhibition, however, from this country. The number of exhibitors from Great Britain of woolen and worsted fabrics, was about 500. The most extensive collections were from the west of England, so very celebrated for their manufactures, and where great perfection has been attained. An exhibition of goods made from the woolen waste, suggests some reflections. It is asserted, and doubtless truly, that some of the manufacturers, by using this, have sustained themselves, and have reaped a rich remuneration. If this is sold in market with a full knowledge of its composition, there certainly can be no objection to it—but if, as is alleged, it is sent to other countries and disposed of as an article of very different character, it cannot be justified.

Prince Albert exhibited articles manufactured from the wool of Cashmere goats, kept at Windsor Park. The articles were two shawls—two dress pieces, and a specimen of coarse cloth. The dresses and the shawls were very elegant in their appearance. The specimens were arranged in a glass case, in the main avenue of the palace, and attracted much attention. The following account of the preparation of the wool for the purpose of the manufacture, may not be uninteresting. "The cashmere goats wool, consists of two distinct materials, called wool and kemp. The wool is beautifully rich and soft to the touch, and is probably superior in this respect to the finest Continental lamb's wool. The kemp presents the appearance of a coarse rough hair, such as is avoided by the manufacturer in all purchases of wool. The two wools, as shown from the goat, are closely intermingled, and present the appearance of a coarse hairy wool of a low character; but a minute inspection shows that

part of it is of a very fine quality. In order to separate this fine quality from the coarse, it is necessary to do so fiber by fiber; and this has to be done by hand, no machinery having as yet been applied to this purpose. The process is very difficult, one person not being able to separate more than half an ounce in twelve hours.

"When it was known in Yorkshire that the Prince desired an experiment to be made in the manufacture of wool from his goats, hundreds of volunteers offered themselves to separate the fine wool from the coarse hair, and for some months 1000 persons were employed, as their leisure hours enabled them to give attention, without any remuneration required; and an elegantly engraved certificate, with a view of the Crystal Palace, stating that the holder had been employed upon the work, was presented to each." The experiment was an interesting one, though the question of profit in the use of the wool may not have been determined.

Tartans and Alpaca goods were shown in great variety, and of surpassing excellence; and articles of wool and silk and wool and cotton, which are very extensively manufactured at the present time, were represented in several of the departments. A woolen manufacturer from the United States, whom I met at the Palace, a gentleman of great intelligence and well acquainted with the manufactures in our country, informs me, after a careful examination of the contributions in this department, he having been upon the jury for a portion of the time, that in very many of the descriptions of articles exhibited, we might have presented goods, that in every respect would have equalled those on exhibition. He also stated, that it was a most valuable and instructive exhibition, and one that would amply have repaid any person interested in the subject, to have crossed the Atlantic to examine. It appeared to me that many most valuable lessons might have been derived by our manufacturers from a careful study in this department.

Class 13. *Silk and Velvet.*—I have noticed under the 3d class all that I deem important in regard to that portion of the Exhibi-

tion. The articles in this class were of great variety of excellence, and fully illustrated the perfection which has been attained in this department of manufacture, by which the most expensive and rich goods are supplied for the use of those whose means enable them to procure them.

Class 14. *Flax and Hemp.*—The exhibition, in this class, was quite perfect, and showed the various purposes for which Flax and Hemp are used—but, as I have given an extended description of the improvements that are in progress in the preparation of Flax for common use, under Class 3, I do not deem it necessary to dwell upon the subject more at large.

Class 15. *Mixed Fabrics*, including *Shawls.*—There was a fine show of Shawls tastefully arranged, mostly in glass cases, and with due regard to their most advantageous display. Those from Paisley, long celebrated for its manufactures, were of great excellence, and of variety suited to every taste. Some of the Paisley manufacturers displayed Tartans, of every class, and they were objects of universal admiration—and when the excursion trains brought up the Scotsmen, from the North, it was amusing to witness the delight they manifested in the rich display of their favorite *Tartans.*

In the United States Department some very fine shawls from the Lawrence Mills were shown, and attracted the notice of all interrested in this class, and received a Prize Medal. James Roy & Co., of the Watervliet Mills, New York, sent out late, a few of their superior shawls to my care, but they did not reach London until the Jurors had finished their labors. I had, however, the pleasure of showing them to the Chairman of the Jury, and a member from France, who expressed their admiration of these shawls and of their extraordinary excellence, and I was assured that had they been received in time, they would have found a place in their awards with the best Paisleys.

There was shown, from Paisley, a very ingenious machine, whereby patterns in checks, stripes and Tartans, may be combined and displayed by means of sliding mirrors and slips of colored glass. The principle is a modification of the power of the Kaleidoscope. Among the advantages claimed for it, was the extraordinary facility with which the idea of a pattern can be momentarily realized, modified or changed. When the pattern is approved of, it is not necessary to paint it upon paper, as brass scales affixed to the sides of the mirrors indicate, at a glance, the exact number of threads of each color, and how many repeats are necessary for the breadth of the web. The patterns thus originated can be enlarged or diminished at pleasure. Another advantage is the simplicity, ease of adaptation, and the perfect manner in which the effect of finished cloth, the crisp transparent surface of silk, and the soft opaque texture of wool, are severally given. The importance of this apparatus, giving the power of realizing, without expense, any new idea that may occur, in the preparation of patterns, must commend it to those engaged in this branch of manufacture.

There were exhibited, from France, some very choice shawls, of admirable finish and richness, and great beauty of design. A Council Medal was awarded to a French house, for the discovery of a new and important process in the production of elaborate designs. This firm exhibited Cashmere shawls, of great beauty. No other Council Medal was awarded.

Very fine exhibitions were made, in this class, by Austria, Prussia, and Belgium.

Class 16. *Leather, Saddlery, Harness.*—There was a very large collection of articles, and of a varied character in this class. The English exhibitors, as might have been expected, excel all the others in extent and variety of articles; in fact, some of the exhibitors from London, seemed to have brought their whole establishments.

There was a great variety of leather exhibited, in all conditions and states of manufacture from various countries. One great object in the preparation of leather, appearing to be to diminish the time required in its manufacture and, although it has been doubted whether leather produced rapidly is equally durable and serviceable as that produced by the former slow process; the exhibition, I think, very clearly showed that the tendency is decidedly to the shorter process—and there were many samples exhibited where the leather had been prepared in a few weeks, that formerly occupied many months, and to appearance, certainly equal to any on exhibition.

There were some capital samples of leather from this State, exhibited by Hon. Zadock Pratt, of Prattsville, of eight different varieties, from *four* tanneries, which had been finished in about four and a half months—mostly with hemlock bark. The samples were very admirably finished, and attracted attention. Harnesses and saddlery were in great variety. The expensive character of many of the articles, evinced more attention to display than utility. From this country, there were several exhibitors, and medals were awarded for calf-skins from Philadelphia; for a light harness from Boston, and a heavy double harness from Philadelphia, very elaborately mounted; an Honorable Mention, for a portable saddle, by Adams, New-York. Mr. Lloyd, of Albany, exhibited a very neat and admirably finished light harness, made entirely of American materials, mounted with gold from California. As show was deemed far more important than the value of the mountings, Mr. L. did not receive a prize which, I doubt not, would have been awarded, had more showy and less valuable material been used for his mountings, suited to the taste of the exhibition. Mr. Lloyd also exhibited some very fine made ladies' and gentlemen's leather travelling trunks. In the French Department there were shown many very fine samples of leather of various descriptions. In the fine varieties, calf-skin, kid, morocco, &c., I think the French exhibition was unequalled.

Furs.—In this class, *Furs* were exhibited in considerable variety. A very large collection, by the Hudson Bay Company, of the various kinds, which are taken mainly on this continent. The exhibition, by a firm of London, of a very great variety of furs in common use, was a very instructive one, showing the difference between the really valuable furs and their counterfeits. As illustrative of this, Rabbits and Ermine unlike as two furs can be—(except both are white and the Rabbits have the tail with a tip of black, like the Ermines, affixed)—the Ermine, brilliant, firm, pointed, the hair lying closely and evenly—the Rabbit coarse and blunt. Yet, notwithstanding all this difference, from some preparation known to the trade, a London lady is said to have given £20, nearly $100, for a Rabbit skin cardinal, when a *real Ermine* could have been bought for nearly half the money. C. Mawson, New-York, exhibited some beautiful Muffs and Boas, made from the skins of animals abounding in North Carolina. They are called Silver Martin Muffs.

Canada exhibited largely in this class, and some very highly finished articles. Russia, also, had some very choice furs, and the Emperor's own Pelisse, made entirely from the skin of the Black Fox, was among the attractions in this department; it was valued at £3,000. Mr. Nicholay, of London, who had the most rich, varied and extensive collection in the exhibition, offered to produce a pelisse better than the Emperor's for £1,000; and from the richness and extent of his collection, he could doubtless do it The Furs manufactured in Russia are purchased almost entirely for the London market.

It was rather surprising, to learn that the British Furs, consisting of Hare, Rabbit and Cat skins, are prepared chiefly for the American market, they being preferred in this country, it is affirmed, over the real valuable and superior Furs of our own continent, on account of their cheapness. This may be so, but if it is, is only evidence, that we are buying an inferior article, on account of its apparent cheapness, as is the case in some other fabrics, rather than use the superior ones of our own country, which have not the stamp of imported upon them.

Class, 17. *Paper and Stationery, Printing and Book-Binding, &c.*—Only one Council Medal was awarded, and that to the Imperial Court and Printing office of Austria, for novelty of invention, and the number of new combinations in the art of typography. Among the objects on exhibition, was a collection of 11,000 steel punches, including 104 different alphabets, from the Hieroglyphic, down to the Japanese, Mandschu and Formosan. There was a collection of Gutta Percha and galvanized copper matrixes and patrixes of wood cuts, *facsimiles* of antique relievos.

As a specimen of the typographic strength of the Imperial printing office, there was also a copy of the *Hall of Languages*, consisting of seventeen sheets in elephant folio, containing the *Lord's Prayer* in 608 languages and idioms, printed with Roman letters, and in 206 varieties of language, in the characters peculiar to each; a work of most splendid execution.

There was also a collection of *Mss. Writings* in the early ages, from the sixth century to the days of Guttenberg, and the invention of the art of printing. There was also a Japanese Novel, in the Japanese language with a German translation, the first work of the kind ever printed with movable Japanese types. The appearance of this work caused great sensation in foreign countries. The perfection with which it was executed, created doubts in the minds of the members of a German society for the promotion of the Oriental languages, whether the Japanese part and the illustrations of the work had not been executed in Japan, and the German part only at Vienna. There were many other very ingenious and valuable articles exhibited in this collection, and the establishment is one of the most distinguished in the world.

A very interesting collection of 165 books in different languages, from the 175 versions of the Scriptures, either in whole or in part which have been published directly or indirectly, by the British and Foreign Bible Society, was exhibited. Of this collection 118 were from translations never before printed; and of which

more than twenty-four millions of copies have been circulated since its institution in 1804. Eight specimens of four editions of the English Bible, showing the improvements made between 1816 and 1851, in reference to quality of paper, printing and binding, at an average reduction of 62 per cent. in the cost price. This contribution was most interesting, developing as it did the great efforts and perseverance, as well as the benevolence that had caused the preparation of the Scriptures for distribution to all nations and tongues.

An immense roll of paper was exhibited, made in a continuous sheet 2,500 yards long. A collection from Saxony consisting of 356 volumes printed at one establishment in the year preceding the exhibition was interesting, as developing the attention paid in that country to works for the public. The Egyptian Government had a collection of 165 volumes of books printed in the Arabic, Persian and Turkish languages; and a catalogue of the books published in Egypt.

Specimens of split paper, useful for removing letter press from the backs of engravings and wood cuts. The method of splitting paper of the thinnest texture is extremely simple: Two pieces of calico are firmly cemented on the sides of the paper and dried. By a gentle pull on each side, the paper splits into halves, one of which adheres to the calico on one side and the other to its opposite. The adhesion between the paper and calico being greater than that of the surfaces of the paper to each other. The split portion may then be removed by dampening and so loosening the paste between the calico and paper.

Book binding was illustrated in a great variety of style and excellence. Some exhibitors show the different stages through which a book passes in the process of binding—from the folded sheets to the finished and gorgeous book. There was a very interesting collection of specimens showing the present state of paper manufacture, and materials employed in various stages of preparation from the foulest rags to the most finished and perfect specimens of

note paper for Royalty. The National Printing Office of France had a variety of oriental and other types, of very great merit, for which they received a Medal. Some paper from Russia exhibited a very great improvement in the manufacture of paper over that heretofore made in that country.

From the Ducal Foundry, Prussia, specimens of stereotype iron, and the Bible printed therefrom, was on exhibition. From the United States, there was a very respectable exhibition. Medals were awarded to Herrick of New York, for superior ruling of account books; and to S. G. Howe of Boston, for a system of characters of an angular form, without capitals, for the use of the blind; and Honorable Mention was made to Bradley, Band & Co., of Boston, for cloth binding, and block gilding; to Gassett, Boston, for superior ruling account books; Mr. Adams, Boston, ruled account books, &c.; Sibell & Mott, New-York, Bank and account books; C. Starr, of New-York, binding works for the blind, with thickened margins, to prevent the embossing from being pressed out; E. Walker & Co., New-York, for a Bible, elaborately bound and ornamented, with a recess for a family register inside the cover.

Some very superior specimens, of Lithographic printing, of chromolithography, of printing in colors from wood blocks, and other descriptions of ornamental and artistic printing, showed the perfection which has been attained; these were exhibited from France, England, &c. In the French department, a very striking exhibition, by A. Mann & Co., of Tours, deserves particular notice, from the extent and variety, as well as superior execution of the various works which proceed from their press, one of the most extensive private establishments, it is claimed, in Europe. The book department is divided into three classes, books of education, church services and books for schools. They claim for their establishment, that the morals of their publications are irreproachable, the price is the very lowest, and the quality of materials superior, all which so far as I could judge from their exhibition, was fully confirmed. In this class, was exhibited the rude

sketch on blotting paper and ink, exhibiting the first design of the Crystal Palace as made by Paxton. Viewed in connection with the magnificent building itself, it was an object of extraordinary interest, and will doubtless be preserved to the latest times. There were in this class, many other articles which it would be interesting to describe, did the limits of this report permit.

