



THE GREAT PATENT



J TALLIS & CO LONDON & NEW YORK.



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A Memorial to the Founder
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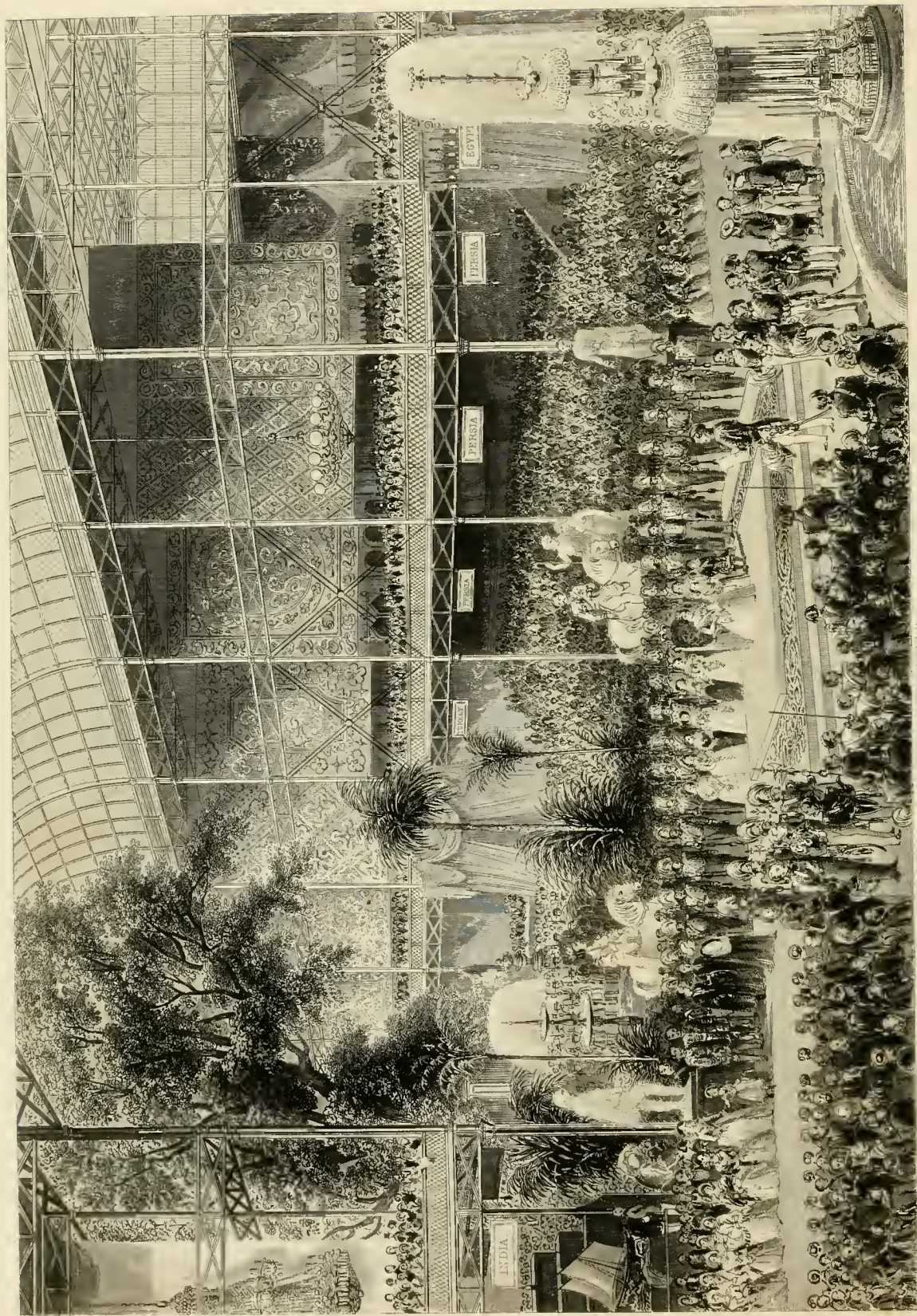


Engr. and by D. found from a Daguerreotype

Victoria

TALLIS'S
HISTORY AND DESCRIPTION
OF THE
CRYSTAL PALACE
Illustrated





THE GREAT EXHIBITION OF 1851. THE PALACE OF CHRISTIANITY. THE GREAT EXHIBITION OF 1851. THE PALACE OF CHRISTIANITY. THE GREAT EXHIBITION OF 1851. THE PALACE OF CHRISTIANITY.

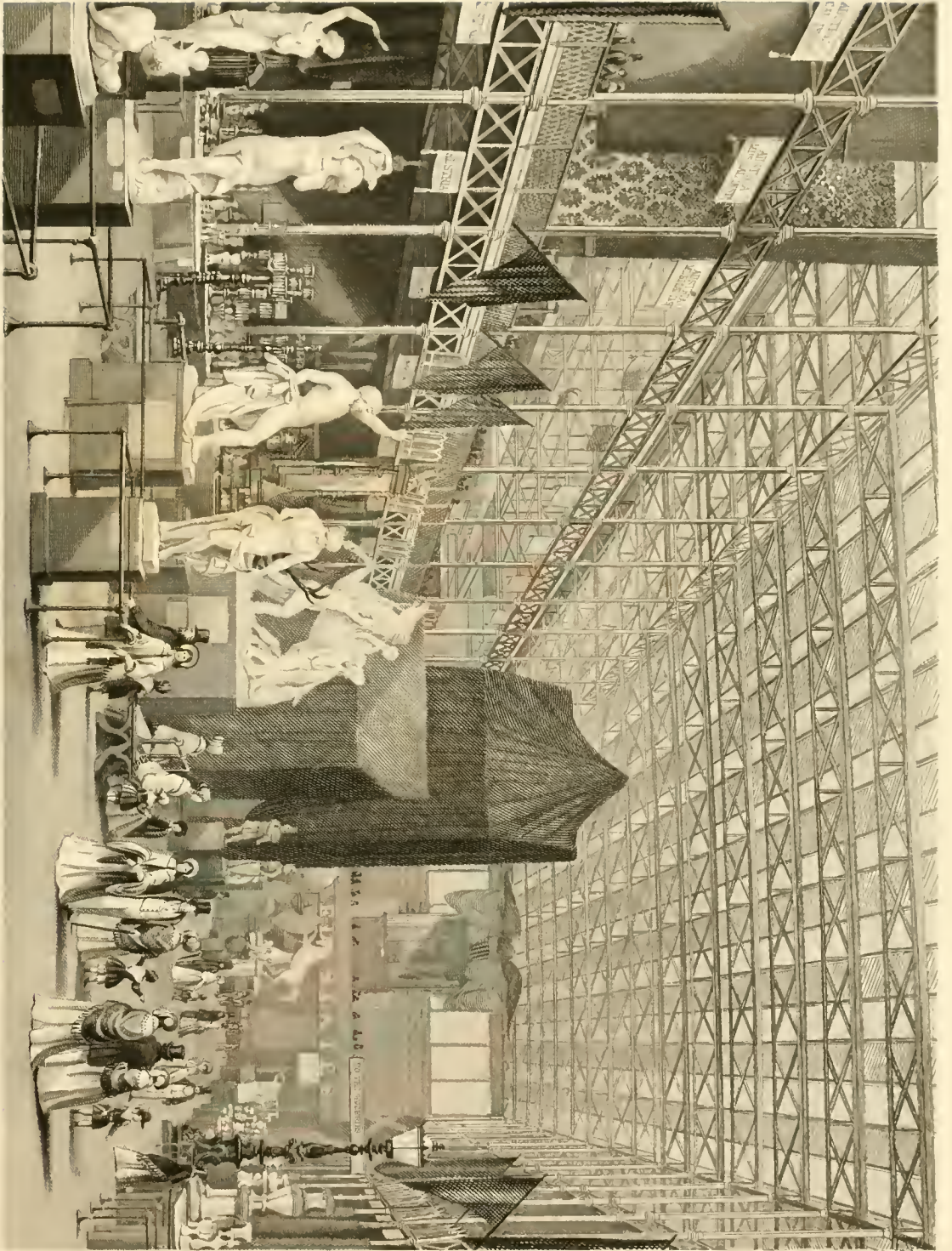
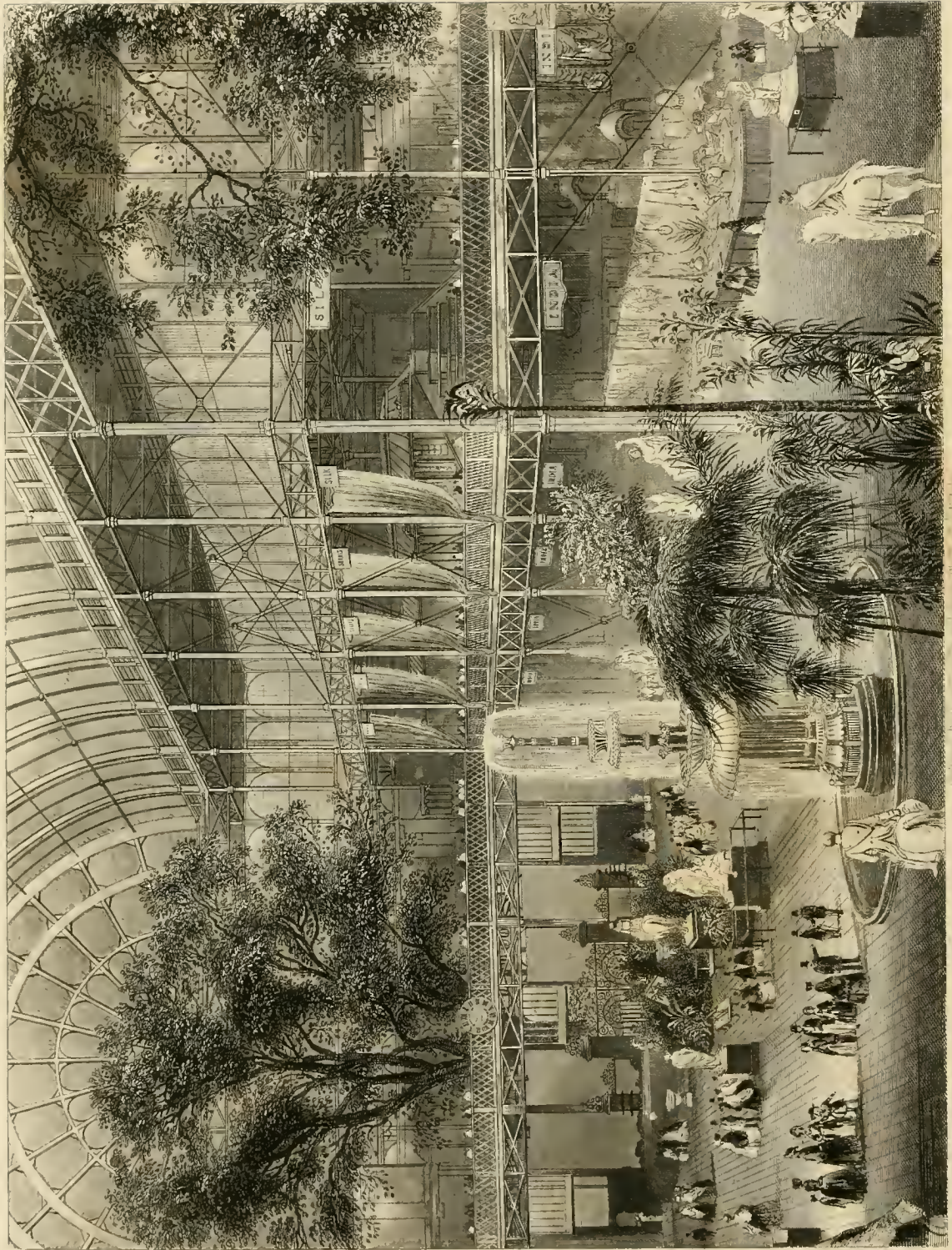


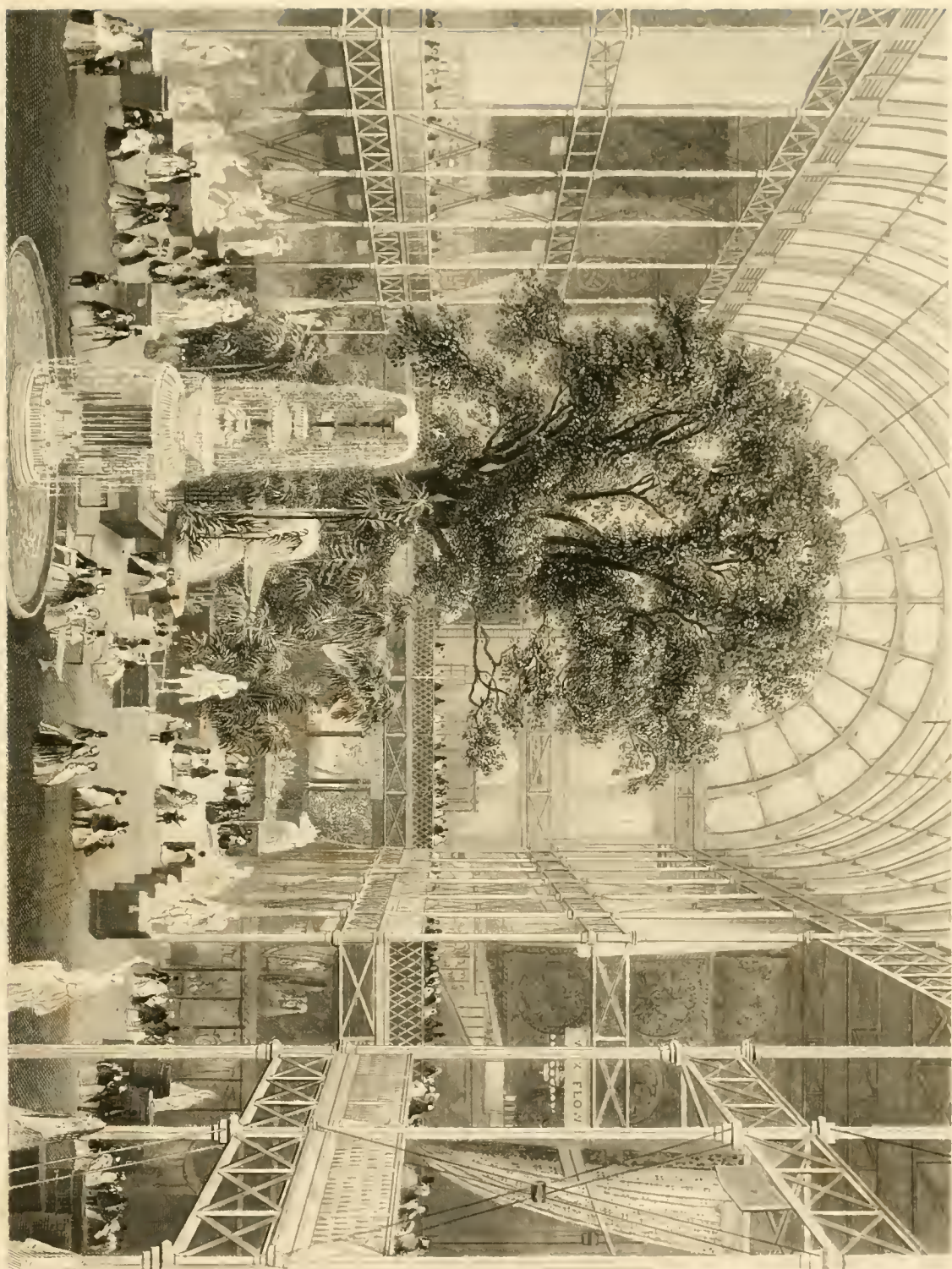
Fig. 1. The Crystal Palace, London, designed by Barry

THE GREAT CRISTAL PALACE, LONDON

DESIGNED BY BARRY

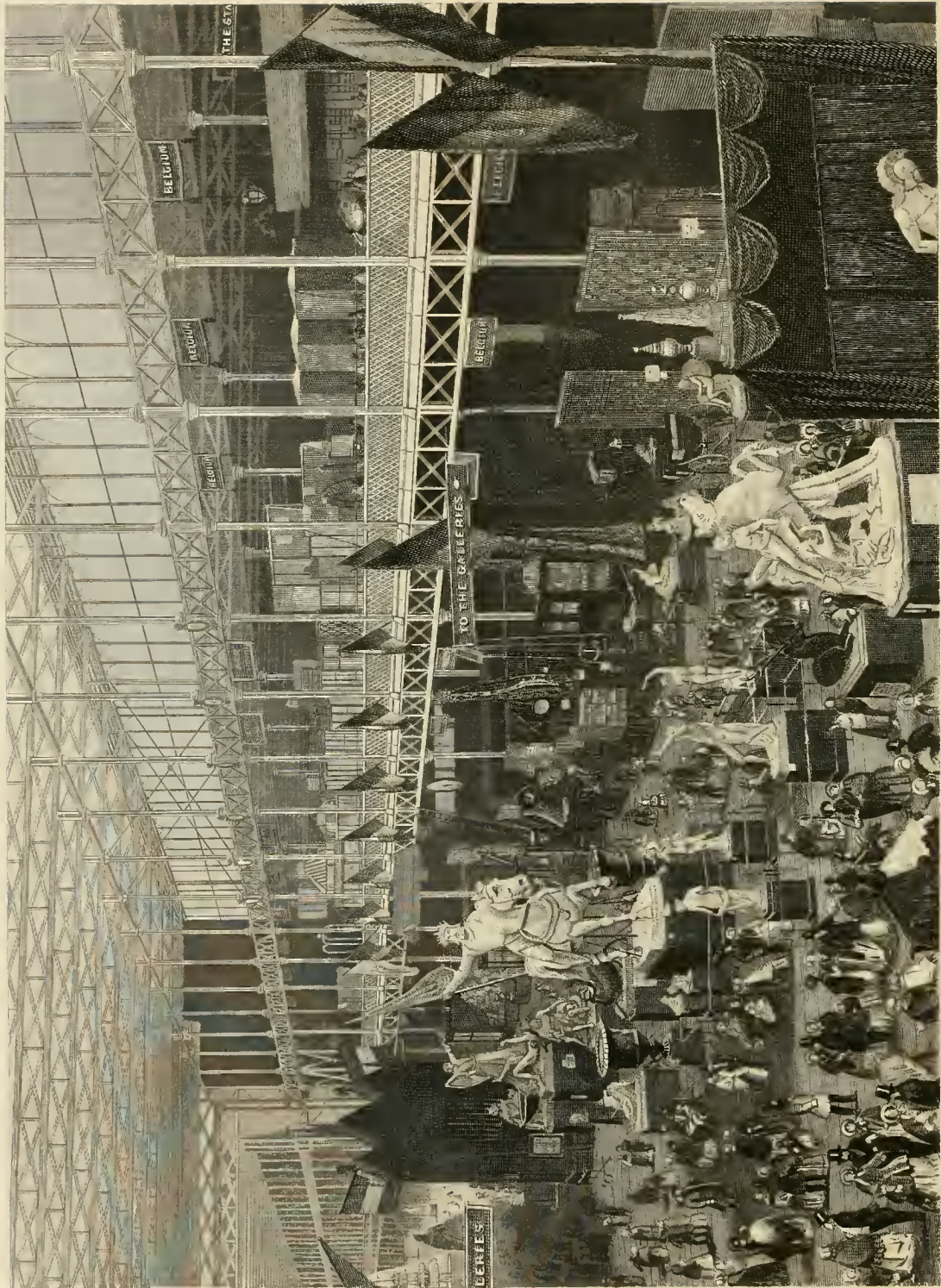


THE GREAT CRISTAL PALACE EXHIBITION



THE GREAT PALACE OF THE GREAT EXHIBITION OF 1851





View of the Crystal Palace, London, England, by May

65-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

MA N AVENUE



Engraved by H. My. Iron and Brasswork by M. J. G.

THE GREAT EXHIBITION, 1851. PALACE OF CHRISTIANITY.

LONDON: 1851.



THE VEIL OF ISIS

FROM THE ORIGINAL BY G. F. W. M. M. M. M.



26 — 1/2 Pound from the Original Sculpture by J. Milnes

THE DUKE OF WELLINGTON



STATUE DE M. DE LA FAYETTE



U R H A P U R I P U T R I C E
 U. DE CHARAU, E. DE WIERO



U R H A P U R I P U T R I C E
 U. DE CHARAU, E. DE WIERO



ALFONSO



ALFONSO



Fig. 1. — *Antique* — *Statue of a Man and Woman*

— *Antique* — *Statue of a Man and Woman*

— *Antique* — *Statue of a Man and Woman*



Fig. 2. — *Antique* — *Statue of a Man and Woman*

— *Antique* — *Statue of a Man and Woman*

— *Antique* — *Statue of a Man and Woman*



THE SEATED WOMAN WITH TWO CHILDREN



THE STANDING WOMAN WITH TWO CHILDREN



THE LION IN LOVE BY S. CELSI



THE HORSE IN LOVE BY S. CELSI



FIGURE 10. THE SEATED WOMAN.



FIGURE 11. THE SEATED WOMAN.

THE UNIVERSITY OF CHICAGO PRESS



Fig. 1. Cherub riding a lion.

Engraved by J. G. Kneller, from the original.



Fig. 2. Cherub reclining on a shell.

Engraved by J. G. Kneller, from the original.





Designed by G. B. S. & Co. for the Exhibition of 1876

GROUP OF SEVRES CHINA
IN THE FRENCH DEPARTMENT

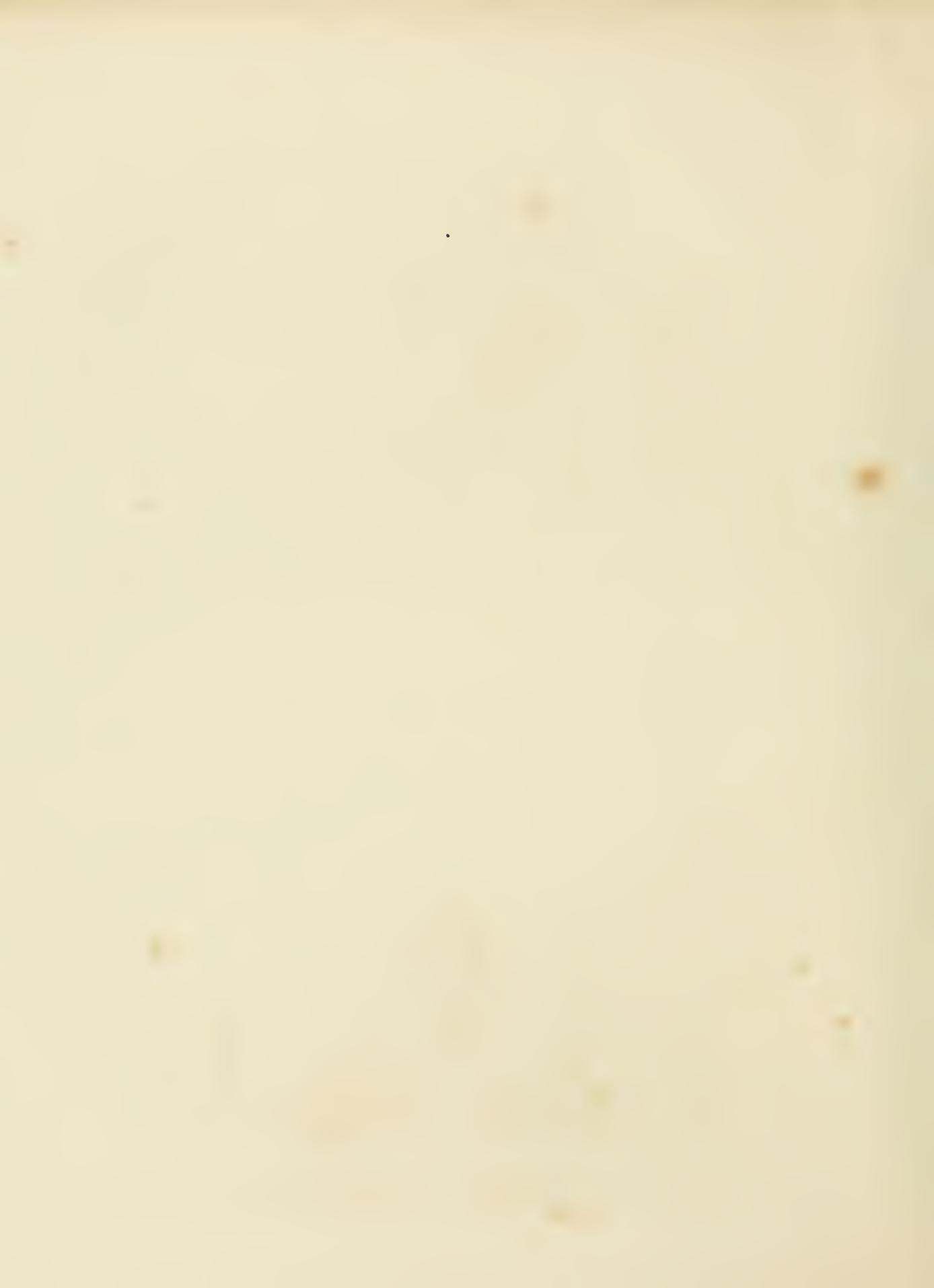




FIGURE 10. VASES AND VESSELS.



FIGURE 11. VASES AND VESSELS.





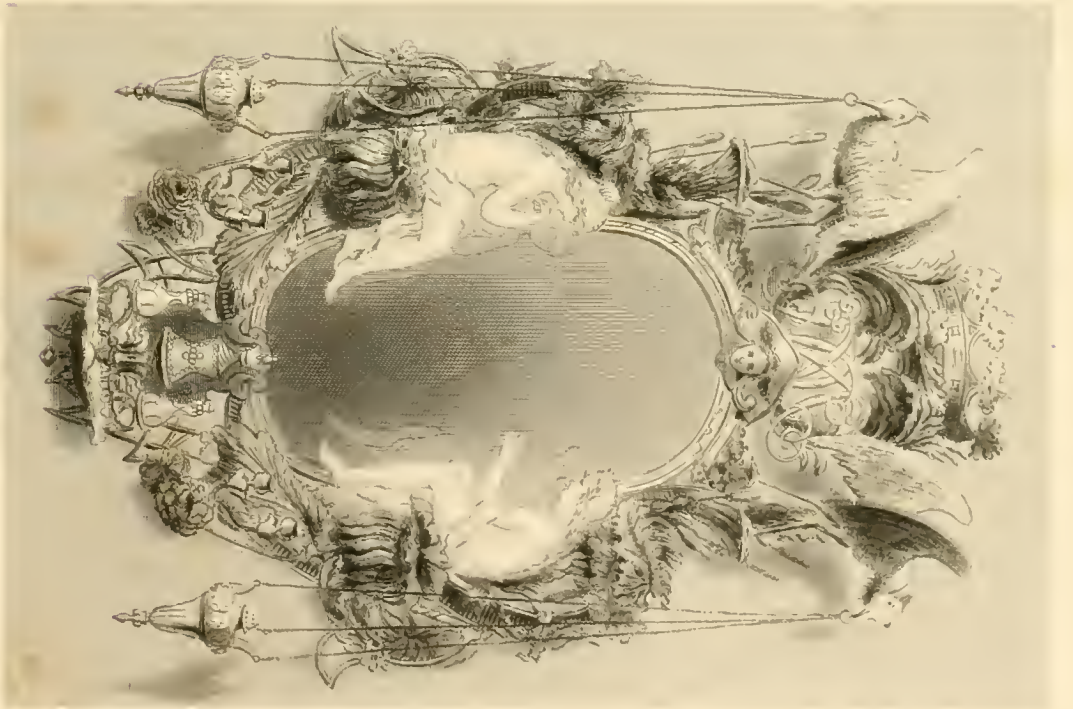
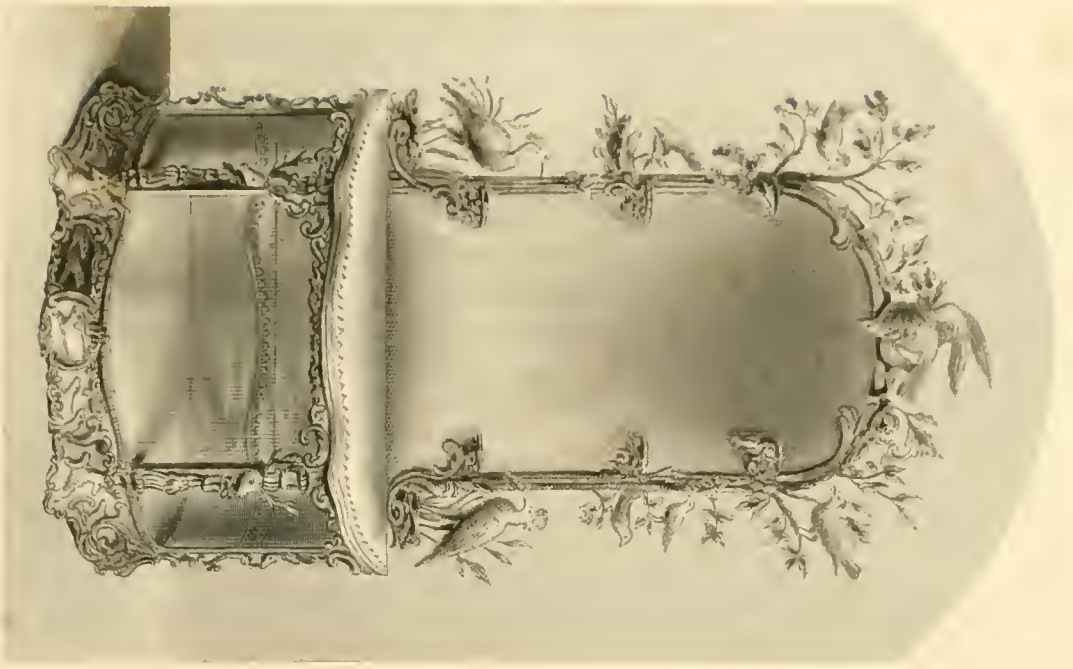
W. 1. Stained Glass Window

STAINED GLASS WINDOW
 THE CHURCH OF ST. MICHAEL
 LONDON



W. 2. Stained Glass Window

STAINED GLASS WINDOW
 THE CHURCH OF ST. MICHAEL
 LONDON



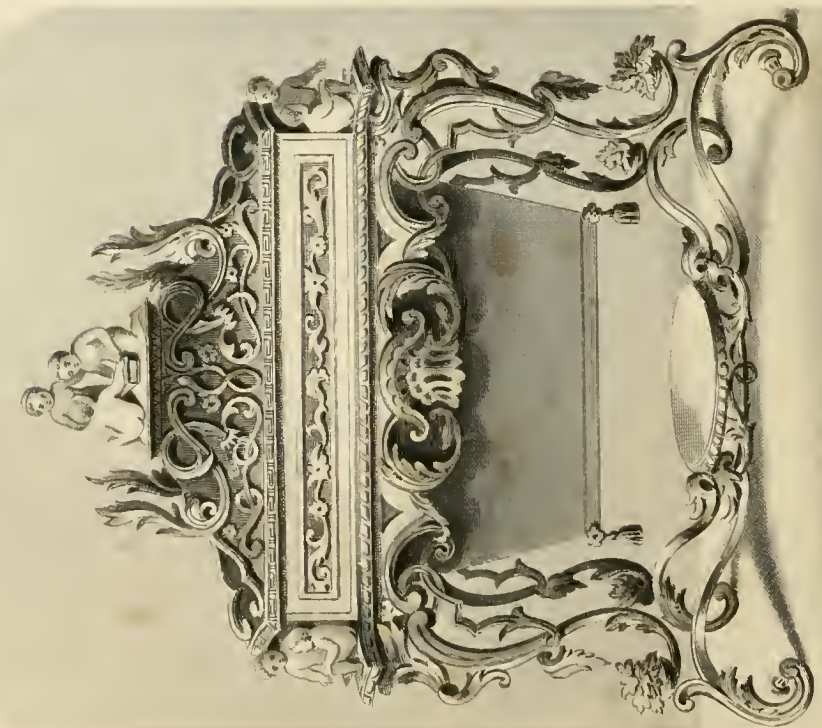


Fig. 106. — See also, from a Daguerotype.

LADY'S WORK TABLE

DESIGNED AND MANUFACTURED BY MESSRS. WHITE & PARK

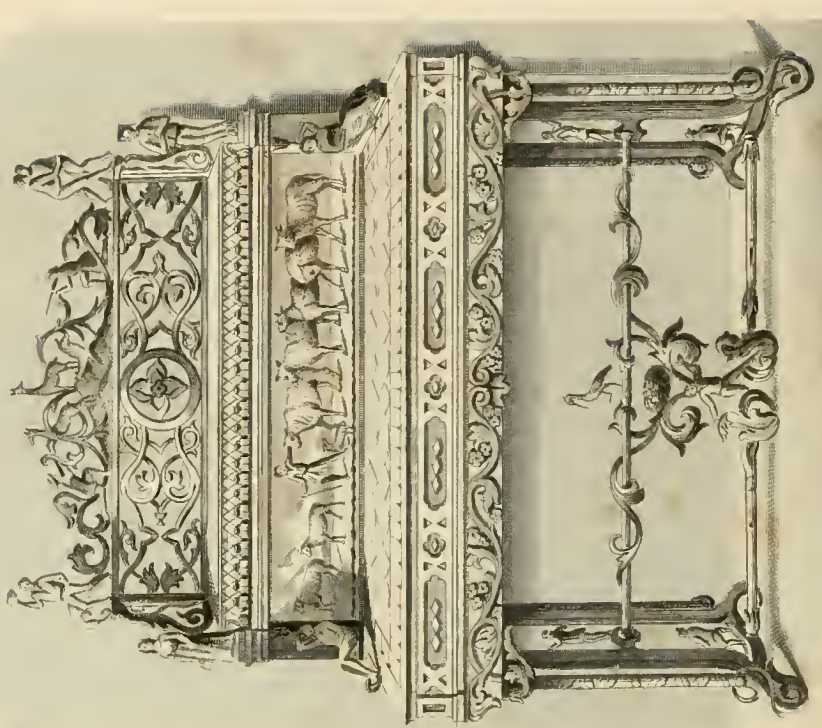


Fig. 107. — See also, from a Daguerotype.

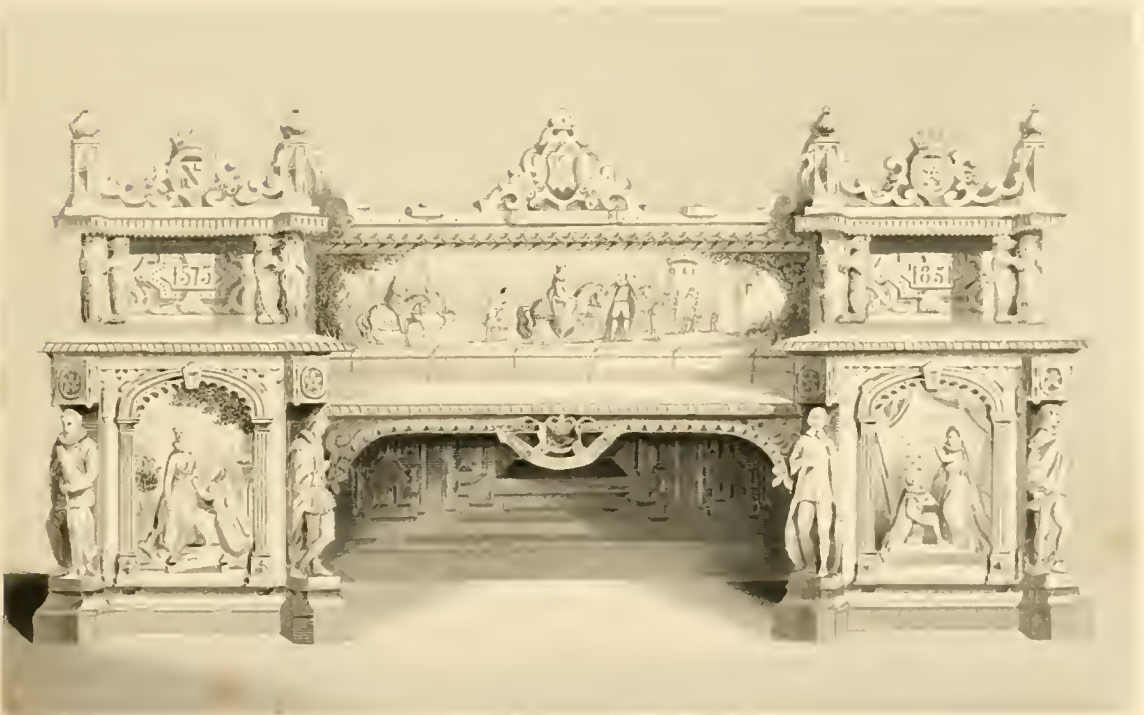
A LADY'S MECHANICAL ESCRUTOIRE OF WHITE WOOD

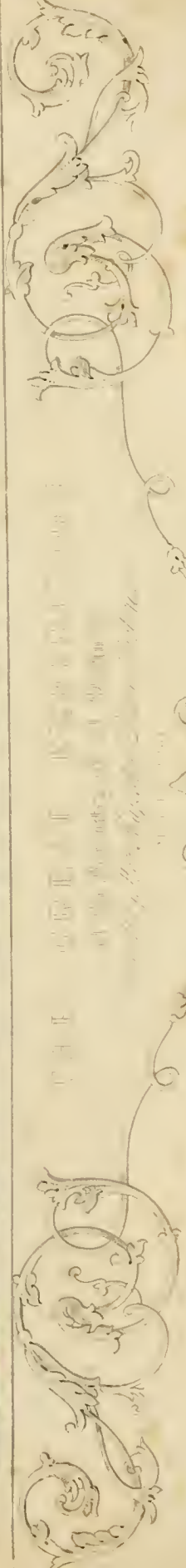
FOR WRITING IN A SITTING POSITION AND FOR COLOUR

DESIGNED & MANUFACTURED BY MESSRS. WHITE & PARK



FIGURE 11. — THE LIBRARY.
DESIGNED BY MRS. J. H. B. & CO. NEW YORK.





THE GREAT BRIDGE
OF THE CITY OF BOMBAY
AS APPEARING IN THE YEAR 1845



W. & A. GILCHRIST & CO. LONDON & NEW YORK

DEDICATED TO H.R.H. PRINCE ALBERT, K.G., ETC., ETC., ETC.

TALLIS'S
HISTORY AND DESCRIPTION
OF THE
CRYSTAL PALACE,

AND THE

Exhibition of the World's Industry in 1851;

ILLUSTRATED BY

BEAUTIFUL STEEL ENGRAVINGS,

FROM ORIGINAL DRAWINGS AND DAGUERREOTYPES,

BY BEARD, MAYALL, ETC., ETC.



PRINTED AND PUBLISHED BY JOHN TALLIS AND CO.,
LONDON AND NEW YORK.

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TALLIS'S HISTORY AND DESCRIPTION
OF
THE CRYSTAL PALACE.

INTRODUCTION.

THE fame of the Crystal Palace has gone forth to the utmost bounds of the civilized world. The extent of its aim, as an Exhibition of the natural productions, the arts, sciences, manufactures, and fine arts of all nations,—the ingenuity of its plan, the vastness of its departments, its exactness in particular, its beauty as a whole, its success in all the objects for which it was undertaken, the feelings of amity and benevolence it called forth, the enlargement of mind it gave rise to, the practical benefits necessarily springing out of the scientific contemplation of its contents, the unceasing source of delight it afforded to the thousands upon thousands who flocked, day after day, to behold its treasures, the brilliancy of its opening, the harmony of its close, the thankfulness and gratitude inspired in every reflective mind, during months of peaceful and rational enjoyment, undisturbed by any painful accident or jarring feelings,—all these are chronicled in such variety of form and language, as to defy the power of oblivion,—and we may safely pronounce that the House of Glass will exist in the annals of history, long after the vaunted pyramids of Egypt, of which the builders and the object are already alike unknown, shall have crumbled into dust.

In contributing yet another to the almost countless number of publications that have already appeared on this apparently inexhaustible subject, some statement of the grounds upon which the proprietors rest their hopes of success, in a field wherein they have to meet so many competitors, beforehand with them in the lists, may be reasonably expected. Those grounds, they flatter themselves, will be found, without any necessity of more laboured explanation on their part, in the superior excellence of the engravings, which they were unwilling to endanger by hurrying the execution of them; and in the taste and acumen of the descriptions, which emanate from an artist equally skilled in the use of the pen as the pencil, and whose productions in both those departments have frequently elicited the admiration of the public.

In order that the engravings should be faithful transcripts from the actual objects they profess to delineate, the proprietors have been at the expense of having all those objects taken on the spot by the Daguerreotype, with a patience and exactitude that would not pass over the smallest imperfection or deficiency, and whatever was not fortunate in the first instance was reproduced, till complete success was obtained. The labour of rendering upon steel *fac-similes* of these minute creations was immense,

as will be readily believed upon inspection of them: the expense was of course proportionate; but this expense, great—it may almost be said enormous—as it has been, the proprietors have willingly taken upon themselves, in the full confidence that they shall ultimately be remunerated by the generosity of an enlightened Public, alike quick to discover excellence, and liberal in rewarding it; and which they flatter themselves will regard these exquisite gems of Art with feelings somewhat akin to those inspired by the skilfully portrayed features of a valued friend, delighting equally from the truth of the resemblance, and the pleasing remembrances they call forth.

With regard to the account of the rise and progress of the Crystal Palace itself, the ensuing pages will be found to present rather the lively and graphic description that might be given in the course of social converse, than the detailed statistical statements which, however desirable they might be, while it was yet in its infancy, and advancing step by step towards the maturity to which the public so anxiously looked, watching its growth through every step of its intermediate stages, would now, on a retrospective view, appear unnecessarily minute, and even tedious to general readers. From the same consideration the objects selected for representation are chiefly such as will always continue to gratify the lovers of beautiful forms and elegant designs; and of which the descriptions will be found permanently useful, in guiding the taste, and inciting to excellence in whatever branch of ingenuity or of the fine arts it may be sought.

“A thing of beauty is a joy for ever!”

says the poet; and we fully agree with one of our contemporaries, who, in happy illustration of the sentiment says, “We would have every thing in a house touched by the divining rod of the poet. An inkstand, instead of being a literal glass bottle, or a fine piece of or-molu, or bronze, significant of nothing but costliness, might be fashioned to represent a fountain, with a Muse inspiring its flow; our goblets might bubble over amongst hop-leaves, and stems of blossoms; our decanters be composed of transparent vines, clustering in wild confusion, or drooping over trellis-work, as we see them in the sunny south; our bell-ropes, that carry more messages than the electric wires, might be converted into hanging garlands; our water-jugs be made to flatter the palate with their look of coolness; snow creaming over the edges, and harts drinking at brooks, in the shadows down the sides: lively colours, tastefully toned and harmonized, might be scattered over our rooms, under a thousand pretences of necessity; and in every article of furniture the forms of a classical antiquity, which always possessed the charm of innate grace, delicacy, and refinement, might be successfully revived.”

There is no doubt that the Crystal Palace has done much already, to further so desirable an end, and as every effort to perpetuate the remembrance of its contents must be regarded as conducing to the general advancement of taste, and the promotion of the beautiful, the proprietors trust that theirs will come in for its full share of the approbation which it will be their endeavour to deserve.

CHAPTER I.

ORIGIN OF THE EXHIBITION—PROPOSED SITE—WAYS AND MEANS—VARIOUS PLANS SUGGESTED—
FINAL SELECTION.

THE English have always been renowned for improving on the inventions of others. The facetious Joe Miller, the father of *impromptu* jest-books, informs us that a Frenchman, boasting of his nation being the primary introducers of frills, at the bosom and wrists of male fashionables, the Englishman replied, "We will not dispute with you the honour of inventing the frill, we only claim the merit of having added the shirt to it." Now it must be acknowledged, that the merit of the first idea of a Public Exhibition of the choicest productions of a country, in art and science, an Exhibition undertaken solely for the display of excellence, and for encouragement of every effort towards the attainment of it, without any immediate thought of profit to the originators, beyond their share in the general good that might accrue from it to society at large, is decidedly due to the French. Exhibitions of goods, merely considered as marketable commodities, assumed to be the best of their kind, were indeed common enough in all countries pretending to civilization, at the fairs which formed the annual meetings of our forefathers, with their relatives and friends; but exhibitions in which the perfecting of the articles exhibited should be the primary object, and the commerce to be afterwards derived from them merely secondary, have only taken place among us, during the latter half of the preceding century to the present time. And here we may claim priority over our neighbours, for it is now nearly a century ago since the Society of Arts, in London, first offered prizes for specimens of manufactures, in the various mechanical arts which are at once the evidence and the reward of a desire to increase the comforts and refinements of social existence. The Royal Academy, at the same time, took the loftier productions of the fine arts under its protection; organized exhibitions of paintings, sculptures, and engravings, and adjudged prizes among the exhibitors, according to the degrees of merit their productions were found to display.

Gradually these examples were followed by each of the metropolitan cities, and the principal manufacturing towns of the United Kingdom began, one after another, to promote annual or triennial exhibitions among the manufacturers and artizans of the articles most worthy of notice. Of all these local exhibitions, that of Birmingham, in the autumn of 1849, was the most comprehensive and important, so that it may be justly esteemed as a precursor of that wonder of the world which, less than two years after, was destined to "rise like an exhalation," and cast all its predecessors into the shade.

Still those preceding exhibitions had all been of a private and local character, receiving neither sanction nor assistance in any way from government, or public money, save in the solitary instance of the exhibition of manufactures relative to the decoration of the Houses of Parliament, which was instituted by the Fine Arts Commissioners. Whilst in France, on the contrary, the very first exhibition of industrial products took place in 1798, expressly as a national institution; it was followed by a second in 1801, a third in 1802, and a fourth in 1806. A lapse of thirteen years then occurred, filled up with the successes and defeats, and defeats and successes of warfare; the dethroning and re-throning of monarchs, and every other "change, chance, and circumstance" of that war, "which, were their subjects wise," as Cowper justly observes, "kings would not play at."

In 1819, however, the blessings of peace began to be felt in the tranquillity and security that ever are to be found in her train. The exhibitions of French industry were

then renewed, and systematically continued, and from that time the influence of them began to be decidedly felt throughout Europe.

Nevertheless it was not till the great success of the exhibition in Paris of 1844, awakened a general desire throughout the United Kingdom to give its industry the advantage of a similar appeal to the public, as to the actual position it might hold in the scale of excellence, that the idea was entertained of organizing an exhibition on a still more extended scale in London. It is a well-known fact, that almost all the great works and important institutions of this country are the offspring of the wishes and exertions of the people at large; nor ought we, in fact, to quarrel with, or comment upon the reluctance that government always betrays towards aiding or bringing forth any new undertaking, until its value be tested and proved by individuals, when to that very reluctance we no doubt owe much of our national spirit of independence, which will not be driven off the ground it has once taken up; and for which we are indebted, not only for all our most valuable acquisitions at home, but also for a great proportion of the respect and confidence with which we are regarded abroad.

In 1848, his Royal Highness Prince Albert, had, with that courtesy, benevolence, and enlargement of mind which have so justly endeared him to the English nation, readily consented to lay before the government a proposal submitted to him, for the establishment of a self-supporting exhibition of British industry, to be controlled and protected by a royal commission; but not even his approval of the scheme, and conviction of its eligibility, could conquer the accustomed apathy of the parties whom he had to address; and the great mass of the people who were most interested in the measure, were, perhaps, not sorry to find that if they really meant to carry it into execution, it must be by their own exertions alone. The Society of Arts had made an attempt, though an abortive one, in 1845, to establish an exhibition of national industry; in 1847 they renewed it with more success; in 1848 with more still; insomuch that the council were encouraged to announce the intention of the society to hold annual exhibitions from that time, as the means of establishing a quinquennial exhibition of British industry, on an enlarged scale, to be held in 1851.

His Royal Highness Prince Albert was of course informed of these proceedings, from time to time; and immediately after the closing of the session of 1849, he took the subject under his own personal superintendence. As President of the Society of Arts, he commissioned several of its members to proceed forthwith to the manufacturing districts, in order to ascertain the sentiments of the leading inhabitants: these commissioners visited sixty-five places, comprehending the most important cities and towns of the United Kingdom; public meetings were held in them, local committees formed, amounting to three hundred and thirty in number, and nearly five thousand influential individuals registered their names as supporters of the proposed Exhibition. With so favourable a commencement, the Queen willingly granted her royal commission for its organization and protection, to her "most dearly-beloved consort," and to all "the right trusty, and right entirely well-beloved cousins and councillors," whose names are mentioned in the deed, in due succession, according to the dignity of their offices.

The next point to be settled was the site on which the edifice was to be reared. Divers places were proposed; Battersea Park, Victoria Park, Wormwood Scrubs, Wandsworth, Primrose Hill, even the Isle of Dogs; divers objections were raised to each. Government had offered the area of Somerset House for the purpose, or, if that situation were not deemed eligible, some other on the property of the Crown. Prince Albert pointed out the vacant space in Hyde Park, on the south side, parallel with, and between the Kensington drive and the ride famous for fashionable equestrians of both sexes, known by the somewhat inappropriate name of Rotten-row; and the result proved

that a more judicious choice could not have been made. The distance was sufficiently removed from the busiest parts of the capital, to prevent any interruption to its commerce, yet not so far as to be inconvenient, or cause unnecessary loss of time to the crowds of visitors that were to be expected. The approach to it, through the most attractive parts of the metropolis, and the noble park so inestimable to the people, predisposed the mind to agreeable anticipations; the allotted portion of ground comprised upwards of twenty-six acres, presenting a length of two thousand three hundred feet, and a breadth of five hundred, and here and there lofty elms extended their venerable branches, to be gradually enclosed within the Crystal Palace, of which they were destined to become one of the most interesting ornaments. There was also an additional advantage in this site; an advantage which Prince Albert, with the goodness of heart that in him reveals itself on all occasions of public benefit, pointed out as deserving of particular attention, and that was, that it "admitted of equal good access to high and low, rich and poor; and that those who went down in omnibuses, would have equal facilities of approach with those who went in their private carriages." What a contrast did this generous consideration afford to the selfish murmurings of a throng of idle loungers in the fashionable world, who loudly exclaimed against the hardship and injustice of being obliged to sport themselves and their steeds on one side of the Serpentine instead of the other!

The Royal Commission obtained, and the ground fixed upon, the next subject for consideration was the "Ways and Means;" in other words, how to provide the money, which forms the sinews of all great undertakings, in peace as well as war. The Messrs. Munday had, at a very early period of the discussion on the subject, proposed, with a degree of liberality and confidence, which, as the Royal Commissioners did them the justice to acknowledge, reflected the highest credit upon them, to deposit twenty thousand pounds as a sum for prizes; to advance whatever other sums might be necessary for preliminary expenses; to provide offices, to erect a suitable building, and to take upon themselves the whole risk of loss, on certain conditions, which conditions were equally declared by the Royal Commissioners, to be "strictly reasonable, and even favourable to the public."

Nevertheless, the wishes of the people so evidently turned towards considering the Exhibition entirely as a national and self-supporting institution, that it was judged expedient by the Royal Commissioners to set the contract of Messrs. Munday aside, on repaying them the sums they had advanced, with the interest accruing, and to organize an Executive Committee, with Lieutenant-Colonel D. Reid, R.E., at its head, as chairman, and to charge it with the duty of arranging the financial operations. Accordingly, the first step of the new commissioners was to appeal to all classes of the community, for subscriptions to carry out the object proposed: to point out to them that the scale on which the undertaking could be completed must depend entirely upon the amount of the sums received on its behalf; and to call upon them to make such liberal arrangements as would enable the Executive Committee to realize the plans proposed, in a manner worthy of the character and position of the country, and of the invitation it had sent forth to all nations, to compete with it in a spirit of generous and friendly emulation.

It will be easily imagined that in our land of commerce, and of all the enlarged ideas to which commerce gives rise, a land wherein, very lately, we have seen, at a meeting on a political question, subscriptions pouring forth at the astounding rate of a thousand pounds a minute, an appeal like this would be willingly responded to. Seventy-five thousand pounds were subscribed in the different manufacturing towns and seaports of the United Kingdom; of which sum nearly forty thousand were contributed by the city of

London alone. A guarantee fund of two hundred and thirty thousand pounds was formed by a limited number of persons, including most of the commissioners and other friends of the undertaking, one of them opening the list with the munificent subscription of fifty thousand pounds; and upon the security of this fund the Bank of England consented to make such advances of money as might be requisite from time to time.

Having now seen the "ways and means" provided for, we must proceed to lay the foundations of the palace itself with our readers, and request their accompanying us in the rapid survey of its rise and progress, which is all that our limits will allow for this portion of our remarks.

The Building Committee having announced its desire to receive plans and suggestions respecting the edifice, from individuals of any country whatsoever that might be willing to offer them, they were speedily furnished with designs from no fewer than two hundred and thirty-three contributors:—viz.—one hundred and twenty-eight from residents in London and its environs; fifty-one from provincial towns in England; six from Scotland; three from Ireland; twenty-seven from France; three from Holland; two from Belgium; two from Switzerland; one from Naples; one from Rhine-Prussia; one from Hamburg; and seven anonymous. Of these plans the Building Committee reported, that a large proportion of them were remarkable for elaboration of thought and elegance of execution; that every possible mode of accomplishing the object in view had been displayed by the respective contributors, regarding economy of structure and distribution, and uniting these qualities with various degrees of architectural symmetry: that our "illustrious Continental neighbours" had especially distinguished themselves "by compositions of the utmost taste and learning, worthy of enduring execution; examples of what might be done in the architectural illustration of the subject, when viewed in its highest aspect; and, at all events, exhibiting features of grandeur, arrangement, and grace, which had not failed to be duly appreciated. Another class were praised for the "enthusiasm" with which, bearing in mind "the great occasion and object of the Exhibition," they had magnanimously "waived all considerations of expense," and indulged their imaginations, and employed the resources of their genius and learning, in the composition of arrangements presenting the utmost grandeur and beauty of architecture; and reminding the architectural student of all the conditions of his art—"the Egyptian hypo-style, the Roman thermæ, or of the Arabic or Saracenic inventions."

But, as Sancho Panza has wisely observed, "fine words butter no parsnips." Of all these elaborately-culogised plans, not one was found alike fit, worthy, and possible for adoption; whilst the "faint praise" given to the "practical character" of the English, as "remarkably illustrated in some very striking and simple methods, suited to the temporary purposes of the building, *due attention having been paid to the pecuniary means allotted to this part of the undertaking,*" and the disproportionate number of foreigners to whom "the highest honorary distinction" was awarded, being in the proportion of fifteen to eighteen among them, whilst amongst the English it was only *three* out of one hundred and eighty-five, together called forth a burst of indignation from the public, as well as from the number of candidates, who thought their claims had not been fairly dealt with. They complained that, whilst they had confined themselves strictly to the conditions specified, that only *suggestions* were to be given, that the plan or drawing was to be a mere outline-sketch upon a single sheet, and the written description or explanation of the plan to be comprised in a single sheet, their competitors had indulged in "elaborated designs, elegantly executed," many on a larger scale, and even with the advantage of colour.

The design for the edifice which the Building Committee submitted to the Commissioners, was no sooner made known to the public, than in the same manner another

storm of disapprobation, plentifully intermixed with ridicule, broke upon their heads; and, truth to say, the *idea* was sufficiently open to objection. The realization of it would have brought forth a fabric four times the length of either Westminster Abbey, St. Paul's, or York Minster; in fact, two thousand two hundred feet long, and four hundred and fifty wide. The main building was to be sixty feet in height, the dome more than one hundred and fifty in height, and two hundred in diameter; making it eleven feet larger in diameter than that of St. Peter's at Rome, and forty-five more than that of St. Paul's; whilst fifteen million of bricks would have been used in the building, altogether! Little did the committee imagine at that moment, that the structure was finally destined to stand forth in all the combined advantages of lightness, strength, and security, without the aid of brick, stone, or mortar! their places more efficiently and more economically filled by wood, iron, and glass. Yet so it was; a self-taught genius waved the wand with which he had before effected wonders, and up rose

THE CRVSTAL PALACE.

It is scarcely necessary to say that this genius, this magician was Mr. Paxton, or, as he will be known to future generations, Sir Joseph Paxton; and truly his descendants may be justly proud of an honour which ought to be continued to them, as it was granted to him on the sole ground that can render honorary distinctions really honourable, namely, that of merit.

CHAPTER II.

THE PAXTON PLAN—CONTRACT WITH FOX AND HENDERSON—VAST EXTENT OF ARRANGEMENTS—RAPID ADVANCEMENT OF THE BUILDING—VISIT OF THE SOCIETY OF ARTS—ARRANGEMENT FOR THE DISTRIBUTION OF GOODS—COURTESY TO STRANGERS—PRINCE ALBERT'S SPEECH.

MR. PAXTON had long been known to the public as the superintendent of the Duke of Devonshire's horticultural departments, at Chatsworth and Chiswick, and for the improvements he had introduced into the buildings connected with them, particularly in the introduction of sheet glass for level roofs to conservatories. The idea was originally suggested to his mind by an attentive examination of the large umbrella-shaped leaf, and the longitudinal and transverse girders and supporters at the back of the gigantic and magnificent water-lily, known by the name of the *Victoria Regia*, imported into this country from South Africa, and which flowered for the first time in our clime, on the 9th of November, 1849, in a house expressly fitted up for it in the gardens at Chatsworth, where the water wherein it was placed was kept in motion by a small water-wheel, invented for the purpose by Mr. Paxton.

The account which Mr. Paxton gives of the considerations which first induced him to send in a design, the last in the field, to the Executive Committee, is admirable in its simplicity and truthfulness. It was not until one morning when he was present with his friend Mr. Ellis, at an early sitting in the House of Commons, that the idea presented itself to him, in consequence of a conversation that took place between them relative to the construction of the new House of Commons, in the course of which Mr. Paxton observed that he was afraid they would be committing another blunder in the building for the Industrial Exhibition, adding, that he had a notion concerning it in his own head, and that if his friend would accompany him to the Board of Trade,

he would ascertain whether it was too late to send in a design. Upon inquiring of the Executive Committee whether they stood so far pledged to the plans already submitted to them, as to be precluded from receiving another, they replied certainly not; for though the specifications would be out in a fortnight, there was no reason why a clause should not be introduced allowing another design to come under consideration. "Then," said Mr. Paxton, "if you will introduce a clause to that effect, I will go home, and in nine days I will bring you my plans all complete." This was on Friday the 11th of June, 1850.

He had, however, to go from London to the Menai Straits, to see the third tube of the Britannia Bridge placed, after which he returned to Derby, to attend to some business at the board-room; but his thoughts were fixed upon his design, and he sketched it on a large sheet of blotting-paper, whilst the conversation was going on all around him. This precious embodiment of his first ideas on so momentous a subject was taken possession of by his wife, as he stated at a subsequent meeting, in excuse for not producing it; and the importance she annexed to its preservation, was a proof at once of her affectionate pride in her husband's talent, and of her judgment in appreciating the value of a proof of it, equally demonstrative of its readiness and precision. All that night he sat up to consider and correct it, and by the aid of his friend Mr. Barlow, he was enabled to finish all his plans by the Saturday following, and to start with them that day for London. To the honour of Mr. Stephenson and Mr. Brunel, they no sooner were made acquainted with Mr. Paxton's plan, than they acknowledged its merit, though it interfered with their own previous views on the subject, particularly Mr. Brunel's, which had embraced the idea of the monster dome; but he had the generosity to help Mr. Paxton in his plan for covering in the tall trees which were so dear to the public, that their preservation was made a *sine qua non*, by taking their measurement himself the next morning, and communicating it to Mr. Paxton, saying to him with equal frankness and good feeling, "although I mean to try to win with my own plan, I will give you all the information I can."

This is the true spirit in which men of science and genius should meet each other, and we may hope that instances of it will every day become more and more frequent, under the influence of that enlargement of sympathy and sentiment, which the increased facility of intercourse among nations with each other is the surest means of promoting.

We have already said that it was on a Saturday that Mr. Paxton came up to town with his design, and encouraged by the gracious approbation he met with from Prince Albert, he went forthwith to Messrs. Fox and Henderson, to ask them if they would make a tender for the building on his plan, which they accordingly did, enabled to do so by wording it as "an improvement" on the design of the committee. The contract was finally taken by these gentlemen for the sum of £79,800, and the materials after the close of the Exhibition; or for £150,000 if the building should be permanently retained. This was subsequently proved to be the lowest practicable tender that was submitted to the Building Committee; and not the least admirable thing connected with it, was the wonderful quickness and exactitude with which the necessary estimates were formed. It unfortunately happened that the next day was the first Sunday on which the delivery of letters was forbidden by the new postal arrangement. Nevertheless, by the aid of the electric telegraph and railway parcels, the great iron masters and glass manufacturers of the north were summoned to come up to town on the Monday, to contribute their several estimates to the tender for the whole; and on the Monday,—

"Punctual as lovers to the moment sworn,"

they presented themselves at the office of Messrs. Fox and Henderson in Spring-

gardens. Within one week from this meeting, the cost of every pound of iron, every inch of glass, and every pound of wood required for the building was calculated, and every detailed working drawing prepared.

“What was done in those few days?” says an able writer, in that excellent periodical, *Household Words*. “Two parties in London, relying on the accuracy and good faith of certain iron-masters, glass-workers in the provinces, and of one master-carpenter in London, bound themselves for a certain sum of money, and in the course of some four months, to cover eighteen acres of ground, with a building upwards of a third of a mile long (1851 feet—the exact date of the year,) and some four hundred and fifty feet broad. In order to do this, the glass-maker promised to supply in the required time, nine hundred thousand square feet of glass (weighing more than four hundred tons,) in separate panes, and these the largest that ever were made of sheet glass; each being forty-nine inches long. The iron-master passed his word in like manner, to cast in due time three thousand three hundred iron columns, varying from fourteen feet and a-half to twenty feet in length; thirty-four *miles* of guttering tube, to join every individual column together, under the ground; two thousand two hundred and twenty-four girders; besides eleven hundred and twenty-eight bearers for supporting galleries. The carpenter undertook to get ready within the specified period two hundred and five *miles* of sash-bar; flooring for an area of thirty-three millions of cubic feet; besides enormous quantities of wooden walling, louvre work, and partition.”

It was on the 30th of July, 1850, that possession of the ground was obtained; on the 26th of the following September the first pillar was fixed. What a multiplicity of arrangements had to be formed in that short intervening period; “Details of construction had to be settled, elaborate calculations as to the strength and proportion of the several constituent parts to be made, machinery for economising labour to be devised, contracts for the supply of materials to be entered into, and thousands of hands set actually to work.”

From the first moment of its commencement the interest of the public in the progress of the building was intense. Every day crowds of pedestrians were to be seen bending their steps towards the great attraction; fortunate did those think themselves that could obtain a peep, through the interstices of the wood-work, at the piles of materials withinside; more fortunate still those who by special interest, or some well imagined plea of business, could gain a short admittance among the operatives themselves—and in fact, to the eye of benevolence, not the Crystal Palace in all its finished glories, presented a spectacle more interesting, than that offered in its progress, by the united labours of the industrious classes who were to bring it to perfection.

First, up went the boarding round the destined space—away went the green sward, untouched by the spade, yet soon cut up as if the artillery of an army had passed over it. Then rose the wooden walls; then columns; then girders spanned across, first at formal and naked distances, but rapidly thickening like a forest of masts; or rather, if we may be allowed the comparison, like huge webs woven by beings who from below looked only like insects, ingeniously crossing the interstices—then galleries spread around, and stair-cases sprang up to meet them—and so onward went the work of a fabric, of the magnitude of which an idea may be formed more intelligible than any that can be communicated by mere figures, when it is stated to be four times the size of St. Peter's at Rome, and six times that of St. Paul's in London.

The workmen seemed to find strength and energy in proportion to the vastness of the field in which they were employed: 18,392 panes of glass were fixed in the roof in one week, by eighty men; 108 panes, or 367 feet 6 inches of glazing being accomplished by one of the glaziers in a single day.

It had been agreed upon by the contractors, that the members of the Society of Arts and their friends should be admitted, to examine the building previous to its being given up on a day specified, as sufficiently complete, to the authorities. The day appointed for this purpose was only the preceding one, so closely now was the time calculated upon: but certainly, whatever might have been the anticipations of the visitors, eight hundred in number, they found, immediately upon their entrance, those anticipations exceeded as far, in fact, as the interior of the edifice has ever been found to exceed in its beauty, and the harmony of its proportions, the expectations formed by its exterior. Even the most practised eyes, accustomed to the gigantic scale on which the mighty works of the present era are carried out, could recal nothing to compare it to; in fact, there was nothing comparable with it. It was as the time-revealed skeleton of some enormous animal, the vastness of which could only be ascertained by its measurement with surrounding objects.

It would be difficult to describe the effect produced upon the minds of the spectators, when they found themselves withinside the structure, of which every point was still in progress. All manner of operations seemed going on at once; sawing, planing, glazing, painting, hammering, boarding. Here white vapours curled among the yet leafless branches of the imprisoned elms, from little steam-engines, each steadily fixed from day to day at its appointed duties. There clouds of dust covered the too curious spectator, from circular-saws, busily employed in cutting to equal lengths, the Paxton gutters. Then again were machines kindly guiding those same gutters, first through a trough of paint, and then through an aperture provided with brushes, which pressing closely upon them, in their passage, turned them out of it on the other side, all trimly coated. One vast apparatus was busying itself with the making of putty; another with manufacturing sash-bars—here were vast boilers to generate steam for the machinery—there pipes diverging east and west, to convey to the fountains, and various parts of the building, the three hundred thousand gallons of water supplied per diem, by the Chelsea Waterworks Company, by contract, at fifty pounds per month. Massive cranes were relieving ponderous waggons of their loads, and wheels and pulleys were everywhere in motion.

The din of voices and sounds amid the multitude of operatives, and the variety of operations may easily be imagined. Well might the overseers of different parties of workmen be obliged to communicate with them through a speaking-trumpet. Yet, amid all this seeming "confusion worse confounded," though in fact the perfection of well-organized regularity, Professor Cowper, with philosophic self-possession, delivered a lecture upon the construction of the building, and was surrounded, whilst delivering it, by an audience of the most distinguished and brilliant of both sexes, blended with the humbler, but potent classes, whose labours everywhere speaking for them, in the imposing spectacle around, proclaimed at once their industry, and their power, and that without them nothing great or beneficial could ever be achieved.

A portion of the western part of the building had been converted into a temporary saloon for the occasion, by being enclosed with sixteen large and splendid carpets, courteously lent for the occasion by Messrs. Jackson and Graham, and suspended from poles fastened to the girders: the space was entered by an opening of drapery at the east end, and within a platform was erected, whence the professor pointed out the scientific principles on which the building was constructed, and illustrated them by various diagrams and models, well calculated to allay the fears of the timid, and silence the doubts of the sceptical. He then proceeded to various parts of the building to explain the use of the different machines, and was followed by a vast crowd, plunging through mud, scrambling over timber, balancing themselves on joists, and climbing up ladders, in despite of a heavy rain, all eager for information.

The arrangements for the reception and placing of the articles to be sent to the Exhibition necessarily required much calculation. The commissioners, anxious to treat their foreign contributors with all the courtesy and hospitality due to invited guests, resolved to appropriate to their use one-half of the exhibiting space of the whole building; being more than the entire ground which France occupied for her own Exhibition in 1844 and 1845. Over the admission of British articles, the Commissioners reserved to themselves full power of control; but the power of admitting foreign articles was confided absolutely to the authority of the country by which they might be sent: they were to be allowed to enter any of our ports free of examination or duties, and everything in the shape of gratuity or subscription, from any foreigner whatever, resident at home or abroad, was scrupulously discouraged and refused: in short, everything was done in harmony with the noble sentiments which Prince Albert had uttered at the splendid banquet given by the Lord Mayor of London, in honour of the projected Exhibition, to such of the chief magistrates of the various towns, cities and boroughs throughout the United Kingdom, as were enabled to avail themselves of his munificent invitation—sentiments which deserved to be written in letters of gold; and as they were not framed for that occasion only, but will apply equally to future ages, we will not deny ourselves the pleasure of laying a part of them before our readers:—

“ I conceive it to be the duty of every educated person closely to watch and study the time in which he lives, and, as far as in him lies, to add his humble mite of individual exertion, to further the accomplishment of what he believes Providence to have ordained.

“ Nobody, however, who has paid any attention to the particular features of our present era, will doubt for a moment that we are living at a period of most wonderful transition, which tends rapidly to accomplish that great end—to which indeed all history points—the realization of the unity of mankind: not a unity which breaks down the limits and levels the peculiar characteristics of the different nations of the earth, but rather a unity, the results and product of those very national varieties and antagonistic qualities.

“ The distances which separated the different nations and parts of the globe, are gradually vanishing before the achievements of modern invention, and we can traverse them with incredible speed; the languages of all nations are known, and their acquirement placed within the reach of everybody; thought is communicated with the rapidity, and even by the power of lightning. On the other hand, the great principle of the division of labour, which may be called the moving power of civilization, is being extended to all branches of science, industry, and art. Whilst formerly the greatest mental energies strove at universal knowledge, and that knowledge was confined to few, now they are directed to specialities, and in these again even to the minutest points. Moreover, the knowledge now acquired becomes at once the property of the community at large: whilst, formerly, discovery was wrapt in secrecy, it results from the publicity of the present day, that no sooner is a discovery or invention made, than it is already improved upon and surpassed by competing efforts. The products of all quarters of the globe are placed at our disposal, and we have only to choose which is the best and cheapest for our purposes, and the powers of production are entrusted to the stimulus of competition and capital.

“ Thus man is approaching a more complete fulfilment of that great and sacred mission which he has to perform in this world. His reason being created after the image of God, he has to use it to discover the laws by which the Almighty governs his creation, and, by making these laws his standard of action, to conquer nature to his use—himself a divine instrument. Science discovers these laws of power, motion, and transformation; industry applies them to the raw matter which the earth yields us in abundance, but which becomes valuable only by knowledge; art teaches us the immutable laws of beauty and symmetry, and gives to our productions forms in accordance with them. The Exhibition of 1851 is to give us a true test and a living picture of the point of development at which the whole of mankind has arrived in this great task, and a new starting-point, from which all nations will be able to direct their future exertions. I confidently hope that the first impression which the view of this vast collection will produce on the spectator, will be that of deep thankfulness to the Almighty, for the blessings which he has bestowed upon us already here below; and the second, the conviction that they can only be realized in proportion to the help which we are prepared to render to each other; therefore, only by peace, love, and ready assistance, not only between individuals, but between the nations of the earth. This being my conviction, I must be highly gratified to see here assembled the magistrates of all important towns of this realm, sinking all their local, and possibly political differences—the representatives of the different political opinions of this country, and the representatives of the different foreign nations—to-day representing only one interest.”

CHAPTER III.

APPROACH OF THE TIME FIXED FOR OPENING THE EXHIBITION—FOREIGN COUNTRIES AND STATES
SENDING THEIR CONTRIBUTIONS.

THE first of May was the day originally fixed upon for throwing open the world's wonder to the world's gaze; and the Commissioners felt themselves pledged to the world at large, to observe the punctuality which is one of the proudest boasts of an Englishman; and one of the most important characteristics of British commerce, by which, in conjunction with integrity, that commerce stands highest in repute among nations.

The prisoned elms had, despite their strange captivity, already put forth the tender green, with which they are foremost among the denizens of the woods, to greet the sweet though changeful April; the little birds began to chirrup about the glittering roof, and made sundry efforts, often successful, to penetrate into the interior, through the openings left for air, and to hop once more among the leafy boughs, familiar to them as their homes. Everything announced that spring was rapidly advancing—that May-day was, in fact, close at hand: but how much yet remained to be done, ere she was to be welcomed in the Crystal Palace!

Fifteen thousand contributors, from all parts of the civilized globe, had sent in their specifications, and their claims for space. Waggon after waggon-load of goods were thronging the entrances. Mass after mass of raw material, such, for instance, as a column of coal from North Wales, sixteen tons in weight; a block of twenty-four tons, ditto material, from Derbyshire; obelisks and columns of granite; slabs of Portland and other stones; grind-stones, flag-stones, mill-stones, huge filters, gigantic cisterns, anchors, chimney-cans, drain-pipes, and similar productions, more useful than ornamental, were, one after another, taking their "patient stand," on the spots assigned them outside the building; to the amazement of a crowd of spectators of the humbler classes, who stared at them open-mouthed, wondering, like the Jack Tar, after he had been blown up at a pantomime, by an accidental explosion, and landed safely down again, "what would come next." Not that we mean to quarrel with the "raw material;" on the contrary, we agree with the *Athenæum*, "it was a happy decision of the Executive Committee to allow the exhibition of raw materials: it is most instructive to have under the same point of view, the manufactured article, and the stuff from which it was made—the cotton pod, and the calico and muslin—the hempen fibre, and the ship's cable and sails—the elephant's tusk, and the marvellous Indian carvings in ivory—the iron ore, and the Sheffield blades. To us these raw materials, ranged side by side, just as they were picked from the lap of nature, are full of interest. That 'Greck Slave,' now so suggestive of life and beauty, was once a block of marble—the Amazon, once metallic ore—those strings that utter delicious music, were parts of a living animal—the materials of those silken fabrics were all spun by caterpillars—the pearls on that diadem were formed by a shell-fish—those colours that dazzle on the fabrics of India and China are the produce of very humble plants. The distance between the raw material and the perfected work is the measure of the conquest of man over the external world—the record of that victory, which the Crystal Palace first celebrates for the whole human family."

Whilst the objects we have mentioned were attracting the attention of the multitude without, the multitude within were running to and fro, as busy, and almost as numerous as ants in an ant-hill. There were packages opening, goods examining, classing, describing, numbering, ticketing, placing; scaffolds were disappearing, rubbish removing, outer packing cases clearing away, fittings of all kinds going on; excavations

for fountains, pedestals for statues, foundations for machines; and tables, counters, partitions, and glass cases rising rapidly around. The monster organ was beginning to try its pipes, *sotto voce*, from the western gallery. In the great central avenue was the Amazon of Kiss, levelling her spear at the tiger, neck or nothing, who has seized upon her horse; further on was a mailed Crusader, of colossal dimensions, about to charge upon his foes; whilst, utterly guiltless of any such warlike propensities, Lord Eldon, and his brother Lord Stowell, were peaceably seated, in effigy, side by side, as if gazing in placid admiration upon the busy scene before them, within the operations of which assuredly Lord Elgin's favourite motto "*Festina lente*" had nothing to do.

But still the work of the building was going on. Still the hammer and the chisel, the saw and the plane reverberated through the long aisles, and interminable galleries; the pipes for the supply of water and gas had still to be finished; the ventilation to be controlled; some acres of canvas to be spread over the roof; the chief of the internal arrangements and compartments to be made, and in short, to many it would have appeared as if there were the work of two years to do, instead of as many weeks.

But masters and men were alike indefatigable. Mr. Fox was on the ground every day, from seven in the morning until ten at night. It was calculated that at this period not fewer than ten thousand persons were engaged, some way or other, in the service of the Exhibition. One week, two thousand two hundred and sixty workmen were actually employed in and about the building itself; and it was in keeping with all the rest of the business details, that the system of payment was so admirably arranged with regard to exactitude and celerity, that out of this number, two thousand received their wages at the close of the day, in one hour, without confusion, noise, or mistake of any kind.

And now rapidly congregated on British ground the representatives of the different nations, with their respective productions and wares, who had been invited to take their place in the great industrial mart, one of the avowed objects of which was to draw all the families of the civilized world together, in bonds of amity, for their mutual benefit and enlightenment. Thus were these families typified by an ingenious writer, with equal truth of discrimination and playfulness of fancy:—

"First on the lists were the kingdoms of Arabia and Persia; with their caravans freighted with rich tissues, and the work of delicate looms from Mashed and Telran; with myrrh and frankincense from Hadramaut, 'musk from Khoten,' pearls from the sea of Oman, and *attar gul* from the gardens of Shinar. Then came 'small-eyed China;' sending her fragile porcelain, her painted screens, her snow-white and crimson silks, her gold and silver stuffs, her paper made of rice, her ivory fans, so curiously carved, and her mother-of-pearl ornaments, so laboriously and exquisitely graven. Brazil and Mexico were ready with diamonds and rich ores, and many-tinted flowers, whose hues were borrowed from the ruby throats and emerald wings of the *colibri*. Turkey held out her jewelled weapons, with their Damascus blades, her perfumed skins, gaudily dyed, and stamped with rare devices, her splendid caparisons, her fragrant and richly ornamented pipes, her costly variegated carpets. Greece, no longer able to astonish the world with the sculpture of Phidias and Praxiteles, or the marvels of Appelles' art, could vie with her former rulers in the beauty and elegance of her mountain costumes, and the elaborate workmanship she bestowed on weapons now little suited to her hands. Egypt, under the impulse of a newly awakened industry, had drugs, and dyes, and perfumes, soft cottons, and cloths of finest texture, the plumes of the ostrich, and raiments of the camel's hair. Italy was prepared to display her manufactures from the fertile plains of Lombardy to the sunny cliffs of Sorrento: Genoa, rich in velvets and embroidery; Bologna, decked in the gayest silks and ribands; Rome, proud of her cameos, her mosaics, her false pearls, and her *hats*; Venice, still famous for her glass, though its

occult virtues are flown; Leghorn, renowned for its everlasting straw-bonnets; Fabriano, with a paper reputation, not yet torn to pieces, and Ancona, whose waxen images tempt the 'decoratives' to St. Peter's, and whose tapers light them on the way. Spain and Portugal came next, suggestive of every produce that the earth hides in its bosom, or spreads over its surface, though not of the means by which its wealth may be turned to account. Yet who could think of Spain without conjuring up the thousands of interesting objects with which the world's bazaar might be studded? Who would not expect from Andalusia specimens of the fans and mantillas which the women use with so much dexterity, and wear with so much grace; the splendid dresses of the *mujos*; the guitars which are in every man's hand, and the castanets which are common to both sexes? From Valencia—that true paradise on earth—those curious silver-gilt combs which adorn the Valencian beauties; those silks and bombasines which form part of their attire; those beautiful azulejos, or coloured tiles, the art of making which was bequeathed, with so many other secrets, by the Moors? From Granada, and throughout the southern coast, the rich marbles and minerals susceptible of being wrought into every form of grace or purpose of utility? From Murcia, the fatal *cuchillo*, and the gaily-striped silken manta? From Cordova, the silver filigree-work that still keeps its old renown? From Toledo, those wondrous blades, welded out of a steel whose temper has no equal? From Barcelona, those goods which (if they do not really come from Manchester), may shame the Manchester manufacturers? In a word, who would not look from every province of Spain for some rich or rare production which might show, that where nature has been so bountiful, man has not been altogether idle?

“Nor could the mineral and vegetable wealth for which Portugal is famed, and which, despite of her poverty, she has the will to fabricate, pass unrepresented. Her marbles, her antique silks, heavy as armour, her cloths and carpets, even her curiously manufactured snuffs, were all ready for exportation. Switzerland followed, with her muslins and gold watches, and her countless specimens of that ingenuity, with which every summer-tourist returns laden, when he delights the family-circle by producing from the depths of his knapsack, now a *châlet* entire, anon a milking-pail; then an egg-cup, a drinking vessel, a salad-spoon, or the costume of every canton, faithfully carved in cherry-tree and boxwood. France—but what does the skill of man create that is gorgeous in colour, graceful in form, rich in substance, delicate in texture, beautiful in pattern, ingenious in construction, or faultless in execution that France might not send forth? To name her chief towns, is to name a competitor for every great prize in the struggle for art's supremacy. The bronzes, the *bijouterie*, the mirrors, and the *meubles* of Paris—the silks, the satins, and the velvets of Lyons—the flaxen threads and linens of Lille—the lace of Valenciennes—the carpets of Beauvais and Aubusson—the prints and muslins of Mulhausen—the watches of Besançon—the porcelain of Sèvres—the enamels of Limoges—the cottons of Amiens and Rouen—the gossamer scarfs of Bareges—the point of Alençon—the broad cloths of Elbœuf and Louviers—the soaps of Marseilles—the dyes and perfumes of Carcassonne, Montpellier, and Hyères—to say nothing of the thousand creature comforts which find no place in the Exhibition itself, though truffled turkeys, Chartres, Perigueux, and Strasbourg pies, Orleans quinees, Tours plums, and many a delicacy besides, are not prohibited in the refreshment rooms; while the vintages of Burgundy, Champagne, the Rhone, and the Garonne, are not to be had any nearer than Monsieur Soyer's monster *restaurant*; all these things, whether to delight the eye or please the taste, might reach the Palace of Industry from all-producing France!

“Belgium, in many things the formidable rival of her southern neighbour, succeeded, decked like a bride, in Mechlin and Brussels lace, or richly arrayed, like a burgomaster's wife, in the ponderous silk of Antwerp, and beneath her feet the priceless carpets of

Teurnay, in whose soft fabric those feet were completely buried. She pointed to Ghent for her cotton manufactures, to Vervier for her cloths, and gazed with pride on Liege, as the emporium of her cutlery and fire-arms, where the attributes of Sheffield and Birmingham are united. Holland, the elder sister of Flanders, moved onward with dignified, but measured pace, proud of her rich spices, strong waters, and rare cordials, and prouder still of the gorgeous tulips in her garden, for which her sedate money-making husband has given, in hard guilders, more than a king's ransom.