Class 18. *Fabrics woven, fitted and laid, shown as specimens of printing and dyeing.*—The improvements which have taken place in dyeing and printing within a few years, have been very great. Chemistry has been brought into co-operation with the manufacturer, and the result has been a wonderful advance, not only in the beauty of the fabrics, but in lessening the expense of their preparation for market. Connected with every important manufacture, the laboratory is to be found, and the advantages derived from the chemist in this class of articles are very great. The labor of weeks formerly, is now performed in one day. In the early stages of printing, only one color could be applied, now, as many as ten, are applied in constant succession. The French excelled in this department, and their fabrics presented a brilliancy and beauty of colors, as well as elegance of design, which I think were not surpassed in the exhibition. Prussia, Switzerland and England, however, showed great taste and beauty of finish, and in the India Department were fabrics that were most superior, and perhaps in many respects would be considered unequalled.

Class 19.—*Tapestry, Carpets, Floor Cloths, Lace, &c.*—The display in this class was of the most attractive character. The articles were arranged in different parts of the palace, so as to attract attention and at the same time develop their most striking qualities. From the extent which Carpets, Tapestry, &c., were shown, they occupied a very prominent part in the exhibition. Among the attractions in the Carpet display was one executed for her Majesty, Queen Victoria, by 150 ladies. The carpet was thirty feet by twenty. The pattern, designed and painted by the artist, was sub-divided into detached squares, which were worked by different ladies; and on their completion, the squares were re-united,

so as to complete the design. In the pattern, consisting partly of geometrical and partly of floral forms, heraldic emblems are introduced. The initials of the ladies executing the work, are ornamentally arranged, so as to form the external border. This was used on the day of the opening of the exhibition, upon the platform on which the throne for Her Majesty was erected, and after the ceremonies had closed, and the Queen and her attendants had left, the anxiety of the people was so great to examine the carpet, that it would probably have been seriously injured, had not the police removed it at once.

From the East Indies were shown several admirable specimens of workmanship; and a silk carpet from Cachmere, was an article of great splendor and of immense value. Some fine samples of carpeting and rugs were shown from Persia.

The English exhibitors were much more numerous than any other nation, and nearly equal, in fact, to all the others. There was a great variety in the English exhibition, and some of them were of remarkable richness and beauty.

In the American department there was but one exhibitor, Lawrence of Boston, who received an Honorable Mention. Specimens, however, were shown of Brussels carpet, woven by steam power, by Mr. Bigelow of the United States, which had never before been accomplished, and will produce an entire revolution in the manufacture of this kind of carpets.

A very important improvement has been made in England, by which the wool, which has heretofore been mainly buried in the fabric, is now brought to the surface, and a carpet equally durable is made, with half the quantity of wool, and at half the former cost.

Austria.—A carpet was exhibited from Austria, made by Marie Louise, with the aid of several of her relations, and was interesting, as a specimen of the work of one who had borne an important part in the history of Europe, from her connection with the Emperor of France.

France.—The government manufactory of France received a Council Medal for Gobelins Tapestry, which for originality and beauty of design, as well as the extraordinary excellence of execution of the articles exhibited, gave it a pre-eminence over all others. For more than two hundred years, has this manufacture been carried on under the direction and patronage of the French government, and the great perfection of the Gobelins Carpets and Tapestry, has been the result of the attention which has been devoted to this one object for this long period of time.

The exhibitors in this class were from England, France, Belgium, Holland, Austria, Algeria, Zollverein, Switzerland, Denmark, Portugal, Tunis, United States, East Indies. The Tunisian carpets were curiosities, being worked with figures of men and women, but without any special skill.

Laces.—There was a very rich display of laces and embroidery, of the very finest and most costly description, as well as of the cheaper and ordinary fabrics for common use. A Council Medal was awarded to an English firm, for a new velvet and simla lace, suitable for shawls, dresses, ornamental, and useful purposes, and of great commercial importance. The application of machinery to the manufacture of lace, even of some of the finest kinds, has produced a great revolution in the trade. The very finest Honiton lace in England, is yet, however, wrought by hand. The power of the production by machinery as compared with hand labor, is said in the case of the bobbinet machine to be nearly as 30,000 to 5, and the lace produced by it, has in plain articles entirely superseded that made by hand.

Class 20. *Articles of Clothing, &c.*—This class includes articles for personal or domestic use, and though differing much in the character of the articles from the preceding classes, yet it was an important one in its application to the supply of the wants of all. Hats, caps, clothing of various kinds, boots, shoes, &c., were the articles exhibited. In this class there was a great variety from most of the countries on exhibition; yet not of such special

interest in the character of the articles exhibited as to warrant an extended description. As a matter of curiosity, an exhibition in the English department was worthy of notice, a case containing the different varieties of shoes worn in England from the time of King John down to the present time, presented striking illustrations of the caprice of fashion.

The United States received Medals for miner's shoes, by Addington. Ladies boots and shoes, the workmen of W. H. Jeffers, New-York, and an Honorable Mention to Mr. Jeffers. A Medal to Mrs. Haight, New-York, for a very superior worked shirt; and Honorable Mention to Breed & Co., for children's shoes; Milward & Sons New-York, for Pamela Bonnets of cotton braid. Mrs. Leask, of Albany, exhibited a case of very fine children's clothing and needle work, which was very much admired. Some clothing from New-York was admirably made, and some of the hats from New-York were remarkably well finished.

Class 21. *Cutlery and Edge Tools.*—In this class, as might have been expected, the English exhibitors displayed a most extensive and perfect assortment of cutlery, for which they have long been celebrated. The extent of the exhibition made by some firms gave most striking evidence of the capacity which exists in the workshops of England to supply, at the shortest notice an assortment for any portion of the world. The excellence of the work was equal to its extent, and the awards gave assurance of the merit of the articles exhibited, 63 Medals, out of 89, having been assigned to England. Rodgers & Sons, Sheffield, whose cutlery is as well known in this country as in England, had a very superior collection, from the sportsman's knife, containing 80 blades and other instruments, the handle 12 inches long made of mother of pearl, to the miniature knife, containing 56 blades, equally finished, three-fourths of an inch long; and another specimen of cutlery contain-1851 blades and other instruments. Sheffield has from a very early period been celebrated for its cutlery, which has kept pace in its manufacture with the improvements of the age.

Austria, Zollverein, France, Wurtemberg, Sweden and Norway, Russia, Prussia, Nova Scotia and Belgium, were the principal foreign exhibitors in this class and presented some very fine articles. Austria and Zollverein were much the largest foreign exhibitors, and some of their articles were very superior, as were those of France, Prussia and Belgium.

The United States exhibition of Scythes by the North Wayne Co., was decidedly superior to any other in the exhibition, and the Axes and other edged tools of Simmons & Co., of Cohoes, New-York, were admitted to be without a rival. A very fine assortment of tools was also exhibited by a firm in Philadelphia. To each of these a medal was awarded. An Honorable Mention was given to A. B. Allen & Co., of New-York, who had some very superior Scythes and other tools on exhibition.

In the Sheffield department were to be seen goods of remarkable brightness, which had been exposed in the open weather upon the roof of a house for six days and nights, the bright parts having been preserved by a composition preventive of rust. It is a valuable preparation, and will afford great relief to families for iron and steel ware, when not in constant use, and to those who are shipping iron and steel goods. It was exhibited by Jones & Co., of Sheffield.

Class 22. *General Hardware, Locks and Grates.*—This was a very numerous class of articles—the number of exhibitors, in the English Department exceeding 800, and in the whole amounting, probably, to 1,500. A very great variety of articles came under the examination of the Jury, and their labors were unusually arduous. The number of medals awarded were three hundred and five, of which twelve were Council Medals. This class acquired unusual interest from the publicity given to the lock controversy, during the exhibition. Locks of two of the most celebrated lock makers in England, which had been considered proof against all attempts at picking, were opened by an American who had a lock on exhibition, Day & Newell's Parautoptic permutating Lock, of which we propose to take some notice hereafter.

There were many very fine specimens of iron castings of fountains, animals, statues, &c., for which Council Medals were awarded. But the most interesting, I think, as well as the most useful, were those exhibited by the Coalbrook Dale Company, Coalbrook Dale, Shropshire. The first single foundry was commenced two hundred years ago, and has been in the family of the present proprietors nearly one hundred and fifty years. The number of men and boys in the employ of the company, at the present time, is between 2,000 and 4,000. Their articles are of great variety—ornamental and other gates for Parks, Fountains, Domes, Chimney pieces and Grates. Every variety of Kitchen Ranges and furniture, vases, flower stands, chairs, and a great number of articles of amusement, are most admirably executed, and with a delicacy and beauty of finish which is seldom equalled.

The French sculptures in Bronze were remarkably fine, and were decidedly superior to any others. A variety of warming apparatus, of great beauty of finish and convenience of arrangement was shown. Chilson & Co. of New-York, received a Medal for their Hot-air furnaces, which commended themselves to the Jurors there, as they had so often done to our citizens here. An Honorable Mention, to Pond & Co., of Boston, for a cooking stove. Learned & Thatcher, Albany, exhibited two Chandelier stoves—Elihu Smith's Patent, which, for cheapness and convenience of arrangement and small amount of fuel necessary, appeared to me, deserving of special commendation. There, certainly, were no other stoves on exhibition which elicited, so far as I could judge, more numerous inquiries, and which appeared to give more satisfaction. But with such a multitude of articles to be examined and re-examined, it is not at all surprising that these have been omitted if they had commended themselves to the Jury as they did to me. A Medal was awarded to a Philadelphia firm, for Chandeliers, which were very creditable to our country.

Silas C. Herring's Salamander Safe, received a Medal, and it was equal to any shown at the exhibition. There was deposited in this safe, in my presence, £200 sterling, by Mr. Herring, and the safe

locked, (having one of Day & Newell's Locks, I believe,) and notice placed upon the safe, that any person was welcome to the money, who could open the safe—the key being at the service of any one who chose to make the attempt. It remained for forty-five days *unopened.*

The exhibition of Locks was very extensive and of great excellence. Chubb & Son, celebrated lock-makers, had a very fine exhibition of their locks, in great variety and most splendidly got up. They were exhibited as the Patent Detector Locks—are in use, or were, on the government vaults and offices, the Bank of England, and wherever safety was required. The Koh-i-noor diamond of the Queen, was exhibited in a case, with an arrangement for elevating and depressing the diamond without locking—and it was stated "that it was considered impossible to pick the lock or obtain an entrance into their receptacle." (This precious diamond was formerly valued at £3,000,000, but since it came into the possession of the British it was found to have been over estimated, and now, I believe, is not considered worth over £2,000,000—and many, who profess to be versed in the valuation of diamonds, estimate it much lower.)

Chubb's locks for ordinary purposes have each six separate and distinct movable tumblers and a detector. If a surreptitious attempt be made to open any one, it was said immediate notice is given by the detector on the next application of the proper key.

Bramah & Co., exhibited very fine samples of their various locks, and one brass case lock, exhibiting the number of changes their locks will admit of, amounting to upwards of 479 millions! In their shop window in Piccadilly, London, was displayed a large padlock with a standing offer of 200 guineas to any person who would open it with a single instrument. There were many others on exhibition from England, France, Portugal, Sardinia, Spain, Sweden and Norway, Tuscany, United States, Africa and Zollverein.

Soon after the exhibition opened, Mr. A. C. Hobbs, of New-York, who had charge of Day & Newell's locks, obtained one of Chubb's locks and opened it in the space of 10 or 15 minutes, in the presence of several gentlemen. This, on becoming known, excited much interest and led to a publication from Chubb & Son challenging the opening of their locks. Mr. Hobbs was permitted to make the attempt to open one of Chubb's locks which was placed upon an iron door to a vault built for the depository of valuable papers. I give the proceedings which took place on this trial.

"American Department,
Crystal Palace, July 21.

Gentlemen:—An attempt will be made to open a lock of your manufacture on the door of a strong room at 34 Great George Street, Westminster, to-morrow, Tuesday, at 11 A. M. You are respectfully invited to be present and witness the operation.

Yours respectfully,
A. C. HOBBS.

To Messrs. Chubb & Son, *St. Paul's Church Yard.*"

(Messrs. Chubb did not notice this communication.)

"London, *July* 22, 1851.

We the undersigned hereby certify that we attended, with permission of Mr. Bell of No. 34 Great George Street, Westminster, an invitation sent to us by A. C. Hobbs, of the city of New-York, to witness an attempt to open a lock throwing three bolts, and having six tumblers, affixed to the iron door of a strong room or vault, built for the depository of valuable papers, and formerly occupied by the Agents of the South Eastern Railway Company; that we severally witnessed the operations, which Mr. Hobbs commenced at 35 minutes past 11 A. M., and opened the lock within 25 minutes. Mr. Hobbs having been requested to lock it again, with his instruments, accomplished it in the short space of seven minutes, without the slightest injury to the lock or door, (having previously had the assurance of Mr. Bell that the keys had never been accessible to Mr. Hobbs, he having permission to

examine the key holes only). We found a plate at the back of the door with the following inscription: "Chubb's new patent, (No. 161, 461) St. Paul's Church Yard, London, maker to Her Majesty."

Mr. Hardley, 26 Great Earl Street.
Mr. William N. Marshall, 42 Charing Cross.
Mr. W. Armstead, 35 Belitha Villas, Barnsbury Yard.
Mr. G. R. Porter, Putney Heath.
Mr. F. W. Winham, Effra Vale Lodge, Buxton.
Mr. A. Shanks, Robert Street, Adelphi.
Mr. S. Shanks, do do
Col. W. Clifton, Morley's Hotel.
Mr. Elijah Galloway, 42 Southampton Buildings.
Mr. Paul R. Hodge, 9 Adam Street, Adelphi.
Mr. Charles H. Peabody, 1 Norfolk Street, Strand.

The annexed remarks from the London Times on the Lock controversy, and the trial made upon Bramah's lock, by Mr. Hobbs, we give in preference to any remarks of our own, as the whole matter is treated with very eommendable fairness, and atones for much which the Times took occasion to say of our articles in the early stages of the Exhibition.