“Germany next presented herself under three different aspects:—the northern division bearing her own name—a vast conglomerate called the Zollverein—and Austria, resolute in keeping aloof, unless she could cast her net over everything else, from the shores of the Baltic to the banks of the Po; and dictate one universal law to Germans and Italians, Selaves, Croats, Czecks, and Hungarians. Manifold are the productions of the Teuton and Selavonian races.

“Berlin has wealth of iron, fit metal for a people so warlike; Eberfeld dresses half the world in its dyed cottons; Cologne displays her *flacon*; Solingen balances the foil, and proves the well-tempered blade of the ‘Schläger,’ renowned in the ‘renownings’ of Germany’s bellicose students; Magdeburg modestly appeals to her various merchandise; Bremen takes upon herself the task of preparing the tobacco which all the rest of Germany smokes; and Dresden paints the bowls of all the German pipes; Leipzig manufactures books which this year nobody will have time to read; Meissen gives birth to the shepherds and shepherdesses who exist only on consoles and chimney-pieces; Frankfort has her own fair, but that attraction must cease for a time; Nuremberg still vaunts her toys, though the marvellous works of Kraft, of Adam Vischer, and of Wentzel Jamitzer, belong to a past age; Munich has sculpture, and bronze, and stained glass, and glowing frescoes, and bright mosaics; and the simple Tyrolese rivals the Switzer’s patient labour on the long winter nights, when all other occupation ceases. Surely the things we have spoken of, and more, the things we have left unnamed, were to be gathered in Germany.

“There are yet more names on the list. Scientific Denmark, with her accurate instruments for measuring time and space. Learned Sweden, a hortus siccus in her hand, and a medallion of Linnæus on her breast. Half-civilized Russia, with a Paris bonnet on her head, a bearskin on her shoulders, in the midst of which blazes a diamond star, and beneath which shines a brazen cuirass, a long cut-and-thrust sword by her side, seven-league boots, well garnished with spurs, on her lower limbs, in either clutch grasping a knout and a pair of curling-irons, and her own person reflected in one of her own looking-glasses, before which she admiringly stands. She is rich in gold and platina, and malachite; in furs, in tallow, and in hemp, and through one or other of these media, is prepared to contribute to the world’s industry.

“Of foreign lands America comes last. Follow the course of her rivers, examine her sea-board, track her footsteps across the prairies and rocky-mountains—follow her into the Far West, amidst falling forests and flying Indians,—cross her immense lakes, whirl with her through her swamps and savannahs, or pause amidst her rising and risen cities, and ask what variety of manufacture exists which the enterprise, and toil, and acuteness of the United States cannot supply, with little to fear from the result of universal competition.

“To give the rest of the world its chance, the British colonies had their assigned space; every zone of the earth, and every temperature beneath the sun, received the command to exhaust their riches and lay them at the feet of Queen Victoria.”

But whilst poetic minds were thus revelling in the anticipations of the probable, practical ones were no less busy with the actual. All London was to be “repaired

and beautified," according to the memorials of the churchwardens. The names of streets were all to be repainted, with directions at the corners, and hands significantly pointing out, every finger stretched to the utmost of its powers of extension, to denote leading here, leading there, for the peculiar edification of foreigners; lest they should become bewildered among the mazes of Leicester-square, or the more aristocratic, and, to those who cling to old associations, dreadfully monotonous, and coldly genteel straight lines of Hyde Park Gardens. Nor ought we to lose sight of the truth, that these directions are just as much required for "country cousins," wandering about St. Paul's, in search of the Houses of Parliament; or honest gentlemen-farmers, threading, or trying to thread their way from Smithfield to the Bank, as for the numerous host of whiskered foreigners, who stare about them in the great city, divided between admiration of its vastness, and disgust at the difficulties it presents to those unused to "Life in London."

"The plot, moreover," continues the lively narrator, "began to thicken. Shabby shop-fronts were removed, and bronze and plate-glass supplied the place of painted wood and dingy panes. The boot-makers made models of their customers' favourite legs, and paraded them in tops and buckskins, in gigantic wide-mouthed tubes that passed for hunting-gear, and in delicate silk and French polish for evening parties. The tailors, who were very particular in stating that *there* they spoke every language under the sun—Français, Deutsch, Espanol, Italiano and Cherokee—got up the most bewildering dressing-gowns, the hairiest and most poodle-like paletots, the sportiest waistcoats, the tightest and most expansive ladies' habits, the most elaborate dress coats, and the most impossible waistcoats. They took it into their heads that the inhabitants of France and Germany were coming to London in the costumes which their ancestors wore when they fought with Cæsar and Agricola, and filled the columns of the *Times* and *Morning Chronicle* with advertisements, setting forth, in elegant French, the fact that 'des commis, réunissant le tact et l'intelligence aux bonnes manières, sont constamment à la disposition des visiteurs;' or in less palatable German, the similar assurance, addressed to the 'Publicum und Fremde,' that 'zu jeder zeit stehen hiechtige und verständige Assistenten bereit jede Auskunft über alle Geschäft betreffenden Gegenstände zu erteilen,' to receive and execute the orders they might be favoured with.

"As a sign of the times, the Hôtel d'Italie, in Sherrard-street, painted its doors and window-sills sky-blue, and prepared for a most terrific gastronomic campaign; the Sablonière announced its *table d'hôte* at six o'clock, and inwardly resolved not to give a new coat of paint to anything; while the Provence Hotel gave out the startling intimation that '*restauration à la carte*' was incessant in that establishment. Even the old-fashioned chop-houses in the Strand and Haymarket began to look about them; the 'Boars' and 'Castles' whetted their tusks, and threw open their portals; the 'Belles Sauvages' looked amiable; the 'Queen's Arms' expanded hospitably; the 'Blue Posts' declared themselves fixtures; 'Williams,' who (perfidiously) came from 'Betsy's,' intimated his resolve to supply luncheons and dinners on his own account; and 'Mrs. Robertson,' who has been residing for the last century with 'Dr. Johnson,' in Fleet-street, abandoned the great lexicographer, and set up housekeeping for herself in Maiden-lane. Nor were the creature-comforts alone considered. The head was cared for, and the feet also: for the sake of the former, the St. George's Chess Club announced 'a grand chess tournament;' and for the behoof of the latter, a brigade of shoeblacks turned out from the ragged-school in Field-lane, in scarlet jackets of the most astonishing brilliancy.

"The interpreters began to look up, and those who had lodgings to let, not only looked up, but also very considerably ahead. They were right in doing so, for John Bull's preparations were not without a cause. It was no longer the Quadrant and Leicester-

square that exhibited signs of the friendly invasion, but, in all directions, foreigners surged up, affording convincing proof of their anxiety to see the latest wonder of the world, to applaud the design of Prince Albert, render homage to the genius of Paxton, and admire the unwearied industry and zeal of Messrs. Fox and Henderson.

"Shoals of the 'Bruderschaft' also appeared; fervid Italians, in bands like brigands or opera singers, from every part of their genius-favoured land, hurried to London; and Switzerland emptied her valleys to inundate Regent-street.

"The *St. Lawrence* frigate not only brought her overwhelming contribution of dry goods, but something dryer still,—in the person of the president of 'The everlasting Gold Bluff Sand Company,' who had taken a passage in her from New York, and came—like his compeers from Paris—to see whether 'a pretty smart spekilation in dust' was likely to answer in Britain; and firmly resolved that it should'nt 'cave in,' if he could prevent it. Nor was his project by any means a solitary one; for whether he came from the 'diggings' on the Sacramento, was raised in pleasant Texas, or had served his time in the 'Tombs,' at New York, brother Jonathan helped himself on with his shiniest coat, and fetehed across the Atlantic, to see whether he could'nt 'make a pile somehow' among the Britishers. Not a weekly steamer ran up the Mersey that did not bring a full cargo of strangers from every one of the unions waved over by the 'star-spangled banner;' not a packet showed its flag on the Southampton Water that was not crowded with a living freight of dusky Spaniards, and dusky Portuguese; of swarthy Moors, and swarthier Egyptians; of cane-coioured East Indians, and copper-coloured Tartars; of Mulattos, with complexions of a lively brown, and of Haytians, with countenances—such as Solomon loved—of a lovely black. At Dover and Folkstone, and eke at the Tower-stairs, steamer after steamer arrived with the bearded civilization of Europe. There was 'your straw coloured beard,' representing Russia, Norway, Sweden, and the whole of the north of Germany; 'your orange-tawny beard,' those who dwell on the Rhine and its tributaries; and your 'purple-in-grain beard,' our excellent democratic neighbours the French, who speak their own language so well, and every other tongue so badly. There was, in fact, an assortment of beards more than enough to satisfy the cravings of a dozen monopolists like Bottom the weaver, and these were to 'wag all' in the Crystal Palace, in the merry month of May."

In the meanwhile the "note of preparation" was busily and incessantly going on at the principal scene of action; "the sound of hammers closing rivets up" rang through the air "from morn till noon, from noon till dewy eve," startling the Dryads and Hamadryads among the venerable shades of Hyde Park and Kensington—the "busy hum of men" throughout the spacious interior of the rising wonder, was like the murmur of bees at their busiest season in their "waxen citadel;" and the rapidity and precision with which the combined labour advanced, outstripped the most sanguine expectations. The astonishment and delight of the public were unbounded; praises were lavished on all sides—on the projectors, the inventor, the architect, and the workmen employed; the name of Paxton was in everybody's mouth; all the journals, daily, weekly, and monthly, were eloquent on the subject. The all-engrossing theme found its way, through their medium, to every corner of the empire, to the remotest quarters of the globe. An eloquent writer in *The Times* thus describes the sudden and brilliant apparition:—

"The vast fabric may be seen, by any one who visits that part of town, in its full dimensions—an Arabian Night's structure, full of light, and with a certain airy unsubstantial character about it, which belongs more to enchanted land than to this gross material world of ours. The eye, accustomed to the solid heavy details of stone and lime, or brick-and-mortar architecture, wanders along those extended and transparent aisles, with their terraced outlines, almost distrusting its own conclusions on the reality

of what it sees, for the whole looks like a splendid phantasm, which the heat of the noon-day sun would dissolve, or a gust of wind scatter into fragments, or a London fog utterly extinguish. There, however, the Crystal Palace remains, a monument of the extent to which lightness of structure can be combined with permanence and strength—a building remarkable not less for size than for the beauty of mathematical proportions and rectangular outlines. The varied dimensions and fantastic features of other edifices, there find no parallel. Everything is done by the rule, and yet everything is graceful, and it might almost be said grand. Wherever one stands no disagreeable effects present themselves—nothing crooked, awkward, or out of place. The subordination of parts to the whole is complete, and an expression of order and exactitude reigns throughout, not unaptly typical of the progress which the mechanical sciences have made in this country. But for that progress the Crystal Palace could never have been constructed; and it certainly is curious to reflect, now that the work has been accomplished, and the great result stands patent to the world, that, with the facilities we possessed, glass and iron have hitherto been so little employed by our architects.

“Like many other structures which will readily suggest themselves to the mind of the reader, the Crystal Palace must be viewed from a distance to be appreciated. Whoever would see a great mountain to perfection, must not survey it immediately from its base, and on exactly the same principle the new edifice in Hyde Park cannot be well viewed from the Kensington-road. The drive along the Serpentine, and the bridge over it, are the best points for a spectator to select. There the ground rises, and the vacant space enables the eye to reach over a large proportion of the building. The trees partly shut out the prospect, but enough remains to astonish and to captivate. The vast extent of area covered, the transparent and brilliant character of the structure, the regular and terraced elevations, the light airy abutments, the huge transept, with its arched and glittering roof shining above the great vitreous expanse around it, and reminding one of nothing that he has ever heard of before—all these things are worth seeing.”

As the time drew near for the opening of the “World’s Wonder,” and the various products of various climes, as we have already stated, were pouring into the vast emporium, the bustle and activity of the neighbourhood, nay, of all London and its vicinity, increased in ten-fold proportion; carts, waggons, and trucks, loaded with every species of merchandise and manufacture, from the ponderous steam-engine, requiring sixteen horses to impel its course towards the park, to the most delicate manufacture of ornament or attire, thronged in apparently inextricable confusion all the avenues leading to the appointed place of rendezvous; shoals of omnibuses, crammed to excess, inside and out, frequently got blocked up in immense masses, while the hapless drivers

* * * * “harder beset
And more endangered, than when Argo passed
Through Bosphorus, betwixt the justling rocks,”

in vain endeavoured,

“Through the shock
Of fighting elements,”

to win their way. So great was the occasional “hubbub wild,” “the stunning sounds and voices all confused” that assaulted the ear, that many foreigners stood aghast, and were altogether unable to proceed, or even to understand in what direction to shape their course. An Italian lady of our acquaintance, witnessing a scene of this kind in the neighbourhood of the Mansion-house, compared our metropolis to six enormous cities all conglomerated into one, and of which all the inhabitants were, at the same point of time, eagerly occupied in changing their lodgings. To attempt at these periods to cross the streets was a hazardous and a bewildering task for the pedestrian; many were the

“hairbreadth ’scapes” that we witnessed, and many the abortive attempts to “change sides”—relentlessly onward rolled the living tide, and waited not for individual accommodation. *Forward!* was the emphatic word that seemed to actuate the determination of every one in their pilgrimage westward; and how greatly this desire increased, and how greatly the multitudes augmented their forces on the eventful day of opening, we shall have occasion to show in our next chapter, which we accordingly propose to dedicate to that memorable event.

CHAPTER IV.

THE OPENING OF THE EXHIBITION.

THURSDAY, the 1st of May, the auspicious day, at length arrived—the day originally fixed upon for the great event arose with unwonted brilliancy; the sun, “rejoicing as a giant to run his course,” had scarcely shed his earliest beams upon the countless towers and spires of the mighty metropolis, ere its myriad population were afoot, all eager for the long-anticipated spectacle, the brilliant pageant, when England’s queen, attended by the noblest and proudest of the land, should in her own person open to the admiring world a palace more glorious than the sumptuous abodes of royalty—a palace devoted to the combined industry and art of every various nation upon the face of the habitable globe. May-day has ever been memorable in our island, and many are the eulogiums bestowed upon it by our native poets, from the time of old Chaucer and Spenser to our bards of modern date; but never did it witness a spectacle more imposing, a pageant more brilliant, or a multitude assembled in its honour more numerous and rejoicing. As early as six o’clock the whole town was in motion; from every portion of the suburbs, along every street and avenue leading westward, the countless thousands pressed onwards, in orderly and continuous march; every face was turned in one direction, and the incessant tramp of the joyous multitude, as they wended their way towards the spacious parks, was regular and unbroken.

In the more immediate vicinity of the Crystal Palace, the grand centre of attraction, every space was occupied where human foot could be planted; a sea of heads extended over the whole of St. James’s Park, along Constitution-hill, through Knightsbridge, and Rotten-row, whose owners were all intent to catch a glimpse of royalty, and to testify their loyal feelings and their gratitude by repeated cheers and notes of gratulation. Every house that commanded a view of the procession was crowded with spectators; the very roofs teemed with life,—

“Each jutting frieze, and corner stone,”

supported its delighted gazer; and when the procession emerged from the arch at the top of Constitution-hill, enthusiastic shouts and animated cheerings rent the very air, while on every side the waving of innumerable handkerchiefs and hats saluted the gorgeous pageant as it swept proudly onwards.

At a quarter before twelve, the royal procession reached the northern entrance of the Crystal Palace, and was greeted with the national anthem of “God Save the Queen,” from the band in attendance at the building. The scene at this moment became inexpressibly animated; the cannon stationed on the banks of the Serpentine, from their “brazen throats,” sent forth a thundering welcome, emulated by the joyous shouts

of the applauding multitude; while "the merry bells rang round," the union-jack was displayed in triumphant exultation, from every elevated point, to greet the entrance of her Majesty within the precincts of the glittering palace, and the royal standard was at the same time displayed floating proudly above the hundred-and-one flags of all nations, with which the building was decorated.

A popular journal gives the following description of the admission of the public within the favoured precincts:—

"The hour fixed for the opening of the various doors to the holders of season tickets was nine o'clock; but long before that time every possible point of access to the building was thronged with well-dressed persons—a great proportion of them ladies—eagerly waiting for admission. Considering the immense number who eventually were admitted—some twenty-five thousand or thirty thousand at least—the proceeding was conducted with wonderful order and regularity, and with much less personal inconvenience than generally attends the congregating of large assemblies. The first *coup d'œil* of the building on entering the nave was grand and gorgeous in the extreme: the vast dimensions of the building; the breadth of light, partially subdued and agreeably mellowed in the nave by the calico coverings placed over the roof, whilst the arched transept soared boldly into the clear arch of heaven, courting, admitting, and distributing the full effulgence of the noonday sun; the bright and striking colours and forms of the several articles in rich manufactured goods, works in sculpture, and other objects displayed by the exhibitors, dissimilar and almost incongruous in their variety, were blent into a harmonious picture of immense grandeur, by the attendant circumstances of space and light to which we have just alluded; and the busy hum, and eager and excited movements of the assembled thousands, infused the breath of life into a picture which, at the period of the crowning incident of the day, became truly sublime.

"The centre area of the intersection of the naves and transept was that set apart for the reception of her Majesty and her Court, and the other distinguished persons who were to take part in the interesting ceremonies of the day. At the northern portion of this area a *daïs* was erected, covered with a splendid carpet, worked by one hundred and fifty ladies for her Majesty, and graciously accepted by her; and upon this was placed a magnificent chair of state, covered with a velvet robe or mantle of crimson and gold. High over head was suspended an octagon canopy, trimmed with blue satin and draperies of blue and white. Before the chair rose the beautiful glass fountain, glittering as a precious stone in the morning beams. Behind rose the stems of the Oriental plants and the stately elm, one of the most agreeable and refreshing parts of the whole view. Along the galleries of the main western avenue, the department for British goods, a succession of the most beautiful carpetry was suspended, like bannerets, only more splendid, in a knightly hall of old. Along the foreign avenue everything stood revealed in its best; and the vista along the whole line was perhaps the most splendid and extensive, as a piece of art and human contrivance, ever presented to human view.

"As eleven o'clock approached, the hour at which the admittance of the public terminated, the inward tide became very heavy, and some little struggling at one moment was given way to, but only for a moment. The immense mass of spectators were settled down into their places, the ladies having seats in front, the gentlemen standing behind them, along the principal avenues, and in the galleries.

"The Duke of Wellington was early in attendance, arriving, with the Marchioness of Douro, about ten o'clock; and the knowledge that it was his grace's birthday, perhaps contributed to increase in volume and warmth the hearty cheering with which he was greeted as he passed to his place near the central area. Shortly afterwards, the members of the *corps diplomatique* and the foreign commissioners began to drop in, and after them the members of the Cabinet, a faint cheer being attempted for Lord John Russell, and another for Lord Palmerston; the latter, with true statesmanlike policy, thinking to ensure the harmony of his reception amongst the industrial representatives of the world, by walking up the transept under the portly wing of Lablache, who looked as good-humoured as ever. Nearly the latest of the arrivals at the north entrance were the Lord Mayor and Aldermen, with various civic authorities, all decked forth in their robes of office.

"By this time the honourable corps of Gentlemen-at-Arms, in their gay uniforms, had taken up their stations at the rear of the *daïs*, whilst the time-honoured body of Beefeaters were ranged along the outer line of procession. The trumpeters and heralds stood ready to proclaim the arrival of the Queen of these isles, and the heralds to marshal the order of her coming. Meantime, Sir George Smart stood, *baton* in hand, perched up in a small rostrum, in front of the north transept organ gallery, ready to beat time to 'God save the Queen,' for the five-hundredth time in his life. Meantime the Lord Chamberlain and his subordinate officers glided about, looking very well satisfied with all their arrangements, and Mr. Commissioner Mayne was here, there, and everywhere, smiling so good-humouredly as for the moment to rob even police law of its terrors. Everybody was on the tip-toe of expectation for the arrival of the royal personages who were to grace the day with their attendance.

“ At half-past eleven the Duke of Cambridge arrived at the north door, but did not enter the area, awaiting the arrival of the Duchess of Kent, who, accompanied by the Princess Mary of Cambridge, followed shortly after him. Their royal highnesses now entered the retiring-room, which had been prepared for her Majesty's reception, an elegant little apartment, covered with tapestry, and lined with silk, pale blue and white, fluted, with a crown overhead in the centre. The Commissioners and foreign ministers now made their way down to the entrance hall, ready to pay their respects to her Majesty on her arrival. Exactly at ten minutes to twelve, the Queen and her Royal Consort, accompanied by the Prince of Wales and the Princess Royal, alighted from their carriage; and after repairing to the retiring-room, proceeded to enter the magnificent edifice, of the production of which his royal highness had been the chief promoter. The Queen wore a dress of pink satin, brocaded in gold; Prince Albert, a field-marshal's uniform; the Prince of Wales, a highland dress; and the Princess Royal, a white lace dress, with a wreath of flowers round her head. The royal party, especially the young Prince and Princess, appeared much struck and delighted with the stately grandeur of the scene which burst upon their view. A tremendous burst of cheering, renewed and prolonged from all parts of the building, greeted the announcement of the near approach of the Queen.”

And, unquestionably, neither Eastern fairy tale, nor Arabian Night's wonder, could surpass, or even emulate the gorgeous reality that greeted the delighted gaze of the assembled spectators, as the royal party and brilliant *cortège* advanced through the bronzed and gilded gates that led into this hall of enchantment; fragrant exotics bloomed and shed their soft perfume around, crystal fountains threw up their sparkling waters, the choicest statuary formed graceful avenues of approach, while the clarion and shrill trumpet “brayed forth” “the triumph” of the hour. And when the Queen was seated in her lofty chair of state, surrounded by “the pride of all the land,” nobles, dignitaries of the church, heroes, and statesmen, and attended by the representatives of “principalities and powers” from every quarter of the globe, the national anthem, from “the full-voiced choir,” swelled upon the ear, and accompanied by “the pealing organ,” floated in harmonious accord beneath the high vaulted and unrivalled dome.

After a speech from Prince Albert, as the head of the Commission, addressed to the Queen, explaining the nature and purposes of the Exhibition, and stating that it was the heartfelt prayer of the Commissioners that the undertaking, which had for its end the promotion of all branches of human industry, and the strengthening of the bonds of peace and friendship among all the nations of the earth, might, by the blessing of Divine Providence, conduce to the welfare of her Majesty's people, and be long remembered among the brightest circumstances of her Majesty's peaceful and happy reign;—and after the gracious reply from her Majesty, stating her entire satisfaction, and her increasing interest in their proceedings, together with her cordial sympathy in the good wishes they expressed, the Archbishop of Canterbury read the following prayer, or benediction:—

“ Almighty and everlasting God, governor of all things, without whom nothing is strong, nothing holy, accept, we beseech Thee, the sacrifice of our praise and thanksgiving, receive our prayers which we offer up to Thee this day, in behalf of this kingdom and land. We acknowledge, O Lord, that Thou hast multiplied the blessings which Thou mightest most justly have withheld; we acknowledge that it is not because of the works of righteousness which we have done, but of Thy great mercy, that we are permitted to come before Thee this day with the voice of thanksgiving. Instead of humbling us for our offences, Thou hast given us just cause to praise Thee for Thine abundant goodness. And now, O Lord, we beseech Thee to bless the work which Thou hast enabled us to begin, and to regard with Thy favour our present purpose of uniting together in the bond of peace and concord the different nations of the earth; for of Thee, O Lord, and not of the preparation of man, it cometh that violence is not heard in our land, nor contentions nor violence within our borders. It is of Thee, O Lord, that nation does not lift up sword against nation, nor learn war any more. It is of Thee

that peace is within our walls, plenteousness within our palaces, and men go forth in safety, and that knowledge is increased throughout the world. Therefore, O Lord, not unto us, but unto Thy name, be all praise. Whilst we survey the works of art and industry which surround us, let not our hearts be lifted up that we forget the Lord our God, or that it is not of our own power, or of the might of our hands, that we have gotten in this wealth. Teach us to remember that this store which we have prepared is all Thine own; in Thine hands it is to make great and give strength and honour. We thank Thee, we praise Thee, we entreat Thee to overrule this assembly of many nations, that it may tend to the advancement of Thy glory, to the increase of our prosperity, and to the promotion of peace and good-will among the different races of mankind. Let the many mercies we have received dispose our hearts to serve Thee more and more, who art the author and giver of all good things. Teach us to use those earthly blessings that Thou hast given us so richly to enjoy, that they may not withdraw our affections from those heavenly things which Thou hast prepared for them that love Thee, through the merits and mediation of Thy son Jesus Christ, to whom, with Thee and the Holy Ghost, be all honour and glory, world without end. Amen."

At the conclusion of this prayer, Handel's magnificent Hallelujah Chorus thundered its powerful harmonies to the gratified ear, and completed the solemn and religious character of the ceremony, which, to those who were gratified in witnessing it, will not readily be effaced from their memory.

The Royal procession was then formed in the following order:—

Heralds.		
Architect, Joseph Paxton, Esq.	Contractor, Mr. Fox.	
Superintendents of the Works—C. H. Wild, Esq.; Owen Jones, Esq.		
Financial Officer, F. H. Carpenter, Esq.		
Members of the Building Committee—I. K. Brunel, Esq.; Charles Cockerell, Esq.; Professor Donaldson		
Members of the Finance Committee—Samuel Peto, Esq.; Sir Alexander Spearman, Bart.		
Treasurers—Baron Lionel de Rothschild, William Cotton, Esq.; Sir John William Lubbock, Bart.;		
Arthur Kett Barclay, Esq.		
Secretary to the Executive Committee, Mathew Digby Wyatt, Esq.		
Executive Committee—George Drew, Esq.; Francis Fuller, Esq.; Charles Wentworth Dilke, jun., Esq.;		
Henry Cole, Esq.; Lieut.-Colonel William Read, Royal Engineers, C.B.		
FOREIGN ACTING COMMISSIONERS.		
Austria—M. C. Buschek, Chevalier de Burg.	Holland—M. Goothens, M. J. P. Dudok van Hal.	Sweden and Norway—M. Charles Tottie.
Bavaria—Professor Dr. Schafhault, M. Theobald Boehm, M. Haindl.	Northern Germany—M. Noback.	Switzerland—Dr. Bolley, M. Eichholzer.
Belgium—M. Charles Caylits, M. de Broucken.	Portugal—M. F. J. Vanzeller, M. Antonio Valdez.	Tunis—Signor Hamda Elmakkadem, M. Santillana (interpreter and secretary).
Denmark—Regnar Westenholz.	Prussia—Baron Hebel.	Turkey—M. Edward Zohrab.
France—M. Sallandrouze de Lamornaix.	Rome—Signor Carlo Trebbi.	Tuscany—Dr. Corridi.
Grand Duchy of Hesse—M. Rosser.	Russia—M. Gabriel Kamensky.	United States—Mr. Edward Riddle, Mr. N. S. Dodge (secretary).
Greece—M. Ralli.	Sardinia—Chevalier Lencisa.	Wurtemberg—Mr. C. Brand.
Hanse Towns—M. Piglheim.	Saxony—Dr. Seyfarth, L.L.D.; M. Gustavus Dorstling.	Zollverein—M. Banrath Stein.
Secretaries to the Royal Commission—Edgar A. Bowring, Esq.;	Spain—M. Man. de Ysasi, M. Ram. de la Sagra, M. Ram. de Echivarria.	Sir Stafford H. Northcote, Bart.;
Special Commissioners—Dr. Lyon Playfair;	Lieut.-Colonel Lloyd.	J. Scott Russell, Esq.
HER MAJESTY'S COMMISSIONERS.		
Mr. Alderman Thompson.	John Shepherd, Esq.	Sir Charles Lyell.
R. Stephenson, Esq.	Philip Pusey, Esq.	Sir R. Westmacott.
Wm. Hopkins, Esq.	John Gott, Esq.	Rt. Hon. H. Labouchere.
T. F. Gibson, Esq.	Wm. Cubitt, Esq.	Lord Overstone.
Richard Cobden, Esq.	Thomas Bazley, Esq.	Earl Granville.
Charles Barry, Esq.	Thomas Baring, Esq.	Earl of Resse.
Her Majesty's Master of the Ceremonies.		
Foreign Ambassadors and Ministers.		
F. M. the Duke of Wellington, K.G., Commander-in-Chief	F. M. the Marquis of Anglesey, K.G., Master-General of the Ordnance.	
Her Majesty's Ministers.		
His Grace the Archbishop of Canterbury.		

White Wands : viz., Comptroller of the Household.
 Treasurer of the Household.
 Vice Chamberlain.

Lord Steward. Lord Chamberlain.
 Garter Principal King of Arms.

His Royal Highness Prince Albert, leading Her Royal Highness the Princess Royal.

The Queen, leading his Royal Highness the Prince of Wales.
 His Royal Highness the Prince of Prussia.
 Her Royal Highness the Duchess of Kent.

His Royal Highness Prince Henry of the Netherlands.
 Her Royal Highness the Princess of Prussia.

His Royal Highness Prince Frederick William of Prussia
 Her Royal Highness Princess Mary of Cambridge.

His Serene Highness Prince Edward of Saxe-Weimar.
 His Royal Highness the Duke of Cambridge.
 Mistress of the Robes.
 Lady of the Bedchamber, Marchioness of Donro.
 Lady of the Bedchamber in Waiting.

Maid of Honour in Waiting. Maid of Honour in Waiting.

Bedchamber Woman in Waiting. Lady Superintendent—Lady Caroline Barrington

Foreign Ladies, and Lady in attendance on H. R. H. the Duchess of Kent.

Gold Stick in Waiting. Master of the Horse.

Groom of the Stole to H. R. H. Prince Albert.

Captain of the Yeomen of the Guard. Captain of the Gentlemen-at-Arms.
 Master of the Buckhounds.

Lord of the Bedchamber to H.R.H. Prince Albert in Waiting. Lord in Waiting to the Queen.

Groom of the Bedchamber to H.R.H. Prince Albert in Waiting. Groom in Waiting to the Queen.
 Clerk Marshal.

Equerry to H.R.H. Prince Albert in Waiting. Equerry to the Queen in Waiting.

Gentleman Usher. Gentleman Usher to the Sword of State. Gentleman Usher.
 Silver Stick in Waiting. Field Officer in Brigade Waiting.

The Gentlemen in attendance upon their Royal Highnesses the Duchess of Kent, the Duke of Cambridge, and the Prince and Princess of Prussia
 Heralds, &c.

Our journalist continues as follows :—

“ The royal procession went up to the west end of the nave by its north side, returning to the east end of the nave by its south side, including the south end of the transept; and coming back to the centre along the north side of the nave, all present were thus excellently well enabled to see her Majesty and the procession.

“ During the procession, and at the Queen's approach, the organs in the British division, built by Messrs. Willis, Walker, and Hill, of London, and those by foreign importers, Du Croquet (Paris) and Schulze (Erfurt), were successively played.

“ On her Majesty's return to the platform, the Queen declared ‘the Exhibition opened!’ which was announced to the public by a flourish of trumpets and the firing of a royal salute on the north of the Serpentine. The barriers, which had kept the nave clear, were then thrown open, and the public were allowed to circulate, which they by no means appeared disposed to do, as they were all crowding towards the glories of the transept.

“ Her Majesty then returned to Buckingham Palace by the route by which she came, and all the doors, which had been closed at half-past eleven o'clock, were again opened.

“ Throughout the whole of the Queen's traverse of the building, her face was wreathed with smiles and pleasant looks, and her Majesty evidently took a more than common interest in the brilliant spectacle which everywhere attracted her notice. The Queen wore a rich embroidered pink satin dress set with precious stones, and a tiara of diamonds on her head. Prince Albert wore a field-marshal's uniform.

“ The Duke of Wellington and Marquis of Anglesea attracted much attention, the duke supporting himself on his more aged companion, while both seemed highly gratified in their tour of inspection. We must also remember the droll Chinese mandarin amongst the foreign ambassadors and ministers, who swayed along from side to side, those before and those behind him, leaving a pretty full berth for his comical progress.

“ Let our last words respecting this truly national festival be commendatory to those who originated and perfected it. No event—not even the coronation of our monarch—had ever more strongly called forth public expectation; and none, we will at the same time affirm, has ever more completely fulfilled it.

“ The ceremonial was one, it may be said, without precedent or rival. The homage paid by the sovereign of the widest empire in the world to the industry and genius of both hemispheres, will not fill a page in history as a mean and unsubstantial pageant. While the race of man exists, this solemn and magnificent occasion will not readily fade away from his memory like the ‘baseless fabric of a vision;’

it commences an era in which the sons of toil shall receive honour and reward; and, in accordance with the spirit of the day, it stimulates the energies of man to conquer 'fresh domains,' and discover new faculties of nature and her products, for the well-being and use of his fellow-creatures.

"Of itself, as a passing display of state, pomp, and power, we cannot speak too highly; for even Oriental gorgeousness fades in comparison with the glories of the unequalled temple which enshrines the Exhibition of all Nations in Hyde Park."

CHAPTER V.

PREPARATORY ARRANGEMENT—REFRESHMENT ROOMS—"MONSTER" LODGING HOUSE—PRICES OF ADMISSION—THE FOUR GRAND SECTIONS.

HAVING accompanied our readers through all the pageantry we have described in the preceding chapter, and conducted them safely through the toils and glories of the day, we shall now take a more leisurely survey of the wondrous structure, and proceed to examine into the various accommodations and arrangements that were made, as well for its numerous visitors, as for the reception of the treasures of industry, art, manufacture, and native produce, that were destined to flow into its mighty reservoirs from every portion of the habitable globe.

As all the world received cards of invitation to "assist," as the fashionable phrase is, in the grand parties that diurnally were expected to assemble within the ample area of the Crystal Palace, and as every facility was afforded, even for the humblest classes, to travel up and down from all parts of the empire, to gratify their longings to participate in the view of the "World's Wonder," it became a point of necessity that sufficient accommodation should be prepared within its hospitable walls for rest and refreshment for all, and more particularly for those who had travelled far from their homes, and whose limited time, as well as means, would not permit them to wander backwards and forwards in search of such necessary "creature comforts" as are indispensable for the support of our natural bodies, even when we are engaged in the delightful toil of making a business of our pleasure. "Ample space, and verge enough," were therefore granted for extending, at a very moderate remuneration, the rites of hospitality towards those who either through necessity or choice, were inclined to participate in them. Moderation, however, was the motto that was adopted; for the commissioners very properly thought that it would be inconsistent with the nature of the Exhibition, to allow the building to assume the character of an hotel, tavern, or dining-room. Wine, spirits, beer, or intoxicating drinks, were expressly forbidden; but then tea, coffee, chocolate, cocoa, lemonade, ices, ginger-beer, seltzer and soda-water, were allowed to circulate in abundance; and in more solid requirements, cold meats, sandwiches, patties, pastry, fruits, with humbler bread and cheese, were liberally provided.

That these "dainties" were not expected to be unacceptable to the thirsty throats and keen appetites of the multitude, is evident from the tenders made for their supply. For the privilege of vending refreshments, together with soda-water, *et hoc genus* of potables, Messrs. Scheppe and Co. paid the sum of £5,500! Upwards of 2,000 dinners were daily calculated upon in the various spacious areas destined for the hungry guests, whose fare, however, was limited to cold meat and steamed potatoes, as cooking was strictly prohibited in every part of the building. These areas were three in number: the central, the eastern, and the western; the space occupied by the first of these divisions, including all the passages, lobbies, &c., was not less than 17,756 square feet. The

eastern refreshment court contained 19,008 square feet, and the western 12,096 square feet. And yet, so small was the actual extent of these capacious halls, in comparison with the vast proportions of the whole edifice, that many parties frequently wandered about, "with fainting steps and slow," a considerable time before they could find, among the intricacies of the building, these festive courts, and often required the friendly aid of some kind policeman to guide their erring steps.

Although the influx of visitors from all parts of the kingdom was expected to be enormous, and preparations were made accordingly, still the reality, contrary to usual experience in such cases, far outstripped the ideas of the most sanguine calculators. The millions that thronged to the banks of "Old Father Thames" were unheard of, undreamed of. Had the result been really made known beforehand, how would the danger of congregating so vast an assemblage in a metropolis like ours been predicted and commented on! As it was, many an old lady and timorous gentleman anticipated nothing but riot and disorder; some spoke of famine, others of chartism, and perils of that kind; but, to the wonder and almost consternation of all such evil-foreboders, the utmost tranquillity and harmony prevailed. Even the great Iron Duke, who snuffed mischief in the breeze, and talked of canons and gunpowder, and encampments in the park, was compelled to admit, with astonishment, and we are disposed to believe with pleasure also, that all the parade and display of "gun, blunderbuss, and thunder," would be very much out of place. A more peaceful "gathering" never mustered its forces beneath the broad light of the sun. Amity and brotherly love actuated not only those of a kindred tongue, but appeared to unite all nations—

————— Embassies from regions far remote,
In various habits; some from farthest south,
Syene, and where the shadow both way falls,
Meroe, Nilotic isle; and, more to west,
The realm of Boechnus to the Black-moor sea;

From India and the golden Chersonese,
And utmost Indian isle, Taprobane,
Dusk faces with white silken turbans wreathed;
From Gallia, Gades, and the British west;
Germans and Seythians, and Sarmatians, north
Beyond Danubius to the Tauric pool,
All nations

And London, whose "great revenge had stomach for them all," received into her cordial embrace all these kindreds and people, and would have done so, had even twice the number demanded her hospitality; aye, and given food and shelter to them all. The Commissioners were therefore wise in leaving the accommodation of the strangers to the care of the town itself, and innumerable were the various residences that opened their doors to those that sought a temporary abode. All found a fitting *gite*, from the luxurious noble to the humble peasant, the hardworking mechanic, whose scanty purse rarely sufficed to maintain its owner beyond a single night in his "unaccustomed lair."

Among other accommodations that were provided, through the speculation of spirited individuals, we may notice a "monster" establishment for the reception of the working-classes, projected and registered by Mr. Thomas Harrison, of Ranelagh Road, Pimlico, which was really so gigantic that we cannot forbear presenting a description of it to our readers, were it only to show the promptitude, and the effectual manner, in which the necessities of the public can be provided for in our wealthy and flourishing land.

The building we are about to describe, was in the immediate vicinity of Mr. Cubitt's Pimlico Pier, to which steam-boats arrive from the city every ten minutes. It occupied a space of two acres, was bounded by roads on three sides, was airy, and well ventilated.

It contained two sleeping-rooms, comprising an area of 25,000 feet, and two other dormitories of half the size. These four rooms were calculated to accommodate 1,000 persons per night. Every lodger had his own bed-room, separated from the others by a partition seven feet high, ensuring perfect privacy to the occupant. Efficient warders were appointed to watch over the dormitories, which were well lighted with gas during the night. These rooms were open at the top, for the purpose of ventilation. In each room was a good bed, and the lodgers kept the keys of their own dormitories. Each of these rooms was five feet wide, and six and-a-half long. The dining-room, the reading-room, and the smoking-room, had each an area of 2,000 feet. The news-room was well supplied with newspapers, magazines, and all works relating to the Exhibition, and other sights of London, free of charge. A band of music enlivened the reveries of the smokers in their cloudy apartment. On the summit of the edifice was a lantern 1,500 feet square, from which visitors were enabled to enjoy an excellent view of the moving panorama of the river and the adjacent country. Hot rolls were baked upon the premises, and a good breakfast provided for 4*d.*, and a dinner for 8*d.* The price of the lodging, with all the agréments and advantages, was 1*s.* 3*d.* per night, which also included soap, towels, and every convenience for ablution. "Boots" performed his duty for a penny each, and a barber looked after the heads and chins of the guests. A surgeon was also in daily attendance at nine o'clock. A penny omnibus was attached to the service of the institution, and every precaution was taken to ensure the comfort and welfare of every one, even to providing for the care of such as, in the joyousness of their hearts, and their unaccustomed liberty, should have indulged a little too far in their libations to the "jolly god."

All were abundantly gratified, from the Queen herself, the mistress of the revels, to the meanest of her subjects who participated in them—revels, not of the senses merely, although great was the delight inspired by so many objects of beauty and of art, but of the understanding also, in the contemplation and admiration of the progress and advancement of human knowledge and human industry.

The charge for admission to the World's Grand Show, was not arranged without a good deal of discussion. It was proposed by Mr. Paxton, to "throw open the doors of the world's Exhibition to the world's citizens," but this visionary scheme was overruled, and the Commissioners finally determined that the charges for admission should be as follows:—

Season Ticket for a Gentleman	£3 3 0
Season Ticket for a Lady	2 2 0

These tickets were not to be transferable, but were to entitle the owner to admission whenever the Exhibition should be open to the public.

The Commissioners reserved to themselves the power of raising the price of the season tickets when the first issue should be exhausted, should it be deemed advisable.

On the first day of Exhibition, it was determined that season tickets *only* should be available, and no money received at the doors that day.

On the second and third days the admission price would be, each day	£1 0 0
On the fourth day of Exhibition	0 5 0
To be reduced on the twenty-second day to	0 1 0
On Mondays, Tuesdays, Wednesdays, and Thursdays, in each week	0 1 0
On Fridays	0 2 6
On Saturdays	0 5 0

To avoid confusion and delay, no change was to be given at the doors.