"We believed before the Exhibition opened, that we had the best locks in the world, and among us, Bramah and Chubb were reckoned quite as impregnable as Gibraltar—more so, indeed, for the key of the Mediterranean was taken by us, but none among us could penetrate into the locks and shoot the bolts of these makers. In this faith, we had quietly established ourselves for years, and it seems cruel at this time of day, when men have been taught to look at their bunches of keys, and at their drawers and safes with something like confidence, to scatter that feeling to the winds. The mechanical spirit, however, is never at rest, and if it is lulled into a false state of listlessness in one branch of industry, and in one part of the world, elsewhere it springs up suddenly to admonish and reproach us with our supineness. Our descendants on the other side of the water are every now and then administering

to the mother country a wholesome filial lesson upon this very text, and recently they have been "rubbing us up" with a severity which perhaps we merited for sneering at their short comings in the Exhibition While we have been relying implicitly upon the artful arrangement of "tumblers" and such like devices, they have been carefully developing their ingenuity in picking and opening locks. A man makes a lock, and he brings it to a Mechanic's Institute in New-York with a certain sum of money secured by it, which sum becomes the property of the successful operator, who can shoot back the bolt of the new contrivance. Instantly astute heads, and clever, expert hands are engaged in solving the mechanical riddle thus propounded to them, and so far have these dexterous manipulators carried their art, that their "open sesame" sweeps springs, tumblers, false notches, letter devices, and everything else before it. Mr. Hobbs is by far the most accomplished and successful of these performers, and he has come over to this country at a very opportune moment to teach our makers a very useful lesson. It is well known, however Mr. Chubb may wrestle with the statement, that Mr. Hobbs has succeeded, by perfectly fair means, in opening his locks as they have hitherto been made; no formal and deliberate trial has taken place between them to establish the fact, but it nevertheless remains undoubted, and the sooner Mr. Chubb improves his patent, so as to set Mr. Hobbs at defiance, the better for his own interests.

"Bramah & Co., have acted with more pluck, and have been beaten in a fair open field. They have acted with so much bold, open courage that even when Mr. Hobb's success was ascertained by us, we were reluctant to state the facts positively and circumstantially, until the award of the arbiters appointed on the subject, had been made. That document we now publish, and the public, we are sure, when they read it, will not think the less of a firm, which has been vanquished in a fair stand-up fight, maintained for so long a period, and against such extraordinary skill."

"Report of the Arbitrators, to whom the Bramah Lock controversy was referred:

"Whereas, for many years past, a padlock has been exhibited in the window of the Messrs. Bramah's shop, in Piccadily, to which was appended a label with these words; "The artist who will make an instrument that will pick or open this lock, will receive 200 guineas the moment it is produced;" and Mr. Hobbs of America, having obtained permission from the Messrs. Bramah, to make a trial of his skill, in opening said lock, Messrs. Bramah and Mr. Hobbs, severally agreed that Mr. George Rennie, F. R. S., London, and Professor Cowper, of King's College, London, and Dr. Black of Kentucky, should be the Arbitrators between the parties. On the 23d of July, it was agreed, that the lock should be enclosed in a block of wood and screwed to a door, and the screws sealed, the key-hole and hasp only being accessible to Mr. Hobbs; and when he was not operating, the key-hole to be covered with a band of iron, and sealed by Mr. Hobbs; that no other person should have access to the key-hole. The key was also sealed up, and not to be used till Mr. Hobbs had finished his operations. If Mr. Hobbs succeeded in picking or opening the lock, the key was to be tried, and if it locked and unlocked the padlock, it should be considered a proof that Mr. Hobbs had not injured the lock, but picked and opened it, and was entitled to the 200 guineas. On the same day, July 23d, Messrs. Bramah gave notice to Mr. Hobbs, that the lock was ready for operations. On July 24th, Mr. Hobbs commenced his operations, and on August 23d, Mr. Hobbs exhibited the lock open to Dr. Black and Prof. Cowper, Mr. Rennie being out of town. Dr. Black and Prof. Cowper, then called on Mr. Edward Bramah and Mr. Barzalgette, and showed them the lock open. They then withdrew, and Mr. Hobbs locked and unlocked the padlock, in the presence of Dr. Black and Prof. Cowper. Between July 24th and August 23d, Mr. Hobbs' operations were for a time suspended, so that the number of days occupied by him were 16, and the number of hours spent by him in the room with the lock was 51. On Friday, August 29th, Mr. Hobbs again locked and unlocked the padlock in the presence of Mr. George Rennie, Prof. Cowper, Dr. Black, Mr. Edward Bramah, Mr. Barzalgette, and Mr. Abrahant. On Saturday, August 30th, the key was tried, and the padlock was locked and unlocked with

the key, by Prof. Cowper, Mr. Rennie and Mr. Gelbertson, thus proving that Mr. Hobbs had fairly opened the lock without injuring it. Mr. Hobbs then formally produced the instruments with which he had opened the lock. We are, therefore, unanimously of opinion, that Messrs. Bramah have given Mr. Hobbs a fair opportunity of trying his skill, and that Mr. Hobbs has fairly picked or opened the lock, and we decide that Messrs. Bramah & Co. do now pay to Mr. Hobbs, 200 guineas.

GEORGE RENNIE, *Chairman.*
EDWARD COWPER,
G. R. BLACK.

Holland Street, Blackfriars, Sept. 2, 1851.

This document is conclusive on the merits of the question. "This rough lesson will probably lead Messrs. Bramah & Chubb to devise some means for rendering their patents more secure, and we have no doubt they will succeed." "An attempt will be made, it is said, to pick the American lock, and when it is remembered that our cousins show several locks, all of which are represented as perfectly secure, it is high time for our lock makers either to show that the American patents are equally unsafe as their own, or to acknowledge themselves beaten, and endeavor to make better locks for the future."

The trial was made upon Day & Newell's lock, by one of the most expert locksmiths to be found in England, and after a trial of thirty days, the lock was returned by the judges, who were agreed upon, uninjured, the operator not having made an impression upon it. So completely was the security of the American locks established, that they were ordered for the Bank of England, and in other directions, where safety was required—and a company has been organized for their manufacture in England, of which Mr. Hobbs is the managing director.

Prize Medals were awarded to the United States, to Day & Newell for their lock (with special approbation,) to Adams & Co., for bank lock; Arrowsmith, for Permutation locks; McGregor & Lee for

bank lock, and the exhibitors claimed equal security with Day & Newell's, though they were not put to the test so far as I was informed.

Two Bell Telegraphs were exhibited from this country; one of which, C. Howland, exhibitor, received a medal. The other, exhibited by W. T. Brooks, New-York, Jackson's annunciator, appeared to me quite equal to Howland's but the Jury thought differently, and, doubtless for satisfactory reasons. G. Hotchkiss, of Broome County, exhibited his Noddle Iron and Tram Block, for saw mills, which have been much approved in this country. Their great simplicity and cheapness were recommendations which should secure their adoption where needed.

Class 23. *Working in Precious Metals, Jewelry, &c.*—This class contained many of the richest specimens of articles of vertu and luxury in the Palace. The exhibitors were from England and the continent; the United States not exhibiting until near the close, when a service of Gold plate was presented. The Electro-plating was of a very rich and interesting character, and many of the articles were of such elegance of design, as well as perfection of finish, as to arrest the attention of those who were more attracted by ornament and display, than by utility alone. The Electro process was exhibited in the Palace. The operation is thus performed: Having placed silver in solution in a glass jar, which communicates with a battery, by means of a wire, a brass metal is attached to another piece of wire, and the metal being immersed in the solution; the wire that holds it is hooked on to the wires connected with the battery; the *instant* the contact of the two wires takes place the metal is covered with a coat of silver. By the same process, all Electro-plating is performed. Any metals may, by this process, be deposited; and one part of an article may be coated with gold another with silver, a third with platina, and so on. I was at Birmingham, and examined Elkington & Co.'s establishment, one of the most extensive in the country, and where articles of every variety are manufactured. A Council Medal was awarded this firm, for their artistic application of the Electrotype.

France, Zollverein, Russia, Switzerland, Austria, Belgium, Hamburg and Sardinia exhibited, most of them largely. Jewels and Jewelry were among the articles for which prizes were awarded. The Queen of Spain's Jewels, exhibited by Lamorier, of France, were the most attractive in the exhibition, and a Council Medal was awarded.

A large piece of native Gold from California, worth from $3,000 to $4,000, was exhibited by a London firm. A service of Gold Plate made of California gold, a testimonial to E. K. Collins from the citizens of New-York, for establishing the American Steam Packet Line, attracted much attention for its richness and the remarkable purity and beauty of the metal. Some of the exhibitors of Gold and Silver Plate in the English department had very extensive collections; one, more than one hundred articles of the very richest and most expensive character, valued probably at more than $100,000. A Silver Table Top, 55 inches in diameter, weighing 900 ounces, manufactured for the Pasha of Aleppo by a Birmingham firm, was among the most expensive of the articles. I select from the Zollverein department one of the rich articles which received a Council Medal, as illustrative of much of this department, in its liberal expenditure of money on articles, in themselves, of little moment—a sett of Chessmen and Board in *Renaissance* style (as it is called); the squares of the Board alternately Tortoise Shell and Mother of Pearl. The framework of the stand is silver and gold, inlaid with rubies; each corner the bust of an angel, the wings in silver and blue; the sides ornamented with silver swans and festoons of gold and rubies. The Chessmen are in gold and silver; the principal figures are costume portraits of Emperors of Germany and Kings of France; their retinue, Knights and Castles mounted on elephants, and men at arms for the pawns. Rubies are profusely introduced upon the dresses of the principal personages and the pedestals.

The great Koh-i-noor diamond, or mountain of light, belonging to the Queen, was exhibited in this class. Its value is noticed else-

where; its brillianacy was not remarkable, and all the efforts made to display it to advantage failed to secure that brilliancy which many of the other diamonds had. As this class was peculiarly devoted to those articles of vertu andluxury which alone find their way to the habitations of the wealthy and are not among those things which specially contribute to the real comfort of our world, a description of the varied treasures which afforded to the visitors that saw them probably as much real enjoyment as to the possessor, would not, it is presumed, be desired.

Class 24. *Glass.*—This was a very interesting and useful class, and the character of the articles exhibited such as to reflect great credit upon the exhibitors. The glass with which the Palace was mainly covered, made at Birmingham, was a striking illustration of the extent to which the manufacture is carried in England. The panes of glass on the Palace were 49 inches long. A Glass Fountain, the ornament of the Transept, was 27 feet high, of pure flint crystal, contained upwards of 4 tons of crystal glass; the principal dish was upwards of 8 feet in diameter, and weighed before casting nearly a ton. This was manufactured at Birmingham, and was said to be the largest production of the kind ever made. It was one of the most attractive, of the many beautiful things in the Palace. Specimens of glass were exhibited in all stages of its manufacture, and models of furnaces, and the retorts and vessels used in the manufacture. Many very rich samples of colored glass were shown from several countries: England, Zollverein and Prussia, each exhibited some very rich specimens. The process of combining colors is thus described: The object being formed first in the white transparent and colorless glass and allowed to cool until solid, is then dipped for a moment in a vat of colored glass in a state of fusion, and being suddenly withdrawn it takes away a thin coating of colored glass which immediately hardens upon it and becomes incorporated with it. The article is then shaped by the glass maker, and if cut, those parts which are cut will display the clear transparent glass, those not cut remaining coated with the color.

Samples of plate glass, some of which were of the largest size ever manufactured, were of extraordinary excellence, in the English and French departments.

Chandeliers in great varieties were shown; one to contain 146 lights, admirably and effectively arranged. From this country, the Brooklyn Flint Glass Company, celebrated with us for the purity of their flint glass, exhibited some very fine specimens of their plain glass, to which a Medal was awarded. It compared favorably with any glass on exhibition of that description, and for its purity and fineness was very much applauded by the English writers, in their description of articles on exhibition.

Class 25.—*China, Porcelain, &c.*—There was a large exhibition in this class of every variety, from the richest and most expensive wares, to those of ordinary use. From the Sevres manufactory in France, articles were exhibited surpassing anything of the kind I had ever seen, and a Council Medal was awarded for the high art which has been attained. Porcelain from England, France, Russia, Denmark, Zollverein, Portugal and Austria, were exhibited. From several of the continental nations, the exhibitions were from Government establishments. Of the common earthen ware, the English was far superior to any other.

Class 26.—*Furniture, Paper Hangings, Papier Mache.* This class was very largely represented, and all that luxury could desire, or moderate means need, was here most strikingly illustrated.

In one of the London Journals, the foreign contributions were thus characterized. "France, Austria, Spain, Germany, Belgium, and the United States, have furnished us with the finest specimens of their several excellence in cabinet-making, in each of which may be traced the mechanical skill and prevailing taste of the present time. France is light, elegant, yet convenient in the form of her objects; Austria is heavy, luxurious and colossal, with one or two exceptions; America is smart, original and adaptative, while Spain has sent a Table, the wonder of the world, of inlayers and

marqueterie-workers; nor ought we to omit the equally surprising contributions from the Eternal city, whose mosaic work is one of the marvels of the exhibition."

The French furniture, for elegance of finish as well as beauty of design, was superior to any on exhibition; and three of the Council Medals were awarded to France, and one to Austria. There was much in the English Department that was highly finished, and gorgeous in decorations, but as compared with the French, I think, decidedly less attractive.

The Exhibition from the United States was not large, yet our chairs, bedsteads &c., were attractive to the visitors, and some of them novelties, which many had never before seen. Our rocking chairs, and the chairs of the Troy Company, and the reclining chair of Ragan of Philadelphia, were examined with no little interest. An Honorable Mention was made of the Reclining Chairs; and the chairs of the American Chair Company, Troy, are being manufactured in England, and are much esteemed.

Paper Hangings, and Papier Mache goods were largely exhibited, and of great variety and richness. The Papier Mache articles were remarkably attractive, and articles of almost every variety were shown, many of them of the richest description, inlaid with with pearl.

Class 27. *Manufactures in Mineral Substances.*—This class comprises the minerals used in building and decorations; comprising the manufacture of ordinary stone for buildings and slate, cement and artificial stone, marble, granite and Ornamental work. A table in Roman Mosaic from Rome, was awarded a Council Medal, and it well deserved this distinction. Malachite manufactured into various articles of furniture and decorations, from Russia, received a Council Medal. In the copper mines from which the specimens exhibited were taken, a vein of Green Malachite has been opened, which is peculiarly rich and of very great extent—measuring at the top 9 feet by 18, and the portion uncovered con-

tained, it is supposed, half a million pounds of pure Malachite. It admits of a high polish, and was exhibited in large slabs, table tops, vases, doors, &c., and proved one of the most attractive departments of the Exhibition. The articles exhibited were sold, it was said to a wealthy Londoner, for £10,000—nearly $50,000.

An Honorable Mention was given to the Maryland Soapstone Co. for articles made of Soapstone; and for a Water Vase, from Ohio, manufactured from brick clay.

Class 28. *Manufactures from Animal and Vegetable substances, &c.*—In this class, India Rubber and Gutta Percha goods were shown extensively, and the extent and variety of uses to which these substances are applied, were perfectly illustrated. The United States and England were much the largest contributors, the exhibitors from the continent being very few. Goodyear, from the United States, received a Council Medal for his India Rubber Goods, and I think his excelled all others in their extent, as well as their adaptation to the various purposes for which they were designed.

A new article, India Rubber Globes, which I had never before seen, was shown by him. They are very convenient, can be inflated instantly, and suspended for use, and when not wanted, can be packed away occupying very little space. They were much admired. Pontoons were exhibited, formed of coarse India Rubber cloth, and were such as were used by our troops in the Mexican Campaigns. They can be filled with air in a few minutes, and permit the passage of troops over rivers, and again emptied, and are transported with little trouble. Carriage Wheels, with Vulcanized India Rubber, called noiseless wheels, were shown. A medal was awarded to the Hayward Rubber Co., United States, for shoes. To S. C. Moulton, for India Rubber goods. To J. Fenn, of New-York, for beautiful specimens of Ivory work, combs, &c.

Class 29. *Miscellaneous Manufactures.*—This, as may be supposed, was a very miscellaneous department, embracing articles

that did not belong, properly, to any other class, and like these classes every where, was composed of the most heterogenous materials that can well be imagined.

There were Prize Medals awarded to the United States for fancy Soap, to Bazin, Xavier, Philadelphia; to J. Hauel, Philadelphia, celebrated, the world over, for toilet soaps; J. K. St. John, Buffalo, a very valuable preparation called Cadwell, Payson & Co.'s "Excelsior" Soap. Maryland, for collection of produce; and preserved Peaches, from Cincinnati, Ohio. There were, in this class, two very interesting collections; samples of the imports of the towns of Liverpool and Hull. The Liverpool collection embraces the following list of articles from the United States and North America, which will doubtless be of interest.

Pigs Hair,
Polar Bear skins,
Otter, "
Oppossum, "
Gray Squirrel, "
Mink, "
Sperm Oil,
Bear's Grease,
Tallow,
Bees Wax,
Peppermint, from N. Y.,
Cranberries,
Hickory Nuts,
American Chestnuts,
Pink Root,
Sassafras Root,
Sassafras Bark,
Rosin,
Lathe Wood,
Hops,
Tobacco,
Lead Ore,
Turpentine,
Quercitron Bark,
Timothy Seed,
Clover Seed,
Rice,
Wheat and Flour,
Indian Corn and Meal,
Cotton,
Black Birch Timber,
Cedar (Pencil,)
American Ash,
Birds' Eye Maple,
American Walnut,
Texican Oak,
Masts and Spars,
Pine Timber,
Oars, &c.,
Chromate of Iron,
Phosphate of Lime,
Barytes,
Felspar,
Asphaltum.

Candles were shown in great perfection, and the quality was remarkably superior. Some from New-York were apparently equal to any exhibited. The aid of Chemistry has been sought in their manufacture with great success, and candles are preferred for household use, to a very large extent in England.

Corn Brooms, from this country, were exhibited, of very great perfection, and they attracted no little attention as they were objects of curiosity to the great portion of the visitors who had never before seen a broom of this description. D. D. T. More, of Watervliet, New-York, had some very superior ones, and all on exhibition were well made.

Maps.—There was a number of exhibitors of Maps from this State, and though in point of execution the maps did not equal many exhibited, yet the very moderate price at which they were sold, attracted notice. Bidwell, Colton, Disturnell, New-York, and others, were exhibitors. Mrs. Emma Willard, Troy, exhibited her educational charts, accompanied by instructions for their use in schools. These elicited frequent inquiries. A painting of wild flowers, of Western New-York, by Miss Agnes Jeffreys, of Canandaigua, was very attractive.

Preparations of stuffed animals were shown in this class. Among the most curious collection was one of Ploucquet in the Zollverein department. He had a museum illustrating the story of "Reynard, the Fox," in his own skin, in all the different characters described in the ancient romance; and a very striking collection of Birds, and animals representing scenes from nature, most life-like illustrations. A Boar hunt was also illustrated to perfection. A Medal was awarded him. A very fine collection of Birds and small animals, prepared by J. A. Hurst of Albany, was exhibited, and there were few collections which, for its extent, were more artistically arranged.

In the India department there was a very interesting collection of clay figures, representing the various Hindoo arts and profes-

sions, manufactured in India. And from Turkey, from the Sultan, a collection of pipes that excelled any thing of the kind I have ever seen.

Ezekiel Page, New-York, exhibited a large assortment of his celebrated oars, which secured much favor with the watermen and very large orders were received, and I am informed that he has arranged for their manufacture in London.

Class 30. *Sculptures, Models, &c.*—The exhibition in this class was extensive, and most of it of a high character as works of art and skill, but as I have no pretensions, as a connoiseur, in this department, and as a mere description would be of little interest, I shall briefly allude to it.

From this country, Powers' Greek Slave was the most finished work, and although it received only a Prize Medal, it was, in the opinion of many, entitled to a Council Medal. A young artist, by the name of Stephenson, from this country, exhibited a statue of a wounded Indian, which was a very striking one, and possessed much merit, and several of the distinguished sculptors at the exhibition expressed the highest admiration of it. A Council Medal was awarded to Kiss, of Berlin, for the Amazon and Tiger, cast in zinc and bronzed. I believe the justness of this award was acknowledged by all. A model of it is to be seen at the Agricultural Rooms. Baron Marochetti's Coeur de Leon in plaster; Phryne, in marble, by Pradia, France; and Glycera, in marble, by the late R. J. Wyatt, of England, were the other subjects which received Council Medals. The justness of these awards was questioned by some who were competent judges. There were some admirable exhibitions of Chromolithography, for which prizes were awarded.

I have concluded what I have deemed necessary to remark in relation to the articles on exhibition. I have but glanced at the Exhibition itself—as it was entirely impracticable, within any reasonable limits, to have given even a notice of the offerings of 17,000

exhibitors, many of whom exhibited hundreds of articles. My design has been to call attention to those portions which were, in my opinion, most useful to this country, and to such of the articles as were worthy of notice from their ingenuity, or from other circumstances. There were exhibited, from this country, a very great variety of useful articles, which I have not had time nor space to notice.

I have given, in connection with this report, a list of the contributions from this State, the awards made to this country, and a list of the jurors selected from the United States, so far as they were registered by the Royal Commissioners. I have taken the list of articles entered in this State, from the minutes of the special committee appointed by Gov. Fish, which includes the articles entered previous to the sailing of the St. Lawrence, and were under the charge of Mr. C. F. Stansbury, who on his arrival, took charge of the United States Department, and continued to act until the arrival of Mr. Riddle, the commissioner selected by the Central Authority at Washington.

It would have been gratifying to me, while at the Exhibition, to have made observations, more fully than I was enabled to do, on account of my engagements as one of the Jurors. The Jury upon the class to which I was appointed, Agricultural Implements and Machinery, could not complete their labors until some weeks after the other jurors had finished theirs, and made their reports. The importance, however, of giving attention to the duties connected with the trials of implements before the Jury, was deemed paramount to every other consideration, and I therefore, to the best of my ability, devoted myself to the completion of that portion of my duties. The result has been such as to leave no cause for regret, that so much time was devoted to the subject; as I am satisfied, that without a thorough trial, it would have been impracticable to have arrived at practical results which would have been satisfactory to the great number of intelligent gentlemen present from the various countries represented, who were

deeply anxious to ascertain everything that would be likely to be advantageous to the industrial interests of their respective countries.

It is impossible to anticipate all the beneficial results that will flow from this great gathering of the people, and the exhibition of the products of the industry of all nations. That it is to have a most important and salutary influence upon the industrial progress of the world, appears to me most manifest. Its bearing upon the social condition of the world, cannot, I think, be otherwise than gratifying to every well wisher to the progress and advancement of our race. Here, for the first time in the history of the world, have the representatives of every nation of importance met together in friendly intercourse, to show each other what was the state of their domestic industry, in its various departments—and to learn from the contributions of other countries, where they were excelled, and in what direction improvements to their advantage might be secured. Here too was shown, by the very exhibition itself, that the best interests of each nation could be far more profitably secured by this peaceful intercourse, than by any other means whatever; and a lesson was here most strikingly taught, of the dependance which after all, exists among nations. By a wise ordination of Providence, it is most manifest, that every portion of the Globe where civilization and science, with all their attendant blessings have been enjoyed, has some advantages not peculiar to other portions of the world, and by which they are made benefi cial to others, receiving from them like returns.

It appears to me that some striking peaceful lessons were given that will not soon be forgotten, and though commotion and contention may and doubtless will continue, yet the influence of this friendly meeting of the nations of the world will tend to soften the asperities of national differences and will, I trust, in not a few instances prevent the resort to arms to avenge fancied or real wrongs, and lead to the adoption of some measures that will secure redress of a peaceful and happy character.

It may well be imagined that this exhibition will be a starting point for the development of the inventive talent and ingenuity of the world. Here was shown, to a good degree at least, the progress which has been made, the perfection which has been attained in the various department of arts, manufactures, mechanicism and science. Here the inventor saw the machine exhibited which accomplished the very thing he had long aimed to secure, but without success. The manufacturer, too, here discovered a perfection in the process connected with his department which he had long desired, but perhaps scarcely hoped ever to see accomplished. Who can tell, the importance of the invention of the Power Loom of Bigelow for weaving Brussels Carpets, which here for the first time was made a reality before the world—accomplishing what had baffled hitherto the skill of the mightiest intellects of the old world, which had been ardently and for years unsuccessfully devoted to this object, and which, but for this exhibition, might long have been devoted to the same end without success. Now a new field is opened for the inventors of the world, and we may anticipate that new and valuable inventions will be brought forth in this branch of domestic industry, when the talent of the world shall be brought to bear upon new discoveries which will secure advances in this department. I might illustrate this I think equally satisfactory in almost every portion of the exhibition, from articles exhibited or inventions for the first time made known before the world.

It appears to me that the nations here represented will, in a measure, be prepared to commence from the various points of excellence which the exhibition presented, and every effort of mind of the inventor, the mechanic, the manufacturer and the artizan will sooner or later be made to tell favorably upon the world's progress in all that contributes to its well being.

To those present, one of the most interesting facts connected with the exhibition itself was, the expression of surprise and astonishment which were often expressed by learned, scientific and intelligent men, in almost every station of life, at the discoveries made at the exhibition, showing that it was making a deep

impression upon many minds in the direction to which I have referred. I have no doubt that the number is not small of those who have discovered on a careful examination of the articles presented, that the very thing which was present to the mind, but which as yet could not be fully elucidated and brought out on real working principles, was here practically developed; and that now, instead of devoting years of labor to the accomplishment of the desired object, an opportunity has been presented for the employment of all their talent and ingenuity in the attainment of still higher perfection in the departments to which their energies have been devoted.

Some striking facts, it appears to me, are developed in a comparison of the contributions from different countries. From many of the Continental Nations, the Government comes forward as an exhibitor—and in these cases, the exhibitions, by individuals, are comparatively few—and here great prominence is given to rich and luxurious articles, prepared and designed for the few, as compared with those made for the masses of the people. This was peculiarly observable, on a hasty examination even, of the exhibi tion, and led many, in its early stages, who were attracted by the splendor and show of this class of articles, to speak very lightly, indeed, of the contributions from this country, which were of an entirely different character.

The exhibition from the United States, and that from England, to a very great extent, showed that private enterprize had furnished the contributions exhibited—and so far as this country was concerned, the character of our contributions was such as to meet the wants and necessities of the great body of the people. The exhibition was a most instructive lesson as to the direction which improvement takes, when left to the free and independent energies of the people themselves—and it appeared to me, during the progress of the exhibition, and especially towards its close, that this impression was deepening upon many minds—and producing most salutary effects, leading many to think seriously of the great advantages which must, of necessity, result, from affording a free scope to any people, to exercise their talent

and ingenuity for the benefit of themselves and others, instead of being restrained by arbitrary restrictions and customs which confined them and their posterity, to one round of business from which no deviation could be made.

I have not attempted a critical comparison between the industrial products shown, which would illustrate, very satisfactorily, the capabilities of the respective countries, as developed in the Exhibition. It is very desirable that this should be done by some one qualified for the work, and who devoted himself specially to it. Should this be performed with care, and the results given to the world, it will, doubtlessly prove one of the most practically useful lessons which can be drawn from this collection of the products of the world.

There are lessons, however, to be drawn from this Exhibition which will prove highly useful and important to the United States. In all that relates to the first principles of design, in the various branches of arts and manufactures, we are very deficient as compared with many of the Continental Nations—and this remark also applies to Great Britain, to a very considerable extent. The great superiority of several of the Continental Nations, and of India, was most obvious to every careful observer. In some of the nations, schools of design have long been in existence, and the beauty of their designs in various manufactures and fabrics, was most striking as compared with others. The Indian Department also furnished specimens of art certainly equal, if not superior, to any thing on exhibition. That an improvement will be most favorably developed in the manufactures of England, as well as in this country, I think cannot be questioned. Evidence of this has already appeared in England, since the close of the Exhibition, as the following notice of the selections made from the Exhibition for the Government School of Design will show.

It is said, "The Indian display has, as might have been expected, contributed most largely to this collection. The best eastern skill in muslins and other textile fabrics, has been secured for the instruction of our designers. Specimens of metallic inlayings,

enamels and earthen ware have been purchased to teach gracefulness of form and harmonious arrangement of colors. The objects selected from India, promise to exercise a most favorable influence upon our industry, in a large number of departments. Next to India, selections have been made chiefly from France—enamelling from Sevres for the instruction of our potters—and textile fabrics from Tunis and Turkey, and ornamental hardware from Belgium."

I shall be greatly disappointed if many of our citizens who were there, interested in the manufacturing establishments of this country, have not availed themselves liberally of articles exhibited, which will enable them to give new beauty and finish to their fabrics, and successfully, to compete, eventually, with the manufactures of any other nation.