It was suggested by Prince Albert, in his first conference with the original projectors of the Exhibition, that there should be four grand compartments, which, as far as pos-

sible, should be devoted to the reception of the following specimens. In the first, all raw materials; in the second, machinery and mechanical inventions; in the third, manufactures; and in the fourth, sculpture and plastic art.

With respect to the productions of Great Britain, this arrangement was strictly carried out. Various reasons rendered it advisable to allow each foreign nation to fill up its own space in its own manner. A strong argument in favour of this deviation from the original plan was found in the circumstance that without such concession the arrangement of the Exhibition would be indefinitely delayed until the last package from the most distant country had arrived.

Nothing could more clearly prove how well his royal highness had studied the problem he had undertaken to demonstrate than his suggested arrangement of raw material, mineral, vegetable, and animal, upon which the skill and industry of man is exerted to grow and manufacture; machinery, by which, from raw material, the greatest results may be obtained, at the smallest cost of time and toil; manufactured articles, in which the result of man's industry, applied to the gifts of a gracious Providence, may be seen and compared; sculpture and plastic art, from which the manufacturer and the consumer may alike learn to value that perfection which can only be attained by the union of beauty and proportion with useful manufacture.

Under one or other of these heads, an illustration of every material aid to the commerce, the agriculture, the manufactures, the sustenance, and the education of civilized communities, will be found. No matter to what country, or pursuit a visitor may belong—peasant or peer, duchess or dairymaid—soldier, sailor, or man of science—miner or miller, farmer or engineer—under some one or other of the subdivisions of this classification we will undertake to find something which shall interest, amuse, instruct, and profit him.

Each of these four principal compartments was divided into as many parts as were necessary for particular classification. The first, which included "raw materials," contained all ores, and non-metallic mineral products, and also what related to mining and quarrying operations, as well as geological maps, &c. The second had relation to all chemical and pharmaceutical products, and processes generally. The third, all substances used as food, both vegetable and animal; and the fourth had reference to all vegetable or animal substances, used in manufactures, or as implements or ornaments.

The second grand compartment "machinery," was also variously subdivided into classes; the first containing machines for direct use, such as steam-engines, water and windmills, and various other prime movers, together with railway carriages, objects of naval mechanism—and all carriages, public or private, carts, waggons, &c.; the second, for manufacturing machines and tools, as well as the manufactured articles themselves. A third was dedicated to civil engineering and building contrivances; designs and models of bridges, tunnels, docks, harbours, lighthouses, and beacons; plans of water-works, gas-works, sewerage, ventilation, &c., &c. A fourth comprised all relating to naval architecture, and military engineering; ordnance, armour, and accoutrements. A fifth had relation to the more peaceful labours of the husbandman, and displayed every variety of agricultural and horticultural machines and implements. A sixth led the philosophical inquirer to the contemplation of all instruments connected with science, as well as to every variety of musical, horological, and surgical instruments, adapted for the relief or cure of every malady of form or structure which "flesh is heir to."

Then came the compartment "manufactures," which also had its numerous subdivisions, for articles fabricated from cotton, silk, woollen, flax, hemp, from the mere simple thread, to the most elaborate dimitics, cloths, gauzes, ribbons, fancy silks, velvets, cambrics, down to rough cordage, &c. &c.

"There is nothing like leather," was the motto of the fabricator of this article, as he exhibited the skill with which he had contrived to render his "raw material" subservient to the gilded chariot of the monarch, and the war-horse of the knight, in rich trappings and embossed furniture, at the same time that he descended to the manufacture of the "clouted shoon" of the laborious peasant. In the same department with this worthy, were to be found the dresser of skins, the furrier, the feather-maker, and the hair-worker, who severally supplied their various stores for use or ornament.

The paper manufacturer was not behind-hand in his contributions to this compartment, and had his appropriate division wherein to arrange the manifold proofs of his industry, ingenuity, and skill, from the material in its raw state as it leaves the mill, to all articles of stationary, specimens of *cartonnerie*, and the perfection of bookbinding.

The tapestry weaver also, and the embroiderer, claimed their allotted space, and rich was the display of elaborate hangings, variegated carpets, elegant fringes, and rare needlework; while the unrivalled lace, and the unparalleled tamboured muslins, elicited unbounded admiration from the numerous groups of the fair sex, who thronged in delighted amazement in the sphere of such irresistible attractions. They who dealt in clothing, too, from the renowned Moses to the gentle man-milliner, also made their inviting appeal to the lounging dandy and the fashionable belle, in every variety of tempting display fitted to distinguish and adorn.

All these, however, were cast into the shade by the splendours of the gold and silver-smiths, and the jewellers, whose department glittered like the sun with all "the wealth of Ormus and of Ind," and would have been unrivalled, had not the glass-manufacturer dazzled all eyes by the superior brilliancy of his workmanship. He could boast, too, of the large share he had had in the construction of the Crystal Palace itself, to say nothing of the superb fountain that formed the chief ornament of the transept, and served as a trysting place "to many a youth and many a maid" who had wandered up from the country to enjoy a sight of the "World's Wonder," as well as a point of general rendezvous for those who were desirous to meet their friends at "the appointed hour." Moreover, in point of glitter, as far as that quality is valuable, the superb candelabras he exhibited outshone the far-famed diamond of Runjeet Singh, the Koh-i-Noor, and all the sparkling treasures that

"——— The gorgeous east, with richest hand
Showers on her kings barbaric."

The porcelain division, in which the upholsterer, the house-decorator, and the japaner, also exhibited their wares, was well worthy of attention; as was that wherein the worker in wood, in straw, and in grass, together with the artificial flower-maker, and similar operatives, deposited the proofs of their industry and skill. The marble-cutter, and the manufacturer of artificial stones, had likewise their allotted space; while, in the last division of this most comprehensive compartment, were amassed all the endless "contrivances," from caoutchouc and gutta percha, together with infinite examples of the utility of ivory, tortoiseshell, bone, horn, &c. &c.; to say nothing of umbrellas, parasols, walking-sticks, fishing-tackle that would have enraptured "Old Izaak;" and, in short, every possible invention, "*et quibusdam aliis*," for the use and convenience of civilized man.

The last, but by no means the least interesting, of the four grand compartments was devoted to "Sculpture, Models, and Plastic Art." A large proportion of the sculpture, however, was judiciously disposed in prominent positions throughout the naves and transepts of the building, and greatly conduced to the beauty and general effect of the whole. We shall not at present enter upon a description of the objects comprised under the

above head; the subject would be too comprehensive for immediate consideration. We shall, however, from time to time, as we conduct our readers through the intricate mazes before us, select and criticise what we may deem most worthy of notice. Many of the choicest specimens of artistic excellence, the "gems" of the Exhibition, will also be presented to them through the medium of the daguerreotype and engraver, the excellence and fidelity of whose combined exertions have already enabled us to present to our subscribers, in our first number, besides the general view of the Exterior of the Crystal Palace, the Equestrian Statues of the Queen and Prince Albert, and the "Happy and Unhappy Child," which we trust will be found to unite the utmost delicacy of execution with the most perfect fidelity of resemblance.

CHAPTER VI.

COLONIAL DEPARTMENTS—INDIA.

As the arrangements we have described in the foregoing chapter have solely reference to the British department, as connected with our own islands, we shall now proceed to offer a few details with respect to our colonial possessions, at the head of which "India" indisputably stands pre-eminent. The riches of the East have long been proverbial, and the contributions that were forwarded from our Indian possessions were well worthy of their renown in that respect. A large proportion was sent in by "the Company," some were exhibited by her Majesty, and not a few were tributes offered on the occasion by native princes and other *magnates* of the East. They comprised natural products, native manufactures for domestic use, models, and a wondrous display of the richest articles of jewellery and luxury.

A magnificent chair, or rather "throne of royal state," of carved ivory, elaborately and exquisitely finished, the back and seat covered with green velvet, richly embroidered with gold, was one of the chief objects of attraction among the treasures of this unrivalled department. It was sent as a present from the Rajah of Travancore, and at the closing of the Exhibition, was used by Prince Albert as President of the Royal Commission. The next article of interest that awakened the curiosity of the spectator was contained in a glass case, enclosed within an iron railing, and attracted general attention, from the extraordinary richness and brilliancy of some large undefined object placed at the top, which, on examination, proved to be the gorgeous coat of a Sikh chief, presenting to the astonished gaze, a mass of gold embroidery covered with pearls, and loaded with the finest rubies and emeralds. Each epaulette alone, attached to this most extraordinary garment, was valued at £5,000; other portions of military attire and trappings were laid about in rich confusion. All this lavishing of wealth upon mere articles of dress, upon that of a soldier too, strikes us as a notable instance of "wasteful and ridiculous excess." What a prize the wearer of it would have been to the fortunate wight that should be lucky enough to capture him, with the ransom of a kingdom on his back! Our Queen's state drawing-room, with all its bevy of courtly dames and lords in waiting, might have been be-jewelled and bedizened from the spoils of this single coat. What a proof of a barbarous state of society is this taste for inordinate decoration; and after all, the humming-bird, or the golden beetle, is more splendidly attired than was this doughty hero; and in point of glitter and show, a

tinselled harlequin in a pantomime outshines him. Pope tells us of the vanity of the nobleman of his time, who because his dress-coat did not satisfy him—

——“His taylor turned away
Who stitched a star that scarcely threw a ray.”

But what was his ambition to be fine, compared to that of this egregious Sikh? After all, there is but a poor satisfaction to the mind, that is gifted with a ray of intelligence, in the contemplation of these glittering toys, and more especially so, when they are too bulky or too precious for use. Witness the great Koh-i-Noor, imprisoned like a robber in his own iron cage; the tribute of admiration bestowed upon which was not equal to that elicited by the most trivial piece of machinery, that was applicable to the use or service of man. We shall however continue our description of these priceless treasures, in a brief notice of the most prominent objects, among the most conspicuous of which were a pair of “moorchals,” or emblems of dignity, used only by a few of the Indian potentates, when in the presence of the Governor-general. These emblems consisted of hollow cases, of about two and-a-half feet in length, and about six inches in diameter at the upper end, tapering down to a handle of two inches in diameter. The whole was formed of pieces of pure gold, most curiously fastened together by gold thread, and were intended for the reception of the feathers of the beautiful birds of paradise. Of the beauty of the *tout ensemble*, which this specimen of Eastern magnificence presented, it would be difficult to convey any adequate idea.

A princely girdle of gold, studded with nineteen emeralds, each an inch and-a-half square, and bordered with diamonds, next attracted our view, surpassed, however, by a pair of armlets, decorated with three enormous rubies, in comparison with which, the largest in the most celebrated jeweller’s possession, would shrink into insignificance. Then we gazed on the famous Lahore diamond, the “Durria-i-Noor,” or sea of light; then on the splendid necklace containing two hundred and forty Oriental pearls. But we should never have done, were we to describe the number and variety of these valuable “gawds”—vases, cups, bowls, jewel boxes, and brilliants of every sort and description were displayed on every side, till the wearied spectator was ready to exclaim “*jam satis!*” and to turn his attention to objects less costly, but more satisfying to the intellect.

Leaving therefore these jewels to repose in their own caskets, within their strictly guarded prison bars, we will make mention of specimens of Indian magnificence, in the shape of thrones, canopies, howdahs, trappings for elephants on state occasions, all which travelled across the desert, bound on their pilgrimage to the “world’s fair,” and were chiefly presented to her Majesty by the renowned Nawab Nizam of Bengal, a short account of whom, as a magnificent contributor, may not be unacceptable to our readers, and which, in the language of a contemporary writer, we here present for their edification.

“The present Nawab’s ancestors ruled for several centuries as independent sovereigns over the districts of Bengal, Behar, and Orissa, and their residence—at least for a considerable time previous to the British conquest of India—was the city of Moorshedabad, which is situated on the banks of the Hooghly, about 150 miles north of Calcutta. It occupies a perfectly level site, and is destitute of fortifications. Its streets are narrow, irregular, and dirty, and the houses, for the most part, are only one storey high, and of mean appearance. Of these the majority are built of earth mixed with chopped straw, and thatched with dried grass, and are called *kutchas*; others are constructed of mud and bricks—a kind of masonry which is styled *pukka kutchas*—while some, called *pukka*, are built entirely of brick. The city contains many curious old mosques, but the only public edifices of any magnitude and architectural beauty, are the Emaumhara, or House of God—to the construction of which the British government contributed £15,000—and

the new palace built for the late Nawab. The latter is a spacious edifice in the Doric style, and was erected from the plans and under the superintendence of General Duncan Macleod, at the cost of £66,000. There is a large model of it in Hampton Court Palace, which occupies a pretty large room. The population may be estimated at about 150,000, the bulk of whom are employed in the cultivation of rice and indigo, and the various processes of silk manufacture. Of the numerous factories and filatures, those of Messrs. Lyall and Messrs. Watson are the most extensive, many thousands being daily employed by those houses in spinning and hand-loom weaving. Moorshedabad is also an important mart for cotton, and many of its native merchants have acquired great wealth.

The late Nawab, who died in 1837 or 1838, was the last person on whom the Guelphic order of knighthood was conferred. His successor, the present Nawab, attained his majority four or five years ago, and is now about twenty-three. He has a son by each of his three wives, with whom he lives in his harem, about a quarter of a mile from the new palace, which is only used on *darbar*, or levee days. Of these there are six or eight yearly. On such occasions he is generally borne by eight men in a palkee, or howdah, with poles, like that presented to her Majesty, and is escorted by the principal officers of his household on foot, while he is followed by a numerous train, mounted on elephants, camels, and horses, all gorgeously caparisoned. Those who have seen the rich elephant-trappings at the Exhibition, will be enabled to form some idea of the magnificent spectacle presented by fifty elephants in full state equipment, followed by about a score of camels, and a similar number of horses, with housings of corresponding splendour. The sumptuous canopied couch in which his highness reclines on reception-days, was accurately represented by that at the Exhibition, of which we have already given a detailed description. The natives who attend the *darbar* leave their shoes at the entrance of the reception-hall, and, with head covered, according to the Eastern custom, advance with a series of salaams to his highness, who is surrounded by his attendants and guards, and on whose left, the place of honour in the East, sits the agent for the governor-general. They then present him with a mohur—a gold coin £1 12s. in value—and if the person offering it enjoys his favour he accepts the coin, and pours a few drops of attar of roses on his handkerchief. After this ceremony it is the custom to retire backwards with a repetition of the salaams. Besides the respect and affection with which the present Nizam is regarded on account of his personal qualities, he is also held in great consideration as the head of the sect of Sheahs, who are much looked up to in Lower Bengal.

We will now take a survey of another court or division appropriated to our East Indian Colony; and here again were divers articles of state and luxury—superb couches, royal bedsteads with richly-embroidered curtains; marble slabs and carved furniture, in wood and ivory; together with a vast variety of ornaments; fruit and flowers in wax; carved boxes and ornaments in sandal-wood from Mangalore; embossed paper and illuminated writings, sent by the King of Oude; together with a large assortment of manufactured articles illustrative of the wonderfully-exact and patient industry of Hindoo workmanship. The most striking feature, however, in this collection, was an apartment completely furnished in the style of an Indian palace, in which was realised all that the Arabian Nights, and other romances, have detailed with respect to their gorgeous and costly luxury.

Around the exterior of this room were arranged a number of figures illustrating the various trades and castes of the Hindoos, together with a rich assortment of shawls, carpets, matting, &c. &c. Various objects, also, of natural produce from different parts of our vast Indian Empire were distributed around this interesting compartment.

Beautiful carvings in ivory were also to be seen, one representing the procession of a native Indian prince, another a state barge, with its bank of agile rowers. At the same time, proofs of their attention to rural economy were to be found in many

curious models of agricultural tools and implements, which appear to be precisely of the same form and description as were in use among the ancient Egyptians, as is evident from drawings and manuscripts that are still in existence. Hydraulic machines, on which tropical cultivation so greatly depends, were also exhibited, of various and original construction. The mode of manufacturing sugar was likewise exemplified, and a rude process it was—two grooved rollers of wood, placed face to face, were turned by two men with handspikes, while two or three sugar canes were thrust between them; this imperfect force serves to extract but a small quantity of juice, and yet we receive a good quantity of sugar from our East Indian possessions.

To turn from these peaceful occupations to the business of "grim-visaged war," we will now direct the attention of our readers to the "pride, pomp, and circumstance" of military operations, as carried on among the dusky tribes of our Eastern colonies.

In one of the bays of the East Indian department the counters on each side were entirely occupied with a splendid assortment of arms and military equipments, comprising magnificent matchlocks (inlaid in silver or mounted with gold), blunderbuss-like guns, used by our fierce enemies the Sikhs; and brass-swivels, used by Malay prahus, with mortars from Lahore, and cannons from Mysore, swords and sabres, and spears, of all shapes and sorts—all keen, glittering, and sharp weapons—used by the Scindians and the Sikhs, the Mahrattas and the Burmese; some with blades of dark steel, and others with light, inlaid with gold; some with hilts entwined with pearls, or exquisitely enamelled, or otherwise beautifully decorated. Nor was it only the weapons of modern warfare that were here, but those also which illustrate the mediæval history of India, and which may have been wielded by the chivalry of the East amidst the gleaming battle-hosts of Nadir Shah or Genghis Khan. Here, in short, were to be seen the armouries alike of Tippoo and Tamerlane. Here hung the glittering scimitar and tapering lance. Here we found the small circular shields suited to a former age of warfare; and here were suspended the fine chain-worked coats of armour, almost as flexible and light and yielding to the form as the beautiful coats of linen or silk of similar shape, exhibited in the cross avenue of the compartment opposite, reminding one of the chain armour of our ancient Norman chivalry. Here, again, were the bows and arrows, and the javelin (also recalling the ideas of our own early military history), arranged tastefully in circles, presenting all around a terrible close array of keen-looking points. Here likewise was the battle-axe—most beautifully inlaid—and a superb suit of steel armour inlaid with gold, together with a shield of deer-skin, transparent, and with enamelled bosses. And lastly, here were some curious specimens of most murderous ingenuity: such as a shield, with gold bosses, every boss concealing a pistol; a double sword dividing at pleasure into two longitudinal or lateral sections, each constituting a complete weapon; and strange conical caps, having round them sharp-edged discs of brass, hurled most dexterously and dangerously by some tribes as weapons of offence—little knives and daggers being very engagingly stuck all round, and giving an appearance to the whole far less graceful than grim.

Many specimens of bows, those most ancient of weapons, were also exhibited in this department, some of extraordinary length, and rude enough, in comparison with the more modern implement; others were short, carved, and curiously ornamented, probably the real Scythian bow which has for many long ages been in use among the Asiatic tribes, a bow of singular construction, deriving its chief elasticity from animal tendons, bound tightly upon the wood.

As we shall probably again have occasion to refer to the "East India compartment," we shall close our notices of it for the present; not, however, without paying our respects to its great lion, the KÖH-I-Noor. And in order to give it "honour due," and to

impress our readers with a befitting sense of its high dignity and value, which perhaps from a mere inspection of the royal relic of Eastern grandeur they might be disposed to question, we shall give a few particulars with respect to its "ancient and modern history."

The Koh-i-Noor, then, our readers must be informed, is one of the most valuable diamonds that are known to exist in any part of the globe; two others only are supposed to be of greater value—the Russian sceptre-diamond, valued at the enormous sum of £4,800,000! and one belonging to Portugal, uncut, but supposed to be of still greater value. The Koh-i-Noor, however, has been long celebrated both in Asia and in Europe, and lays claim to our respect for its traditionary, as well as its historic fame. Hindoo legends trace its existence back some four or five thousand years, and mention is made of it in a very ancient heroic poem, called *Mahabarata*, a circumstance which gives us reason to suppose that it is the most ancient of precious stones that have come down to modern times. The poem states that it was discovered in the mines of the south of India, and that it was worn by Karna, the King of Anga, who was slain in the great Indian war, the date of which there is good evidence for believing to be in the year 3001 before Christ, consequently nearly five thousand years ago. A long silence then takes place on the subject of this jewel, which is not again mentioned in fable or in history till fifty-six years before Christ, when it was stated to have been the property of the Rajah of Nijayin, from whom it descended to the Rajahs of Malwa, and was possessed by them until the Mahommedans overthrew their principality, and swept away this priceless gem, and other spoils of immense value from the subjugated territory. The Mahommedans, in their turn, were obliged to bow their necks to their fierce invaders, for we find that in the beginning of the fourteenth century, they were constrained to yield up the territory they had won, the noble diamond and all their spoil, to the victorious armies of Ala-adin, the Sultan of Delhi, in whose dynasty the diamond remained for a lengthened period.

The modern history of this precious stone may be said to commence about two hundred years ago, when an eminent French traveller, skilled in diamond lore, visited India with the object of effecting purchases in those matters, and being favourably received at the court of Delhi, he was allowed to inspect the imperial jewels, and the account he gives of the one that surpassed all the rest in size and beauty, warrants the supposition that the diamond he describes was actually the great Koh-i-Noor. We next trace it to the possession of Baber, the Mogul emperor, through the right of conquest, and eventually to that of the ruling family of Kabul. Nadir Shah, on his occupation of Delhi in 1739, seized upon all that the imperial treasury contained, and also compelled his poor vanquished foe, Mahommed Shah, who wore this precious gem in the front of his head-dress, to exchange turbans with him, pretending to do so in testimony of his exceeding friendship and regard. It was at this period that it obtained the name of the Koh-i-Noor. After Nadir's death, it is generally believed that Ahmed Shah, the founder of the Abdali dynasty, prevailed on the young son of Nadir Shah to show him the diamond, and then kept possession of it, the youth having no means to enforce its restoration. The subsequent history of this diamond is free from all doubt and mystery; it descended to the successors of Ahmed Shah, and when Mr. Elphinstone was at Peshawur, he saw it on the arm of Shah Shoojee, surrounded with emeralds. The fortune of war drove the unhappy Shah to seek the hospitality of Runjeet Singh, who treacherously made him his captive, and partly through importunity, and partly through menace, in the year 1813, wrested from him his diamond, presenting the wronged monarch with a paltry sum in alleged consideration. So that after all, the gem has in it the greatest possible flaw, that of having been dishonestly obtained,—

"Asleep and naked as an Indian lay,
An *honest* factor stole his gem away;"

and were we disposed to play the part of Cassandra on the occasion, we should venture to predict that the enjoyment of it would not be without its corresponding alloy. O! for those days of chivalry and honour, when the glittering bauble would be restored to its rightful owner, even at the expense of the paltry millions at which its worth might be estimated.

But to return to our history. The traitorous Runjeet, on the principle, we suppose, that "stolen waters are sweet," exhibited on all occasions, and with the greatest satisfaction, his ill-gotten gem, which he wore as an armlet on all state occasions. Death, however, who, as Sancho says, levels all distinctions, threatened him at last with the loss of his stolen jewel, and there were not wanting Hindoo jesuits about him, who endeavoured to persuade him that he might quiet his conscience by bequeathing it to the great Indian idol Juggernaut. The sick monarch appeared to be struck with the idea, but he was too far gone to articulate, and could only signify his assent by nodding his head. As, however, no other warranty could be produced in favour of the grim idol, the king's successors kept fast hold of what they had got. With the ordinary quick transition of property in these countries, the gem next became the property of Rhurreuk and Shu Sing; and after the murder of the latter, also a frequent occurrence among Indian princes, the jewel remained in the Lahore treasury, until the annexation of the Punjab by the British government, when the East India Company contrived to get possession of it, on the plea that it was right and proper to seize upon all the property of the state, in part payment of the debt alleged to be due by the Lahore government, and also for the expenses of the war. It was then agreed that the Koh-i-Noor, being a state jewel, and not easily convertible into cash, should be presented to the Queen of England, which was accordingly done. Such is the history of this extraordinary jewel; but, besides these various acts of rapine and fraud, a more sanguinary deed, in cool blood, is connected with its history; for it is related that the Italian lapidary by whom it was cut, having performed his task in a manner unsatisfactory to his employer, he was forthwith ordered to immediate execution. True it is that the facets of this diamond are cut in a very unartist-like manner. The situation, too, in which it was placed, and the crimson cloth with which it was surrounded, were very unfavourable for a full display of its beauty and splendour.

In taking our leave of India for the present, which we do somewhat reluctantly, we shall close our remarks with a citation from the learned and eloquent discourse of Dr. Whewell, illustrative of the difference between the arts and manufactures of the countries called barbarous, and the productions of our own more civilized land.

"We call these nations," says the talented lecturer, "rude and savage, and yet how much is there of ingenuity, of invention, of practical knowledge of the properties of branch and leaf, of vegetable texture and fibre, in the works of the rudest tribes! How much, again, of manual dexterity, acquired by long and persevering practice, and even so, not easy! And then, again, not only how well adapted are these works of art to the mere needs of life, but how much of neatness, of prettiness, even of beauty, do they often possess, even when the work of savage hands! So that man is naturally, as I have said, not only an artificer, but an artist. Even we, while we look down from our lofty summit of civilized and mechanically-aided skill upon the infancy of art, may often learn from them lessons of taste. So wonderfully and effectually has Providence planted in man the impulse which urges him on to his destination—his destination, which is, to mould the bounty of nature into such forms as utility demands, and to show at every step that with mere utility he cannot be content. And when we come to the higher stages of cultured art—to the works of nations long civilized, though inferior to ourselves, it may be, in progressive civilization and mechanical power—how much do we

find in their works which we must admire, which we might envy, which, indeed, might drive us to despair! Even still, the tissues and ornamental works of Persia and of India have beauties which we, with all our appliances and means, cannot surpass. The gorgeous East showers its barbaric pearl and gold into its magnificent textures. But is there really anything *barbaric* in the skill and taste which they display? Does the Oriental prince or monarch, even if he confine his magnificence to native manufactures, present himself to the eyes of his slaves in a less splendid or less elegant attire than the nobles and the sovereigns of this our Western world, more highly civilized as we nevertheless deem it? Few persons, I think, would answer in the affirmative. The silks and shawls, the embroidery and jewellery, the moulding and carving, which those countries can produce, and which decorate their palaces and their dwellers in palaces, are even now such as we cannot excel. *Oriental* magnificence is still a proverbial mode of describing a degree of splendour and artistical richness which is not found among ourselves.

“What, then, shall we say of ourselves? Wherein is our superiority? In what do we see the effect, the realization, of that more advanced stage of art which we conceive ourselves to have attained? What advantage do we derive from the immense accumulated resources of skill and capital—of mechanical ingenuity and mechanical power—which we possess? Surely our imagined superiority is not all imaginary; surely we really are more advanced than they, and this term ‘advanced’ has a meaning; surely that mighty thought of a progress in the life of nations is not an empty dream; and surely our progress has carried us beyond them. Where, then, is the import of the idea in this case? What is the leading and characteristic difference between them and us, as to this matter? What is the broad and predominant distinction between the arts of nations, rich, but in a condition of nearly stationary civilization, like Oriental nations, and nations which have felt the full influence of progress like ourselves?”

“If I am not mistaken, the difference may be briefly expressed thus:—That in those countries the arts are mainly exercised to gratify the tastes of the few; with us, to supply the wants of the many. There, the wealth of a province is absorbed in the dress of a mighty warrior; here, the gigantic weapons of the peaceful potentate are used to provide clothing for the world. For that which makes it suitable that machinery, constructed on a vast scale, and embodying enormous capital, should be used in manufacture, is that the wares produced should be very great in quantity, so that the smallest advantage in the power of working, being multiplied a million-fold, shall turn the scale of profit. And thus such machinery is applied when wares are manufactured for a vast population—when millions upon millions have to be clothed, or fed, or ornamented, or pleased, with the things so produced. I have heard one say, who had extensively and carefully studied the manufacturing establishments of this country, that when he began his survey he expected to find the most subtle and refined machinery applied to the most delicate and beautiful kind of work—to gold and silver, jewels, and embroidery: but that when he came to examine, he found that these works were mainly executed by hand, and that the most exquisite and the most expensive machinery was brought into play where operations on the most common materials were to be performed, because these were to be executed on the widest scale. And this is when coarse and ordinary wares are manufactured for the many. This, therefore, is the meaning of the vast and astonishing prevalence of machine-work in this country—that the machine with its million fingers works for millions of purchasers; while in remote countries, where magnificence and savagery stand side by side, tens of thousands work for one. There Art labours for the rich alone; here she works for the poor no less. There the multitude produce only to give splendour and grace to the despot or the warrior, whose slaves they

are, and whom they enrich; here the man who is powerful in the weapons of peace, capital and machinery, uses them to give comfort and enjoyment to the public, whose servant he is, and thus becomes rich while he enriches others with his goods. If this be truly the relation between the condition of the arts of life in this country and in those others, may we not with reason and with gratitude say that we have, indeed, reached a point beyond theirs in the social progress of nations?"

CHAPTER VII.

SCULPTURE.

It is not our intention, in threading our way through the inexhaustible variety of objects presented to our view in the Crystal Palace, to attempt any scientific or classified enumeration of its wonders. That herculean task has been already fully and ably executed in the vast and voluminous catalogue, of which we are told, "that if the whole of the earlier editions had been consigned, in one vertical column, to the bottom of the Pacific Ocean (a computed depth of 6,000 feet), the present improved and corrected edition would still form a lonely peak rising to the height of Chimborazo or Cotopaxi, exactly 18,000 feet above the level or the censure of the ordinary inhabitants of this earth." Our time and limits, indeed, would not permit us to examine a tithe of what was spread out before us; we shall, therefore, confine our remarks to the consideration of the most useful, the most astonishing, the most ingenious, the most interesting, the most beautiful. And in our discursive flights, we shall not profess to be bound by any rigid plan of proceeding from first to last, as those unimpassioned visitors of an exhibition who begin at No. 1., and never suffer their eyes to wander till they have coldly examined every picture upon the walls, in the exact series and order in which they are enumerated in the catalogue. We, on the contrary, shall stray through the gay parterre, at our own free will, stopping only to examine and describe, as our captivated fancy may impel and direct; through the vast *embarras de richesse*, we shall pass from one subject of interest to another, "from grave to gay, from lively to severe," in the true spirit of liberty and unrestrained enjoyment.

Having premised thus much, and feeling ourselves, for the present, somewhat overpowered by the contemplation of all the Oriental magnificence, the "barbaric pearl and gold," which formed the subject of our preceding chapter, we shall "let Euclid rest and Archimedes pause," and suddenly removing, as with the touch of an enchanter's wand, the scene we so lately beheld, transplant our readers to the halls of sculpture, and call their attention, for a time, to the consideration of what the Plastic Art contributed towards the embellishment of the world's great emporium of industry and talent.

It will be the business of our engraver, whose art has been put to its utmost stretch of excellence, to compete with the elaborate and exquisite detail of the daguerreotype, to present our readers, from time to time, besides the general views of the interior of the building, with such specimens of individual talent among the numerous sculptors, both British and foreign, who contributed their offerings, as our impartial judgment may select, and which we shall accordingly forthwith proceed to describe.

In compliment to our foreign contributors, we shall commence with the colossal group of the "Amazon attacked by a Tigress," by Kiss of Berlin, which was one of the marvels of the Great Exhibition, and received more tributes of unqualified praise than

perhaps any other single object in the Crystal Palace. It was certainly a very masterly production, and in a style which was almost new to sculptors of our day; though at the same time, from the nature of the subject, not entitled to rank with works in the highest class of sculpture. It was more animal than spiritual; the conception more startling than poetic. The Amazon was a figure of tremendous energy. The manner in which she was represented, as having thrown herself back out of her ordinary seat, in order to get beyond the reach of the tiger, whose claws were already deep dug in the neck and flanks of the horse, whilst she took deliberate aim for a single and critical blow at the head of the savage monster, was admirably conceived and carried out; the face, with its mixed expression of terror and determination, was of itself a study sufficient for an entire work in sculpture. The horse and tiger were both master-pieces in their way, but unfortunately they more than divided the interest with the human subject. This work was a copy in zinc, bronzed, from the original in bronze, erected in 1839, at the foot of the steps before the Museum at Berlin; having been made a present to the King of Prussia by a society of amateurs. We should like to see this group in the place for which it was originally designed, as its position in the Exhibition, owing to its narrow limits, and its proximity to gaudy paraphernalia, considerably injured its effect as a whole.

Another group, of Theseus and the Amazons, in the south transept, the production of Engel, an Hungarian, also attracted a good deal of attention, partly, perhaps, from its being the property of Prince Albert, as well as from its own intrinsic merit. We had frequent opportunities of seeing this work in progress in Rome, where it was executed during the troubles and commotions that agitated that most unfortunate and most injured city, at the period of its treacherous usurpation by Republican France. The artist, nevertheless, with unchecked application and industry, achieved his laborious task sufficiently in time for its being conveyed to our hospitable shores for exhibition.

More graceful than energetic, the composition of this group wanted a little of the fire that characterized the production of Kiss; the story, moreover, was not very clearly told, and the draperies were deficient in smoothness and naturalness. At all times among ancient sculptors these lady-warriors were especial favourites, and their well-contested battles with the Athenians are to be seen among the terra-cottas in the British Museum, as well as on the friezes of the temples of Theseus at Athens, and of Apollo Epicurus on Mount Cosyion, near the ancient city of Phigaleia, in Arcadia.

"Fine subjects do not always make fine pictures," was the remark of a sage academician of our acquaintance; neither do they always make fine groups in marble. Our Lord's charge to Peter, "Feed my Lambs," was deficient in dignity and expression, and too literally understood. Seldom, indeed, have scriptural subjects been adequately treated: rarely has the figure or the countenance of the Saviour, "full of grace and truth," been worthily delineated. Even Michael Angelo failed in his celebrated statue in the Church of the Minerva, at Rome, in representing the august majesty of "The Incarnate Deity." Before attempting such a task, the artist would do well to bear in mind the beautiful invocation of Milton, at the commencement of his noble poem:—

"— And chiefly Thou, O Spirit, that dost prefer
Before all temples the upright heart and pure,
Instruct me, for thou know'st—
What in me is dark,
Illumine; what is low, raise and support."—*Paradise Lost*.

On pursuing our investigations among the crowded marbles that throng the sculpture court—

"Thick as autumnal leaves that strew the brooks
In Vallambrosa"

we discovered a fine statue of the calm and philosophic Flaxman, by Watson; a Promethens, by Theed; and an Ino and Infant Bacchus, graceful and joyous. We next recognised our old acquaintance, Whittington, the runaway apprentice, and subsequent Lord Mayor of London, apparently listening to the melodious bells that augured to his youthful fancy his future greatness. There was a great deal of truth and nature in this little figure; but perhaps we have been too much accustomed to see the sculptor's art employed on higher subjects, to relish its adoption in those of more humble and common life. Before we quit this department, we must not omit to cast a glance of admiration and pity upon the fair Ophelia, about to hang "her coronet weeds" upon the fatal willow. A pastoral group, too, by Kirk, was deserving of our notice—simple, natural, and illustrative of the golden age from which its happy subjects were selected. In the transept, setting aside the majestic elm, "star-proof," and the noble fountains, we confess we found no pre-eminent object to exclusively engage our attention, always, of course, excepting the personifications of our august Queen and her royal Consort, to whose intelligence England is indebted for the original idea of this mighty gathering of nations—these "embassies from regions far remote." The statuary was too much on a par to excite individual notice.

We will next notice "The Boy attacked by a Serpent," and "The Deliverer," by Lechesne, a young Frenchman of great promise. The first of these groups represented a child attacked by a large serpent, and defended by a dog, which generously interposed between the reptile and its object of attack. The fear of the child, and the watchful and angry zeal of its four-footed protector, were exceedingly well given; and in the companion group, in which the headless snake testifies to the victory of his canine antagonist, the gratitude of the boy, and the placid satisfaction of the noble animal, were equally well represented. We understand this pair of subjects was to be executed in marble for Prince Demidoff.

As we sauntered down the nave, we next came upon a fine group by Picrotti, who gave us the "Binding of Mazeppa upon the back of the Wild Horse," from the vigorous verse of Byron. The action of the untamed animal, the fierce and remorseless bearing of the executioners of the tyrant's vengeance, and the hopeless resignation of the victim, were not unworthy of the poetic description of the noble bard himself.

We wish next to direct the attention of our readers to a fine group by Jerichau, a Danish sculptor, and no unworthy successor to his great fellow-countryman, Thorwaldsen, whose style he appears to have followed. It represented "Adam and Eve after the Fall." Never were the different characteristics of the masculine and feminine nature, psychologically considered, depicted with more truth and feeling. The man appeared to suffer with all the force of his intellect; not only fully aware of his own altered and awful situation, but already beholding, by the clearness of his perceptions, all the dismal calamities to his descendants, in consequence of his transgression. Deeply were the effects of his view, turned inwards upon himself, and his prescient glance into futurity, and what it had in store through him, for generations yet to come, marked in his countenance. No trait of merely human regret was to be found in it. He was astounded at his own state, but evidently submitted to it, from the conviction that his sentence was the decree of Almighty Justice, which cannot err, and that he had brought it upon himself; but it was the effect of it upon others, which roused all his powers of thought, all the extent of his comprehension; and it was the finding his utmost grasp of mind unequal to the fulness of the terrible reality, that imprinted despair upon his "fair large front." In the woman, the form and essence of love, we saw the suffering of the affections. Never was Milton's beautiful line—

"He for God only, she for God in him,"

more admirably illustrated. We saw she was not thinking of the decree against herself, though including all the trials most grievous to her nature: deep, indeed, and touching, was the penitence and grief with which her whole frame seemed penetrated; but we saw, we felt, that her penitence was for the act by which she had brought ruin upon him she loved and revered, her "glory," her "perfection?" her sorrow for the sad reverse of the boon by which she had thought to impart additional good to him; a good in which, though first to taste it, she yet found no relish until he could share it with her. It is this sweet womanhood in our "general mother," that Mr. Jerichau has expressed with a feeling worthy of Milton himself, to whom we are indebted for the most perfect portraiture of feminine excellence and loveliness that ever was depicted by the aid of words; and the contemplation of this group will give rise to many a musing and many an aspiration in the mind of the thoughtful beholder, pure and lofty as its theme.

Not, however, to extend our remarks on this subject beyond its due limits, we will now turn our attention to the *Austrian* sculpture, as in its wonted spirit of usurpation, that government termed the productions of the Milanese chisel; and at the very point of entrance to the apartment, doubtless much to the gratification of the artists whose works are arranged withinside, the stern Radetzky was planted in full military display—the rugged serf elevated to the dignity of epaulettes and the marshal's baton. The equally celebrated Hainau might have formed a fit companion to this worthy, in the "sentinel watch" he appeared to hold over these unfortunate sons of genius; but we do not think the British public would have relished the appearance of the hero of Breschia within those peaceful walls. For our own part, we will leave the *par nobile fratrum*, the tools of despotism, to their unenviable notoriety, and endeavour to forget the reminiscences attached to their names, in the contemplation of the lofty and poetic fancies which gentler minds and more amiable spirits spread around these favoured limits.

"A veiled Vestal," and a "Slave in the Market-place," by Monti, were the great objects of attraction in this apartment. In both works the illusion, at a little distance, was very remarkable, and until the spectator came nearer and examined the figure, he did not discover what may be termed the ingenious trick, which pretended to represent two surfaces at once, the one under the other, in the untractable marble; an impossible feat, however, as far as truth in the representation of either of the surfaces was regarded, as was evident on a close inspection. The latter of these pieces was purchased by the Duke of Devonshire.

Leaving, however, these subjects with their *ad captandum* merit, we will draw our reader's attention to a work of more sterling excellence by the same artist, "Eve after her Fall," a graceful and beautiful personification of our "original mother." We did not, however, approve of the little Cupid peering up from a cluster of roses behind, a trivial and unworthy conceit.

Three works by Antonio Galli, of Milan, were deserving of especial notice: "Jephthah's Daughter," simple, elegant, and full of expression—"A Youth on the Sea-shore," and "Susannah at the Bath," graceful and chastely voluptuous, in her surprise. Marchesi's "Eurydice" also demanded commendation; but, unquestionably, the "Hagar and Ismael," by Max, of Prague, in this so-termed Austrian apartment, was the most impressive and touching, full of nature, dignity, and truth. We must not, however, deny its just tribute of praise to the "Ismael" by Signore Strazza, of Milan, a wonderful performance, and full of terrible pathos in its death-like agony.

It is only of late years that sculpture has descended to the lower range of poetic imagining. Painting, indeed, had frequently illustrated incidents of domestic and ordinary life, and dealt largely in *tableaux de genre*, but sculpture rarely sought inspira-

tion beyond the page of holy writ, poetic fancies, or the graceful imagery of classic befall. Monumental tributes, indeed, she did not deem unworthy of her genius; but then the "storied urn and animated bust" were chiefly devoted to the memory of the great, to the hero, the poet, or the scholar. She has now, however, begun to trifle with her art, and adopt subjects of lesser importance, familiar or domestic. Roubilliac appears to have been one of the first who began to clothe his figures in the costume they usually wore, a practice we should like to see generally adopted. It has been so arranged with respect to the drama, owing to the good taste of the late John Kemble; for the time was when Cato wore a modish court-dress, bag-wig, ruffles and all; and Garrick performed the parts of Macbeth and Othello in a full suit of modern regimentals. "Reform it altogether," as Hamlet advised, and if our statesmen and orators must strut in marble, let them not figure in a Roman toga, with the incongruity of a shaven chin and military whiskers. We remember seeing in an artist's studio at Rome, to our great astonishment, a full length of Prince Albert as a Greek warrior! *Risu teneatis?* But to return from this digression. The sculptor Cibber, the father of the poet, has shown, in his admirable statues of the two maniacs over the portico of Bethlehem Hospital, how much may be done in marble to illustrate passion and emotion in ordinary life; and Thom, in his Tam O'Shanter and Souther Johnnie, long afforded diversion to the town, and furnished an additional proof, that it is not alone in the stately, the solemn, or the classical, that the genius of sculpture can display its excellence.

We make these remarks, to introduce to the notice of our readers two subjects of this grotesque description, which attracted a good deal of notice from the visitors to the Crystal Palace; more favourable notice, indeed, than the gigantic Crusader by the same artist, who "towered above his sex" in the same locality. The subjects we allude to were known as the Happy and the Unhappy Child; the first a little urchin, stretched at length and at his ease, was admiring the *outré* physiognomy of a *pau* hannello with which he was playing; while the other was blubbering over the drum he had, probably through excessive energy in beating it, most unluckily broken. We will now pay our respects to the "Greek Slave," by Hiram Power, an American sculptor, of great talent, who has been for some years past a resident in Florence, where he has executed many admirable works, several of which have found their way to this country. The modest dignity expressed in this figure, its beauty, and the delicacy of its execution, are deserving of the highest praise. The talented Frederika Bremer bears the following testimony to the excellence of this piece of statuary:—"This so-called Greek Slave, this captive woman, with her fettered hands, I had seen many times on the other side of the Atlantic, in copies of the original—cold weak copies of that original which I saw here for the first time. The copies had left a cold impression on my mind. The original seized upon me with an unusual power, as no other statue in marble had done. This noble woman, with her bound-down hands, who so quietly turned her head with its unspeakably-deep expression of sorrow and indignation—scorn is not a sufficiently noble word—against the power which bound her; that lip which is silent, but which seems to quiver with the tumult of wounded feeling, with the throbbing of her heart;—I wonder whether Power himself comprehended the whole of its significance!" Gibson presented us with a "Greek Hunter," and a fine basso-relievo representing the "Hours leading forth the Horses of the Sun." Both of these were noble and spirited productions, and may fairly take their places among the most celebrated works of antiquity. Not far from these, we noticed a "Narcissus," by Theod, a graceful and classic figure. He was represented leaning upon a boar-spear, gazing upon the fountain which was supposed to reflect his beauteous image, while the flower which bears his name and perpetuates his memory, was springing up at his feet. A "Prodigal Son," by the same artist, was

remarkable for the tenderness of the sentiment it inspired, and for its just illustration of this beautiful and touching narrative in Holy Writ. Thrupp, in his charming figure of "Arethusa;" and Behnes, in his personification of a "Startled Nymph," were equally deserving of commendation. "Una, with her Lion," has always been a favourite subject with artists—the gentle Una, whose beauty, as Spenser tells us, when she was lost in the recesses of the forest, "made a sunshine in that shady place." The sculptor represented her seated on the lion's back; but we cannot say that the effect was very happy: indeed, we overheard a country critic express his opinion, that the Lady Godiva was before him. Mr. Bell succeeded better in his "Dorothea"—the beautiful vision by the brook that greeted the ravished eyes of the Knight of the Sorrowful Countenance and his companions, in the inimitable romance of Cervantes. This, too, is a subject that artists love to delineate; as is also that of the "Babes in the Wood," which was ably treated by the same hand. We remember, many years ago, to have seen this simple story beautifully illustrated by Stodhart, whose magic pencil imparted to it a romantic grandeur and solemnity which, after a period of full forty years, still, in vivid colours, is present to our imagination.

In the Roman department there were but few evidences of the intelligence and genius which the Italians undoubtedly possess. Nor can we wonder at it, oppressed and enslaved as they are by their priests, through the unjust interference of France. Moreover, passports were either altogether refused to many artists, or the hint was given to them, that if they left the country they might find it difficult to return. Nevertheless, a stray object or two found its way within the walls; but the sculptors of Rome were poorly represented, while the works of Tenerani and other magnates of the Eternal City withheld their contributions. Among those which did arrive, we particularly noticed a "Cupid and Psyche," by Benzoni, very beautifully treated; also "Innocence defended by Fidelity," and "Gratitude," a young girl extracting a thorn from the foot of a dog, by the same artist, equally deserving attention. These are the property of Captain Leyland, a munificent patron of art, who was also fortunate enough to secure two admirable specimens from the chisel of the late lamented Richard Wyatt, entitled "The Nymph Glycera," and "A Nymph," executed with wonderful delicacy and grace. In the death of this artist, Rome has to deplore the loss of one of the most talented of her adopted sons; one, too, who would have risen to the highest walk in his profession, for, diligent and studious, he was ever improving in his art, as his later productions sufficiently testify. We shall, perhaps, resume our remarks upon the sculpture exhibited in the Crystal Palace at a future opportunity. At present let us pause—

"To-morrow to fresh fields and pastures new."

CHAPTER VII.

CHAUCER'S DREAM—THE TRANSEPT—THE WESTERN NAVE—CANADIAN TROPHY—RUSSIAN SUSPENSION BRIDGE—MODEL OF LIVERPOOL DOCKS.

We invite such of our readers as, unfortunately, have not had an opportunity of inspecting the "World's Emporium" in person, to take a glance at the elaborate view of "The Nave of the Great Exhibition, looking west," which we presented to them in our first number, preparatory to their following us in our description of that splendid avenue. Before we enter upon it, however, we must request leave to be allowed to make a short digression in honour of one of England's eldest and most renowned of bards, whose

prescient muse appears to have had a sort of foreknowledge of what was to take place in our favoured isle, when Science, Industry, and Art, should combine their united efforts, throughout the whole earth, to produce among us the unrivalled display of talent and advancement to which an admiring world has just borne witness; for the vast variety that was contained in the wondrous House of Glass, as well as the building itself, wherein every nation found room to treasure up their stores, and to congregate their countless thousands, were, indeed, matters of admiration and astonishment to all the world. Sober-minded people, a few years ago, would have scouted the idea as absurd and visionary, and even the most enthusiastic would never have dared to hope in its realization. What judgment and reason, however, never anticipated, it appears that poetry imagined; for we find in the writings of Chaucer, eldest of British bards, a sort of prophetic announcement of the future Wonder, in his Introduction to the "House of Fame," which he describes as a vision, and speculates upon the causes of dreams, stating his inability to decide whether

"Spirits have the might
To make folks dream o' night,
Or if the soul of proper kind
Be so perfect as men find,
That it wote what is to come.
As I slept," * * * * *

he goes on to say,—

"I dreant I was
Within a temple made of glass,
In which there were more images
Of gold, standing in sundry stages,
In more rich tabernacles,
And with jewels, more pinnacles,
And more curious *portraitures*,
And quaint manner of figures
Of gold work, than I ever saw."
* * * * *

"Then saw I stand on either side,
Straight down to the doors wide,
From the dais, many a pillar
Of metal, that shone out full and clear."

"Then gan I look about and see
That there came entering in the hall
A right great company withal,
And that of sundry regions,
Of all kinds of conditions
That dwell on earth beneath the moon,
Poor and rich."
* * * * *

"Such a great congregation
Of folks as I saw roam about,
Some within and some without,
Was never seen nor shall be more."
* * * * *

But to proceed. Passing through a pair of richly-gilded iron gates, the visitor entered

THE TRANSEPT,

when its full glories burst upon his view, heightened and magnified by the narrow dimensions of the external roof and vestibule. A vast hall was before him, lined on either hand with sculptured forms. In the centre arose, like some fantastic stalactite or splinter from an iceberg, a transparent crystal fountain, glittering with all the colours of the rainbow, which, towering from a solid base up to a point, poured down upon an overflowing crystal basin an unceasing stream, with a delicious bubbling sound. Beyond the fountain stood the chair of state—a throne of crimson and gold, commanding the grand avenues both east and west. On the left of the throne, at the head of the eastern avenue, the great Indian diamond, the Koh-i-Noor, glittered in a golden cage or prison. Other statues, another fountain of huge spouting stone tritons, a mass of broad-leaved tropical plants, and lofty, smooth-barked palm-trees, another pair of gilded gates, and over all a mighty elm, spreading its full-leaved branches far and wide, and touching the very summit of the lofty roof, completed his first impression of the scene—but not the scene itself, for every glance revealed some new effect, gorgeous or graceful. His eyes travelled at one moment to the semi-transparent roof, with its delicate arches of blue and white, and spider-like

diagonal bracing-lines; then they rested upon the pendant tapestry above the galleries, the rich carpets and brocades; or followed the crimson lines of the gallery rails, till they wearied with the luxuriance of colour, animate and inanimate; for all this time, silk, satin, and velvet, plumes, and flowers, borne by gazers as curious as ourselves, were streaming all around. At length he reached the ground, and was recalled to the real purpose of this Fairy Palace by the word "India" at the head of the British, and "Egypt" at the head of the Foreign Avenue; both making a rich display of arms—the first manufacture of semi-barbarous nations.

THE WESTERN NAVE,

East and west, next challenged attention, and, as the *Illustrated London News* has aptly observed, "were it possible to attain to that state of dual individualism which would have enabled one to visit two places at once, it is probable there would quickly have been a complete duplication of visitors, one half going east and the other west." We shall at present confine our notice to the western side, into which, with the aid of our daguerreotype, we shall forthwith penetrate. Proceeding then, from that crystal marvel, Osler's Glass Fountain, we must lead our visitor to the extreme west; the various objects arranged in the centre striking the eye in rapid succession, from the silk trophy of Messrs. Keith and Co., to the great mirror at the end under Willis's grand organ. This silk trophy was a novelty, and stood as the type of the textile fabrics of Great Britain and Ireland. It was originally intended that, as each trophy would represent a particular class or manufacture, exhibitors in those departments should unite to form a complete type of their trade. Thus, the silk trophy was intended to have been contributed to by the various manufacturers of Spitalfields, and would thus have been a fitting representation of the silk trade in all its branches. Practical and technical difficulties, however, had to be overcome, in bringing together products so varied as those of the loom, even in one material; and Messrs. Keith and Co., as manufacturers of the largest kind of silk goods for furniture damasks, undertook the whole work, the construction and arrangement of which was based on a suggestion and sketches made by the superintendent of textile fabrics, Mr. George Wallis, and subsequently improved upon and extended by Messrs. Langher, Dwyer, and Co., of Poland-street, to whom the merit of the practical realization in its complete form was due. The whole was hung with the richest silk damasks, brocatelles, tabarets, &c., to the height of upwards of fifty feet; the sides of the base being filled in with mirrors of the largest dimensions, reflecting, at certain angles, the draped arrangement, and surmounted by flags and a banner, the central one being emblazoned with the royal arms. In order to effect the regular rearrangement of the whole at stated periods, the structure was so contrived, that, by ladders placed inside, the requisite work could be effected with comparatively little trouble in a short space of time. This trophy stood between two bronzes of very different character—the statue of the Duke of Rutland, by Davis, and a very clever group of a "Horse and Dragon," by Wyatt, intended, we presume, to typify the triumph of the intellectual powers over the lower and more sensual propensities of our nature, since the horse is the symbol of the one, and the traditional dragon that of the other. As, however, notices of individual works belong to the future portion of our task, attention only is called to these objects. The Colonial or Canadian trophy, which we shall more particularly notice hereafter, was the next object of interest, and was formed of specimens of the timber with which our North American colonies supply us. These examples were cut into such slabs as might at once show their wrought and unwrought character, one side of each being duly finished and varnished, or polished. Among these specimens were two contributions by a fugitive slave, settled in Canada. This group of raw pro-

ducts was placed in the midst of the colonial department; and the materials, though interesting from their utility, were certainly very unpromising ones for the formation of a trophy having any pretensions to symmetry or artistic effect; but the difficulty was got over much better than might have been expected, and the whole was surmounted by a small canoe.

Passing the large mirror, with its elaborately ornamented framing and gilding, the spandril from Hereford Cathedral, placed at the back, could not fail to attract the attention of the lover of ecclesiastical decoration. Mr. Thomas's fountain, the subject of which is the story of Acis and Galatea, stood next, and was a work of no mean excellence. To do it justice, however, a recurrence must be made to it in future notices. A beautifully carved mediæval cross, designed by Pugin, came next in order. The subjects of the reliefs were beautifully appropriate, and the whole was an excellent example of stone carving. The next object was a kindred one, being a Gothic screen executed by the Patent Machine Carving Company (Jordan's); and grouped at the sides were excellent examples of the results of the same process as applied to general decoration. The "Eldon and Stowell" group, two colossal portrait statues of those eminent brothers, the late Earl of Eldon and Lord Stowell, was well placed in the central avenue, as the work was a bold and massive one. The draperies were grand in their arrangement, and there was a repose in the whole subject which was highly satisfactory. The artist, the late M. L. Watson, was not known or appreciated to the extent which this work and another we shall take occasion to notice when visiting the sculpture, proves he ought to have been. This, alas! is the old story; and his talent is now fully recognised, when it is no longer available to us, or of any value to him. The specimen of Honduras mahogany, several large pillars of alum, and some examples of chemical products, astonished the curious in those matters; whilst Dent's turret clock, and the Sheffield trophy—a grand group of cutlery, &c., by the celebrated house of Rogers and Sons—formed admirable contrasts to those huge productions of nature and science. The Coalbrook Dale dome—a conspicuous object from all parts of the building, commanding a view of the central avenue—as an example of constructive metal casting, was worthy of all praise. We wish we could say as much for the design as a work of art, although in many parts there was much to admire. The statue of the "Eagle Slayer," by John Bell, was placed in the centre; but as this is one of those works to which, as a whole, recurrence must be made at some future period, we pass on, after calling attention to Mr. Bell's ideal statue of Shakspeare, which was placed on the eastern side of the dome—a pleasing work, but of more pretension than power. An equestrian group, representing a "Dead Crusader, his Horse and Mistress," illustrated a painful episode of bygone times; whilst the great telescope placed next to it as distinctly illustrated the glorious pursuits of modern science, her aims and triumphs. The glass cases containing splendid selections of furs by Nicolay, and feathers by Adecock, were attractive to thousands. The former was a remarkable example of ingenuity in arrangement, the case being supported round the base by preserved animals. At this point, too, the magnificent furs suspended from the galleries attracted the attention of the visitor.

The use of terra cotta as a decorative adjunct in building, was admirably displayed by the model of a church in the decorative style, the whole idea being well and thoroughly carried out, and the application of this material as a constructive agent very fully exemplified. Having seen and examined a church so constructed, near Bolton, Lancashire, built by the contributors of this model, Messrs. Willock, of the Lady Shore works, we can bear testimony to its excellence in many respects, although, like all artificial materials, it has its disadvantages. For garden decorations, there is no material better adapted for general use; and with the progress made of late years, particularly by the

enterprising firm to which we were indebted for this example of skill, it is wonderful that the many elegant decorations adapted to ornamental grounds are not more generally used than they are, since we find elegance combined with cheapness, and, under all circumstances, with durability also. The next object, a model made by Mr. Jabez James, of Broadwall, of a suspension-bridge erected over the river Dnieper, at Kieff, in South Russia, designed by Mr. C. Vignolles, was the most perfect thing of the kind in the building. A similar model to the one exhibited was made for the Emperor of Russia, and cost upwards of £12,000. The scale was one-eighth of an inch; all the details were imitated with such nicety, even in the size of the nails and the threads of the screws, that from it a perfect copy of the original bridge might be executed on a full scale, without any written description. The abutments take to pieces, to show the construction of the masonry and the chambers for the chains. It contains 6,880 pieces of wood, and 87,097 pieces of metal. Before the construction of the suspension-bridge at Kieff, a bridge of boats was in use, the river being 1,200 feet wide. Mr. James, the modeller, received a ruby and diamond ring, valued at £200, from the Emperor, on the arrival of the first model, which is now set up in the Winter Palace at St. Petersburg. The model of the Britannia Bridge, although less elaborate, was equally exact in scale. Between the two stood a model of Mr. Brunel's bridge over the Wye at Chepstow. The large and massive fountain, by Seeley, constructed of artificial stone, astonished and delighted a large number of visitors. The whole work was at once an example of skill in construction and fitness of design. The model of the Lord Mayor's state barge, by Searle, had its admirers, particularly in those who delight in civic decorations. In this rapid sketch of the leading objects in the western side of the central avenue, the revolving lights have been overlooked.

The very elaborate and costly model of the Liverpool Docks and the commercial part of that town, was a remarkable example of the extent to which the œconomy of our great cities may be illustrated and permanently recorded. This admirable work originated in a desire on the part of certain patriotic gentlemen of Liverpool, that this great port, the outlet of so large a portion of our trade, and the scene of so important a part of the commercial transactions of this country, should be fairly represented in the Exhibition. As, however, Liverpool has no staple trade, properly so speaking, but exists and owes its importance to the diffusion of the products of other localities, rather than the productions of its own, the suggestion that the extent of its means for promoting the great purposes of international communication should be illustrated was a very happy one, and was most admirably carried out by its originator and designer, Mr. John Grantham, C.E., a gentleman who acted as honorary secretary to the Exhibition committee at Liverpool, and spared no pains to do honour to this great occasion. Upon a scale of eight feet to a mile, we had, then, an accurate representation of the docks of Liverpool, and the most important commercial part of the town, including St. George's Hall and the Railway Station, the Town-hall, Custom-house, St. John's Market, and several of the churches; the shipping lying in the docks, or floating, to all appearance, on the surface of the Mersey, which was represented by the silvering or coloured glass. The model was supported on an appropriately designed base formed of elephants, cast in iron, from the backs of which the columnar supports of the roof arose; pediments, filled with appropriate decorations in imitation of bas-reliefs, being at the ends and centre. Our limits will not allow us to describe more minutely this great and important contribution—a work which did honour to the merchant princes of Liverpool, and which was intended to be eventually deposited in St. George's Hall, as a record of this assemblage of all which constitutes the basis of its greatness, its wealth, and practical utility. A specimen of plate glass of extraordinary size was placed against the columns support-

ing the cross at this end, and the whole scene through which we have so far journeyed was reflected with great effect.

Standing at this point the whole length of the building was seen, and the result was in the highest degree impressive and beautiful. It was to be regretted, however, that the sides of the central avenue were not kept more clear of projecting objects, as in many instances one or two of these projections interfered with the whole range, and were anything but sightly. As a whole, however, more was done in this direction than could have reasonably been expected, since each exhibitor endeavoured to display his own contributions in the very best possible position, and had as little regard to those around him as the regulations would permit. To our mind the British side was a wonderful exemplification of British character, and the notions each man entertained of his own freedom and independence of action. Like our street architects, each ran up his own erection in his own way, and it was only by a constant supervision, that anything like an *ensemble* was obtained. Bedposts and conservatories, glass cases, iron rods, and sign-boards, appear to have formed the stock notions of the best mode of construction, and these were only worked into a presentable form by a variety of modifications. Again, the substantial character of many of these erections was evident at once. If the whole Exhibition was intended to remain *en permanence*, and the exhibitors contemplated that their great-grand-children would display their industry and their genius in the space assigned to themselves to-day, they could not have more effectually provided for such a contingency. These fittings, therefore, formed a remarkable contrast to many of those on the foreign side, which were remarkable for lightness, elegance, and fitness for their purposes.

CHAPTER VIII.

FOREIGN AND COLONIAL DEPARTMENTS—*continued*.

CEYLON—CANADA—AUSTRALIA—VAN DIEMEN'S LAND—THE CAPE.

It has been ably observed by a popular writer, that "the great social lessons suggested by the completion of the Exhibition of the Industry of all Nations, were not less valuable than the educational." Of all European countries, England certainly had been the least visited by foreigners: they admired our industry, they purchased our solid manufactures, they dreaded our prowess and ambition; but the climate, the expenses of travelling, the absence of popular amusements, deterred them from visiting our shores, or drove them away before they had an opportunity of fully appreciating those personal qualities, which, when known, inspire respect, confidence, and permanent good-will. But they came at length; and before proceeding further, we shall do well, perhaps, to enumerate the nations which co-operated with us, and filled with specimens of their industry, the eastern wing of the Crystal Palace.

France and Austria stood first in the number of their contributions, although Prussia carried off the palm in sculpture, with Kiss's vigorous poetical Amazon, already described. We had also Norway, Sweden, and Denmark, Holland, and Belgium; the Hanse Towns and Northern States of Germany; several of the minor states of the Zollverein, Saxony, Bavaria, Wurtemberg; the republics of Switzerland; the kingdoms of Piedmont and Sardinia; Tuscany; and the Papal States. The kingdom of Naples alone, to the

eternal disgrace of her government, refused to have any share in contributing to the universal mart, and therefore tacitly declined to rank among civilized nations. Then came Russia, Spain, and Portugal; Mahomedan Turkey, Egypt, Persia, and Tunis; Pagan Western Africa, and the converted islanders of the Pacific. The American Continent answered us from New Granada, Mexico, Peru, Brazil; and, although last, not least, the United States aided us in this great work. In addition to our foreign friends, whom courtesy compels us to name first, our colonies and dependencies, of which many, although much talked of, are less known to us than foreign states, made up a goodly array. Among these, Canada, Nova Scotia, and New Brunswick, corn and timber-bearing, held a foremost rank, grouped with the barren sheep-walks of the Cape; the great emigration-fields of New South Wales, Port Phillip, and South Australia, famous, too, for minerals; Van Diemen's Land, the alpine island of Australasia; New Zealand, the most romantic, healthy, and unprofitable of all our settlements; Bermuda, where the name of the chairman of the Executive Committee will ever be revered as the re-introducer of agriculture and horticulture. The Bahamas, famed for pine-apples, turtle, and shells; many West Indian islands; and St. Helena, chiefly remembered as the prison-house of a great captive; Ceylon, also, and the fortress of Malta, joined for that time together. Ceylon is prolific in fibrous materials, many of which may be well employed as substitutes for flax and hemp. Some of these were shown in the raw and manufactured state. The earthenware of the Cingalese is more curious than valuable; the art of pottery with them being, in all probability, not more advanced than in the time when Ptolemy and the Arabian navigators first visited

“The utmost Indian isle, Taprobane.”

The same remark will apply with equal truth to their agricultural and manufacturing implements. The Cingalese women may still be seen grinding their corn, “two at one stone,” as described in Scripture. The bows and arrows employed by the wild Veddahs of the Ouhah and Bintenne districts, in the hunting of deer and buffaloes, were remarkable for little beyond their simplicity and diminitiveness. The coffee, the cinnamon, and the cocoa-nut of Ceylon, are articles well known in the commercial world: they are equal, if not superior, to the production of any other country. There were also to be found models of the buildings, machinery, and implements employed in coffee plantations in Ceylon. Models of the Cingalese fishing-canoes, of very singular and beautiful construction, unlike those of any other country, were displayed with their nets and gear on a proper scale. First, in value and importance, were specimens of *cinnamon*, a spice highly prized from long antiquity, and peculiar to the “utmost Indian isle.” Java has in vain attempted to produce cinnamon that should rival the fine spice of Ceylon, and the rough coarse bark grown on the Malabar coast cannot be compared with it. Cinnamon is the bark of the *Laurus cinnamomi*, freed from its outer cuticle, and removed from the sticks in long narrow slips: these pieces of bark are rolled into *pipes* or *quills*, in layers of three or four, and are dried gradually first in the shade, and then in the sun. A cinnamon plantation of 800 acres will produce annually 400 bales of spice, of 100lbs. each. The present consumption of cinnamon of Ceylon growth is about 3,500 bales per annum, of which not more than the 500 are used in this country; the remaining 3,000 are taken chiefly by France, Spain, and South America. Of far more recent date, though equally important as an article of commerce, is coffee. Twenty years ago, the *Coffea Arabica* was scarcely known in Ceylon. It was not until the years 1832 and 1834 that a very few Europeans commenced the cultivation of the coffee-bush. There are now 300 estates, comprising 50,000 acres of land, all under coffee; the shipments amounting to 350,000 cwt. annually. This article is all grown inland, at various alti-

tudes, the best being from the highest estates. Coir fibre and rope is made from the outer husk of the cocoa-nut: the kernel of the nut yielding a most useful oil by pressure, which is exported to Europe in large quantities. *Paddy* is rice with its natural skin upon it, and in this state is given to all sorts of cattle and poultry. The rice of Ceylon is not nearly so fine as that brought to this country from Carolina and Bengal, but it has very nutritious qualities, and the Cingalese and many Europeans prefer it to any other description. The woods of Ceylon are scarcely inferior to those of any other country, and exist in great variety. There are upwards of four hundred kinds, of which one-half are employed for a variety of purposes, the remainder being useless. The ornamental woods are ebony, calamander, satin, cocoa-nut, peyimbeya, teak, tamarind, jack, palmyra, &c. The most abundant of the woods used for house and ship-building, of which specimens were sent, were halmanilla, teak, morotto, dawete, mangoe, keena, hall, and horra. Besides *coir*, there are several fibrous substances in Ceylon, capable of being turned to useful purposes. Amongst those forwarded to the Exhibition were fibres, both in their natural and prepared state, from the pine-apple, bibiscus plantain, *Sanseveira zelonica*, and Adam's needle. There were a number of gums and resins unknown in this country, most of which are employed medicinally by the native practitioners. Besides these, a collection of medicinal plants, roots, and seeds, in a dried state, were found. Many of them possess valuable properties, well known in Ceylon, in the removal of fever, dysentery, liver complaint, and cholera. The Dutch and Cingalese doctors seldom have recourse to any but vegetable medicines, and these are often found to succeed where European remedies have failed. The collection was forwarded by Mr. T. Piries, of Kandy.

Under the head of Machinery, Implements, &c., we found three models of the various works and their fittings, as employed on coffee estates. First, there was the *pulping-house*, with its *pulpers, cisterns*, &c., for removing the outer red husk of the coffee berry, and afterwards washing the mucilage from it. Next was the stove, and moveable trays running on wheeled platforms, whereon the washed coffee is exposed to the sun in its inner covering of parchment-skin. When thoroughly dried to a flinty hardness, the berries are removed to the adjoining building, the peeling-house, where a pair of copper-covered wheels are revolving in a circular trough, under which the parchment rapidly breaks, and becomes detached from the coffee beans. Near these we observed another model of a stove for curing coffee. This was of peculiar construction, and fitted up according to a process which had been patented by the ingenious inventor, Mr. Clersheu, of the Rathongodde estate. It was formed on the principle of curing the coffee whilst in the *parchment*, by means of a current of hot air, to be used during weather when out-of-door drying would be impossible.

The models of Cingalese palanquins might be regarded rather as curiosities than as specimens of fine work. Too much praise, however, can scarcely be accorded to the construction of the three Cingalese boats, which were unique, not only as specimens of handicraft, but as models of very singular and beautiful vessels. The long sailing canoe, to be fully admired, should be seen in full sail when going at a speed of fourteen miles the hour, which it frequently does. The flat-bottomed fishing dhoney, with its nets and accoutrements, was a very pretty thing. The large dhoney was such as is employed in the coasting trade of Ceylon, for the transport of rice, tobacco, salt, betel-nuts, &c.: they vary in size from 30 to 200 tons; and not the least singular feature about them is, that not one iron nail is used in their build, nothing but wooden pegs and coir string holding the planks and beams together. The plough, harrow, and rake of the Cingalese agriculturist attested the little improvement effected in their operations, which have, no doubt, remained unchanged during the last 1,800 years.

Amongst the manufactured articles, the most attractive was, undoubtedly, a table and stand of ebony, richly carved, and beautifully inlaid with the many-tinted woods of Ceylon. We also noticed a desk composed of porcupine quills, a carved ebony box, an ivory stand in imitation of a cocoa-nut blossom, and some other trifles. These formed but a tithe of what might have been exhibited, had time permitted. There were some rather grotesque specimens of native pottery, the only one worthy of notice being a painted teapot used by the King of Kandy. There were a number of specimens of cordage, &c., woven from the fibres previously named; also a pretty Kandian mat, and several ornaments displayed by the Kandian kings on state occasions, made from fibres, and dyed with indigenous roots. The Veddah bows and arrows were such as are actually employed in the present day by a wild and almost unknown race of Cingalese, in the pursuit of deer, buffaloes, and wild boars. This singular caste of aborigines dwell entirely amongst rocks, or perched in trees like monkeys, living chiefly on roots, seed, and a little deer or buffalo flesh. The manufactured oils of Ceylon were numerous, though most of them are at present unknown in this country. They may be divided into medicinal and commercial. Many of the former are said to possess valuable properties, yet, with the exception of the castor oil, they are not known to any but native practitioners. These were forwarded by Mr. Piries, of Kandy. Of the oils of commerce, the cocoa nut, cinnamon, lemon-grass, citronella, and kekuna are tolerably well known, the first being highly useful for burning in lamps; the second is chiefly employed in medicine and confectionary. Arrack is a spirit distilled from the fermented juice of the cocoa-nut tree, called *toddy*, and has long been known in England as forming the chief ingredient of Vauxhall punch. The sample sent was very curious, having been upwards of thirty years in bottle, and coming originally from the cellar of the last Dutch governor of Ceylon.

CONTRIBUTIONS FROM CANADA.

By crossing the breadth of the avenue we travelled from Ceylon to Canada, and were within sight of the Cape of Good Hope, Van Diemen's Land, and the produce of the three Australian colonies of New South Wales, Port Phillip (or Victoria), and South Australia. Canada made the best display, as was to be expected from the energetic character of the people, the means they had of obtaining early intelligence, of conveying their goods to this country, and obtaining the cooperation of the governor, the earl of Elgin, and their local authorities. The Canadians held a preliminary exhibition of native produce, and selected from that exhibition the best, as specimens of raw produce and manufactures. The most prominent object was a fire-engine from Montreal, which carried off the first prize at the Canadian exhibition of industry, and was sent, by subscription among a few patriotic Canadians, to show what the mechanics of that fine colony could do. As a carriage, it was extremely handsome. The panels were adorned with paintings of Canadian scenery, views of a great fire at Montreal, the principal churches, banks, and other public buildings, and figures of an Indian in snow shoes in winter costume, of a fireman, &c., executed with a spirit and feeling of reality which raised them above the class of ordinary coach-painting. The body was of copper, from the rich copper mines of Lake Superior, lined with wood. The tool-box was of mahogany. The mechanical arrangements seemed good, and the finish of both the wood and metal work was most creditable to Canadian workmen. It was followed by a hose-box on two wheels, to carry 300 feet of hose, and weighed altogether 25 cwt. It would pump up water from a depth of 27 feet; and according to the statement of the gentleman who manufactured it, would throw 170 feet high from 300 feet of hose. Fire-engines throughout both British and republican America are drawn by men, and not by horses.

They are usually the property of young men associated into voluntary companies, who take great pride in adorning their respective engines. Hence the profusion of painting and other ornamental decorations. Over the fire-engine was suspended a canoe of white birch, which presented no especial difference from canoes we have seen a hundred times, except its size; but this canoe was actually paddled 3,000 miles of lake and river navigation, with a crew of twenty men, before being placed on board a steamer for England. It was the same description of canoe employed by the Hudson's Bay Company in their annual journeys to the vast preserves of fur-bearing animals under their command. We should have been pleased if it had been accompanied by one of the *voyageurs*, whose gay costume, and songs, and semi-savage manners, have been described in the book of Sir George Simpson, late resident governor of Hudson's Bay, or as it is now officially named, Rupert's Land, and several North American travellers. A piano, a large French bedstead, a set of tables and chairs, all elaborately carved out of Canadian black walnut, next came under our notice, as remarkable specimens of a wood as yet little known in this country. In colour, size, beauty of grain, and polish, it was equal, if not superior to the best specimens of French and Italian walnut. A slab, which formed part of the Canadian trophy in the central avenue, was cut from a tree which made 27,000 feet of available timber. The workmanship of this furniture, although very fair, offered nothing remarkable for praise or blame. We liked the emblematic beavers carved round the edge of the table; but not the same animals crawling like rats on the cross bars of the legs. Among the chairs were a set unpolished, and fashioned after some introduced into America by the earliest settlers. It was reported that her majesty had condescended to accept them. One Canadian gentleman was under the impression that the originals had been imported from England in the sixteenth century, by Sebastian Cabot; but that is unlikely, because, although Cabot discovered Labrador, there is no evidence that he formed any settlement in Canada at all. The originals are probably of French origin, and not older than the time of Louis Quatorze. Around the fire-engine were arranged a set of Canadian sleighs. The white one was a cutter for one horse; the next, an elegant long carriage of very graceful curves, was a tandem sleigh; the largest was for a pair or four horses, and was made after the fashion approved by the Military Tandem Club. With the sleighs, we must notice a set of harness that hung on the wall, the saddles covered with bells, and adorned with pendent plumes of blue horse-hair: white plumes of the same material were arranged to wave from brass spikes between the ears of the prancing horses. On a bright winter's day we can imagine no prettier sight than the whole turnout, with its blood horses, ringing bells, fair ladies wrapped in furs, and dashing fur-wrapped driver, careering across the hard snow or the sounding ice of a frozen river. Furs, skins, horns, and Indian curiosities filled up the interstices of the Canadian collection. The head and wide-spreading horns of a gigantic moose, or elk, might be compared with the European variety of the same species, from the Lithuanian forests, exhibited in the Russian section.

Before we quit Canada, however, we must not omit to make mention of the enormous Canadian timber-trophy, and of the importance of the timber trade in this valuable colony. The Canadas are almost entirely divided by the Ottawa or Grand river, which forms the great highway of the timber trade, on which from eight to ten thousand men are constantly employed; an army waging continual war with the denizens of the forests. The white and red pine have as yet formed the chief timber exports of Canada, which are floated on immense rafts down the Ottawa and the St. Lawrence, a distance of from six to seven hundred miles, to Quebec. A single raft frequently has a surface of three acres, and appears at a distance like some landslip, or island, huts and all, sailing down the river; broad thin boards serve for sails. Some of the white pines yield planks

five feet in breadth, and the largest red pine will give eighteen-inch square logs as much as forty feet long. Of the pine order was the hemlock, a ship's futtock of which was shown in the trophy; and close by it was a thick plank of a beautifully-feathered and highly polished dark wood, from the fork of a black walnut. The tree from which this plank was obtained was a hero of the forest, probably of more than a thousand years' growth. Its circumference at the ground measured 37 feet. The whole tree was cut up into 23 logs, and yielded more than 10,000 feet of timber. Another furniture wood in the trophy was the curled maple, little inferior to satin wood. A bird's-eye maple veneer was also shown. The other timbers in the trophy were more generally known. The last however we noticed was a little log near the floor, with light edges and a dark centre, marked iron-wood,—of no earthly use, said our native informant, "It won't float, it's the contrariest wood in creation; if you want a straight piece, and half break your heart with hard work to get it, it will twist itself crooked in no time, and if you mark out a crooked piece, as sure as sunshine it will stretch out as straight as a line; it's as hard as iron and as heavy as lead, and as obstinate and cranky as an old mule, and never worth either letting grow or cutting down." We have a word of advice, in view of this timber trophy, to give our Canadian friends; it is, that they begin to build ships of their better woods. Their fir-built craft stand but four years A. I. on Lloyd's list. They do right well to send a cargo of timber to England to help to pay their cost, but are not profitable afloat. We have to face the world now with our ships. Canada has no longer any advantage, and can only hold her place in ship-building, whether for sale or trade, by aiming to build as seaworthy and durable vessels as the Northern and United States. Cheap run-up ships are the dearest in the end; try, therefore, your walnut, red oak, hemlock, and rock elm, and use the pine only where pine is best, and where first-class vessels use it.

The total value of the export of timber from Canada in 1849 was £1,327,532, of which not less than £1,000,000 worth came to England.

AUSTRALIAN CONTRIBUTIONS.

The colonies of Australia, although among the most important of our possessions as producers of raw materials required for our staple manufactures, as large consumers of our manufactures, and as great fields for emigration, had nothing very new or very showy to exhibit. New South Wales, Port Phillip, and South Australia, all sent barrels of fine wheat and flour, which were satisfactory as proving that the intending colonist might depend on cheap bread in those distant regions. Australian wool and tallow are to be seen in such quantities in the warehouses of London and Liverpool, that we need not dwell on those great and annually increasing sources of wealth. The timber, although much of it was good, especially from Van Diemen's Land, and some specimens very ornamental, is not likely to become an article of commerce with this country. The distance is too great to enable it to stand the competition of countries nearer at hand. Van Diemen's Land sent the jaws of a sperm whale—another source of colonial wealth—often hunted down from the shores of that island.

South Australia supplied specimens of the rich copper mine of Burra Burra, which restored the fortunes of that colony, and rendered it one of our most flourishing possessions, at a time when, under the ruinous results of an empirical system of land-jobbing and colonization, it had sunk into the lowest state of depression and stagnation: abandoned by men of enterprise or means, it was on the point of becoming a mere sheep walk. It is a curious fact, that although the copper exports of South Australia exceed a quarter of a million sterling per annum, no copper mine in that colony has paid a dividend except the Burra Burra, but that pays 1,500 per cent. On the walls of the

South Australian section hung a set of clever water-colours, representing the country round this Aladdin's lamp of a copper-mine, and various Australian scenes, bullocks in drays and stockmen riding after cattle. On the wall appropriated to New South Wales, was a beautiful view of Camden, where Macartthur first introduced the fine-woolled sheep, which has proved a living mine of wealth to the whole continent of Australia. Our colonial brethren, who know well how they are appreciated in the City, will excuse us from dwelling on sources of greatness which are more felt than seen: there is nothing picturesque in a sack of wheat, though the grain be "heavy and bright-coloured;" there is nothing interesting in a tin of preserved Australian beef, excellent though it be, unless to a hungry man; little variety of "tone or colour" in a fleece fine enough to make the fortune of a Yorkshire manufacturer; and, as for copper ore, the worst specimens are often the most sparkling. Bottles of Australian wine informed those who were before ignorant, that wine is as easily grown in that country as cider is here.

There was a melancholy tribute paid in the Van Diemen's Land department to its now extinct aborigines. In our forty-years' possession of that settlement we have utterly destroyed them, by as atrocious a series of oppressions as ever were perpetrated by the unscrupulous strong upon the defenceless feeble. Yet these poor people had tastes and industry too. Their bread appears to be worth reviving as a new truffle for soup by the gourmands of Hobart Town. The specimens of the root exhibited weighed 14lbs. They obtained a brilliant shell necklace by soaking and rubbing off the cuticle, and gained various tints by hot decoctions of herbs. They procured paint by burning iron ore, and reducing it to a powder by grindstones. They converted sea-shells and sea-weeds into convenient water-vessels; they wove baskets, and they constructed boats with safe catamarans. All these things were exhibited. Surely, then, the men whom their greedy supplanters admit to have done this, and whom the least possible pains ever bestowed on them proved to be capable of much more, ought not to have been hunted down, as we know they were, and then almost inveigled to be shut up in an island too small for even the few remaining.

The New South Wales contributions offered no sign of the aborigines' works, and probably the country contains no longer any trace of the people. As Newfoundland contributors do not pretend to an interest in the works of the lost people who once inhabited it, New Brunswick seemed to have nothing to show but the pretty models of an Indian family, the kindness of whose character was attested by having protected two maiden ladies, whose father emigrated from the United States after the American war, and settled among the tribe some seventy years ago. The remnants of the Indians and the remains of the royalists must have had many subjects of sympathy, and many feelings in common, to have maintained so long a career of mutual respect. The whole amount of aboriginal articles exhibited was much smaller than it would certainly have been, but for circumstances deserving of notice. Of late years the political condition of the aborigines connected with various civilized nations, has been a subject more than usually interesting to the public. The emancipation of our negro slaves in 1834 having in a great measure settled that question, the attention of philanthropists was free to be directed to the persecutions suffered by the aborigines of our colonies. This was an extensive inquiry, and some reforms took place. Then a reaction occurred; until at length the old law of force and oppression extensively recovered its influence. In this state of things the Exhibition was planned, upon the principle of an universal invitation of the nations of the earth to bring specimens of their industry and art under a common inspection. The commissioners made no exceptions; but it was impossible that they should grant a privilege, or any special advantage, even to the least favoured in actual condition. The collection of articles to be exhibited was necessarily left to the cost and

activity of the contributors and their various supporters. France was to take care of her people, Germany of hers, America of hers. The peculiar claims of the less advanced aborigines for aid were discussed; but all that could be done was carefully to make known in various quarters that the Exhibition would be open to them. The result has been, that the same circumstances which render them inferior to civilized men in accumulated property and in acquired knowledge, have operated to leave their show of industrial development in the Exhibition somewhat meagre, whatever equality of capacity may be conceded to them, and however acute their natural intelligence.