In all that pertains more especially to the domestic and industrial pursuits, in which the great masses of every nation are interested; lessons will be taught through the exhibition, to the nations on the Continent and the Eastern world, that will eventually, though probably not as rapidly as in the former case, advance these nations who are evidently greatly deficient, and whose citizens at the Exhibition, for the first time probably, were made fully conscious of the extent of their deficiency. The exhibitions from Great Britain and the United States will prove most instructive to these nations; and the large orders which were given for articles for these various countries, showed that they were appreciated, and that an effort would be made to introduce them into practical use where heretofore they were entirely unknown. The representatives from the agricultural society in Normandy, one of the best cultivated portions of France, selected ten varieties of plows from those on exhibition by Starbuck, of Troy, and they assured me that they anticipated more advantage to their district of country from the introduction of these implements than from any other cause connected with the Exhibition. The same may be said of Switzerland, where our implements were taken, as well as various other portions of the Continent. This is rendered more probable, as the demand for our implements from various portions of Europe, has very largely increased since the close of the exhibition.

The exhibition has very favorably demonstrated, that our Institutions are admirably adapted to the development of the talent and ingenuity of our citizens, and the testimony given by a leading Journal in England, is appropriate, in elucidating this fact.

The writer, in speaking of the contributions from the United States, at a late day of the Exhibition, after dwelling at length upon the very different character of the contributions from the continent, and from England says: "Their industrial system, unfettered by ancient usage, and by the pomp and magnificence which our social institutions countenance is essentially democratic in its tendencies. They produce for the masses, and for a wholesale consumption. There is hardly anything shown by them, which is not easily within the reach of the most moderate fortune. No Government favoritism raises any branch of manufactures to a pre-eminence which secures for it the patronage of the wealthy. Everything is intrusted to the ingenuity of individuals, who look for their reward to public demand alone. With an immense command of raw produce, they do not, like many other countries, skip over the wants of the many, and rush to supply the luxuries of the few. On the contrary, they have turned their attention eagerly and successfully to machinery, as the first stage in their industrial progress. They seek to supply the short comings of their labor market, and to combine utility with cheapness.

The most ordinary commodities are not beneath their notice, and even nursery chairs are included in their collection of "notions." They have beaten us in Yacht building, they pick our best locks, they show us how to reap corn by machinery, and to make Brussels carpets by the power loom. Our coopers will hear with dismay, and our brewers with satisfaction, that by an invention of theirs recently introduced into the Exhibition, one man can do the work of twenty in stave-making, and far more efficiently. Such triumphs do not much affect the mechanical superiority of the mother country, but they serve to show, that while on the one side nations less free and enlightened than ours,

teach us how to throw a luster and grace over the peaceful arts; our own children are now and then able to point out how we can improve and extend them."

I have given these remarks, because they were drawn out by the results of the trial of our implements, which led to a more candid and thorough examination of all we had on exhibition, and elicited this tribute to American Institutions, and the enterprize of our citizens; and it is also the more readily given, as it was the very conclusion, which at an early day in the Exhibition, was presented to a distinguished Journalist, as the one to which he would be constrained to come, when an opportunity was afforded us, of practically demonstrating the value of our implements, which were then untried. It is important also, as showing the great change which had taken place in the public mind in regard to the American quarter, which instead of being the "Prairie Ground," as in derision called, became the observed of all observers.

As a further evidence of the practical character and adaptation of many of our articles to the wants of the age, I give another extract from the same journal, in an article giving an account of the progress made by the British and Americans through the trials of the season. After alluding to the British portion of the contributions, it is remarked of the American, "On the other hand, it is beyond all denial, that every practical success of the season belongs to the Americans. Their consignments showed poorly, at first, but came out well upon trial. Their reaping machine has carried conviction to the heart of the British Agriculturist. Their revolvers threaten to revolutionize military tactics, as completely as the original discovery of gunpowder. Their Yacht takes a class to itself. Of all the victories ever won, none has been so transcendant as that of the New-York Schooner. The account given of her performance, suggests the inapproachable excellence attributed to JUPITER, by the ancient poets, who describe the King of the Gods as being not only supreme, but having none other next to him. 'What's first?' 'The America.' 'What's second?' 'Nothing.' Besides this,

the Baltic, one of COLLINS' line of steamers, has 'made the fastest passage yet known, across the Atlantic,' and, according to the American journals, has been purchased by British agents 'for the purpose of towing the Cunard vessels from one shore of the ocean to the other.' Finally, as if to crown the triumphs of the year, Americans have actually sailed through the Isthmus, connecting the two continents of the New World, and while Englishmen have been doubting and grudging, Yankees have stepped in and won the day. So we think, on the whole, that we may afford to shake hands and exchange congratulations, after which we must learn as much as we can from each other." In concluding another article on the Exhibition, it is said, "Great Britain has received more useful ideas and more ingenious inventions from the United States, through the exhibition, than from all other sources."

I have given these extracts in preference to any remarks of my own, on the general success of our contributions at this Great Exhibition. They show, most conclusively, what were the opinions of those competent to judge, as it regarded that class of our articles which every American at the Exhibition, familiar with them and our country, claimed as illustrative of our improvements, and as showing the advances which had been made—and this testimony is the more valuable, as given by those who had, at an early day, committed themselves by their published opinions of the meagerness of our Exhibition, and the inferiority of our articles. With a manliness, however, which I found every where among intelligent gentlemen in England, when the trial demonstrated the value of our articles, the amende was made in the fullest and most gratifying manner.

I am fully sensible that, as a country, we have much to learn in every direction, and this has been, to my mind, most clearly shown in the Exhibition; and I shall be greatly mistaken in my countrymen if they do not largely profit by the lessons which this great Exhibition has taught them. Not an intelligent American who visited

the Exhibition, and examined its contributions with care and attention, but must have been led to the conclusion, that in it there was much every way calculated, if rightly improved, to benefit his country—to enlarge not only our views as to the capabilities of other countries, but to satisfy us of our deficiencies and to encourage us so to direct our energies to still higher attainments in every branch of domestic industry; that we may, as a nation, not only be independent, in a great degree at least, of other countries, so far as the leading articles necessary for our own comfort are concerned, but also be enabled to supply others with a great variety of articles which heretofore we have never done.

It appears to me from all that has been developed by the Exhibition, so far as the character of our country is concerned and its resources have been shown, the result of this meeting together of the nations of the world in friendly rivalry, will not prove unfavorable; and if we but improve, as we may and as I trust we shall, from the lessons here given, we shall be prepared when another convocation shall be held, after a few years shall have elapsed and time has been given to develope the fruits of this, to show to the world that we have not been inattentive to these lessons. We should, however bear in mind that the same influences which operate upon us will more or less affect others, and that no ordinary attainments will enable us fully to compete with those who are now far advanced in many departments and who may be expected to redouble their efforts to retain a position which they have long maintained.

The Exhibition most clearly showed, that science and art have done much for the advance which has been made in every branch of manufacture, and I think it may with safety be affirmed that whenever science or art was put in requisition, there progress was shown superior to others. This lesson I trust will not be lost upon this country, but that it will be so improved as to lead to renewed efforts, to a more complete and thorough education in every branch of arts and manufactures, that we may not only keep pace with the world's progress, but make such advances as will secure to us a pre-eminence.

A strong desire was manifested among the representatives of foreign nations, that an exhibition of a like extended National character should be held in this country at some future period. This exhibition has brought our country to the notice of the world as it has never been presented before; and an anxiety is manifested to come and see what this new world is doing, not only, but how it is, that in so short a period it has been able to compete successfully upon the theater of this Great Exhibition with the oldest nations of the world. Let us then be prepared for that event, and when prepared, let us give, as a Nation, such an opportunity for the world to be present and compete with us, as has been afforded us by the liberality of England. It will be a proud day for our country and for those who may be spared to participate in an exhibition which, so far as the progress which shall be made in every thing that will have a bearing upon the best interests of mankind in every department, will doubtless as far exceed the *Great Industrial Exhibition of all Nations of* 1851, as that has excelled all that have preceded it.

I cannot, in justice to my own feelings and sense of duty close this report, without recording my testimonial to the Royal Commissioners and the Executive Committee, under whose direction and management, the whole Exhibition was arranged and carried out, for their unwearied exertions to afford every possible facility for a fair and impartial adjudication upon the articles which were presented. Their efforts were unremitting, and their arrangements such as to secure as far as could be done, a thorough and satisfactory examination of everything presented for the decision of the Jurors.

To His Excellency Mr. Lawrence, the United States Minister, every American present will unite with me in an award of most heartfelt thanks, for his endeavors previous to and during the exhibition, to secure a favorable result for the contributions of his countrymen, and at the same time, to present in a proper view the country itself through the Exhibition. The favorable result of our whole exhibition was in no small degree secured by his ex-

ertions, in bringing properly before the Royal Commissioners and Jurors, the contributions from this country. His attentions to his countrymen, in the midst of his numerous and pressing official engagements, were most gratifying, and left nothing for them to desire, which his kindness and foresight, had not provided for their gratification, and for a proper appreciation of every thing in the country which it was desirable for them to become familiar with.

To Mr. George Peabody of London, whose name is familiar to Americans who have visited Great Britain for years past, every American connected with the Exhibition, owes a debt of gratitude which cannot be repaid. His attentions were unremitting to his countrymen, and to his kindness and liberality were they indebted, on a foreign shore, for a suitable opportunity of paying due attention to that day memorable in our history, as the day on which we were declared free and independent. And in addition to this, it was owing to his liberality in furnishing the necessary means, that the contributions from this country were arranged in a manner creditable to the country.

Mr. Pishey Thompson of London, long a resident in this country, was a most valuable and discreet friend and counsellor to Americans; myself as well as many of my countrymen, were under great obligations to him, for his unremitting exertions, to contribute in every way in his power to the advancement of our interests, and in securing for us a proper position in the Exhibition. I feel that this tribute to him, is justly due for his most praiseworthy and efficient aid.

The United States Commissioner, Edward Riddle, Esq., had very arduous duties imposed upon him by his position, and while present, devoted his entire energies to their discharge. In his absence to this country, during the most laborious part of the Exhibition, his Assistant, N. S. Dodge, Esq., acted as Commissioner, and discharged his duties with great credit to himself and with benefit to the exhibitors. Charles F. Stansbury, Esq. of Washington, who had charge of the American department, previous to the arrival of Mr.

Riddle, did good service to this country, and I anticipate from the mission with which he was subsequently charged, to report upon the exhibition to the Department of the Interior, that one of the most valuable contributions will be received from him which the exhibition has called forth.

There were many other gentlemen who were officially engaged in the management of the Exhibition, to whom I would most gladly tender my thanks for the very many attentions received from them, which very materially facilitated the discharge of the duties imposed upon those who were connected with the Exhibition either as jurors or exhibitors.

To Your Excellency, I am greatly indebted for the Honor of attending, in behalf of our State, this Great Exhibition of Industry. I have endeavored to the best of my ability to discharge the trust that was reposed in me; if I have failed in doing so, it has not been from want of an ardent desire to do all in my power, fairly to present the claims of the citizens of our State and of our country, as illustrated in the contributions which were presented.

In receiving my commission at the hands of Your Excellency, you were pleased to say to me, "I expect you faithfully to represent the interests and honor of the State of New-York, whose representative you now are." Ever bearing in mind the injunction I received, I endeavored so to fulfil the duties of my appointment, as to afford no cause for regret when those duties ceased; and in presenting to Your Excellency this report, imperfect as it is, I submit it, as evidence of my earnest endeavor faithfully to carry out the desire you expressed.

I am most respectfully yours,

B. P. JOHNSON.

Albany, March 15th, 1852.

LIST OF AMERICAN JURORS

AT THE EXHIBITION, AS PUBLISHED BY THE ROYAL COMMISSIONERS.

Class 3. Hon. Ashbel Smith, Texas.
4. Hon. E. S. Duncan, Virginia.
5. Robert McCarthy, New-York.

Sub-Jury, for Carriages.—O. McDaniel, New Jersey.

Class 6. S. Webber, Massachusetts.
7. Dr. J. V. C. Smith, Virginia.
8. A. Whitney, Virginia.
9. C. M. Lampson, London.
B. P. Johnson, New-York.
10. R. A. Leslie, R. A., London.

Sub-Jury, Musical Intruments.—Dr. J. Robert, Black, Kentucky.

Sub-Jury, Surgical Instruments.—Dr. Thomas, Chadbourne, New-Hampshire.

Class 11. Col. R. E. Coxe, Pennsylvania.
15. N. Kingsbury, Connecticut.
John H. Swift, New-York.
Frederick Schwann.
16. J. S. Cunningham, Virginia.
17. Henry Stevens, Vermont.
18. J. M. Beebe.
20. Elliot Cresson, Pennsylvania.
22. Hon. Horace Greely, New-York, (Chairman and member of Council of Chairmen.)
24. Lucius C. Duncan, Louisiana.
28. Rev. Gorham D. Abbot, Maine.
29. W. K. Smith.

AWARDS,

Made by the Royal Commissioners, to American contributors at the Great Industrial Exhibition of all nations at London, 1851.

Class I: Mining &c. *Prize Medals.*—Adirondack Steel, and Iron Company, New-York, for Steel and Iron.

Morris, Jones & Co., Philadelphia, for Plate Iron.

New-Jersey Exploring and Mining Company, for Zinc Ores, Iron (Franklinite) Ores, Smelting Process, &c.

Trenton Iron Co., New-Jersey, for Iron of fine quality, Ores &c.

Honorable Mention.—Adirondack Co., New-York, Cast Iron &c.

Morrel, Stewart & Co., Ohio, for Sheet Iron.

Morris, Jones & Co., Philadelphia, for Boiler Plate Iron.

Class II: Chemical Preparations, &c. *Prize Medal.*—Power & Weightman, Philadelphia, for Chemicals.

Honorable Mention.—Wetherill Brothers, Phil., Chemicals.

Class III: Substances used for Food. *Council Medal.*—Borden Gail, Jr., Texas, for Preparation of Meat Biscuit.

Prize Medals.—Barnes, W., Vermont, for Maple Sugar.

Bell, Thomas, Harlem, New-York, for Soule's Wheat.

Dean, L., Vermont, for Maple Sugar.

Dill & Mulcahey, Virginia, for Cavendish Tobacco.

Duffield, C., Louisville, Ky., for Hams.

Grant, J. H., Va., for Cavendish Tobacco.

Hecker & Brother, N. Y., for Flour from Genesee Wheat.

Herriott, E. T., South Carolina, for Carolina Rice.

Kirtland, B. B., Greenbush, N. Y., for Maize, 35 varieties.

New-York State Agricultural Society, for Collection of Wheats raised by Gen. Roswell Harmon, Wheatland, Monroe Co., N. Y.

Raymond & Schuyler, West Farms, N. Y., for Flour from Genesee Wheat.

Robinson, P., Va., for Cavendish Tobacco.

Schooley & Hough, Cincinnati, for Hams.

Honorable Mention.—Bridge, John, for Oil Cake.

Dominick, George, Ohio, for Lard,
Hecker & Brother, N. Y., for Farina.
Hotchkiss W., Lewiston, N. Y., for Soule's Wheat.,
Lee, James, & Co., Mass. for Oil Cake.
Mookler & Childs, Ohio, for Cavendish Tobacco.
Oswego Starch Factory, Oswego, N. Y., T. Kingsford & Sons manufacturers, for Fecula of Maize.
Oyler & Anderson, Va. for Cavendish Tobacco.
Thomas, James, for Cavendish Tobacco.
Thomas & Co., for Cavendish Tobacco.
White, M., New-Orleans, for Muscovado Sugar.

Class IV. Vegetable and animal substances used in Manufactures, &c.

Prize Medals.—Bond S., Tennessee, for Cotton.
Cockerill, Ten., for Wool.
Colegate & Co., N. Y., for Starch.
Hampton, W. S. C., for Cotton.
Hicks, George, for Tillandsia usnoïdes.
Holmes, G. L., Tenn., for Cotton.
Hotchkiss, H. G. & L. B., N. Y., for Oil of Peppermint.
Jones, J. R., S. C., for Cotton.
Jones, J. V., " forCotton.
Kimber, A. M., & Co., Penn. for Wool.
Macleod, W. W., S. C., for Cotton.
Maryland State, for Collection of Produce.
Merriwether, J. B., Alabama, for Cotton.
Nailor, J., Mississippi, for Cotton.
Oswego Starch Factory, Oswego, N. Y., T. Kingsford & Sons, for Starch.
Perkins & Brown, Ohio, for Wool.
Pope, J., Tenn., for Cotton.
Seabrook, W., S. C., for Cotton.
Strean, J. G., Penn., (entered by mistake in the name of J. H. Ewing,) for Wool.
Thompson, Rev. Z., Vt., for Woods.
Honorable Mention.—Dix, E. R., N. Y., for Flax, Hemp, &c.

Dominick, George, Ohio, for Lard Oil.
Emory, T., " "
Feutchwanger Dr. L., N. Y., for Bleached Shellac.
Frank, F., Ohio, for Lard Oil.
Goddard, L., for Whale Bone.
Holbrook & Stanly, Ohio, for Lard Oil.
Kitteridge, F. O., New Hampshire, for Corn-husk fiber.
Pell, R. J., New-York, for Woods.
Truesdale, Jacobs & Co., New-York, for Cotton.

Class 5. Carriages, &c. Childs, C. for a slide top Buggy.
Watson, G. W., Philadelphia, for Sporting Wagon.

Class 6. Manufacturing Machines and Tools. *Council Medal.*—
Dick, D., J. E. Holmes agent, New-York, for Anti-friction presses and Engineers tools.
Prize Medals.—LeRow & Blodget, New-York, for Rotary Sewing Machine.
Earl, T. K. & Co., Massachusetts, for Card Clothing.
Hayden, W., Connecticut, for Drawing Regulator for Cotton.
Lowell Machine Shop, (Massachusetts,) for Self-acting lathe and Power Loom.
Morey, C., Massachusetts, for Eastman's stone cutting machine.
Starr, Charles, New-York, for Book Binding Machine.
Woodbury, J. P., Massachusetts, for Wood Planing Machine.

Class 7. Civil Engineering, &c. *Prize Medal.* Iron Bridge Co., New-York, for Model of Rider's patent Iron Bridge.

Class 8. Naval Architecture, &c. Ordnance, Armor, &c.-
Prize Medals. National Institute, Washington, for Models of Ships of War and Merchant Vessels.
St. John, J. R., Buffalo, N. Y., for Nautical Compass, purporting to show the presence of any disturbing forces upon the needle: and to show the amount of the deflection resulting from these causes.

Honorable Mention.—Colt, Samuel, Connecticut, for Revolving Rifles and Pistols.

Palmer, W. R., New-York, for Target Rifle.

Robbins & Lawrence, Vermont, for Military Rifles

Class 9. Agricultural Implements, &c. *Council Medal.*—McCormick, C. H., Illinois, for Reaping Machine.

Prize Medal.—Prouty & Mears, Boston, Massachusetts, for Plow.

Class 10. Philosophical Instruments, &c. *Council Medal.*—Bond, William & Son, Massachusetts, for the invention of a new mode of observing Astronomical phenomena, &c.

Prize Medals.—Bache, A. D., District Columbia, for Balances.

Brady, M. B., New-York, for Daguerreotypes.

Burt, W. A., Michigan, for Solar Compass, Surveying Instruments.

Ericcson, J., New-York, for Sea Lead, Pyrometer, &c.

Lawrence, M. M., New-York, for Daguerreotypes.

Whipple, J. A., Mass., for Daguerreotype of the Moon.

Honorable Mention.—Mayall, J. E.. for Photographs.

Class X. A. Musical Instruments.—*Prize Medals.*—Chickering, J., Massachusetts, for square Piano Forte.

Eisenbrant, C. H., Maryland, for Clarionettes and Flutes.

Gemunder, G., Mass., for a Violin, Joseph Guaruerius, (chiefly) and three other Violins and a Viola.

Meyer, C., Penn., for two Piano Fortes.

Nunns, R. & Clark, New-York, for 7 octave, square Piano Forte.

Honorable Mention.—Gilbert & Co., Mass., for Piano Forte with Æolian Attachment.

Goodyear, C., Conn., for the successful application of India Rubber, for the manufacture of a Flute.

Hews, C., Mass., for a square Piano Forte.

Pirsson, J., New-York, for a patent square Piano Forte.

Money Award.—Wood, J. S., Virginia, for the expenses incurred in constructing his Piano Violin, £50.

Class X. C. Surgical.—*Prize Medal.*—Palmer, B. F., Mass., for Artificial Leg.

Class XI, Cotton Goods. *Prize Medals.*—Amoskeag Manufacturing Co., Mass., for Drillings, Tickings, Sheetings and Cotton Flannels.

Willimantic Duck Manufacturing Co., Conn., for Cotton Sail Cloth.

Class XII, Woolen and Worsted. *Prize Medal.*—Gilbert & Stevens, Mass., for Flannels.

Honorable Mention.—Holden, B. T & D., Mass., for Blankets.

Class 15: Shawls, &c. *Prize Medal.*—Lawrence, Stone & Co., Massachusetts, for Tartans made from native wool.

Class 16: Leather, Harness, &c. *Prize Medals.*—Baker, J. B., Massachusetts, for Light Harness.

Crawford, A. M., Pennsylvania, for Calf skins tanned in oak.

Hickley & Tull, Pennsylvania, for two Portmanteaus.

Lacey & Phillips, Pennsylvania, for a Case of Harness.

Wisdom, Russell & Whitman, Ohio, for specimens curled hair for furniture.

Honorable Mention.—Adams, H., New-York, for Portable Saddle.

Class 17: Paper, Printing, Book Binding. *Prize Medals.*—Herrick, J. K., New-York, for Superior ruling of account books.

Howe, S. G., Massachusetts, for a System of characters, slightly angular in form, without capitals, for the blind.

Honorable Mention.—Bradley, Band & Co., Massachusetts, for Book cloth binding and Block gilding.

Gassett, H., Massachusetts, for Superior ruling of account books.

McAdams, J. & W., Massachusetts, for Ruled account books and circular ruling.

Sibell & Mott, New-York, for Specimens of account books.

Starr, C., New-York, for binding works for the Blind, with thickened margins to prevent the embossing from being pressed out.

Walker, E. & Co., New-York, for a Bible, elaborately bound and ornamented, with a recess for a family register inside the cover.

Class 19: Carpets, &c. *Prize Medal.*—Albro & Hoyt, New Jersey, for Floor cloths.

Honorable Mention.—Lawrence, A. & A. & Co., Massachusetts, for Carpet.

Class 20: Clothing, Shoes, &c. *Prize Medals.*—Addington, W. H., Norfolk, for shoes for mining purposes.

Haight, Mrs. E., New-York, for a Shirt.

The workmen of Jeffers, W. H., New-York, for Ladies Boots and Shoes.

Honorable Mention.—Breed, N. A. & Co., Massachusetts, for Childrens' Shoes.

Jeffers, W. H., New-York, for collection of Boots and Shoes.

Milward James & Son, New-York, for Bonnets made of cotton braid.

Class 21: Cutlery & Edged Tools. *Prize Medals.*—Brown & Wells, Pennsylvania, for Tools.

North Wayne Scythe Company, Maine, for Scythes.

Simmons, D. & Co., New-York, for Edge Tools.

Honorable Mention.—A. B. Allen & Co., New-York, for Tools.

Class 22: Iron and general Hardware. *Prize Medals.*—Adams & Co., Massachusetts, for Bank lock.

Arrowsmith, G. H., New-York, for Permutation Locks.

Chilson, Richardson & Co., Massachusetts, for Hot Air Furnace.

Cornelius & Co., Pennsylvania, for Chandeliers.

Day & Newell, New-York, for parautoptic permutating Locks, (with special approbation.)

Herring, S. C., New-York, for Salamander Safe

Howland, C., New-York, for Bell Telegraph.

McGregor & Lee, Ohio, for Bank Lock.

Honorable Mention.—Pond & Co., Massachusetts, for Cooking Stoves.

CLASS 26. *Prize Medal.*—Brooklyn Flint Glass Co., New-York, for Flint Glass.

CLASS 26: FURNITURE, &c. *Honorable Mention.*—Ragan, W., Pennsylvania, for Reclining chair.

CLASS 27: *Honorable Mention.*—Maryland Soap Stone Company, for Articles made of Soap Stone.
Salt & Mear, Ohio, for Water Vase of fine brick clay.

CLASS 28: INDIA RUBBER AND OTHER MANUFACTURES FROM ANIMAL AND VEGETABLE SUBSTANCES. *Council Medal.*—Goodyear, C., Connecticut, for India Rubber.
Prize Medals.—Fenn, J., New-York, for Ivory Combs.
Hayward Rubber Company, Connecticut, for India Rubber Shoes.
Loring, G., Massachusetts, for Water Pail.
Moulton, S. C., Massachusetts, for India Rubber Goods.
Pratt, Julius & Co., Connecticut, for Ivory veneer.

CLASS 29: MISCELLANEOUS AND SMALL WARES. *Prize Medals.*—
Bazin Xavier & Co., Pennsylvania, for Fancy Soaps.
Hauel J., Pennsylvania, for Toilet Soaps.
Louderback, M. J., Ohio, for Preserved Peaches.
Maryland, State, for Collection of products.
St. John, J. R., Buffalo, New-York, for Soap.
Taylor, H. P. & W. C., Pennsylvania, for Toilet Soap.

CLASS 30: SCULPTURE. *Prize Medal.*—Powers, Hiram, for Statue of Greek Slave, in Marble.

NEW-YORK.

His Excellency Governor Fish, In July, 1850, appointed the following gentlemen as a committee in behalf of the State of New-York, to examine and certify articles intended for exhibition in London.

Hon. Luther Bradish, New-York.
Gen. Adoniram Chandler, New-York.
Charles Henry Hall, Esq., "
Ezra P. Prentice, Esq., Albany.
Benj. P. Johnson, Esq., "
Hon. Anthony Van Bergen, Coxsackie.
Hon. Zadock Pratt, Prattsville.
Hon. William Buell, Rochester.

The committee was organized on the 27th August, 1850, by the appointment of the Hon. Luther Bradish, Chairman, and B. P. Johnson, Esq., Secretary. The committee were engaged for a number of weeks in the discharge of their duties, and examined several hundred articles offered for the exhibition. It is especially due to the chairman of the committee, Hon. Luther Bradish, to state, that it was owing to his unwearied efforts, that the entire list prepared from this State was arranged with so much care and attention, that it is believed no difficulty whatever occurred at the exhibition, in regard to articles that had passed through his hands. The labors of the committee were very much increased, by an order from Washington after the time for receiving entries as originally made, had expired, authorizing persons from other States, to make their entries through the New-York committee, of which a considerable number availed themselves. The chairman of the committee and Gen. Chandler, of New-York, had most of this labor imposed upon them.

NEW-YORK.

List of articles accepted by the Committee, and approved by the Central Authority at Washington.

Ambler & Avery, New-York, Dentistry.
Armstrong, S. T., do Air Pontoons.
Allcott, James, do Dentistry.
* Allen, George F., Utica, Telescopic Rifle.
† Adams, Henry, New-York, Portable Saddle.
American Chair Co., Troy, Chairs, Bedsteads and Railroad Seats.
† Allen, A. B. & Co. New-York, Agricultural Implements.
Atlantic Dock Mills, Brooklyn, Indian Meal, Flour, &c.
†Arrowsmith, George A., New-York, Jennings' Permutation lock.
† Adirondack Steel Co., do Steel, Iron and Iron Ore.
Brown, S. New-York, Body Brace Supporter.
† Brooklyn Flint Glass Co., Samples of Glassware.
† Bell, Thomas, Morrisania, Farm Products, Wheat, Rye, Oats, &c.
Blakeslee, Joseph, North Castle, Merino Wool in fleece.
Brown, Levi, Brooklyn, Gold Pens and Cases.
† Brady, M. B., New-York, Daguerreotypes.
Brady, D'Avignon & Co. New-York, Printing and Binding.
* Bullock, S. W. & J., New-York, Self operating Oil Press.
Benjamin, Joseph R., New-York, Elastic Trusses.
Brown, Solyman, New-York, Dentistry.
Brooks, Wm. T., New-York, Bell Telegraph.
Barton, Caleb D., Keesville, Iron Ore.
Blake, William, New-York, Mineral Fire Proof Paint.
Bourgard, Charles, New-York, Hair Work.
Boole, Leonard H., do Model Clipper Ship.
Borham, Frederick, New-York, Model of New-York Exchange. (Broken at Southampton.)
Bartholomew, J. H. New-York, Safety Valve Hydrant.
Barlow, Edward, do Dentistry.
Battey, Thomas, do Metallic Serving Mallets.

Baron, Brothers, New-York, Balance Fire Ladder and Escape.

Baron, Brothers, New-York, New application of blasts to furnaces.

Brady, W. N., New-York, "Kedge Anchor," a work on practical seamanship.

Buchman, John, New-York, view of New-York and Brooklyn.

Bidwell, Rev. W. H., New-York, Maps.