The Cape of Good Hope sent one article deserving special notice—the ivory of an elephant's trunk, of 163 lbs., which must be a fine specimen. Ivory is chiefly bought of the natives; and, from Mr. Gordon Cumming's account of his own trading, its mystery may be interpreted to mean extraordinary hard dealing on our part. He had carried into the interior muskets, for twenty of which he had paid £16, and obtained ivory in exchange at a profit of 3,000 per cent., which, as he was informed by merchantmen, was "a very fair profit." To be sure, the manner in which the black chief, of whom he bought the ivory, had obtained it, by oppression inflicted on the Bushmen who killed the elephants, invites little consideration for that chief; but the whole story furnishes a fresh argument in favour of the civilization which we, consumers of this beautiful product of the desert, are bound to use all means to substitute for its existing barbarism. The South African assortment of *karosses*, or cloaks made of the skins of wild animals skilfully dressed, ostrich feathers, and ivory, represented the aboriginal produce, for which the Cape traders carry into the wilderness to the native tribes, beads of many colours and sizes, brass and copper wire, knives and hatchets, clothing, guns, ammunition, &c.

CHAPTER IX.

NUMBER OF VISITORS—SOLIDITY OF THE BUILDING—AMUSEMENTS—ORGANS—PIANOFORTES—
BEES—MOONLIGHT EFFECT.

WE have promised our readers that, in the record of our retrospective visits to the Crystal Palace, we should depart from the dull routine of ordinary description—the methodical precision of the pedant, who never leaves a subject till he has hunted it fairly down, till he has exhausted the patience of his listeners in never-ending disquisition on every possible variety, from class A to class Z, that in all imaginable profusion, culled from every quarter of the globe, was crowded within the bounds of the fairy structure. We shall, for a short period, altogether leave the contemplation of these matters, and revert to a renewed admiration of the building itself; its extraordinary lightness, both aerial and architectural, its matchless solidity and strength, and its wonderful adaptation for the reception of the selected treasures of the whole earth, as well as of the congregated thousands of its inhabitants that crowded in daily-increasing numbers to gaze upon and enjoy them. Indeed, the human tide that, from the very day of the opening of the building—from the 1st of May, 1851,—an epoch that will be celebrated in every future age—flowed with increasing force into the interior of the palace, was greater than even the most sanguine expectation had anticipated; every week the numbers rose to a higher figure, every week the stream of wealth that flowed into its exchequer was more deep and copious. It was at one time proposed to limit the number of visitors to 60,000, but the continual tramp of these 60,000 shook not in the slightest degree the solidity of

the building; the galleries, the stairs, the floors, were all as buoyant, as elastic as ever; and, although full and free limit was finally afforded to as many thousands more as chose to enter, still there was "ample verge and space enough," and the fairy structure stood unshaken and unharmed. From the country the rural population, in many instances headed by their pastor, or their chief magistrates, came in admiring throngs, clad in their smock-frocks, "all lily-white," thronged the agricultural departments, and took their fill of wonder and delight; the population of our manufacturing towns besieged, *en masse*, the departments of mechanic art and invention, and greedily devoured the mental feast that was presented to their eager gaze. The very schoolboys, too, and youthful maidens, had their holiday trip within these precincts, which often resounded to their clamorous and innocent mirth, and re-echoed to the sound of castanets, and merry feet that beat the ground in jocund hilarity.

In the meanwhile, to delight the more imaginative ear, at stated intervals the solemn organ, from various parts of the edifice, breathed its magnificent harmonies around, for there were several of these noble instruments within its walls. The most celebrated among them, the Leviathan, which reared its lofty structure at the western end of the gallery, was of the largest class of church organs, and its size and extent may be judged of from the synopsis which we shall give of its contents. It was built by Mr. Willis, a young London organ-builder, who doubtless sought to make his fame by this great effort; and he certainly deserved high praise for the boldness and spirit of his enterprise, by which the Exhibition was put in possession of a specimen of far greater magnitude and costliness than it would otherwise have boasted. The instrument referred to, which was constructed somewhat after the German model, had three rows of keys (or claviers)—the great organ, the choir organ, and the swell, the compass of each being from C C (in the bass) to G in alt., 56 notes. It had two octaves and-a-half of pedals; and seven coupling stops, by means of which the three rows of keys could be united in various ways, and the pedals brought to act on each of the three claviers at pleasure. The pedal organ contained 14 stops, the total number of pipes being 576. The great organ had 20 stops, numbering in all 1,456 pipes. The choir organ, consisting of 14 stops, contained 760 pipes. The swell organ, with 22 stops, commanded 1,682 pipes. The total number of stops, including couplers, was 77; of pipes, 4,474. This organ had the application of the pneumatic valve, the invention of Mr. Barker, and first applied, we believe, by Mons. Cavallé, the French organ-builder. The effect of this movement was to lighten the touch, which, in instruments of great magnitude on the old system, was usually so deep and heavy as to fatigue and distress the player, and render difficult or impossible any passages of rapid execution. With the pneumatic valve, however, the touch of the largest organ is rendered almost as facile and agreeable as that of a piano-forte. The principle consists in connecting with the movement of each key a small reservoir, into which, on the pressure of the key, the wind rushes from the main bellows of the instrument with such force as to relieve the finger of the performer from that effort which would otherwise be necessary. The same principle has been also applied by Mr. Willis to the mechanism for drawing the stops, which, in addition to the old method of registers placed on each side of the performer, he effects by means of little brass knobs placed over the keys, so that the player may, by an instantaneous touch of his thumb, while playing, effect the desired change. The organ was what is technically termed a 32-feet instrument, which signifies that the deepest-toned pipe is nominally 32 feet in length—giving the note which the Germans distinguish as C C C C, in other words, two octaves lower than the fourth string of a violoncello. Besides the English organs, of which there were several remarkable specimens, there were two of foreign manufacture, and of considerable magnitude, one from Germany, the other from France. The former

was the work of Herr Schulze, of Rudolstadt. It had 16 stops, two rows of keys and pedals, and was suitable for a church or chapel of moderate size. Some of the stops, particularly the flutes and the labial metal stops, were of very good quality, having that peculiarly plaintive tone which is scarcely ever met with but in the German organs. The chorus or mixture stops, as in most German instruments, were somewhat shrill and harsh to English ears. The French organ was well placed in the main avenue, and stood in an oak case, some 30 feet or more in height. It was the production of Monsieur Ducroquet, of Paris, and contained 20 stops, two rows of keys, and two octaves of pedals. Mr. Barker's pneumatic valves were also applied here, and the mechanism generally appeared to be exceedingly good. The quality of the instrument was also worthy of praise—being brilliant without harshness in its full power, and delicate but not feeble in its solo stops. The reeds (for which the French have long been celebrated), were of excellent quality. In addition to the soul-entrancing symphonies that were poured forth by this king of instruments, the more brilliant notes of the piano, touched by a master-hand, failed not to draw a crowd of delighted listeners within the magic sphere of its influence, and imparted a sort of drawing-room festivity to the place, graced as it was with the loveliest forms of beauty and fashion, and adorned with every object that the combined efforts of science, of industry, and of art, could lavish to enhance its perfection, and support its unrivalled claim to the admiration it elicited from all quarters of the globe. We will here pause awhile, and allow our readers to indulge their imagination in a retrospect of the pleasures they doubtless enjoyed in their visits to this renowned temple of industry and art; for who, save and except the gallant and eccentric legislator, whose sayings and whose doings the inimitable *Punch* has delighted to record and to celebrate—who, we ask, that could command “a splendid shilling,” failed to pay their respects to the Crystal Palace. Distance, however remote, presented no obstacle to the adventurous traveller; perils by land and sea were disregarded, mountains were scaled, deserts passed over, and the unfathomable deep was crowded with sails. Even extreme old age, and crippled infirmity, found ways and means to enter and enjoy the sight. Witness the marvellous old dame, from Cornwall, we believe, who, past her hundredth year, travelled up to town, and paced with willing feet through the various intricacies of the place, and gratified her aged eyes in beholding wonders, such as in her juvenile days had never been even dreamed of in the wildest flights of the most extravagant imagination. Tender infants, too, in maternal arms, were carried about, that in after times they might be able to say that they, too, had been within the walls of the wonder of the world. The scene, however, was not altogether an idle one. Industry on an extensive scale in the midst of all this mirth, bustle, and enjoyment, was steadily going on in more than one part of the immense fabric. Let not our readers be startled, when they are gravely assured, that an extensive manufactory of two of the most useful articles in domestic life was in full progress, perfecting its produce without hands, though not without living impulse—that more than 200,000 little animated beings were diligently engaged in their occupation, an occupation which man, with all his chymic lore, cannot imitate, uninterrupted by all the noise and confusion around them, and joining to the “busy hum of men,” their own industrious murmur—that winged race, in short, which, as Milton beautifully relates—

“——— when the sun with Taurus rides
 Pour forth their populous youth about the hive
 In clusters; they among fresh dews and flowers
 Fly to and fro, or on the smoothed plank,
 The suburb of their straw-built citadel,
 New rubbed with balm, expatiate and confer
 Their state affairs:” * * *

There were indeed several interesting contributions of bees and beehives, and contrivances for securing swarms, not only from various parts of the United Kingdom, but also from France, Germany, and the United States of America. Among the most interesting were those of Mr. Milton and Mr. Neighbour. The inhabitants of Mr. Milton's "mausion of industry," which, with his "Royal Alfred hive," and the "unicomb hive," occupied a large space close to the wall of the north transept gallery, the whole being enclosed in a large glass case, forming, in fact, a very fine apiary, consisted of four swarms of bees, the first of which was hived on the 20th of July, 1850; the second and third on the 23rd of the same month, and the fourth on the 31st. As hiving the bees after swarming is one of the operations which requires the greatest care and attention on the part of the bee-keeper, it may be as well to mention the mode adopted by Mr. Milton, of successively hiving the four swarms of bees within a few days of each other, and uniting the whole together, "without any trouble or fighting about queens," the immense population, amounting, according to Mr. Milton, as we have before stated, to 200,000 strong, continued to work harmoniously together, after a residence of nearly four months in their apparently close quarters. The first of these swarms came out about three o'clock on the 20th of July, as above, and was immediately secured or hived in a wooden box, which was left in a shady place until eight o'clock in the evening, when it was removed to its intended position. The two swarms, which came out on the 23rd of July, were each hived in a common straw hive, and at eight o'clock at night a cloth was spread on the ground near to the box-hive, a brick being placed on the cloth, on which to rest one of the sides of the box, for the purpose of admitting the bees into the box. After being tumbled altogether into the cloth by a smart rap on the brick with one edge of the hive, the other swarm was treated precisely in a similar manner; both swarms were speedily underneath the box, which was left undisturbed till the following morning, when it was put back again to its proper position in the apiary. On the 31st of the same month the same process was performed with the fourth swarm. Contiguous to Milton's mausion of industry was the "Royal Alfred hive," named after his Royal Highness Prince Alfred, on whose birthday, the 6th of August, 1844, the first experiment of placing bees within this newly-formed hive was successfully made. The principal novelty in this hive appeared to be the inclined floors, by which the bees could easily ascend to any part of the hive, and the dead bees and other refuse, instead of remaining, as on level floors, necessarily fell to the bottom, and so were easily removed. There were, on the two upper sloping compartments, covered over with flaps hung with hinges, three bell glasses in each, which would hold altogether about eighteen pounds of honey. By means of windows, the whole of the interior could be inspected from time to time, without any risk or annoyance. The bees might be fed either at top or in front. Milton's revolving top hive, for which he received the Society of Arts' silver Ceres medal in 1846, consisted of a cylindrical case of straw, covered with two boards having corresponding holes in each, by turning the upper one of which the openings could be closed at pleasure. Bell-shaped glasses were placed on the top above the openings, which, when filled, might be readily removed, and fresh glasses substituted. Bees are easily hived by this arrangement, by placing the hive from which they are to be removed on the revolving board, taking care to leave only one opening, and the bees will severally descend into their new habitation without any trouble, the lower hive being prepared for their reception by washing its interior walls with a mixture of sugar and beer, or other suitable sweet liquor. Mr. Neighbour's apiary consisted of a large glass case, with parts of the sides covered with perforated zinc, for the sake of ventilation. This apiary also contained three hives: first, Neighbour's ventilating box-hive; Neighbour's observatory glass hive; and a two-storied square box-hive, with sloping roof. From this

latter the bees decamped within a week after they had been hived, owing to some disturbance, or to the dislike taken by the bees to their new habitation. The ventilating box-hive was square, and had windows and shutters. The entrance was at the back, enabling the bees to go to Kensington-gardens, or other resort. In front, at bottom, was a long door hung with hinges, so that all dead bees and refuse could be easily cleared away. By means of a perforated metal slide in the floor, ventilation, which some apiarians contend for, was effected. Above the wooden box was placed a bell-glass, into which the bees ascended to work by means of a circular opening in the top of the square box. In the top of the bell-glass was an aperture through which was inserted a tubular trunk of perforated zinc, to take off the moisture from within. The observatory hive was of glass, with a superior crystal compartment, an opening being formed between the two. A straw cover was suspended over the upper compartment by a rope over a pulley, which cover was raised up by the attendant at pleasure. The larger or bottom compartment rested on a wooden floor, which had a circular sinking therein to receive the bell-glass. A landing-place, projecting, with sunken way, to enable the bees to pass in and out, completed the contrivance. These exceedingly curious little palaces of industry proved a great point of attraction to the labouring population, and drew many a group of honest rustics around them, not from England alone, but from other parts of the world as well, and much interest was exhibited with respect to the movements of their busy inmates. Her Majesty also, and Prince Albert, frequently bestowed their notice on the wonderful operations of the gifted little insects, whose undeviating attention to their own concerns, in the midst of all the various distraction of sound and sight that surrounded them, afforded an admirable lesson to those who suffer themselves to be led away from the more important concerns of life by petty and unavoidable annoyances.

In the immense variety of all these different objects of interest that solicited the attention of the curious spectator, whether scientific or otherwise, a lover of art, or a mere loungee, there was abundance of food to satisfy the appetite of all, and the daily increasing demand for it served at once to show how vast is the desire for information that influences all classes of the people; and the order and tranquillity that pervaded the moving masses, evinced not only their gratitude for the feast that was provided, but the great improvement that has taken place in the morals and manners of the lower classes, and how easily they may be led to the consideration of topics that are too apt to be regarded as belonging exclusively to the privileged few, to whom, through their adventitious advantages of hereditary rank or affluence, they are more readily accessible. The whole of every "live-long" day, then, within the walls of the Crystal Palace, was one continued scene of movement, bustle, and excitement, from the early dawn, when preparations were made for the reception of the innumerable guests that were expected to be in attendance—first and foremost amongst whom was our own gracious Queen, who in her repeated visits to the mighty emporium, may be considered to have gained as complete a knowledge of its various contents, as the most inquisitive among her subjects—from the hour, we repeat, when the gates were thrown open for the admission of the public, till the moment arrived for their final departure, when gradually as the lingering crowd retired, the continuous buzz arising from so many congregated thousands began to subside,—the Crystal Palace presented one unvaried aspect of delighted enjoyment and innocent festivity; and when the shades of night at length stole over the scene, when the silence was complete, and the moon arose above the trees in the park, and shed her pale lustre upon the glittering roof of the building, another picture presented itself to the contemplation of the curious spectator, which we shall gratify our readers with describing in the eloquent language of the *Times*, and with which description we shall close our present chapter.

THE CRYSTAL PALACE BY MOONLIGHT.

To those who had seen the interior during the daytime, filled with thousands of spectators, and agitated by all the bustle of sight-seeing, it was difficult to realize the aspect which the same presented when the crowds had departed, when the gates were closed, and the police had taken under their entire control that vast collection of the trophies of human industry. One could scarcely comprehend the strength of that confidence in the law and in the security of property which reconciled 15,000 exhibitors, gathered from every civilized country in the world, speaking different languages, and brought up under different forms of government, to trust the most valued evidences of their skill, their wealth, their enterprise, night after night, to a body of about fifty policemen, paid little above the ordinary wages of labour, and armed against dangers from without with no weapon more formidable than a bâton. A Russian jeweller was the only person we heard of as showing any uneasiness in the exercise of this confidence. He wanted to be convinced that his diamonds were safe, and accordingly he applied for an order to visit them by night. His request was granted, and he soon had a practical test of the watchful care taken of his property. Standing in front of his glass case, and satisfying himself that all was safe, he happened to turn round, and there to his astonishment he found that he had a constable at either elbow, superintending his movements, and by no means disposed, from their looks, to take his honesty for granted. We visited the Crystal Palace ourselves, but in a less sceptical spirit than the Russian jeweller, and for a different purpose. We wished to see the aspect of the interior under the influence of a fine clear moonlight, to observe how each object of interest varied in expression when looked at through a new medium, to contrast with the bustle and thronging excitement of the day the effects of silence, solitude, and darkness. Let the reader accompany us in our survey, and share in the impressions which it produced. In the centre everything was plainly revealed; the pinnacles of the crystal fountain appeared tipped with silver, and in the basin below, the ribs and sash-bars overhead and the sky beyond them, and portions of the adjacent galleries, and the occasional glimmer of gas-lights, were all reflected with marvellous distinctness. An air of solemn repose pervaded the vast area; the very statues seemed to rest from the excitement of the day, and to slumber peaceably on their pedestals. Some were enveloped in white coverings, which in the doubtful light gave them a ghostly appearance; others remained unprotected from the night air, and braved exposure to cold as they had already done to criticism. At one point of intersection between the nave and transept, Virginius under the flare of a gas-lamp from the China compartment, brandished the knife with which he had sacrificed his daughter. At another corner, and under a similar dispensation of light from Persia, a cavalier leaned upon his sword, and appeared to be calculating the number of people that had passed him during the day. Of Turkey and Egypt we could see only at the entrance the faint glitter of Damascus blades and of brocaded muslins and trappings. All beyond was buried in darkness and mystery. The shades of night, too, fell heavily upon Greece, Spain, and Italy, though behind them, through the open girders, gleams of unexplained light were seen rising. The zinc statue of the queen rested in grateful obscurity, and Lemonnière's jewel-case had cautiously been stripped of its attractions. On the metal pipes of Ducroquet's organ some struggling moonbeams played, though without evoking any sound. The colossal group of "Cain and his Family" looked well in a gloom which seemed suited to his expression of guilt qualified by the traces of human affection. So it was all down the eastern nave. The shadows of night, which fell heavily on some points, were strangely relieved at intervals by gas, which carried the eye forward over intervening objects to those immediately around it. Instead of looking at those things

which lay nearest, attention was directed to distant and out-of-the-way spots, brought into prominence by the light streaming upon them. Policemen in list slippers might occasionally be seen flitting noiselessly to a point whence the strangers might be reconnoitred, or suddenly emerging from behind some dark object where they had remained for a time cautiously stowed away. If a court was entered, or a divergence made to the right or to the left, the quick eyes and the scarcely discernible footfall of some member of 'the force' followed. Over the whole interior a profound silence reigned, broken only at intervals as the clocks of the building rang out slowly the advancing hour. Turning towards the western half of the interior, huge envelopes of calico concealed most of the objects facing the nave, but the large trophies in the centre remained uncovered, and looked solemn and grand in the dim neutral light which prevailed. The Indian shirts of mail and the model prahus of the East were favoured by the beams of the moon. The chandeliers of Apsley Pellat and Co. caught the eye in passing, and glistened as if anxious to have their illuminating properties tested. Glimpses were again caught of remote galleries brought into prominence by gas-lamps. In some places light shone, though whence it came appeared a mystery. In others there was almost a Cimmerian darkness. The contributions to the carriage department were swathed in calico, while the gigantic locomotives disdained any covering, and rested in grim repose. The activity of mules, spinning-frames, and looms was hushed, the whirl of driving-wheels was silent, and amidst the whole of that usually noisy department dedicated to machinery in motion, the only sound we heard was that of a cricket chirruping away merrily amidst Whitworth's tools.

CHAPTER X.

FOREIGN AND COLONIAL DEPARTMENTS—*continued.*

FRENCH DEPARTMENT—RAW ARTICLES—LYONS MANUFACTURES—SCULPTURE AND FINE ART—
 DECORATIVE ART—FANS—VASES, ETC.—ARTIFICIAL FLOWERS—BELGIAN DEPARTMENT—FUR-
 NITURE—ARMS—LACE.

UNQUESTIONABLY the French collection, next to that of the United Kingdom, was one of the most attractive and extensive in the Exhibition. The lengthened and successful experience enjoyed by France in exhibitions of national industry, gave to the exhibitors an advantage not possessed by the majority of those contributing to the Exhibition, so far at least as concerned the arrangement and execution of necessary minor details. No class of the Exhibition was left unrepresented by our continental neighbours. The total number of exhibitors amounted to about 1,750, and the area they occupied was very extensive, both on the north and south sides of the main eastern avenue and in the galleries. In raw materials, the beautiful specimens of raw and thrown silk attracted universal admiration; and an interesting specimen of cocoons in the frames, in which the silkworms are reared and spin, gave a good idea of the manner in which the culture of these insects is carried on. Hemp, wool, and other textile materials, were also interesting, as well as those more delicate chemical preparations in which the French more particularly excel other nations. Specimens also of metals were not wanting, and articles of food were largely exhibited. Machinery was likewise displayed in fair proportion, though here the superiority was decidedly in favour of the British collection of

similar objects. Still considerable ingenuity was evinced in philosophical instruments, and in various kitchen contrivances; matters, indeed, in which our continental neighbours have been long accustomed to claim a fair right of precedence.

Among the manufactures, we are bound to notice as the first in importance, the gorgeous productions of the silk-looms of Lyons, which were arranged in cases in the gallery. The cotton, wool, and linen manufactures were also interesting, and the skilful arrangement of these articles added greatly to their attractiveness. The splendid and justly celebrated tapestries of the Gobelins, and of the manufactory of Beauvais, certainly formed one of the most interesting features of the whole collection. The manufacture of Sèvres too, in richness, rarity, and costliness, was unrivalled. Much talent was also displayed in the design and execution of useful and ornamental furniture, and a vast profusion of articles of *bijouterie, virtú,* &c., and jewellery were heaped around. Photographs, both talbotype and daguerreotype, were exhibited, and various objects of sculpture and of the fine arts added to the interest of the collection. We would more particularly notice among the sculpture, a very masterly group of "Eve," by De Bay, exhibited in the Gobelins room, the idea of which struck us as both poetical and picturesque, and ably carried out. The first mother appeared to be lost in a reverie as to the future destinies of her offspring, the principal incidents of which were foreshadowed to the spectator in the bas-relief sculpturings of the pedestal. All things considered, we should be inclined to pronounce this to be one of the finest works of sculpture that the Exhibition contained. Some have given it the fanciful title of the "First Cradle," or "Nature's Cradle;" but as that does not do justice to the poetic mystery involved in the conception, we prefer the simpler title by which we have denoted it. We cannot bestow similar commendation on M. Le Seigneur's colossal group, in plaster, of "St. Michael overthrowing the Dragon," which stood in the cast nave, a specimen of the more exaggerated school, which prevails to an alarming extent amongst our French neighbours. Vicious in composition, it disturbed the eye with innumerable angular projections. In fine, it had all the vice of ill-studied and incomplete action, whilst there was nothing in the character or expression of the principal figure (whose costume was absurd) to redeem the more glaring defects of the composition.

Let us return, however, to the more graceful and lighter productions for which the French are so justly celebrated, and which reveal an activity of imagination indicative of a highly developed social and political vitality—a universality of gracefulness in every article, for the use even of the poorest, demonstrating the spread of those sentiments which make taste a humble luxury for all, if not an indispensable accessory to the enjoyment of life. Throughout the French compartment no one could fail to notice the Protean shapes and styles in which the same objects presented themselves. One Sèvres vase was oriental: another was antique; a third recalled the breakfast-table of Mesdames Pompadour or Du Barri; a fourth intimated the Majolica of Guid' Ubaldo of Urbino; a fifth recalled the tazze of Jean Courtois or Liotard. One fragment of ornament was Pompeian, another pure Italian, another Louis Quinze; and thus the flowers of all time were combined in the modern Parisian bouquet. All this variety of style—springing rather from impressions and floating recollections than from any desire to copy with servility—bears testimony to the spread of a popular knowledge of the history of art; and it could only become universal in a country in which models of art had been popularized through every imaginable variety of graphic reproduction. So long as France is likely to retain her title of "Queen of Fashion," so long must she continue to be the cleverest adapter and remodeller of old designs. The vivacity of her artists checks any approach to fac-simile copying; and so skilfully are her revivals made, that, while they seldom fail to recal a pleasing original type, they yet possess all the freshness of novel

and generally appropriate design. Thus, in the ebony cabinet exhibited by Ringnet le Prince, the mind was carried back to some of the charming pieces of furniture still to be met with here and there in the old palaces of Italy—and yet the whole was composed and modelled with so much taste and freshness, that no doubt was entertained as to the cleverness of the artist, or his merits as an original designer. Again, in Marcelin's imitation of Indian inlaying in minute mosaic work, there was just sufficient departure from the original (principally in point of colour) to determine the work to be very clever French, instead of oriental. To cite examples of a similar nature would be an almost endless labour; it may suffice generally to notice, as illustrative of the principle, the revivals of enamelling on copper in the Sèvres collection—the reproduction of the processes of Florentine and Milanese mosaic work by Theret—the examples of quasi-Indian embroidery of Billecoq; and the revivification of the spirit of Ghiberti and his Florentine successors in the “bronzes artistiques” of Barbedienne, and many others. It is a fact almost peculiar to France, of all the nations of the earth, that there appears to be scarcely a style or a process ever naturalized upon her soil which the Frenchman of to-day cannot produce in as great or greater perfection than that to which his ancestors were wont to carry it. In the stained glass of Gerente, Mareschal, Laurent G'sell, Hermanowska, and Lussion, the old glories of Suger and the Sainte Chapelle are still transmitted to us. In the productions of Ponsilgne Russand, Villemsens, and Rudolphi, the Limoges enamels, with which France supplied the world in the thirteenth and fourteenth centuries, are still elaborated with a spirit equal to their prototypes. In the royal manufactory at Sèvres every variety of preparing and painting enamel on copper, which was in use in the sixteenth and seventeenth centuries, by Leonard Limousin, Jean Courtois, Penicault, Luzanne Court, Nouaillier, &c., down to Toutin, and Petitot of Bordier, is still performed with a zeal and spirit worthy of the industry and talent of the great Limousin. The charming vases, dishes, and figures in “faïence,” with which the indomitable Bernard de Palissy was wont to gladden the eyes of his royal master, the great Francis, are reproduced in the highest perfection, by Avisseau. Many a frequenter of the old curiosity shops on the Quay Voltaire has been taken in by the modern ivory carvings of Normandy, which simulate the the mediæval *retables*, triptics, and *cors de chasse*, with a spirit and exactitude calculated to deceive all but the most knowing in such matters. Again, in silks and ribbons, and in paper-hangings—while nature generally furnishes the base—flowers and other objects are indicated so gracefully, and relieved from one another with such delicacy in each case, as to convey no sensation of imperfection. It is in the almost universal exercise of a judicious taste, retaining for each object its peculiar and appropriate style of treatment, that the great strength of the French artist-manufacturers (for so they must be called) consists. Taking, for example, so common an object as the rose, how gracefully we shall find its treatment varied! On a Sèvres vase it was painted up to nature—or to Constantin (for they are nearly the same thing). On a paper-hanging of Mader's, or Delacourt's, a few bold touches of “chique” served, at a little distance, to convey almost as perfect an idea of the flower as was given by the elaboration of the China painting. The flower transferred to Lyons silk was the same in form, but changed in chiar'-oscuro—the dark was gone, and all was light and brilliant. On a ribbon of St. Etienne the form was simplified; delicate white lines marked the separation of the rose leaves from each other, and the ultimatum of conventionality was attained: carried but one step further, the thing would become a meaningless red blot.

To descend to still more graceful trivialities, Duvelleroy has made a *specialité* of fans, in the production of which he is perhaps without a rival. His fame extends not only over Europe, but has made its way to remote quarters of the globe. Even the Chinese,

so famous for their fans, so unwilling to learn, and jealous of change, have copied his designs. It would be rather difficult to describe the truly gorgeous fan which this celebrated artist has made for the Emperor of Morocco. It is a fan of wonderful magnificence, and, to say nothing of the painting and general enrichment, the diamonds and jewels alone have cost more than £1,000. He exhibited also a set of fans illustrating the stories of the "Arabian Nights," which had been made to order for the Sultan of Turkey. But our present business is with the *éventail royal*. In this little work of art, her Majesty and Prince Albert were represented sitting in the drawing-room at Buckingham Palace, surrounded by their royal children, after a picture by Winterhalter. The handle was of mother-of-pearl, and the medallions in carved gold. In the centre of the handle were the royal arms of England, carved in alto-relievo, in the thickness of the mother-of-pearl: the lion and unicorn supported the 'scutcheon; and the two mottoes, *Honi soit qui mal y pense*, and *Dieu et mon droit*, appeared in letters of mother-of-pearl on a ground of gold. Each of the radiating branches was terminated by a royal crown, and the two principal branches bore, chiselled in the mother-of-pearl, and richly gilded, portraits of the Queen and her Royal Consort. We understand that M. Duvelleroy employs upwards of two thousand men. This is easily accounted for, when we state that he makes fans as low as a half-penny each, and that even these have, every one of them, to pass through the hands of fifteen workmen. Before we quit the French department, which for the present we are about to do, and enter upon that of Belgium, we must not omit to notice the display of ornamental and sculptured silver by M. Froment-Meurice, which was, taken altogether, the handsomest on the foreign side of the Exhibition, some of the works displaying an amount of artistic feeling and executive power worthy of the days of Cellini. A very handsome vase was exhibited which had been presented by the city of Paris to M. Emmeny, an engineer of eminence, to whom the Parisians are largely indebted for their present water supply. The sculpture was by Klagmann, and was partly done *en repoussé*, or by punching, and partly cast; the whole richly chased and engraved. The little groups on either side were two out of twelve representing the months, or seasons—very elegant little works, about ten inches high, and all done *en repoussé*. Another attractive and beautiful object in the French department was the case containing Constantin's artificial flowers. We wish we could, within our limits, do justice to the exquisite truth and delicacy exhibited by M. Constantin in an art which he may fairly be said, if not to have created, at least to have brought to a point of excellence which it had never reached before. We may briefly observe, that these productions were hardly to be called artificial flowers, in the everyday sense, being in beauty and in almost everything but smell, identical with those of nature. Roses, lilies, hot-house plants, ivies, and endless other varieties, were here before us, as it were, *in propria personâ*, and not always in full bloom, but occasionally represented, with most truthful effect, in their way of declining and withering, with the canker-worm at the core, and blight upon the face. All these wonderful realizations were produced in one material—cambric; and very high praise is due to the artist who has achieved what he has done with it.

THE BELGIAN DEPARTMENT.

In close conjunction with republican France we had the little constitutional kingdom of Belgium occupying the bays on both sides, and a portion of the northern galleries of the eastern nave, and its contributions included specimens of almost every branch of industrial occupation; agriculture, commerce, manufactures, mining, and fine arts, were all creditably represented. For more than four centuries this flourishing state has maintained its manufacturing and agricultural position, notwithstanding the various con-

flicts of which it has been the battle-field, of revolutions and political changes which it was doomed to undergo, until its final establishment as a limited monarchy. As far back indeed as the days of imperial Rome, the Flemish cities were celebrated for their manufactured goods. In the latter part of the fifteenth century, Brussels, Antwerp, Louvain, and Ghent, employed an immense population in woollen manufactures. Ghent alone had upwards of 30,000 looms; and the weavers of that city mustered 16,000 men in arms. Meehlin and Brussels originated the thread lace of inimitable texture:

“With eager beats his Meehlin cravat moves,”

sung the mellifluous Pope in his celebrated town pastorals, bearing testimony to the undiminished value of that highly prized article in his own time; and the black silk of Antwerp still preserves its high renown among the votaries of fashion. With only forty miles of coast, and with only two indifferent ports, Belgium struggled through many difficulties to establish a foreign trade, which at length her net-work of railroads enabled her to accomplish, and to present to the world the varied exhibition we are about to describe. And here we may observe that the arrangement which rendered France and Belgium next door neighbours in the Crystal Palace, as they are when at home, suggests a question which the minister of commerce would be rather puzzled to answer.

Between France and Belgium there is a war of custom-houses and an interchange of smugglers, chiefly in the shape of large dogs, which carry Belgian tobacco and lace into France, and bring back French silk or some such article. Every French *douanier* is provided with a thick volume of instructions on the art of stopping, seizing, detecting, poisoning, and shooting Belgian smuggler dogs. Nevertheless, day and night—especially at night—large packs of contraband hounds, heavily laden, rush past the bewildered officers. Now, when Belgium was part of the French empire, its manufactures, its coal, its cattle, its corn, were all freely admitted into France; nothing was taxed, nothing was prohibited; since the disjunction everything that is not taxed is prohibited, and yet the line of division between the two countries is purely imaginary, and the people who, under Napoleon, were free to interchange their goods, must have had just the same wants the day after the custom-house division made it unlawful as the day before. Why, then, was interchange useful before Napoleon's last campaign, and baneful after his dethronement? But to begin our walk through the Belgian territory in the Crystal Palace. We first entered the southern bay, where we found a varied display of textiles of every kind, which seemed very little visited by the curious crowd, although, no doubt, our manufacturers in the same line gave them a close examination. There we also found the cheap mixed fabrics of woollen and cotton, the fine kerseymeres in which the Belgians can undersell our Gloucestershire and West of England men; also capital stout canvass and damask linen from districts of Flanders which grew flax and wove linen long before Belfast was founded; printed silk handkerchiefs in praise of which nothing could be said, and woollen shawls of very dull, dowdy patterns. In this department almost every kind of woollen and mixed woollen was to be found. The sides of the next section were hung with carpets from the Royal Belgian Manufactory of Tournai, which, like the French Gobelins and Beauvais manufactories, is carried on with government money. An imposing stand of arms next attracted our attention, evincing the warlike disposition of the people; then we passed through a vast collection of saddlery articles, of boots also and of shoes, and of sportsmanlike gaiters for the service of those who shoot in woodland districts. The collection of arms was chiefly furnished by Liege, and presented specimens of the commonest *Brunnagem*, as well as of the most expensive and finished article, both military and sporting. Rifles, too, were there of the Swiss fashion, over which a paper was affixed, stating that one of the rifles, fired from a rest, at a mark

four inches in diameter, at a distance of 110 yards, made 95 hits out of 100. Behind these engines of destruction were arranged those subservient to peaceful occupations, agricultural and mineral, in all their useful variety, to processes connected with the culture and weaving of flax, hemp, and silk, in all their various branches.

Crossing the grand avenue, we observed several splendid carriages, and a profusion of furniture, carved and richly covered with velvet. Two oaken cabinets particularly struck us, of a grave and ecclesiastical character, ornamented with figures of angels. On ascending to the galleries we found, at the top of the stairs, three figures, of life-size, in embroidered ecclesiastical robes, that far outvalled all the glittering wardrobe to be seen at Madame Tussaud's. These represented the Archbishop of Paris, Affré, who was killed in the last revolution at the barricades; St. Carlo Borromeo, an Italian saint and archbishop, whose embalmed body, enclosed in a glass-case, we have seen at Florence, in the costly chapel dedicated to his memory, enriched with gold and precious stones, which is annually opened on a particular day, that the benighted bigots of that city may worship at his shrine. Our English Thomas à Becket was the last of these worthies that greeted us on mounting the staircase. At a later period of the Exhibition, however, the French Archbishop Affré gave place to Fenelon, whose *Telemaque* was so familiar to our schoolboy days; and the Italian saint, a good man, by the by, had also disappeared to make room for another French worthy, but the renowned St. Thomas à Becket stood his ground to the last. All these three lay figures, however, for some reason or other, wore white gloves, instead of the purple gloves of the archbishop, and the bright scarlet of the cardinal. While examining the embroidery of these robes, which the maker warranted to wear a hundred years, and *then clean*, we found ourselves side by side with two gentlemen actually wearing, the one *scarlet*, and the other *purple gloves*; such were the strange coincidences of the Exhibition! They proved to be Cardinal Wiseman and one of his bishops examining the costume of Thomas à Becket!

In the same galleries were cases of medals, cameos, bronzes, a shield and dagger, and other ornaments richly chased in iron, all displaying very considerable taste and executive skill; but, to own the truth, neither statuary, nor lay figures of archbishops, nor the large display of Roman catholic works, nor any object connected with art, science, or literature, excited half the sensation among the ladies, as did the tempting outspread of delicate lace, from Brussels, Mechlin, and other districts, for ages celebrated for its production. It was curious to witness the enthusiastic admiration with which the various articles of dress, robes, flounces, veils, collars, &c., fabricated out of the fine spun thread with more than Arachnean delicacy, were regarded by the numerous female visitors who absolutely haunted the enchanted spot, devouring with their eager eyes the coveted spoil; while exclamations of the most enraptured delight burst from their ruby lips. This love of dress may be considered inherent in the sex; from the unenlightened savage to the courtly duchess, all are swayed by its influence. We remember an amusing story by Peter Pindar in evidence of its supremacy, in which he relates how on a visit of some country female cousins to the great metropolis, when he thought equally to astonish and delight them by a first sight of St. Paul's, which was breaking on their view as they paced up Ludgate-hill, the eyes of his fair companions were suddenly attracted by a rich display of ribbons, laces, and shawls in a mercer's window, from which no argument or inducement held out by the disappointed bard, could for a long time prevail on them to withdraw their eager attention.

The Belgian diapers and damasks, although somewhat coarse, were serviceable, and of tolerably good design; we cannot however commend those which had the human figure introduced in them; one in particular was intended to represent the king of the Belgians on horseback, the effect of which was exceedingly ugly and inappropriate.

In the way of machinery, the great establishment at Seraing for the manufacture of steam-engines, and all kinds of machinery, which was founded by Cockerell, under the patronage of Napoleon, and afterwards supported with capital by the father of the late king of Holland, sent several specimens of heavy work of a respectable character. The steady-going pace approved of on the Belgian railroads, viz., fifteen miles an hour, with sundry stoppages, by no means demands the flying engines we impatient Englishmen require. M. Presmany, writing his opinion of England in the Paris journal *La Patrie*, says, "An Englishman never saunters, but always rushes forward like a mad dog." Probably the facetious journalist never in his younger days sauntered down Bond-street himself; had he done so he might have seen specimens of lounging and idle *nonchalance* quite equal to anything of the kind to be met with on the Boulevards or the Tuilleries of his own most delightful capital of fashion, and the *dolce far niente*.

CHAPTER XI.

FOREIGN AND COLONIAL DEPARTMENTS—*continued*.

THE UNITED STATES.

THE number of articles sent from the United States to the Exhibition was neither what was expected of them, nor, we believe, did it adequately represent their capabilities. There were, nevertheless, many things in their collection which presented features of peculiar interest, and which did credit to their industry, ingenuity, and skill. Foremost among the articles displayed in this division of the Exhibition were a coach, three or four waggons, "a buggy," technically so called, and a trotting "sulkey." We call these "foremost," because, both by the prominent place they occupied, and on account of the real merit of the vehicles themselves, they were really so. The coach—styled by the exhibitor a "carriola"—was a very creditable piece of workmanship, of good design, apparently most thoroughly well built, and finished with great regard to good taste. There was nothing of the gewgaw style about it. The colour, decorations, mountings, finish, and ornaments, were all rich and neat. The carvings upon it were admirably well executed, and for symmetry and good keeping in every part, from the step of the footman to the board of the driver, it deserved high commendation. The wheels were much lighter than in carriages of a similar kind in England. This is claimed as a decided improvement. Certainly the appearance of the vehicle is improved by the absence of that bulkiness which gives a lumbering aspect to many an English carriage; and if the roads of our transatlantic brethren are not too rough to deal fairly with such wheels, we know not why they should be considered unsafe upon English turnpike roads. The other vehicles exhibited were respectively entitled a York waggon, a Prince Albert waggon, a slide-top buggy, and a trotting sulkey. The chief characteristic of all these was their extreme lightness of weight, when compared with their size. They were richly finished within and without, and beautifully carved; the upholstery being done in exceedingly good taste, with constant regard to the comfort of the rider, and exhibiting very considerable artistic merit in design. The wheels were made from carefully-chosen materials, the joints exactly fitted, the feloes (two in number, instead of the usual five or six, for greater strength), confined by a steel insertion and bolts, and the axletrees exceedingly neat and strong. It is claimed for these axletrees (an American

invention), that, in loss of friction, strength, freedom from all noise in motion, and cleanliness, they are superior to any in England. Several of these lighter carriages are now in use in this country, and give great satisfaction; and several more of a similar manufacture have been recently ordered from New York. Indeed, it is not difficult to understand why they should become favourites out of London; nor how reluctantly a lover of quick driving would return to the heavier vehicles of city manufacture. There were several rich sets of harness which deserved notice, in particular that which was exhibited by Messrs. Laey and Phillips. It was made from leather of the finest quality, and with perfect thoroughness of work. The mountings were of solid silver, with appropriate and graceful designs. In this, as in all the other harness shown, there was remarkable lightness and airiness, and an obvious endeavour to do away with all superabundant weight.

The great use of oil in the United States has necessarily led to many improvements in lamps, as was evident in those exhibited from the manufactory of Messrs. Cornelius and Co., in Philadelphia, especially in those upon the solar principle, as it is called, where increased draught is made to bear upon the combustion, which are unknown among us. Unpretending as these lamps appeared, it was stated that they would give an amount of light greater, by one-half, than any others in use. The chandeliers that hung above them were graceful, and of extreme purity of glass, and beautifully cast. The branches, formed by arabesque scrolls, profusely ornamented with birds and flowers, delicately sculptured, or in bold relief, with centres of richly-cut glass, claimed universal approval for their elegance and lightness of design. This manufacture is among the latest introduced in the United States, it being scarcely fifteen years since every chandelier, girandole, mantel-lamp, and candelabra used in that country was imported from Europe; and it argued considerable enterprise and perseverance on the part of the manufacturers, that they attained so much excellence as to be willing to vie in the Exhibition with the oldest and most celebrated houses in the world. On the south side of their portion of the building, the contributors from the States exhibited, under the general classification of raw material, many very excellent specimens. There were among these a large variety of articles, such as Indian corn, ground, hulled, and in the ear; rye, oats, barley, wheat, rice, cotton, tobacco, minerals, chemicals, woods, brooms, beef, pork, lard, hams, and almost everything else identified with the productions of that country. Next in order were to be seen daguerreotypes, paintings, herbaria, and prints, with some samples of stained glass suspended from the galleries, and cottons, carpetings, wrought quilts, calicoes, and needlework, tastefully displayed around. Considering the distance from which these had to be conveyed, not only across 3,000 miles of ocean, but often from little short of that distance inland; and considering, too, that it is not in her manufactures that America makes her chief impression upon the world, we regard this portion of her exhibition with great interest. In pianofortes there was a show highly creditable to the manufacture of musical instruments in the United States. Pierson exhibited a seven-octave grand pianoforte; Chickering a semi-grand, and other instruments of less pretension but of much merit. There were two from the manufactory of Conrad Meyer, of Philadelphia, in neat and very unpretending cases, combining all the best qualities of the highest rank of pianos. In breadth, freedom, and evenness of tone, in promptness and elasticity of action, and in a combination of everything that is rich and sweet in this description of instrument, he claims to be unsurpassed.

Among cordage, boats, oars, and models of favourite ships, were exhibited two ship-ventilators, by Frederiek Emerson, of Boston. These are intended to supersede the ordinary wind-sail now in use for sending pure air into the recesses of ships. The inventor has given much attention to the subject of ventilation, and his success has been honoured

by several gold medals in the United States. How far this application of his invention may be superior to the methods now in use for the same purpose is uncertain. In the minds of sailors there is always an objection to fixtures above deck, which would be likely to impede their general introduction.

Together with daguerreotypes, before alluded to, there were exhibited camera obscuras by C. C. Harrison, of New York, the results of which, in the pictures that hung above them, were exceedingly favourable. There were shawls from the Bay State mills, of beautiful colour and a high perfection of manufacture; white cotton goods, which, in bleaching, finishing, and putting up, appeared equal to Manchester products; some very beautiful flannels, single-milled doeskins and wool-black cassimeres of thorough fabric; tweeds, well mixed and of good colours; a salamander safe, well made; Newell's improved bank lock, ingenious and well constructed; a patent paying-machine for pitching the seams of vessels, the box being provided with a ventricled wheel, which receives the hot melted material, and applies it neatly, economically, and directly to the seam to be covered; an air-exhausted coffin, with glazed aperture at top, a most whimsical idea, but whether for the benefit of the defunct to look out, or the survivors to look in, we were at a loss to determine. Next came a host of "notable things." Car wheels for railroads, wood and cork legs, clocks, watches, dentists' tools and works, India-rubber goods of various forms, mathematical and solar instruments, a self-determining variation compass, trunks, boots and shoes, hats, specimens of printing and binding, together with pistols, rifles, and other weapons of offence and defence. Of these rifles, manufactured by Robbins and Lawrence, it is but just to say that they are among the best, if not *the* best, of any rifles manufactured in the world, the Americans claiming to excel in this species of manufacture. They are made from the best selected Copake cold-blast forge iron, and are of an unpretending style, but remarkable for a plain, substantial, and perfect finish; they are strong, simple, and thorough in their workmanship, and eminently adapted for real service.

Two bell telegraphs, exhibited in the central avenue, very deservedly attracted much attention. The bell telegraph, otherwise called an "annunciator," is an invention made to supersede the awkward array of bells in houses and hotels. It is an extremely neat and beautiful article, and indicates whence the bell was rung, by uncovering a number corresponding to the number of the room; and this, too, for any length of time afterwards, until, by the touch of a spring, the number is re-covered. In the large hotels in the United States, and in many private residences, it is much used.

In the moving machinery department, among other objects of interest from the United States, was a machine exhibited by Mr. Charles Morey, called a stone dressing machine. A machine for dressing stone by power has long been regarded as a great desideratum, and has been the object of many expensive, though unsuccessful experiments. One great difficulty has been found in making the cutting tools of a quality to stand the action of stone, unless at such cost as to render their use unprofitable. This difficulty is overcome by the present invention, which consists in the employment of chilled cast-iron burrs, or rolling cutters. Iron, as is now known, may, by a peculiar process of chilling in casting, be converted to a diamond hardness, that perfectly fits it for reducing, with great facility and economy, the surface of stone. The burrs made in this way retain a sufficient degree of sharpness for a long time, and can be maintained at a small cost, being wholly formed and finished in casting. In dressing circular forms, the stones are made to revolve, when the burrs, which are mounted in sliding rests, are brought into action. For straight surfaces, however, the stones are laid upon a transverse bed, and the cutters, mounted upon a revolving cylinder, are placed above them. The burrs or cutters are so arranged as to turn freely on their axis when brought in

contact with the stone, and as they roll over it, they crush it away in the form of scales and dust. By varying the shape and arrangement of the burrs, ornamental surfaces may be produced.

Among the agricultural implements exhibited, which claimed the attention of agriculturists particularly, were reaping machines, ploughs, cultivators, fan mills, and smut machines. The American reapers are worked by a single span of horses abreast, with a driver and a man to rake off the grain as it is cut down by moveable knives. On land free from obstructions, these reapers will cut from twelve to twenty acres of wheat in a day, depending somewhat upon the speed of the horses and the state of the grain.

In taking our leave, for the present, of our transatlantic neighbours, we have the pleasure to inform our readers, that they have so far profited by the example we have set to them, as well as to other nations, as to contemplate an Exhibition of Industry at New York, which, indeed, it is publicly announced will take place in the ensuing year. A company, it appears, has been formed in America which is represented in this country by M. Charles Buschek, Austrian commissioner for the Exhibition of 1851, and Mr. Edward Riddle, commissioner for the United States, to whom the whole management of the design has been confided. A large building is about to be erected, which, when completed, will be considered as a bonded warehouse. The contributions from England are to be conveyed in first-class vessels, free of expense, and if they remain unsold, will be returned to the exhibitors without cost. This arrangement cannot but be considered as extremely liberal. There can be no doubt of the success of such an enterprise, if carried out by a body of trustworthy persons. We hear of several English firms as likely to accept the friendly invitation thus held out to them.

CHAPTER XII.

WOOD CARVING—ROYAL TROPHY—PRINCE OF WALES'S COT—GROUP OF FLOWERS—THE KENILWORTH BUFFET—BUFFET BY FOURDINOIS—PANEL BY LIENARD—HOLLAND'S BOOKCASE—PALACE OF TARA—SWISS CARVING—ELIZABETHAN AGE—AUSTRIAN CARVING, ETC., ETC.

AMONGST the decorative arts, wood carving has a distinct and legitimate position, and confined within due limits is always effective. Still its province is restricted, or ought to be, to the ornamentation of material when applied to a useful purpose; it can never assume the dignity of art *per se*. To usurp the place of sculpture, it has hitherto been, and will always continue to be, utterly incompetent, inasmuch as the material upon which it employs its skill, is altogether, both in colour and texture, inferior to marble, and utterly inappropriate to represent the human figure or the human countenance. In corroboration of our assertion, we would recal to the recollection of our readers the extremely objectionable representation of the Crucifixion in the Fine Art Court, the head of Her Majesty, or the human lineaments in any work of wood carving in the Exhibition, and compare their relative truthfulness of effect as to contour and colour with that of other objects, such as flowers, foliage, and fancy devices, and they will at once admit the principle for which we now contend.

There were several very beautiful specimens of this class of subjects by Rogers and Wallis, closely approximating in elegance and delicacy of finish to the celebrated productions of Grinlin Gibbon, that prince of carvers, whose works serve to decorate so many of our old ancestral halls and country residences. The first-mentioned of these

artists, Rogers, besides a number of charming devices, exhibited two larger subjects, on which he appeared to have lavished all his resources,—a royal trophy, carved in lime-tree, representing the crown as the chief power, the source of all titles and dignities—the patron and promoter of the arts, sciences, &c., in illustration of which an elaborate group which occupied the centre, displayed all the insignia of rank, and every means and appliance of science and art. In the lower part were medallion portraits of royal personages. The whole was encircled with a border composed of groups of game, fruit, flowers, fish, and shells. A trophy emblematical of Folly was also worthy of high praise. The carved boxwood cradle, moreover, by the same artist, exhibited by her majesty, must not be passed unnoticed, although we by no means participate in the wild admiration which it excited amongst the numberless mothers and daughters of England, who gazed enviously at it. The shape itself was not elegant, being heavy, and more like a sarcophagus than a cradle; and the decoration, though doubtless appropriate as “symbolising the union of the royal house of England with that of Saxe-Coburg and Gotha,” was neither picturesque nor interesting in a general point of view, whilst the execution, though exquisitely neat, was perhaps a *tant soit peu* tame. Wallis, likewise, exhibited some productions of surpassing merit in the same style. One, a group of flowers, &c., emblematical of Spring, elicited general admiration; it was carved out of a solid piece of lime-tree, five feet high by two-and-a-half wide, and projecting thirteen inches. Spring was allegorically represented by the grape-buds and apple-blossoms, of which there were no less than 1,060 buds, and 47 varieties. A blue-cap titmouse was picking insects out of an apple-blossom; another was taking food to its young, which were partially concealed in their nest, and here and there caterpillars were dragging their slow length along. A shepherd's crook and lamb's head were added, symbolical of the season. The whole of this work was copied from nature, and executed expressly for the Great Exhibition.

The most magnificent object, however, in this department of art, was unquestionably “The Kenilworth Buffet,” by Cooke, of Warwick, and which we shall proceed to describe in an abridged account from that given by the makers themselves. The wood from which this buffet was made, we are informed, was obtained from a colossal oak-tree, which grew near Kenilworth Castle, and of which we believe a view was given in *Strutt's Deliciae Sylvarum*, published some years ago. The tree measured ten feet in diameter, and contained about 600 cubic feet of timber, and was cut down in 1812, and afterwards purchased by the exhibitors. The subject of the design was the Kenilworth Pageant of 1575, in honour of Queen Elizabeth's visit to the Earl of Leicester, described by Laneham and Gascoigne, two attendants on the Queen in this “royal progress,” and vividly reproduced by Sir Walter Scott. The design of the centre panel, carved out of one solid block of oak, represented Queen Elizabeth entering Kenilworth Castle in all the pomp usually displayed on these occasions. The cavalcade was seen crossing the tilt-yard, and approaching the base court of the building by Mortimer's tower. Leicester was bareheaded, and on foot, leading the horse upon which his august mistress was seated, magnificently arrayed. The Queen, then in her forty-second year, wore her crown, and had around her neck the enormous ruff in which she is always represented. Two pages and a long train of attendants followed the Queen and her host, composed of ladies, statesmen, knights, and warriors—some on foot, others on horseback. In the distance were soldiers and a mixed multitude of people. A portion of the castle was seen in the back-ground. At one end was Mortimer's tower, through which the cavalcade was about to pass; the remains of this tower are still in existence, and considerably heighten the romantic beauty of the Kenilworth ruins. At the opposite end of the panel, the Earl of Essex, Leicester's rival in the favour of Queen Elizabeth,

was conspicuously seen, mounted on a charger. On the table underneath the centre panel was displayed the Tudor rose, and surmounted by the royal crown, with the famous motto of Elizabeth, *semper eadem*, on a ribbon. On the spandrils, supported by water flowers and rock-work pendentives, were marine subjects taken from the "Pageant," namely, a triton on the mermaid, and Arion on the dolphin, connected with Mike Lambourne's mishap, in the novel of *Kenilworth*. The panel on the right or dexter side of the buffet, recalled the scene in the same work, where Elizabeth meets Amy Robsart in the grotto, in the grounds of the castle. The subject of the left panel of the buffet represented the interview of Queen Elizabeth and Leicester, after the exposure of the deceit practised upon her by the latter, and his marriage with Amy Robsart. Leicester was shown in a kneeling position, with one hand on his breast, and the other extended towards Elizabeth, as if appealing to her sensibility. The four statuettes at the corners were emblematical of the reign of Elizabeth. At the extreme corner of the right was Sir Philip Sydney, the nephew of the Earl of Leicester, whose character combined all the qualities of a great poet, warrior, and statesman. He died in 1586. The shape of Sir Philip's sword (which is still preserved at Penshurst) was singular, the handle being about sixteen inches long. On the opposite side of the same pedestal might be recognised Sir Walter Raleigh, who attained eminence in almost every branch of science and literature. He was arrayed in a courtier's dress, and the figure represented him in a thoughtful attitude, with a pen and scroll in his hand. Raleigh was beheaded on a charge of high treason, in 1618. On the left pedestal, at the inner side of the buffet, was a figure of Shakspeare, who was shown in a reflective mood. The last figure was that of Sir Francis Drake, the first Englishman who circumnavigated the globe. An anchor was appropriately introduced, emblematic of his naval career; and the costume chosen was that of a court dress. The ragged staff mouldings of the Kenilworth buffet were imitations of the best examples in the Beauchamp Chapel, Warwick, where the Earl of Leicester was interred. The supporters to the projecting shelves also represented the proud crest of this splendid noble, the bear and ragged staff, borne by the earls of Warwick from the most remote times. The small panels of the buffet, behind the Leicester cognizance, contained monograms of the date of Queen Elizabeth's visit to Kenilworth Castle, and the eventful year 1851, with the cipher of the reigning monarch, designed to record the era of the Great Exhibition of all Nations. Around the door-panels of the Kenilworth buffet were copies of architectural details still seen on the gate-house. The upper part, above the shelf of each pedestal of the buffet, displayed the monogram of the Earl of Leicester, encircled by the insignia of the order of the Garter, and surmounted by his coronet. The decorations on each side were specimens of Elizabethan ornaments, designed by the proprietors. An important feature in the production of this work was the introduction, by Mr. Walter Cooper, of *pointing*, the process adopted by sculptors in stone and marble, and by which greater accuracy is secured.

Next in importance to the magnificent piece of workmanship we have just described, and equal to it in beauty of execution and finish, was the elaborate buffet by M. Fourdinois, of Paris; and it is in such peaceful rivalry and friendly competition alone, that we wish to see the two nations opposed to each other; a contest in which the advantages of victory,—for

"Peace hath her victories no less than war—"

are counterbalanced by no misery or deprivation on the part of the vanquished; and it is to such a state of beneficial intercourse between nations, hitherto opposed to each other in hostile array, that such an exhibition as we have just witnessed must eminently

tend to lead. Let us, however, return from this digression, and describe the "stately sideboard" of M. Fourdinois. The design of the French artist very judiciously aimed at rendering the ornamentation of his work entirely subservient to its intended use. Consequently, in order to express the general temperament of the banquet, four female figures, representing the four quarters of the globe, were bearing in their hands every delicate variety of food, the produce of their several climes, whilst around them were heaped in rich profusion—

"Meats of noblest sort
 And savour; beasts of chase, or fowl, or game,
 • • • • • all fish from sea or shore,
 Freshlet or purling brook, or shell or fin,
 And exquisitest name, for which was drained
 Pontus, and Lucrine bay, and Afric coast,
 With fruits and flowers from Almathea's horn."

At either end were figures representative of hunting and fishing. Above was a female figure emblematic of Plenty, supported by two charming groups illustrative of the corn-field and the vineyard. Even the chained dogs, which have been censured by some, placed as supporters at the lower part of the sideboard, we consider as appropriate—the chase was over, the game ready for culinary operations, and for a time, at least, the faithful animals were at rest beneath the trophies of their prowess. The centre of the sideboard was occupied by a painting in gay colours, representing a combination of various fruits and flowers, surmounted by a large American aloe. We cannot too highly commend the great fidelity with which the various objects in this elaborate performance were copied from nature, the graceful manner in which each part was made to blend with its neighbour, the taste, skill, and patience of the workman, the care bestowed upon the minutest details, or the originality of conception and beauty of finish in the whole work,—the *tout ensemble* was worthy of the country which produced it, and the occasion which called for its exhibition.

Another work of Parisian manufacture, by M. Licnard, was also deserving of notice—a pair of large panels of exquisite workmanship, one of which, illustrative of the sports of the field, we shall forthwith describe. The first compartment represented a group of foxes in search of prey, the last a family of partridges in a corn-field, while in the centre, in all the serenity of safety, reposed a trio of deer, the noble old buck looking out upon the scene in the very luxury of idleness. But the choicest *bits* of carving were in the animals, birds, and foliage which surrounded the frame, emblems of the noble sport.

Of a totally different character from the preceding, was the massive book-case exhibited by Messrs. Holland, in the style of the Renaissance, with natural forms finely introduced. The design was furnished by Mr. Macquoid, architect. Regarded artistically, it might have been considered rather too architectural in its style, but it was certainly a splendid piece of workmanship, and well suited for the library of a great castle or baronial mansion.

We will now make mention of a contribution from "the Emerald Isle," in the form of a music temple, carved in bog-yew, by Arthur Jones, of Dublin. As in all periods of their history, the Irish have been passionately fond of music, the decorative piece of furniture embodying this characteristic, was certain to acquire importance and prominence; and, therefore, the ancient Palace of Tara was selected as the proper theatre in which to display this subject, its halls having been celebrated by the ancient Irish bards, as the frequent scenes of music and festivity. A statuette of Ollamh Fionhda, the founder of the Irish monarchy, and also of the Palace of Tara, naturally surmounted the temple. He was represented in his capacity of monarch and lawgiver, delivering

the laws to the Irish nation, holding forth the beechen boards, on which were inscribed passages from the Brehon laws, engraved in the ancient Irish character :—

“Seven things bear witness to a king’s improper conduct:

“An unlawful opposition in the senate.

“An overthrow of the law.

“An overthrow in battle.

“A dearth.

“Barrenness in cows.

“Blight of fruit.

“Blight of seed in the ground.

“These are the seven candles lighted to expose the misgovernment of a king.”

He was seated on the Lia Fail, or enchanted stone, said to be deposited in Westminster Abbey; he sat in the centre of a platform, representing all Ireland mapped out under him. The panel in front represented, in relief, the opening of the triennial convention at Tara, in the reign of Cormac “Ufalda,” or “Long Beard,” in the early part of the third century, anterior to the introduction of Christianity into the island. Cormac sat in the centre of the hall, surrounded by ten principal officers of state, who always accompanied the monarch on state occasions. The opposite panel represented the harpers in Tara Hall performing before the monarch and his queen; a canopy formed by the fossil antlers and skull of the giant deer, supported the drapery, an opening in which discovered the undulating hills of Tara. Four statues at the corners personified vocal music, warlike, pastoral, dramatic, and devotional—or, in other words, the camp, the field, the stage, and the sanctuary. The whole subject formed a sort of chronological series, commencing 700 years B.C., the date of the foundation of the Irish monarchy—touching the flourishing state of the kingdom under Cormac—passing through the chivalrous age of the Crusaders—and ending with the present agricultural age of Ireland.

The Swiss department contained several specimens of wood carving, in decorative furniture and otherwise, which were interesting for the great amount of executive skill displayed upon them, and for the truthful homeliness of the subjects represented in them. They were, indeed, for the most part, sculptured bucolics, exhibiting the pastoral life of happy Switzerland, in all its various phases; whilst a few illustrated other points of nationality, as the costumes of the twenty-two cantons, still kept remarkably distinct amongst the rural population; or some spot dear in the memories of Swiss men, as the chapel of William Tell, at Altdorf. There was something very charming in the simple devotedness to a beloved nationality thus evidenced by a brave, industrious, and primitive people, in their contributions to the world’s great and glittering fair. The *escritoire*, by Wettli, of Berne, in white wood, and intended for the use of a lady, was well deserving attention; it was so contrived that it could be used either in a sitting or a standing posture. The embellishments, as already stated, comprehended various passages in the industry, field sports, and amusements of Alpine life. The general style of this piece of furniture, considered as such, was light, and by no means inelegant. The small table, by Schild, of Berne, was also extremely pretty, and both were well suited for a lady’s boudoir in the retirement of a rural hour.

To return, however, to our native productions: we were reminded by the “Kestral Hawk” of Mr. Batsford, and the Elizabethan contributions by the Duchess of Sutherland, of that Augustan age of England, when poetry and the fine arts had arrived at their zenith—when carving in wood, a branch of the latter, profusely adorned the houses of the wealthy and the noble. The finer specimens of this class of art are scarce, and in great demand among collectors, dealers, and antiquarians. In chapels and cathedrals, what elaborate specimens are to be found of this somewhat neglected art!—witness the

noble structures of Westminster Abbey, Lincoln, Durham, and York. Nearer our own times, too, we have had some rare examples of excellence, from the chisel of Grinlin Gibbon, already mentioned by us, and of whom Walpole justly observes, "that there is no instance of a man before Gibbon, who gave to wood the loose and airy lightness of flowers, and chained together the various productions of the elements, with a free disorder natural to each species." And so delicate was the workmanship of Gibbon, according to the same authority, that a carved pot of flowers in a room shook, as though they were natural, by the mere motion of the coaches in the street. The Chapel at Windsor, and the Choir of St. Paul's, contain some foliage by Gibbon, executed in the most artistic manner. His heads of cherubs possess a sweetness of expression and an angelic loveliness which, as long as they exist, will render them the admiration of all lovers of ideal beauty; and his picture-frames, where dead game, flowers, and foliage, almost deceive the eye into a belief of their reality, are equally marvels of the art. Many other specimens of the taste and skill of our English carvers were to be found in the various recesses of the Crystal Palace. In the Mediæval Court stood a massive oak sideboard, the production of Mr. Crace, of Wigmore-street, elaborately and richly carved, and intended for the new dining-hall at Alton Towers, the seat of the Earl of Shrewsbury. A sideboard by Snell and Co. also merited attention; the design of the sculpture was given by Baron Marochetti, the workmanship of which was equal to the best examples in the Exhibition, and elicited universal approbation. An elegant commode or cabinet of walnut wood, was exhibited by Hanson and Sons, highly ornamented, for china, bronzes, &c., with oval carved frame for a mirror, representing a variety of British birds arranged in a pleasing manner around the glass. The carved work on the lower part of the commode represented stags in a recumbent posture, and the pillars were ornamented with well executed heads of boars and deer. Two elaborately-carved brackets for flower-stands, served to complete this elegant and useful piece of furniture.

We will now, however, take a look at the contributions in this department of art as supplied by Austria, the most conspicuous among which was the huge *BENSTEAD*, with its pillars, its niches, its screens, its groups of angels, champions, sprites, and saints—cathedral-like in its design and decoration. Architectural in character, it appeared like a vast temple dedicated to sleep; so grand in conception, so massive in proportion, so deeply rich in carved glories, so evident an invocation of the artist, and so resolute an abnegation of the mere upholsterer, it was a real triumph of the artificer, who must have been "sleepless himself to make his patrons sleep." Next in magnificence was the *GOthic BOOKCASE*, sent over as a present from the Emperor of Austria to her Majesty. The superbly-bound books which ornamented some of the shelves were also the gift of his Imperial Majesty. The material was oak. The design, which was Gothic, was by Bernardo de Bernardis, an architect of eminence, and J. Kraner, both of Vienna. It was rather too architectural in its arrangement, and the introduction of the statuettes in all directions, was not to be approved on the score of taste or propriety. The executive department was very creditably carried out; but at the time it was exhibited the joining business had not been completed, and we understand several workmen belonging to Messrs. Leistler's establishment are now engaged upon it, and will be so for some months, at Buckingham Palace. A *Prie Dieu*, also by Leistler, was worthy of notice; Gothic in its structure, like the bookcase, and very richly carved. In the central panel was a painting of Christ bearing the cross; on either side were angels holding tablets, on which were inscribed the date, "Anno 1851." A set of tables, too, in another part, awakened the especial admiration of the lovers of the gastronomic art, which, in their hospitable breadth and expanse, spoke volumes in favour of the geniality of their designs. The wood of these was extremely beautiful; the guests had only to look beyond their glasses

to see their joyous countenances correctly mirrored, while the substantial legs and supports, in buttresswise, entirely banished the idea that the tables they supported could ever *groan* under whatever weight of good cheer might be placed upon them.

From Belgium the most important contribution in this style of art was in the shape of a GOTHIC CHAIR, an elegant and elaborate piece of aristocratic furniture executed in carved oak, entirely gilt, and cushioned with the finest crimson velvet. The ornamental portion of the chair gave it a very light and chaste appearance. The seat was supported by figures of griffins in a sitting posture, and the elbows and tracery work beneath the seat were in admirable keeping with its other decorations. The chair was modelled after the decorated Gothic style of architecture, and formed a portion of a finely-finished set of furniture in dark wood, consisting of a Gothic rosewood bookcase, bedstead, and *étagère*, and oak and rosewood tables and chairs, which were well worth the attention of the visitor. The whole had been designed by a very clever artist, A. F. Roule, of Antwerp, and numbered 419 in the Belgium department of the Great Exhibition.

In concluding our present remarks on carved work, we must not omit to mention that Tuscany, that old field of classic art, exhibited several specimens of exquisite beauty by Barbetti and others. Greece also, amongst her sixty-one contributions, sent two works in the Byzantine style, executed by the Rev. Triandaphylos of Athens, namely, a carved cross, and a carved picture of the "Annunciation." These works were remarkable as specimens of a style of art now almost extinct, being a remnant of the Byzantine period, and which still lingers in some of the convents of Greece, and particularly at Mount Athos. The carving, which was done with graving instruments, was very minute, in slight relief, upon the plane of the wood—a boxwood which is abundant in Greece, and appears to be of a very fine grain. The crucifix, which did not measure more than a foot in its largest dimensions, was covered on both sides with scriptural subjects, fourteen on each side, so that each subject occupied only from an inch to a couple of inches of the surface. In the carving representing the "Annunciation," the figures were larger, and the form oval, the band being surrounded with twenty-five heads of saints. The government of Greece has of late years done a good deal to promote this style of illustration, in a School of Arts established at the cathedral at Athens.

CHAPTER XIII.

DISCOVERY OF GLASS—GLASS BLOWING—CRYSTAL FOUNTAIN—CANDELABRA—THE GLASS KOH-I-NOOR—SUPERB CHANDELIER—ETRUSCAN VASES—DIOPTRIC APPARATUS—BOHEMIAN GLASS—ENGRAVING ON GLASS—PRESSED GLASS, ETC.

THE manufacture of glass is one of great and daily increasing importance in this country, the application of this material to many uses heretofore unthought of being daily on the increase; thanks to the liberal policy which a few years ago abolished those fiscal burthens which had operated as a bar to enterprise and progress. The subject is one of peculiar interest in connexion with the Great Exhibition of Industry of 1851, as but for the enfranchisement of the glass manufacturer, the building in which that unrivalled display was held could never have been constructed.

The time at which glass was invented is very uncertain. The popular opinion upon this subject refers the discovery to accident. It is said (Plin., *Nat. Hist.*, lib. xxxvi., c. 26), "that some mariners, who had a cargo of *nitrum* (salt, or, as some have supposed, soda)

on board, having landed on the banks of the river Belus, a small stream at the base of Mount Carmel in Palestine, and finding no stones to rest their pots on, placed under them some masses of nitrum, which, being fused by the heat with the sand of the river, produced a liquid and transparent stream: such was the origin of glass." The ancient Egyptians were certainly acquainted with the art of glass-making. This subject is very fully discussed in a memoir by M. Bondet, in the "*Description de l'Égypte*," vol. ix., *Antiq. Mémoires*. The earthenware beads found in some mummies have an external coat of glass, coloured with a metallic oxide; and among the ruins of Thebes pieces of blue glass have been discovered. The manufacture of glass was long carried on at Alexandria, from which city the Romans were supplied with that material; but before the time of Pliny, the manufacture had been introduced into Italy, France, and Spain (xxxvi., c. 26). Glass utensils have been found among the ruins of Herculaneum.

The application of glass to the glazing of windows is of comparatively modern introduction, at least in northern and western Europe. In 674 artists were brought to England from abroad to glaze the church windows at Weremouth, in Durlham; even in the year 1567 this mode of excluding cold from dwellings was confined to large establishments, and by no means universal even in them. An entry then made in the minutes of a survey of Alnwick Castle, the residence of the Duke of Northumberland, informs us that the glass casements were taken down during the absence of the family, to preserve them from accident. A century after that time the use of window-glass was so small in Scotland, that only the upper rooms in the royal palaces were furnished with it, the lower part having wooden shutters to admit or exclude the air. The earliest manufacture of flint-glass in England was begun in 1557, and the progress made in perfecting it was so slow, that it was not until near the close of the seventeenth century that this country was independent of foreigners for the supply of the common article of drinking-glasses. In 1673 some plate-glass was made at Lambeth, in works supported by the Duke of Buckingham, but which were soon abandoned. It was exactly one century later that the first establishment of magnitude for the production of plate-glass was formed in this country, under the title of "The Governor and Company of British Cast Plate-Glass Manufacturers." The members of this company subscribed an ample capital, and works upon a large scale were erected at Ravenhead, near Prescot, in Lancashire, which have been in constant and successful operation from that time to the present day.

At an early period of its history in this country the glass manufacture became an object of taxation, and duties were imposed by the 6 and 7 William and Mary, which acted so injuriously, that in the second year after the act was passed, one-half of the duty was taken off, and in the following year the whole was repealed. In 1746, when the manufacture had taken firmer root, an excise duty was again imposed, at the rate of one penny per pound on the materials used for making crown, plate, and flint-glass, and of one farthing per pound on those used for making bottles. In 1778 these rates were increased 50 per cent. upon crown and bottle-glass, and were doubled on flint and plate-glass. These rates were further advanced from time to time, in common with the duties upon most other objects of taxation, and in 1806 stood as follows:—On plate and flint-glass, 49s. per cwt.; on crown and German sheet-glass, 36s. 9d. per cwt.; on broad glass, 12s. 3d., and on common bottle-glass, 4s. 1d. per cwt. In 1813 those rates were doubled, and, with the exception of a modification in 1819 in favour of plate-glass, then reduced to £3 per cwt., were continued at that high rate until 1825. In that year a change was made in the mode of taking the duty on flint-glass, by charging it on the weight of the fluxed materials, instead of on the articles when made, a regulation which did not affect the rate of charge. In 1830, the rate on bottles was reduced from 8s. 2d. to 7s. per cwt. The only further alteration hitherto made in these duties

occurred in 1835, when, in consequence of the recommendation contained in the thirteenth report of the Commissioners of Excise Inquiry, the rate upon flint-glass was reduced two-thirds, leaving it at 2*d.* per pound, a measure which was rendered necessary by the encouragement given under the high duty to the illicit manufacture, which was carried on to such an extent as to oblige several regular manufacturers to relinquish the prosecution of their business.

Since the alteration in the tariff, the manufacture of glass in this country has received an immense extension, and in several branches of the art we have outstripped the foreigner, who a few years since maintained against us a flourishing competition. In the preparation of the raw material, with one or two exceptions, we occupy the highest place, and have acquired this advantage by our large capital, by our improved chemical knowledge, and by the indomitable energy of our character. Even the foreigner acknowledges our superiority in these respects, and in taste and colouring he also admits that we have made considerable progress. "For a long time," says M. Stephane Flachet, "England has excelled us in the manufacture of glass, especially crystal glass. The precise cause is not known; it does not appear in the mode of fusing the materials; more probably it may be attributed to the purity of the lead which they use. We know how poor France is in this important respect, having imported, for several years past, from fifteen to sixteen millions of kilogrammes of that metal, principally from Spain.

* * * * * The French glass is inferior to the English in point of colour, and changes much sooner when exposed to the air. Our manufacturers declare that this difference does not arise from an inferiority of workmanship, but from the limited means which we possess of purchasing the article, and which in a great measure may be attributed to the *minute division of the soil*. In order to reduce the price of glass to the condition of the purchaser, our manufacturers have recourse to an extra infusion of alkali, which, being slowly absorbed by the atmosphere, causes the glass to lose its transparency."

Glass may be regarded, generally speaking, as an admixture of three kinds of ingredients—silica, alkali, and a metallic oxide. The silica is the vitrifiable ingredient, the alkali is the flux, and the metallic oxide, besides acting as a flux, imparts certain qualities by which one kind of glass is distinguishable from another. If silica be exposed to the strongest heat it will resist fusion; but if it be mixed with an alkali, such as potash or soda, and the mixture be then submitted to the same temperature, a combination will ensue which takes the form of a liquid, and when cooled becomes transparent. The quality of glass mainly depends on the proportions in which the silicious matter and the alkali are combined, on the temperature to which they are exposed, and on the skill with which the entire process is performed. When a perfect combination of the materials is not secured, the glass is covered with dark spots or particles, and other inequalities, which are called *striae*. There are three kinds of glass in ordinary use—crown-glass, plate-glass, and flint-glass. The silicious sand, which forms the base of the manufacture of each, is principally derived from Alum Bay, in the Isle of Wight; from Lynn, in Norfolk; and from Aylesbury, in Buckinghamshire. The materials for flint-glass are nearly as follows:—One part of alkali, two parts of oxide of lead, three of sea-sand, and a small portion of the oxides of manganese and arsenic. The oxide of lead is employed as a powerful flux; it also imparts a great lustre to the metal, and causes it to be more ductile when in a semi-fluid state. The manganese renders the glass perfectly colourless. When these ingredients are mixed it is called the *batch*, and the mixture is generally of a salmon-coloured hue, the red tinge being given by the oxide of lead.

"Who," says Dr. Johnson, "when he first saw the sand or ashes by a casual intense-ness of heat melted into a metalline form, rugged with excrescences and clouded with

impurities, would have imagined that in this shapeless lump lay concealed so many conveniences of life as would, in time, constitute a great part of the happiness of the world? Yet by some such fortuitous liquefaction was mankind taught to procure a body at once in a high degree solid and transparent; which might admit the light of the sun, and exclude the violence of the wind; which might extend the sight of the philosopher to new ranges of existence, and charm him at one time with the unbounded extent of material creation, and at another with the endless subordination of animal life; and, what is of yet more importance, might supply the decays of nature, and succour old age with subsidiary sight. Thus was the first artificer in glass employed, though without his knowledge or expectation. He was facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the highest and most lasting pleasures: he was enabling the student to contemplate nature, and the beauty to behold herself." Owing to the injurious operation of the excise duty upon glass, as already stated—since happily abolished by Sir Robert Peel—the English manufacture was long inferior to the French for plate-glass, and to the Bohemians for coloured and ornamental glass. Since the exciseman was released from his attendance at the glass-house, the English have been gradually improving themselves in the manufacture of every variety of this beautiful article; adopting processes new to England, but which had been long in use in other countries, where the manufacturer was not impeded by the operation of impolitic laws. Among these new processes, that of the manufacture of plate-glass is one of the most interesting. When the Messrs. Chance, of Spon-lane, near Birmingham, took the contract for the supply of the large quantity required for the Crystal Palace, amounting to nearly 400 tons, they found it necessary to import a few foreign workmen, in consequence of a scarcity of English hands sufficiently skilled and experienced to complete the order within the time specified. The process of production is very simple and beautiful, but requires a steady and practised hand. When the requisite weight of "metal" is taken from the furnace by the blower, it is blown into a spherical form in the ordinary manner. It is then, after having been reheated in the furnace, swung above the head and below the feet of the workman, until it assumes the form of a cylinder. The workman stands upon a stage opposite the mouth of the furnace, with a pit or well beneath his feet, six or seven feet in depth. He swings and balances the molten metal—firmly affixed to a knob of glass at the end of a long iron bar, or blowing-tube—first above and then beneath him, until it gradually expands to the size which the original quantity of metal was estimated to produce. The slightest miscalculation of his power of swinging it, or deviation from the proper course, might dash the hot glass either against the side or end of the pit or well, or against the wall of the furnace—or, worse than all, against the body of a fellow-workman or of a spectator. No such accidents ever happen, though the stranger unaccustomed to the sight is for a while in momentary dread of some such result. When swung to the proper length, the cylinder is about four feet long, and twelve inches in diameter. The next operations are to convert it into a tube, by disconnecting it from the blowing-iron, and removing the bag-like extremity. These processes are performed by boys, with strings of red-hot glass, which easily cut through the yielding metal. The boys then take the tubes under their arms, and remove them to another part of the building, where they stand on end, like chimney-pots, to await the operation which shall convert them into flat sheets of glass. This is also very simple. The tube is cut down the middle, and in this state placed in the "flattening-kiln," where the moderate application of heat, aided by a gentle touch from the attendant workman, brings it flat upon a slab or stone. It is then gently rubbed, or smoothed, with a wooden implement, and passed into a cooler part of the kiln, where it soon hardens. It is then tilted on edge, and the manufacture is complete.

We offer no apology for the length to which we have extended the foregoing remarks. The subject to which they introduce us is unquestionably the most important of any connected with the history of the Great Exhibition, not only as respects the building itself, whose fairy structure owed its chief attraction to the surprising adaptation of so glittering and fragile a material to the combined purpose of lightness and solidity, but also in the vast variety of articles it contributed, useful alike to science, to the fine arts, and to domestic comfort and adornment. Indeed, it is quite certain that however we may be inclined to yield the palm to the foreigner for beauty of design and delicacy of workmanship in other branches of ornamental manufacture, the British workman need fear no competitor in the various applications of glass, that most beautiful of chemical combinations. The gallery devoted to the work of his hands glittered like a fairy palace, and was every day visited by increasing crowds, more particularly of strangers, who were all unqualified in their admiration. In noticing the articles in this class, the place of honour belonged of right to the Messrs Osler, whose far-famed Crystal Fountain was the gem of the transept, and won for itself a European celebrity.

The basin of concrete in which the fountain itself was placed, was some 24 feet in diameter, and afforded a goodly surface for the falling spray. The structure of glass stood 27 feet high, and was formed of columns of glass raised in tiers, the main tier supporting a basin from which jets of water could be made to project, in addition to the main jet at the top. As the structure arose it tapered upward in good proportion, the whole being firm and compact in appearance, and presenting almost a solidity of aspect unusual with glass structures. A central shaft with a slightly "lipped" orifice finished the whole, and from this the water issued in a broad well-spread jet, forming in its descent a lily-like flower before separating into a spray, which in the sun-light glittered and sparkled in harmony with the fountain itself. Altogether this was a unique and magnificent work, and many difficulties of construction had to be overcome before the structure presented itself in its perfect form. The principal shaft was strengthened by means of a rod of iron passing through it, but concealed from observation by the refracting properties of the glass. Upwards of four tons of crystal glass were used in the construction of this fountain. The principal dish was upwards of eight feet in diameter, and weighed previous to cutting nearly a ton. The shafts round the base weighed nearly 50 lbs. each previous to cutting.