Brown & Lambert, New- York, Whitman's Patent Portable Bed.

Blind, Institution of the, New-York, Samples of work.

Chase, Miss Mary M., Chatham, Herbarium 300 N. Y. Plants.

Chevalier, John D., New-York, Dental Instruments.

Commerford & Redgate, New-York, Oak Chairs.

Cochran, J. W., N. Y., Brick Machine.

do. do. Bevel sawing and Stone dressing Machine.

Clark, Ralph, do. Oat Meal.

†Colegate, Wm., & Co., New-York, Pearl Starch.

Colton, J. H., New-York, Maps.

Chatain, Henry, do. Patent Machine Moldings.

Church & Chittenden, New-York, India Rubber Shoes.

Clerihugh, Van, New-York, Hair Work.

*Dean, Amos, & Co., Albany, Argillo Knobs &c.

†Dix, E. R., Vernon, Farm Products.

Disturnell, J., New-York, Maps.

†Day & Newell, New-York, Parautoptic Permutating Locks &c.

Day, Horace H., New-York, India Rubber Shoes &c.

Dennington, C. L., do. Model of Floating Church.

D'Avignon, Francis, do. Lithographs.

†Dick, D., do. Anti Friction Presses.

*Emery & Co., Albany, Railroad Horse Power.

Evans, O. B., Buffalo, Daguerreotypes.

Eddy & Co., Union Village, Horse Power.

†Erricson, John, New-York, Enginery, Mechanism and Nautical Instruments.

Endicott & Co., New-York, Lithography.

Frisbie, M. J., New-York, India Rubber Shoes.

Finch, Hiram, Honeoye, Genesee Flour.

†Fenn, John, New-York, Ivory articles.

Fitch, Dr. Sam'l L., New-York, Plated Abdominal Supporters.

†Feutchwanger, Dr. Lewis, New-York, Minerals and Mineral Substances used in the arts &c.

Fox & Polhemus, New-York, Bolt of Cotton Duck.

Grant, A. T., Schaghticoke, Fanning Mill.

Goold, James, & Co., Albany, Pony Sleigh.

*Gavit D. E., New-York, Daguerreotypes.

Griffen, Daniel, New-York, Anti Friction Box for Railroads.

do. do. Model Steamboat Water Wheel, and Fuel-saving apparatus for Steam Boilers, &c.

Griffith, J. W., New-York, Model Ocean Steamer.

Godwin, Thomas, do. Enginery and Mechanism.

Genin, John N., do. Hats and Caps.

Gray, Dr. S., do. Artificial Eyes.

Gardner, J. N., Troy, Curry Combs.

Gibson, William, New-York, Stained Glass.

Gwynne, J. Stuart, do. Centrifugal Pump.

Hurst, James A., Albany, Preparation of Birds, &c.

Hotchkiss, Gideon, Windsor, Tram Block and Noddle Iron.

†Hecker & Brother, New-York, Genesee Flour, Farina, &c.

†Herring, Silas C., New-York, Iron Safe.

Hawes, G. E., New-York, Dentistry.

Hotchkiss & Prescott, Phelps, Indian Meal, kiln dried.

Hill, Cha's J. & Sons, Rochester, Genesee Flour.

Harmon, Anan, Clifton, Genesee Flour.

Hiler, Selah, New-York, Stair Rods, Type Distributor, &c.

Harrison, C. C., do. Daguerreotypes.

Higginbotham, L. C., Oneida, Miniature Steam Engine.

Hannington, W. J., New-York, Stained Glass.

Holmes, J. E., do. Ratchet Hoisting Machine.

Haskell, Merritt & Bull, New-York, Powdered Drugs.

Hill, John, New-York, Travelling Trunks.

Hanley, James, New-York, Improved Key and Railroad Catcher.

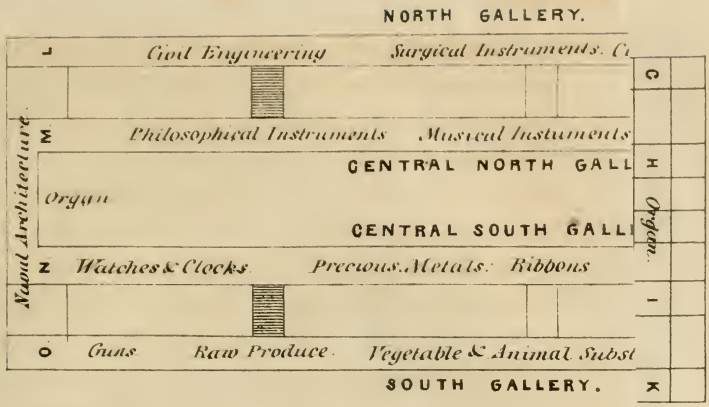
†Haight, Mrs. E., New-York, Shirt making.

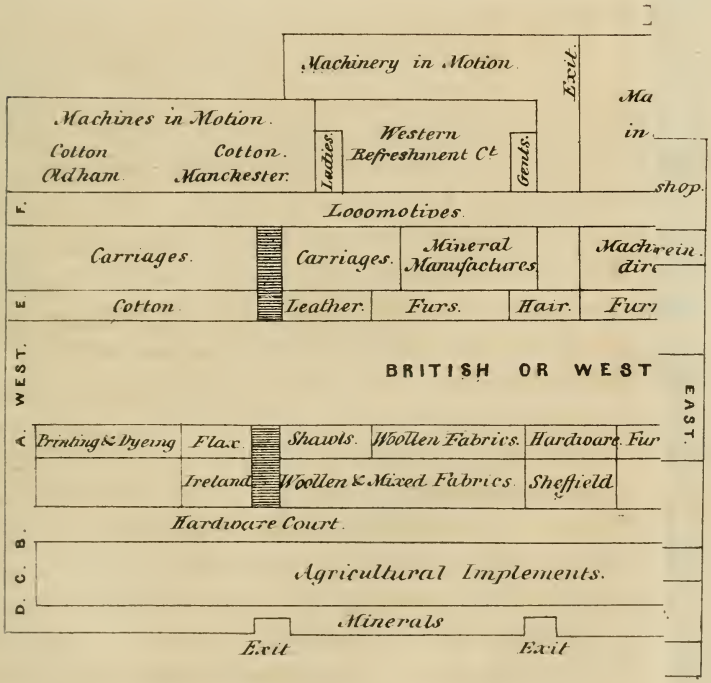
†Howland, Charles, do. Bell Telegraph.

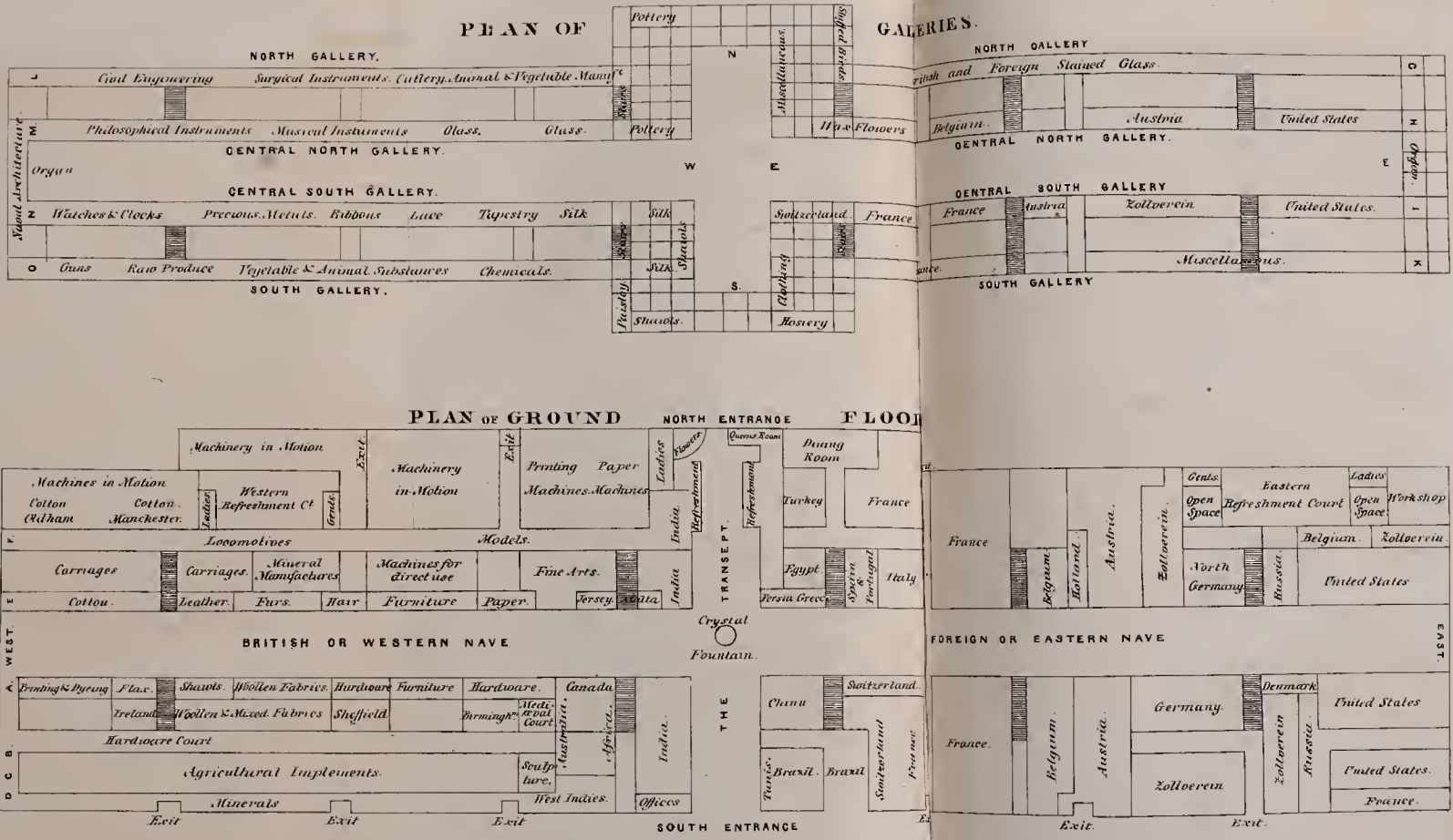
†Hotchkiss, H. G. & L. B., Lyons, Oil of Peppermint.

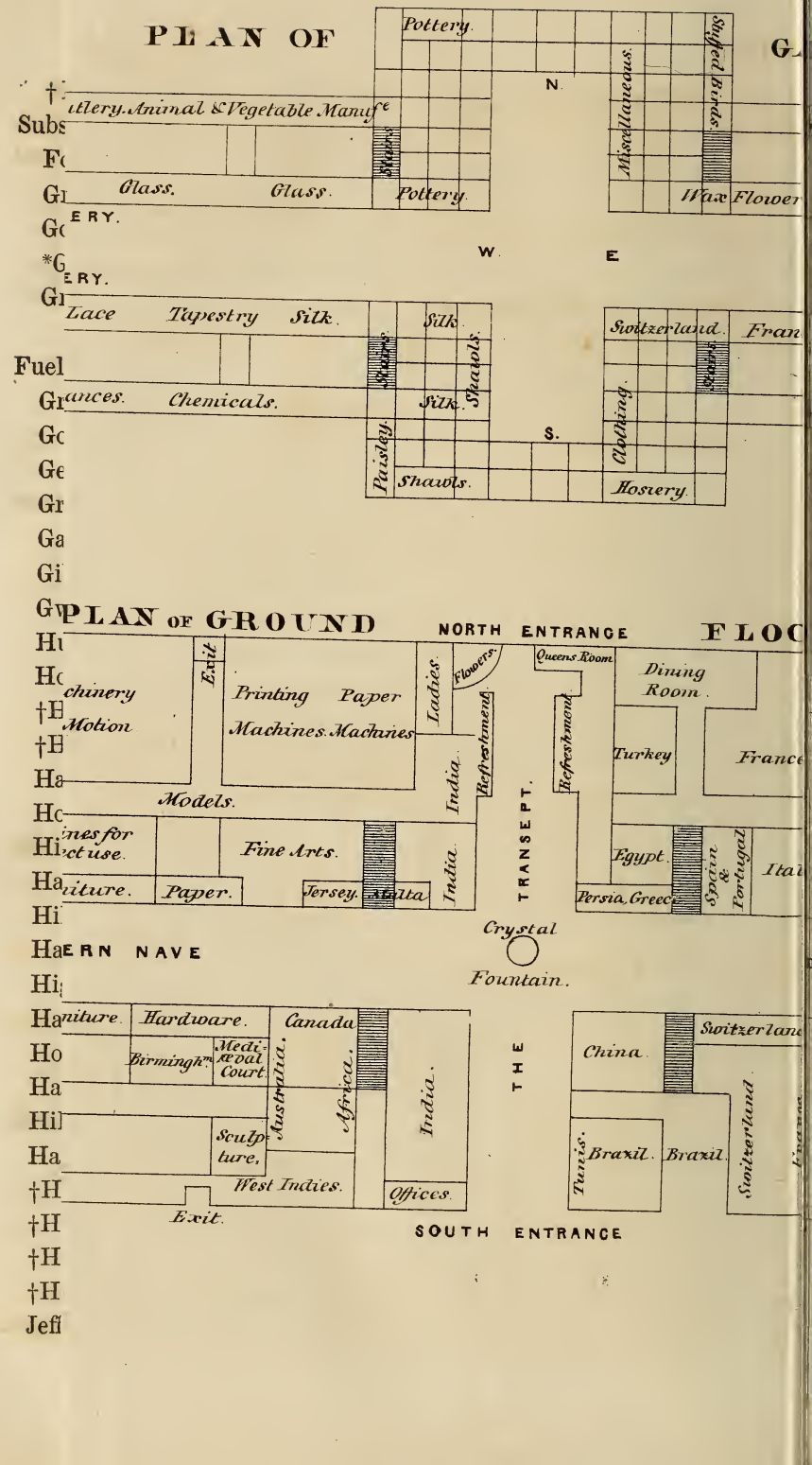
†Hotchkiss Wm., Lewiston, Soule's Wheat.

Jeffrey, Miss Agnes, Canandaigua, Painting Wild Flowers.

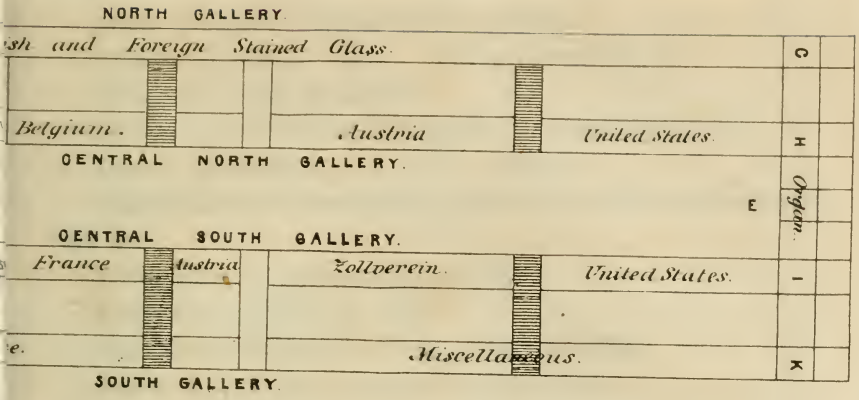

NORTH GALLERY.
L
Civil Engineering
Surgical Instruments. Cl
C
M
Philosophical Instruments
Musical Instruments
Naval Architecture.
CENTRAL NORTH GALL
H
Organ
Organ.
CENTRAL SOUTH GALLI
N
Watches & Clocks.
Precious Metals.
Ribbons
I
O
Guns
Raw Produce.
Vegetable & Animal Subst
K
SOUTH GALLERY.

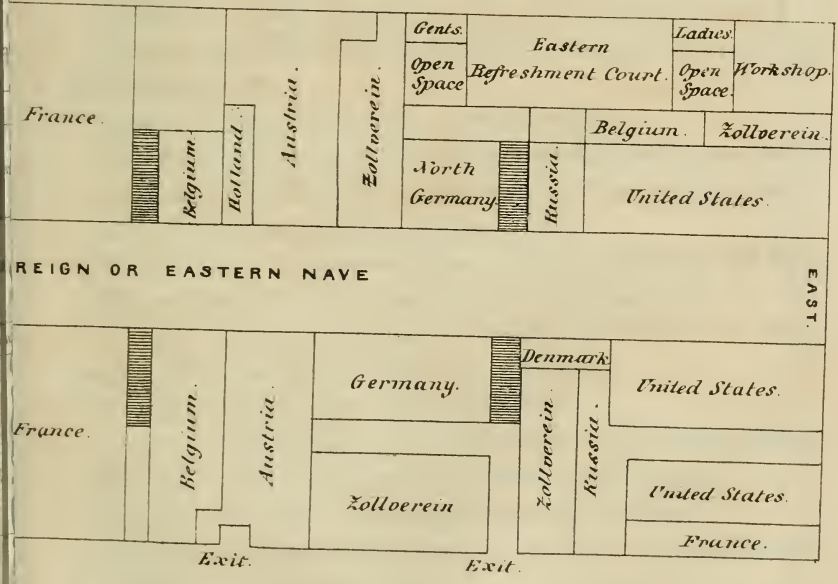

Machinery in Motion.
Exit.
Ma
in
Machines in Motion.
Cotton
Oldham.
Cotton.
Manchester.
Ladies.
Western
Refreshment Ct
Gents.
shop.
F.
Locomotives.
Carriages.
Carriages.
Mineral
Manufactures.
Machrein.
dire
E
Cotton.
Leather.
Furs.
Hair.
Furs
A. WEST.
BRITISH OR WEST
EAST.
Printing & Dyeing
Flax.
Shawls.
Woollen Fabrics.
Hardware.
Fur
Ireland.
Woollen & Mixed Fabrics.
Sheffield.
Hardware Court.
D. C. B.
Agricultural Implements.
Minerals
Exit
Exit


PLAN OF GALLERIES.
NORTH GALLERY.
Civil Engineering
Surgical Instruments. Cutlery. Animal & Vegetable Manuf.
Philosophical Instruments
Musical Instruments
Glass.
Glass.
Pottery
Sculpture
Miscellaneous.
Raw Flowers
CENTRAL NORTH GALLERY.
Organ
CENTRAL SOUTH GALLERY.
Watches & Clocks
Precious Metals.
Ribbons
Lace
Tapestry
Silk
Guns
Raw Produce
Vegetable & Animal Substances
Chemicals.
SOUTH GALLERY.
Shawls.
Hosiery
Switzerland
France
NORTH GALLERY
British and Foreign Stained Glass.
Belgium.
Austria
United States
CENTRAL NORTH GALLERY.
CENTRAL SOUTH GALLERY
France
Austria
Zollverein
United States.
Miscellaneous.
SOUTH GALLERY
PLAN OF GROUND
NORTH ENTRANCE
FLOOR
Machinery in Motion
Machines in Motion
Cotton Oldham
Cotton Manchester.
Western Refreshment Ct
Machinery in Motion
Printing Paper Machines
Machines
Ladies
Gents
Refreshment
Locomotives
Models.
Carriages
Carriages.
Mineral Manufactures
Machines for direct use
Fine Arts.
Cotton.
Leather.
Furs.
Hair
Furniture
Paper.
Jersey
Malta
Queens Room
Dining Room
Turkey
France
Egypt
Spain & Portugal
Italy
Persia
Greece
TRANSEPT.
Crystal Fountain.
BRITISH OR WESTERN NAVE
FOREIGN OR EASTERN NAVE
WEST.
EAST.
Printing & Dyeing
Flax.
Shawls.
Woollen Fabrics.
Hardware
Furniture
Hardware.
Canada.
Ireland.
Woollen & Mixed Fabrics
Sheffield.
Birmingham.
Medieval Court
Australia.
Africa.
India.
Hardware Court
Agricultural Implements.
Sculpture.
Minerals
West Indies.
Offices
Exit
Exit
Exit
SOUTH ENTRANCE
THE
China
Switzerland.
Tunis.
Brazil.
Brazil
Switzerland
France
Gents.
Eastern
Ladies
Open Space
Refreshment Court
Open Space
Workshop
Belgium.
Zollverein
North Germany
Russia.
United States
Holland.
Austria.
Zollverein.
France.
Belgium.
Germany.
Denmark.
United States
Zollverein
Russia.
United States.
France.
Exit.
Exit.


PLAN OF
Pottery.
Stuffed Birds.
N.
Miscellaneous.
Spirits.
Glass.
Glass.
Pottery.
Wax Flowers
W.
E
Lace
Tapestry
Silk.
Silk.
Shawls.
Silk.
Shawls.
Switzerland.
Shawls.
Clothing.
Paisley.
Shawls.
Hosiery.
S.
PLAN OF GROUND
NORTH ENTRANCE
Exit.
Printing Machines.
Paper Machanes
Ladies.
Flowers.
Queens Room.
Dining Room.
Refreshment
Refreshment
Turkey
France
Models.
India.
TRANSEPT.
Fine Arts.
India.
Egypt.
Spain & Portugal
Paper.
Jersey.
Malta.
Persia, Greece.
Crystal
Fountain.
Hardware.
Canada.
Medieval Court.
Birmingh.
Australia.
Africa.
India.
China.
Switzerland
Sculpture.
Brazil.
Brazil.
Tunis.
West Indies.
Offices.
Exit.
SOUTH ENTRANCE

RIES.





Rich.d H. Pease. lith. Albany.

†Iron Bridge Co., New-York, Iron Bridge.

†Jeffers, W. H., do. Ladies French Shoes.

†Workmen of W. H. Jeffers, do do

Jennings, W. T. & Co., New-York, Coat and Pantaloons.

Jacot & Courvoisier, do. Watch.

†Kirtland, B. B., Greenbush, Indian Corn with its preparations for use.

Leask, Mrs. J., Albany, Needlework.

Leary & Co., New-York, Hats.

†Lawrence, M. M., New-York, Daguerreotypes.

Leach, M. S. & H. J , Lyons, Genesee Flour.

Lyon, Emanuel, New-York, Magnetic Powders.

Lathrop, J., Le Roy, Genesee Flour.

Lee, Wellington, New-York, Spathic Ore.

Lloyd, Lyman J., Albany, Single Harness, Trunks and Valises.

Low, Lynch & Co. New-York, Soap.

Learned & Thatcher, Albany, Stoves,

More, D. D. T., Watervliet, Corn Brooms.

†Millward, James & Son, New-York, White Pamela Bonnets.

Mawson, Brothers, New-York, Muff, Victorine and Wristlett's of American Fur.

Meade, Brothers, New-York, Daguerreotypes.

Macey, Josiah & Sons, New-York, Spermacetti and Sperm Candles.

McWeeney, Michael, New-York, Portable Parlor Green House.

Mott, C. A., Lansingburgh, Mineral Paint.

*Mix&Gardner, Schoharie, Model of a Wagon with improved axle.

Macey, Stanton & Co., New-York, Woolen Cassimeres.

† New-York State Agricultural Society, 35 varieties of Wheat, prepared by Gen. Roswell Harmon, Wheatland.

† Nunns & Clark, New-York, two Pianos.

† Oswego Starch Factory, Oswego, Starch and Pudding Starch.

Oliver, T., New-York, Tailors Transfers and Patterns.

Page, Ezekiel, New-York, Oars, Sweeps and Sculls.

Pratt, Zadock, Prattsville, Leather, Hemlock and Oak Tanned, and Lithography of Prattsville.

† Pirsson, James, New-York, Double Grand Action Piano Forte.

* Peters, T. C., Darien, Sack of fine Wool.

† Pell, Robert L., Pelham, American Woods.

Putnam, G. P., New-York, Books and binding

Pooley, Samuel I., New-York, Fine Cutlery.

Pecare & Smith, New-York, Case of Colt's Pistols.

Phalon E., New-York, Hair Work.

* Pease, Richard H., Albany, Lithographs American Fruits.

* Parker & Brown, Utica, Bale Wool.

† Palmer, W. R. New-York, Target Rifle.

* Read, Charles A., Washington Mills, Fluted Fulling Mill.

Ross, Charles, Rochester, Fitzgerald Portable Grist Mills.

Rousseau, A. J., Troy, Essex Iron Ore.

Roy, W. L., New-York, Hebrew and English Dictionaries.

Rallings, Mrs. W., New-York, Millinery.

† Raymond & Schuyler, West Farms, Flour and Pearl Barley.

Rogers, James, New-York, Telegraph Register and Keys.

Smith, Leonard, Troy, 2 smut machines.

† Starr, Charles, New-York, 2 machines for Printing and Backing books.

† Starr, Charles, New-York, Bible for the Blind.

† St. John, John N., Buffalo, Self-determining Compass.

St. John, John N., do Aquatic Velocimeter, and Geered hand Log.

Starbuck, N. B., Troy, Fourteen Plows.

Sherman & Smith, New-York, Map United States.

Smead, Charles New-York, House's Printing Telegraph.

Simmons, Mrs. M., New-York, Millinery.

Spaulding, J., New-York, Silk Quilt.

† Sibell & Mott, do Bank Account Books.

Sperry, Henry, do Clock.

Stanson, David, do Penmanship.

Seaburry, J. & J. L., New York, Stove Polish.

† Simmons, D. & Co., Cohoes, Edge Tools.

Stevens, Henry, New-York, Preserved Peaches.

Stevens & Co. Corrugated Boiler and Bridge and Excavator, by G. R. Montgomery.

Tuckerman, E. G., New-York, Model for tempering and straightening saws.

Tuckerman, E. G. New-York, Butterworth's Combination Lock.
Tuckerman, E. G. New-York, Air exhausted Coffin.
Thompson, Wm. M., New-York, Pictorial Book Binding Stamps.
Thornton, Mrs. Frances, New-York, Shirt and Laundry work.
Thompson, Sam. L., Setauket, Australian Wheat.
Tuph, John, New-York, Cane Chairs.
Tobit, John, H., New-York, combination Type.
† Truesdell, Jacobs & Co., New-York, Cotton.
* Wright, W. P & C. B., Rochester, Bevel Sawing Machine.
Wells, Levi, Rochester, Wheel Cultivator.
Woodcock, Frederick, Brooklyn, Oil Cloth.
Wood, Tomlinson & Co., New-York, Sporting Wagon.
†Walker, Edward & Co., New-York, specimens of Binding (Bible.)

The following entries, from this State, were made at the Palace in London, after the Exhibition was opened.

Adams, N., New-York, Brick Making Machine.
Anthony, C. J., New-York, Breech Loading Gun.
Andrews, H. Q., Townsends' Sarsaparilla.
Burch, L. D., Waterville, Cooking Stove, Air Tight.
Beach, Brothers, New-York, cheap American newspapers.
Beach, W., New-York, Books on Botany.
Brainard, C. H., New-York, Daguerreotypes of Presidents of the United States.
Browning, William, drawing of engine, steamer "Pacific."
Commerford & Redgate, New-York, light cane Chairs.
Campbell, S., New-York, a Lapping Machine.
Dusphin J. E., Self-adjusting Churn.
Dawson, George, Albany, file New-York State Newspapers.
Eddy, G. W. & Co., Waterford, Patent, toughened metallic railway wheels.
Francis, J., New-York, rowing boat of Spanish Cedar.
Forrest, R., New-York, shirts.
Howe, David W., New-York, Townsend's Sarsaparilla.
† Herrick, J. K., New-York, Account Books.
Hyde, J. J., New-York, Axle-Tree.

Harris, —— Waterville, Patent Paint Mills.

LeRoy & Co., New-York, Tin pipes made by Hydraulic pressure.

† Lerow & Blodget, New-York, Sewing Machin

Mahony, —— Barrel Beef.

Miles, Pliny, New-York, Gold and Silver Coins.

Miller, John E., New-York, New Orleans Moss.

Nicholson, A., New-York, Table Cover.

Oliver, F., New-York, Apparatus for measuring.

Prosser, T., New-York, Model machine for rolling Tin.

Prosser, T. & Sons, New-York, Model Horse Power and other machines.

Roy, James & Co., West Troy, Woolen Shawls from Merino Wool.

Ross, G., New-York, India Rubber Shoes.

Rodgers, S. H., New-York, Velocipedes.

Shearman, E. S., New-York, Lard Oil.

Smith, J. M. & Co., New-York, Barrel Beef.

† St. John, J. R., Buffalo, Caldwell, Payson & Cos., "Excelsior Soap."

Tyler, P. B., New-York, Railway Switch and Water Guage.

Willard, Mrs. Emma, Troy, Chronological Charts, &c.

Whipple, J. E., West Troy, Lard Oil.

* Several of the articles entered were not sent to the Exhibition, and are noted with a * as far as recollected.

† Prizes awarded or Honorable Mention given.

INDEX.