The same firm also exhibited a magnificent pair of candelabra, in richly cut glass, each to hold fifteen lights, and standing eight feet high. Her Majesty was the purchaser of these truly regal ornaments, and it was by her gracious permission they were exhibited. The other contents of Messrs. Osler's case were, a large crystal candelabrum, supported by three griffins in dead or frosted glass, the figures of which struck us as being well executed, considering the material; some richly mounted lustres; and several portraits in frosted glass, including those of her Majesty, Prince Albert, and some of the national literary and political celebrities. The collection was handsomely arranged in a large glass case, and afforded every facility for inspection. Next in rotation, but second to none in excellence or beauty, came the beautiful specimens of Mr. Apsley Pellatt. This gentleman, not contented with carrying on his manufacture merely as a trade, has devoted much time and attention to vitreous chemistry, and to the history of glass from the time of its apocryphal origin on the coast of Syria down to the palmy period of Venetian art, and thence to the processes and discoveries of the present day. The results were the beautiful Anglo-Venetian services in gilt glass, which had all the fragile delicacy of form so much prized by connoisseurs—whether they have the imputed quality of detecting poison is a question which it is happily not necessary to discuss at the present day. Mr. Pellatt also made a bold attempt at restoring the lost Venetian art of frosting glass,

and certainly the articles exhibited had a wonderful resemblance to ice, the thing intended to be represented. A curious feature in this collection was what the manufacturer called the "Koh-i-Noor," consisting of several lumps of the purest flint glass, cut diamond-wise, and quite rivalling in brilliancy the two million original down stairs. We are certain that if the largest of these specimens had been placed on the velvet cushion, surrounded by an iron railing, and attended by a reverential policeman, it would have received a much larger meed of public wonder and approbation than the real eastern gem. As a specimen, however, of the purest and most beautifully cut flint glass, it afforded an excellent opportunity for observing the difference between that material and the true diamond. It had the advantage of the gem in entire absence of colour, and produced the prismatic changes with nearly equal effect. But it was deficient in specific gravity, and in that wondrous power of radiating light which gives to the diamond its value, and is its unique peculiarity. The mode of cutting these specimens proved the workmen to be first-rate lapidaries. The other prominent feature in this collection was a magnificent centre chandelier in highly refractive cut glass, which glittered like the valley of diamonds. It was of graceful and original design, and the purity of the glass might at once be detected by contrast with other specimens in the neighbourhood. This magnificent ornament was 24 feet high, and adapted for 80 lights. It was a prominent feature in the Exhibition, being easily seen from the nave below, and reflecting the sun's rays (on fine days) with extraordinary brilliancy. There were other chandeliers in coloured glass, in what the manufacturer pleased to call the Alhambraic style; but the taste of these was questionable, at least in our opinion, and rather marred the effect of the chandeliers, which were constructed solely with a view to prismatic effects. The remainder of the collection consisted of Etruscan vases ornamented with fine and delicate engraving, some carved incrustations, and numerous articles of lesser importance, but all affording ample reward for a lengthened inspection. Bacchus (Birmingham) appropriately employed himself in the fabrication of wine-cups, glasses, and decanters, in coloured and cased glass. The collection was not large, but well designed and executed. A flower-stand, with vase and cornucopia, had a very pretty effect. The delicate twisted stems of the champagne glasses were novel and chaste, but we fear for their continuity after the third "fire." Harris and Son, of Birmingham, exhibited a large collection of coloured glass, adapted to the various uses of the table. Fine effects of colour were here produced, and many of the shapes possessed novelty and grace. The articles exhibited by these and other manufacturers in coloured glass would seem to intimate that the Bohemians are not long to enjoy their monopoly. Specimens of the beautiful silvered glass lately become so fashionable, and which has formed so ornamental a feature at various public banquets, were exhibited by Messrs. Varnish, of Berners-street. The silvered globes were already familiar to the public, but there were various other articles, such as a chess-table, goblets, curtain-poles, &c., which showed the great adaptability of the material to ornamental purposes. Perry and Co. (New Bond-street), had an immense chandelier for 144 candles, of most elaborate workmanship. The design, however, is rather confused, and the quality of the glass does not appear so pure as is the case with Mr. Pellat's chandeliers. Perhaps it wanted cleaning, as the intricacy of the pattern afforded innumerable receptacles for dust; but, whatever may be the cause, it looked rather dull beside its more brilliant neighbours. There were various smaller collections of glass, among which good taste and good workmanship were generally discernible. There was not, however, sufficient variety to require particular notice. Messrs. Chance and Co., who supplied the glass for the Exhibition building, were also exhibitors of an article which, until the removal of the duty, was scarcely ever attempted in this country. One of the specimens of dioptric

apparatus for light-houses, in the western nave, was from their manufactory; the other was constructed by Mr. Wilkins, of Long-aere, for the Trinity Board. This optical apparatus was itself a distinguishing feature of our improvement in glass manufacture. Hitherto all the lenses of this order had been supplied from the Continent. The light-houses on our own shores could only be rendered effective by the use of French and German glass. Here we had, however, the most interesting proof that we can make these beautifully arranged lenses and catadioptric zones for ourselves. Fresnel claims the merit of this last improvement, by which a total reflection of all the light is effected; but at the same time it must not be forgotten that the experiments and suggestions of Sir David Brewster, during the investigation of the commissioners appointed to report on the northern light-houses, were the starting point of the inductive process from which this final deduction was derived. Messrs. Apsley Pellatt and Co. exhibited all the materials employed in the manufacture of flint glass, together with models of the glass-house furnaces, and examples of the purest crystal, particularly as employed for candelabra and chandeliers.

The exhibition of these various objects sufficiently proved the perfection of this branch of manufacture. It is not merely in its transparency and in its freedom from colour that the beauty of flint glass, or crystal, consists—it is in the diamond-like property of sending back the rays to the eye in greater brilliancy than it receives them; and in this respect much of that which was shown in the Exhibition was very perfect. The English were not formerly successful in giving colour to their glass; there was always a want of that brightness which distinguished the works of the Germans, and particularly of the Bohemians. The colours are given in nearly all cases by metallic oxides, and these vary not merely in tint, but actually in colour, by the quantity of heat to which the fused mixture is exposed. In the Bohemian glass, a ruby, in particular, was produced of far greater beauty than anything which our manufacturers could accomplish. This colour is due to oxide of gold, although reds of much brilliancy can be produced by copper, and also by iron. Some examples of the reds produced by these metals were found amongst the productions of British exhibitors; and upon examining the examples of Bohemian glass, it became apparent that we can now produce glass in every respect as brilliant and as intense in colour as that which has rendered our continental friends so long celebrated. In the articles exhibited by Mr. Varnish and Mr. Mellish, these colours were well shown. Most of the glass exhibited by them was manufactured by Messrs. Powell and Co., Whitefriars, and this itself presented a noticeable peculiarity. All the glass was double, the object of this being to enable the patentees to fill the inside with a solution of nitrate of silver, to which grape sugar was added, when all the silver held in solution was deposited in a beautiful film of revived silver over every part of the glass. This *silvering* on the interior wall of the glass (globes, vases, and numerous other articles were shown to be susceptible of the process) has the property of reflecting back through the glass all the light which falls on the surface—whereas ordinarily some is transmitted, and only a small portion reflected. This exalts many of the colours in a striking manner, and not only does it exalt the colours, but the dichromism of the glass is curiously displayed. Much of the red and yellow glass thus assumes an opalescent tinge of blue, which, in some examples, is not unpleasing. We greatly admired some of the coloured examples of this process, but we cannot think that the pure white glass—the beauty of which is its transparency—is in any respect improved by silvering.

The illustrations of engraving on glass were numerous, and many of them exceedingly beautiful. We particularly admired some of the specimens by Mr. Kidd of his new process of illuminating, embroidering, and silvering flat surfaces. All the designs were

cut on the under face of the glass, and then being silvered, were thrown up in a very pleasing manner, producing an optical deception of an interesting character. In many of the engraved specimens we had the very beautiful effect of cutting through several surfaces of coloured glass, down to the translucent body. The opaque glass coating, which may be produced either by mixing oxide of tin or arsenic with the glass, is first laid over the crystal; then on this is applied the ruby glass, and where the ruby has been produced by gold the result is most satisfactory. These being cut through, present the three surfaces in any way which may be decided on by the artist. Rice Harris and Son's pressed glass was of the greatest interest. By pressing into moulds, this elegant material is produced to the public in useful and symmetrical forms, at prices considerably below those at which cut flint glass could possibly be offered. Many of the specimens of pressed glass exhibited, had a degree of sharpness in all the ornamental parts, which rendered it difficult, without a close examination, to say whether or not they had been subjected to the operation of the glass-cutter's wheel. Among other new applications of this process of pressing glass into form, Messrs. Powell and Sons, of the Whitefriars Glass-works, exhibited their patent pressed glass for windows. There is much novelty and ingenuity in this. The pattern is pressed in the glass, and then, by a subsequent process, glass of another colour is flowed into it; the whole is then ground down to a uniform surface, and the result is an inlaid pattern of glass of one colour, in glass of another. The windows formed in this manner were very effective; and it appeared to us that they realized the results which in stained glass are only obtained by the long-continued action of the atmosphere and light. None of our modern church windows realised that "dim religious light" which is peculiar to those older fanes standing as memorials of the piety of our forefathers. The light permeating the modern windows suffers ordinary chromatic analysis, and falls upon the floor in well-defined colour, and the outline of the design can be easily traced. In those of olden time the colours fall blended; there is a general diffusion of tones, no one colour coming out more decidedly than another. Upon examining old glass windows it will be found that the utmost pains had been taken to secure this effect; the glass is often purposely roughened; frequently pieces of different colours are blended; but still the action of time and the abrasion of the exposed surface is the important agent to which the harmonious effect is due. Messrs. Hardman and Co. have had glass manufactured purposely to endeavour to imitate the required condition of the mediæval styles, and in many of their windows they have been eminently successful. The antiquity of pressed glass is very remarkable. The Assyrians, the Egyptians, the Greeks, and the Romans, all adopted the process of pressing or squeezing the glass, when it was in a pasty state, into moulds. Some fine examples of this will be found amongst the glass series in the Museum of Practical Geology. The examples of plate-glass were exceedingly good. The Thames Plate Glass-works exhibited at the western end of the building the largest plate glass hitherto manufactured. The examples of British plate which were found in the Spitalfields trophy were beautiful specimens of this class of manufacture. On the whole, the glass manufacture of the Exhibition—commencing with the sands, alkalies, and models, and terminating with the great Glass Palace itself, and its fancy fountain—was exceedingly complete, and of the highest interest.

CHAPTER XIV.

PRECIOUS STONES—MR. HOPE'S COLLECTION—THE DIAMOND, SAPPHIRE, EMERALD, GARNET, ETC.
—QUEEN OF SPAIN'S JEWELS—THE JEWELLED HAWK—PEARLS.

THE high estimation that in all ages has been bestowed upon jewels and precious stones, is perhaps sufficiently to be accounted for, when we take into consideration their essential qualities of light, and colour, and durability; and the correspondence which, in consequence of these valuable attributes, they possess with respect to the more elevated principles in the world of mind. Frequent mention is made of them in Holy Writ, from the breast-plate of Aaron described by Moses, to the sublime account in the Apocalypse of the wonders of the Holy City, its shining courts, and its gates of pearl, in all which description there is doubtless involved some mystic meaning connected with the future glorious destiny of the church, not obviously apparent to the merely superficial or general reader. In the world of poetry, too, constant recurrence is made to the different qualities of precious stones, and their reference to various physical endowments. Mental acuteness, and brilliancy of imagination, are invariably likened to the radiance of the diamond, whilst constancy and truth are equally represented in its unchangeableness and its durability. What can be more appropriate or beautiful than the lines of Collins, where, in illustration of the playfulness of wit and repartee, in one of the characters in his Ode to Music, he says—

“The jewels in whose crisped hair
Were placed each other's beams to share.”

And with respect to personal beauty, who among all the votaries of Apollo ever neglected, in speaking of the brilliancy of his mistress's eyes, to compare them to the lustre of the diamond, her teeth to orient pearl, or her lips or her cheeks to the glowing ruby? The treasures of the secret mine have indeed been an inexhaustible source of comparison and metaphor, from the days of old Anacreon to those of his great rival and imitator, of Hibernian celebrity. Pliny, and other early writers on the subject of gems, attributed various occult qualities and miraculous powers to precious stones in general; they were also supposed to possess rare medicinal qualities, an opinion sanctioned by our own great philosopher Boyle, in whose time were to be found in the *Materia Medica* such compositions as the *Electuarium e Gemmis, Confectio de Hyacinthis, &c.*, with which the more opulent of our forefathers endeavoured to ward off the stroke of death. The diamond more particularly enjoyed a high repute for these and other hidden virtues; it was considered as an infallible specific in many diseases, and a test of conjugal fidelity, a reconciler of domestic strife, and an amulet of highest power against poisons, insanity, witchcraft, incantations, nocturnal goblins, and evil spirits.

Never before in the history of the world was there so large a collection of valuable gems and exquisite specimens of the lapidary's art collected in one building as was exhibited in the Crystal Palace. The Exhibition contained the finest diamond, the finest ruby, and the finest emerald known to the world. For a sight of a single one of these stones an adventurous voyager traversed enormous distances two centuries ago, and by dint of extraordinary influence, audacity, and fortune, was enabled to record himself as the only European who had ever succeeded in the attempt. That stone was lately placed in Hyde Park, and might have been seen by any working man in the country for a shilling. The richest collection of treasures ever known was formerly to be found at Dresden. Its existence was due to a singular succession of wealthy and acquisitive

princes, in an age which favoured such fancies; its preservation, to an impregnable fortress within a few miles of the capital. It was deposited with extreme care in the vaults of the royal palace, and was only to be seen on the payment of a considerable fee, and after compliance with stringent conditions. Travellers and travellers' guides were full of the magnificence of these "Green Vaults," of the matchless splendour of their contents, and the unparalleled cost of their ornaments. Yet, if the "Green Vaults" could have been transferred bodily to Hyde Park, they would not have constituted either the richest or the most curious of the hundred compartments of the Crystal Palace. In objects of historical interest they would, of course, surpass what professed to be an exhibition of modern industry alone; but in singularity and value the collection would be altogether excelled by the contributions around it. Of the splendid and unpurchaseable diamond called the "Mountain of Light" we have spoken in a former chapter.

A most valuable and interesting addition had been made to the department of gems and precious stones in the Exhibition, by Mr. A. J. B. Hope, M.P., who deposited therein a portion of his valuable collection. They were placed upon a pedestal firmly secured to the floor, and covered with a circular iron frame, made by Mr. Chubb, similar in form to that which contained the priceless Koh-i-Noor. In this collection of Mr. Hope was the largest known pearl in the world; its length was 2 inches, its circumference $4\frac{1}{2}$ inches, and its weight 3 ounces, or 1,800 grains. Near this splendid specimen was placed a very beautiful Hungarian opal $1\frac{1}{8}$ inch in length, by $1\frac{3}{8}$ in breadth. A third specimen was the handle of the favourite weapon of Murat's, "the handsome swordsman," the hilt of which was formed of a single beryl or aquamarine. A rough beryl deposited near it showed its original condition. "Le Saphir Merveilleux"—a sapphire of an amethystine colour by candle-light—was viewed with interest by every admirer of the delightful productions of Madame de Genlis, one of whose most charming tales is founded upon this very stone, which was formerly in the possession of Philippe Egalité; with many other specimens of equal interest.

Among the minerals employed for personal decoration, the diamond evidently occupies the most prominent position, both on account of the beauty of the gem itself, and also because of its immense commercial value. The diamond, like charcoal, is composed of carbon; and, in a chemical point of view, differs from it only in being perfectly free from traces of the earthy and other impurities with which the latter substance, even when most carefully prepared, is to a considerable extent contaminated. This mineral, although principally used in ornamental jewellery, is likewise applicable to many other purposes; in consequence of its extreme hardness it is now extensively employed for making the pivot-holes of the better description of watches; it has also been used in the formation of holes through which very fine metallic wires are drawn, besides furnishing the only convenient tool which can be employed for cutting glass.

The countries in which this gem has been as yet discovered are far from numerous, the only localities in which it is found being the Indian peninsula, Brazil, the island of Borneo, and Siberia, on the western side of the Ural mountains. Its geological position appears to be among diluvial gravel and conglomerate rocks or pudding-stone, consisting chiefly of rolled flint pebbles and ferruginous sand. India has from the most remote ages been celebrated for the beauty and magnitude of its diamonds, the largest and most valuable of which are obtained from the mines in the provinces of Golconda and Visapoor. The tract of country producing these gems extends from Cape Comorin to Bengal, and lies at the foot of a chain of mountains called the Orixia, which appear to belong to the trap-rock formation. The diamonds obtained from even the richest localities are rarely procured by directly searching the strata in which they are found, since they are commonly so coated with an earthy crust on the outside, as not to be

readily distinguishable from the various other substances with which they are associated. For this reason the stony matter is first broken into fragments, and then washed in basins for the purpose of separating the loose earth; after which the residual gravel is spread out on a level piece of ground, where it is allowed to dry, and where the diamonds are recognised from their sparkling in the sun—thus enabling the miners readily to discriminate between them and the stony matters with which they are associated.

Among the other minerals much prized by the jeweller, many specimens of which were found in the Crystal Palace, may be mentioned the sapphire, which, when perfectly transparent and of a good colour, is as highly esteemed as the diamond. This gem is almost entirely composed of alumina, the various colours of different individual specimens being occasioned by extremely minute admixtures of the metallic oxides. Those having a blue colour are known as Oriental sapphires, whilst others not having the same oxides in combination are differently coloured, and consequently receive various distinctive names. When red, they are called Oriental rubies; when yellow, Oriental topazes; when violet, Oriental amethysts; and when they are hair-brown, adamantine spar. The finest blue specimens of this gem have been procured from Ceylon. The most esteemed red varieties come from the Capelan mountains, in the kingdom of Ava; and the smaller stones of the same kind are occasionally met with in Saxony, Bohemia, and Auvergne. Amethysts are principally brought from the Carnatic, on the Malabar coast, and elsewhere in the East Indies.

The emerald is a precious stone of a beautiful green colour, valued next to the diamond, and in the same rank as the Oriental ruby and sapphire. It occurs crystallized in regular six-sided prisms, and has a specific gravity of 2.70. In composition this gem may be considered as a double silicate of alumina and glucina, mixed with variable small portions of iron and a little lime.

The garnet is a vitreous mineral belonging to the cubic system, and of which the predominating form is the rhomboidal dodecahedron. Its constituents are silica, alumina, lime, and protoxide of iron. It is usually found disseminated in the primitive formations, and frequently occurs in gneiss and clay-slate. Garnets are abundantly met with in many parts of Europe, particularly in Germany; but those of Pegu are the most esteemed. Quartz, or silicic acid in a crystalline form, is also frequently cut for ornamental purposes, and, when limpid and entirely free from flaws, is a very beautiful stone. When existing in the form of calcedony, and variously coloured by metallic oxides, the substance receives the name of cat's-eye, plasma, chrysoprase, onyx, sardonyx, &c. It has a vitreous lustre, a conchoidal fracture, and a specific gravity of 2.69. The chrysolite, called "peridot" by Haüy, and the French mineralogists, is probably the topaz of the ancients. It is the softest of the precious stones, being scratched by the file or a fragment of quartz. Among the numerous examples of this mineral, as adapted for ornamental purposes, may be mentioned various very beautiful stones from Cairngoram, in Aberdeenshire, both cut and in the natural state. A case containing some specimens of peculiar brilliancy was exhibited by Mr. Jamieson, of Aberdeen, near the western extremity of the space allotted to mineral productions. Some fine specimens in their natural state were to be seen in the Highland stall of Mr. M'Dougall, in the gallery on the south side of the transept. Opal, or unclavable quartz, has a conchoidal fracture, with a resinous or vitreous lustre, accompanied by a strong play of colours. It occurs in kidney-shaped or stalactitic concretions, and has a specific gravity of 2.091. Hungary was long the only locality of precious opal, where it occurs in connexion with common opal in a sort of porphyritic formation. Lately, however, some very fine specimens of this substance have been discovered in the Faroe Islands; and most beautiful ones, sometimes quite transparent, are obtained near Gracias a Dias, in the province

of Honduras, in America. The red, yellow, and other coloured varieties of opal, are chiefly found near Limapan, in Mexico. In modern times, fine opals of moderate dimensions have frequently been sold at prices nearly equal to those obtained for diamonds of the same bulk. They are especially esteemed by the Turks, and are usually cut into a convex shape. The value set on this stone by the ancients appears to have been very extraordinary, as Nonius, the Roman senator, preferred banishment to parting with his favourite opal, which was coveted by Mark Antony.

The turquoise, or calaite, is a massive mineral found only in the neighbourhood of Nichabour, in Persia, and is highly prized as an ornamental stone in that country. Its colour is greenish-blue, but those varieties are most esteemed in which the blue predominates. It is composed of alumina, oxide of copper, oxide of iron, and phosphoric acid, and has a specific gravity varying from 2.83 to 3.00. There is also another totally different variety of this substance, known by the name of bone turquoise, which appears a phosphate of lime more or less coloured with phosphate of copper. Malachite, or green carbonate of copper, is also frequently used for personal decoration; numerous specimens were to be found in the Russian department, worked up into a variety of splendid objects. Besides the Hope Jewels, already noticed, there was a magnificent display belonging to the Queen of Spain, exhibited by M. Lemonniere, of Paris, consisting principally of diamonds, pearls, rubies, and emeralds, the diamonds greatly preponderating. They were, perhaps, the best specimens of well-set gems that were exhibited. In point of radiance and gorgeousness, however, the "Diamond and Ruby Stomacher" by Morel, was a powerful rival to the most splendid of all these costly adornments—a truly sumptuous production, upon which the jewellery trade of England might be bold to stake its reputation in the face of the world. It was originally intended and designed as a bouquet, but was equally, perhaps more appropriately, available as a stomacher; moreover, it was so constructed as to separate into several distinct pieces of jewellery, according to requirement. The diamonds were all of the finest water, and the rubies were described as "a unique collection." The setting was contrived with springs, resulting in a waving or slightly oscillating motion when in use, which displayed to the fullest extent the brilliant colours of the stones. Messrs. Hunt and Roskell were large contributors to the splendours of this department. The principal and all-attractive object among the various treasures they exhibited was a magnificent diamond bouquet, a perfect specimen of the art of diamond setting. The flowers (comprising the anemone, rose, carnation, &c.) were all modelled from nature. This brilliant structure was divided into seven different sprigs, each perfect in design; and the complicated flowers, by mechanical contrivances, were so arranged as to separate for the purpose of effectual cleaning. In the production of this costly work nearly 6,000 diamonds were employed, the largest of which weighed upwards of ten carats, whilst some of the smallest, in the stamens of the flowers, did not exceed the thousandth part of a carat. We also observed from the same party an ornament for the head, composed of branch coral, ornamented by leaves of enamel and gold, enriched with diamonds, a very elegant production, of chaste effect. There were also several brooches, bracelets, and other ornaments, enriched with diamonds and other precious stones, not the least curious amongst which were some specimens of ear-rings in emeralds, diamonds, carbuncles, &c., after the sculptures from Nineveh. Messrs. Paravagna and Casella, from Genoa, also sent a variety of ornaments of the same material. We may here remark that red coral has, from time immemorial, been used in jewellery, in all parts of the world, in beads, brooches, drops, bracelets, charms, studs, and fancy contrivances. The price varies from one shilling up to £5 and £20 per ounce. The best colours are considered a bright red or pale pink: the latter is most scarce. We must not confound with this substance

the coral reefs found by mariners, as they are nothing but a spongy white rock, having no analogy whatever with the real red coral. The fishery of the real coral is carried on in the Mediterranean Sea. The largest samples are taken along the Barbary coast, but not the darkest colours. Along the coast of Spain a considerable quantity is taken annually, of a deep red colour, but sometimes rather wormy. The pink and deepest red, but in comparatively small branches, are taken in the Straits of Bonifacio, between Corsica and Sardinia. The amount annually taken varies from £100,000 to £200,000, the principal stations for the fishing-smacks being La Torre del Greco, near Naples; Leghorn; and Santa Margherita, near Genoa. This article is supposed to give employment to from 10,000 to 20,000 hands.

Not, however, to weary our readers with too lengthened an account of these "glittering gauds," we shall for the present close our caskets of diamonds with a brief notice of the Jewelled Hawk, the property of the Duke of Devonshire, in the Netherlands department, whose history is not without interest. It rejoiced in a name proper, being the "Knyp-hausen Hawk," and was made, many a long year ago, to commemorate the reconciliation of two noble Dutch families which had been long at variance. It contained within its gay plumage the identical gold drinking-cup which was used by the rival counts upon the auspicious day of their reconciliation, and which was discovered upon removing the head of the bird. The wings and body were chiefly covered with rubies; turquoises, emeralds, and other precious stones, were displayed in other parts. The bird stood about a foot high, more or less, and had a very stately appearance. We must now be allowed to make a few remarks upon pearls, since, although they cannot exactly be classed among precious stones, they must still be included under the head of "jewels;" indeed without them the richest casket on the toilet of the duchess would be considered as incomplete. We shall on this head avail ourselves of the following observations of an able contemporary in the pages of the *Westminster Review*. And first, with respect to mother-of-pearl. "The brilliant lustre and gleaming iridescence of its shelly envelope are not always destined to remain hidden in the depths of the ocean, or immured within mountains of rock. The painted savage appreciates its pearly charms, and plunges beneath the waves to seek the living joints of his simple necklace and armlets, or to supply his civilized brother with highly-prized materials for more elaborate ornaments. Mother-of-pearl, as it is called, is the nacreous portion of the shells of certain molluscs belonging to very different orders. Its charming colouring is not due to pigments, but caused by the arrangements of the layers of membrane and solid matter of which it is composed. The nacreous shells which furnish it are now sought for greedily wherever they can be obtained in sufficient quantity, and form articles of considerable import. From our own seas, or rather from the sea around the Channel Isles, we procure the *Haliotis*, or sea-ear, to use in the decorations of papier-maché work, and other and larger kinds of the same curious genus are brought from the shores and islands of the Pacific Ocean for the same purpose. They furnish the deep-coloured and richer-tinted dark-green and purple mother-of-pearl; the brighter and paler kinds are derived from the shells of the pearl-oysters, almost all inhabitants of tropical regions. The nacre of pearls themselves is identical with the substance of these shells. These jewels of animal origin, so highly prized for their chaste beauty, are only the rejected or superabundant secretions of a shell-fish, consisting of concentrically-disposed layers of animal matter and carbonate of lime. In most instances they are consequences of the attempts of irritated and uneasy molluscs to make the best of an unavoidable evil; for, rendered uncomfortable, their peace of mind and ease of body destroyed by some intruding and extraneous substance—a grain of sand perchance, or atom of splintered shell—the creature incloses its torturing annoyance in a smooth-coated sphere of gem-like beauty. Would that

we bipeds could treat our troubles so philosophically, and convert our secret cankers into sparkling treasures!"

Shakspeare has observed that—

"To gild refined gold, to paint the lily,
To throw a perfume on the violet,
Were wasteful and ridiculous excess,"

and we might equally suppose that any attempt to impart an additional value to the priceless commodities we have been describing in the present chapter would be just as hopeless and unavailing. Nevertheless the hand of Art has not laboured upon them in vain. Engraved gems are among the most valued treasures in royal and national museums. "Gems," says Hartley Coleridge, "always remind me of the enchanted rings and amulets of romances, of Gyges, and the Barmecides, and those marvellous crystals in whose translucent water necromancers beheld the face of things that are to be."

The earliest mention of engraving upon stones, as of carved figures, is to be found in Holy Writ. We are told, in the Book of Genesis, that Judah gave his signet and his bracelets to Tamar, and that Pharaoh took his signet-ring from off his own hand and put it on that of Joseph. We are also informed in Exodus, that Moses was commanded to engrave the names of the children of Israel on two onyx stones, "with the work of an engraver in stone, like the engravings of a signet." To the Egyptians, who loaded their obelisks, the columns and walls of their palaces, temples, and tombs, with figures and hieroglyphic characters, the transition from tracing them on metals and precious stones was natural and easy. Their favourite productions in their commencement of this branch of art were stones cut in the form of the scarabeus, an insect venerated by them as the symbol of the sun, the principle of reproduction of all things, with attributes of their gods or heroes engraved upon the back. They regarded these stones as preservatives against disease and mischance; ornamented them with the images of their divinities, and the garments of their priests; bestowed them as marks of honour upon the living, and endeavoured to impart their beneficial influence even to the dead, by placing them upon their bodies in the tomb. After the Egyptians, we must look to the Etruscans for engraved gems; in which, as in sculpture, their first efforts were rude and stiff, as those of their predecessors. It is not however with the early efforts of this exquisite branch of art that we wish to detain our readers; we would rather introduce it at once to them as it existed in Greece at the same period when all the other arts attained their full perfection, that is to say, in the time of Alexander the Great. The Greeks paid equal attention to the minute as to the colossal. Size was no criterion to them, in their scale of excellence; and, as in the world of nature, the wisdom and goodness of the Deity are as evident in the organization of an ant as in that of an elephant, so in the world of art they could display as much grandeur of thought and purity of design within the circle of a ring, as in the decoration of their majestic temples, and stately porticoes. Hence it is that their engraved gems are still and ever will be considered as among the choicest treasures of antiquity. In them are presented to us every subject of god and hero, allegory, and emblem; religious, historical, poetical, or mystical, that comes within observation or tradition; to them the most precious stones, the emerald, the ruby, the amethyst, the chalcodon, the cornelian, the topaz, were consecrated; and in them, as Pliny admirably says, "we see nature in all her majesty, condensed within narrow compass."—*Hic in unum coacta rerum nature majestas.*

Were it possible to collect in one cabinet a complete series of ancient gems, we should possess in fairy editions an entire and most comprehensive library of materials for the history of every thing connected with Greece and Rome, in their "most high and palmy

state;" no wonder, then, that those which have actually come down to us should afford an incessant subject of inexhaustible gratification to the poet and the artist, the historian and the philosopher.

The earliest Greek engraver of precious stones, whose name has been recorded, is Theodorus of Samos, who flourished 750 B.C. He engraved for Polyerates, tyrant of Samos, a lyre for his signet ring, upon an emerald of such value that it was deemed by its owner a fit offering to the marine deities, to propitiate the evils that he feared might be in store for him, to counterbalance the unmixed good fortune of his life up to that period. Accordingly, he threw it into the sea, as we are told by Herodotus; but according to that same graphic historian, he was not to be deprived of any thing he possessed; for lo! on sitting down to table, when a fish of extraordinary size and superior quality was served up to him, he beheld again in its stomach his own identical ring, which it had caught from his hand upon the surface of the wave. The art of engraving upon gems was carried, as we have already remarked, to the highest perfection among the Greeks at the same time that they attained their utmost excellence in sculpture. The first devices upon them were simple, consisting of some single object, as the lyre, in the ring of Polyerates; or an animal, as the lion, which was worn by Pompey in a ring, out of compliment to Hercules, with whom he loved to claim affinity. But they soon came into request for portraits, of which the Greeks, as well as the Romans, were passionately fond, insomuch that few families of note were without statues of their relatives and friends. Alexander the Great was so exclusive on this point, that he allowed only one sculptor, Lysippus, to mould his statue; one painter, Apelles, to paint his portrait; and one engraver, Pryrgoteles, to engrave his likeness. One of the most important features, however, connected with engraved gems, was the beautiful moral lessons inculcated in the mythological subjects they continually present—subjects in which modern eyes seldom discern anything beyond the mere outline of some fabulous incident, of which they retain an imperfect recollection from their school days' learning; but to the mental view of those who looked deeper into them, they revealed truths equally beneficial for practice as for meditation. How, for instance, could an exhortation to temperance be given more pleasingly than it is conveyed in a fine sardonyx in the Orleans collection, showing the youthful Bacchus dancing hand-in-hand with three water-nymphs, in illustration of the caution observed by the wiser Greeks, the anti-Anaereonites, to mix three parts water with their wine, prettily alluded to by Eneus in an epigram thus rendered by Merrivale:—

" 'Tis young Bacchus' chiefest pleasure
To move with Naiads three, in linked measure,
'Tis then he is good company
For sports, and loves, and decent jollity;
But when alone, avoid his breath!
He breathes not love but sleep—a sleep like death."

But it would far exceed our limits to enter upon even the briefest view of half the interesting subjects and their important meanings, that are to be found in the engraved gems of Greece. Such was the magnificence and taste of the ancients, that they not only employed engraved gems for seals, rings, braeclets, armlets, ear-rings, necklaces, buckles, clasps and girdles, but ornamented their robes, and even their sandals with them. Nor did the warrior disdain to place them in his helmet, breast-plate, and buckler, the hilt and scabbard of his sword, nay, upon his saddle also and the trappings of his horse. Thousands and thousands of intaglios and cameos were set in the gold and silver cups, vases, and plates, which the rich and luxurious consecrated as ornaments of their sideboards, or which pride or bigotry deposited in the temples of their

divinities. With a similar profusion, even large cups, goblets, vases, and urns were made of solid onyx, sardonyx, and rock crystal, externally ornamented with relief work by great and eminent masters. Calculation is astounded at the enormous expense and the immense time and labour that must have been bestowed upon this branch of art. Some idea of it, though a very inadequate one, might have been formed, by the examination of a small cup of rock-crystal in the Crystal Palace, the setting of which, we were informed, had cost three hundred pounds; though undoubtedly the materials of which that setting is composed fall far below in actual value that of many of the *tazze*, which may be seen in the British Museum. The art of engraving on precious stones gradually declined among the Romans from the time of Augustus to the beginning of the seventh century, when it disappeared entirely in the long night of barbarity and ignorance, justly designated by the appropriate term of the dark ages.

Michael Angelo, Raphael, the Carraccis, Poussin, and other celebrated painters, have borrowed largely from the gems of Greece: the sculptors the same. Some of Gibson's finest productions—and where can finer be found?—have originated in the ideas they have suggested to him. The Amazon defending her horse from the attack of a ferocious tiger, by Kiss, of Berlin, so much admired in the Crystal Palace, was taken from an antique gem; and the veiled figures of Tuscan (we will not say Austrian) workmanship, which excited equal wonder and admiration, were probably suggested by the exquisite gem by Tryphon, of the marriage of Cupid and Psyche, wherein the bridal pair are represented linked together by a chain of pearls, and covered with the nuptial veil, through which their features are seen in all the beauty of youth and innocence—a masterpiece of art, of which no imitation is to be found, save in the half-veiled head of Ptolemy Auletes, on a gem in the Orleans collection, and that of the Empress Sabina on another, formerly in the Crispi collection, at Ferrara. The art began to revive, however, in the fifteenth century, and its present state, in the skilful hands of such an artist as Girometti, of Rome, warrants us in the assertion that, although neglected for so long a period, it now bids fair to emulate the high and well-merited reputation it anciently enjoyed. The artist we have just mentioned, we are informed, had prepared a magnificent sample of his skill for the late Great Exhibition; the difficulty, however, of finding a safe conveyance for so precious a gem, and his being prevented from visiting our shores himself, proved, unfortunately for the lovers of art, insurmountable obstacles to his design. We have hitherto chiefly spoken of the art of cutting subjects on gems in *intaglio*, or indenting, a simpler and easier process than relieving the work from a ground; we will now make a few remarks upon the more elaborate mode of *relievo*, or relief. There has been much unsatisfactory discussion respecting the origin and exact meaning of the word *cameo*, or *cameieu*, as it is sometimes written. In the language of art, it is usually applied to gems or stones, and latterly to shells, that are worked in relief; and strictly speaking, it refers to such stones only as have strata or grounds of different colours. It is impossible to describe works of this sort, containing so much fine detail, with sufficient accuracy to convey a just idea of their merits. They must be seen, and examined with care, to be properly appreciated; but it will not be amiss to notice a few of the most celebrated camei that are preserved in the museums of Europe. One of the finest is the Apotheosis of Augustus, in the collection at Vienna. It represents Augustus, his wife Livia, as Rome, accompanied by her family, with Neptune and Cybele; another is of an Imperial Eagle; also a Ptolemy and Arsinoë, &c. &c. In the French collection, the sardonyx or Tiberius is one of the best known: it exhibits the Apotheosis of Augustus, and the princes of the house of Tiberius; a Jupiter Ægiocelus is a very fine specimen: to which may be added the Apotheosis of Germanicus, and one of Agrippina and Germanicus; with others, particularly some portraits

of great interest. We possess in this country some camei of first-rate excellence, but they are chiefly in private collections. The workers in cameo not only exercised their skill in the cutting or engraving, but also in so arranging their subject, and the composition of its details, as to make the different colours or zones of the stones answer for parts of the design; as, for example, in relieving fruit, flowers, or drapery in colour, while the other parts, as the flesh of a portrait or figure, were left white; or, cutting the subject entirely in white, and working no deeper into the stone than the first layer of colour, thus making, or rather leaving, a natural dark back-ground for the design. These irregularities are sometimes taken advantage of so skilfully, that it is very difficult to decide whether the variety is the effect of art, or really the natural colour of the stone. The ancients so greatly admired this variously-coloured work, that they even imitated the material in glass, and we possess in this country a fine specimen of their skill in the Barberini or Portland Vase, in the British Museum, the execution of which is of the first quality. This celebrated vase was a few years ago purposely dashed to pieces by one of those lunatics who seek to gain notoriety by some great act of malevolent mischief. It has been, nevertheless, completely repaired, and restored to its original beauty. The practice of working camei on shells, *conchylic*, is of comparatively modern introduction in Italy. It is now, however, particularly in Rome, practised with considerable success, and we may be allowed to hope it will be more practised by our own gem engravers. The subject is worked in relief in the white or outer portion of the shell, while the inner surface, which is of a darkish hue, is left for the ground. In the Roman department we observed several very good specimens of these camei, by Saulini, one of the best workers in that line of art.

CHAPTER XV.

MOSAIC WORK—ITS HISTORY—ANCIENT MOSAICS—ROMAN MOSAICS—FLORENTINE MOSAICS—THE CHEVALIER BARBERI—STAINED AND PAINTED GLASS—MARECHAL AND GUGNON—CHANCE, BROTHERS, ETC. ETC.

MOSAICS are a kind of picture, executed with small pieces of glass or wood, pebbles, enamel, &c., fixed upon any given surface by means of mastic. Although this branch of art was well known and much practised by the ancients, Pliny has spoken of no express style, nor has he particularized any of the artists who wrought in it. We can only judge, therefore, by the appearance of antique relics of this kind, and by comparing them with modern performances, the method of executing which is known to us. When an artist commences a work in mosaic, he cuts in a stone plate a certain space, which he encircles with bands of iron. This space is covered with thick mastic, on which are laid, conformably to the particular design, the various substances meant to be used. During the whole of his work, the artist must have his eye constantly fixed on the picture which it is his object to copy. The mastic, in time, acquires the consistency of stone; it is susceptible of a polish like crystal. However, as the brilliancy thus acquired is injurious to the effect of the design itself, which is not clearly perceived through it, those mosaics which are applied to the adornment of cupolas, ceilings, &c., are generally less elaborately polished, the distance from which they are viewed preventing the spectator from detecting the inequalities of surface, or the interstices between the pieces of which the work is composed. The means have been discovered

of giving to the colour of glass so many different shades, that it has been found to serve the purposes of all the various descriptions of painting. The artist in mosaic has all his various materials ranged before him in compartments, according to their several tints, in much the same way as the printer arranges his different letters. To Pompeo Savini, of Urbino, has been attributed the art of executing mosaics in relief.

The origin of mosaic work must, apparently, be sought in the East, the rich carpets of which were imitated in hard stone. It is probable that the art was known to the Phœnicians, but to the Greeks its perfection and glory are to be attributed. From Greece it passed, with the other ornamental points of knowledge, into Rome, towards the end of the republic; the Italian conquerors of Greece transporting from that country into their own the most beautiful specimens in the shape of pavements, &c., which they could discover. Sylla was the first Roman who caused a piece of mosaic work of any magnitude to be executed for the temple of Fortune at Præneste (now Palæstrina); which mosaic, at least a great portion of it, still exists. At first they ornamented in this manner the pavements of buildings merely, but after a while the walls and arched ceilings also. The tents of the generals, in time of war, were also paved thus, to keep off the humidity of the ground, as Suetonius reports of the tent of Julius Cæsar. The invention of coloured glass was a great discovery for the purposes of mosaic work. When the dark ages had driven the elegant arts out of Italy, mosaic work, as well as painting and sculpture, was preserved a considerable time amongst the Byzanthian Greeks, who used it to adorn the altars of their churches. Towards the conclusion of the thirteenth century, an Italian of the name of Tafi learnt to work in mosaic of a Greek called Apollonius, who decorated the cathedral of St. Mark at Venice, where is still preserved an admirable pavement executed by him. But, in general, these works are wanting in design, are in bad taste, and equally bad in colouring. Since then the art has been brought in Italy to a very high degree of perfection. Pope Clement VIII., at the commencement of the seventeenth century, contributed much to this end by adorning in mosaic all the interior part of the dome of St. Peter's. Among the earliest artists employed thereon were Paul Rossetti and Francis Zucchi. One of the greatest advantages of mosaic is its power of resisting all those things which ordinarily affect the beauty of painting, and another the facility with which one can repolish it without at all hazarding the brightness and effect of the colouring. At the same time, as it can only be worked slowly, and requires great exertion, it can never come into such general use as painting: nor would it have attained the degree of perfection which it did at Rome and Florence, had not the respective governments of those two states made a point of encouraging it. Among the most beautiful mosaics preserved in the pavements or walls of ancient buildings, we may particularize that found in a chamber in Hadrian's villa, near Tivoli, and the Palæstrine mosaic, before alluded to, which is remarkable for the light which its delineations throw on the history, local and natural, of Egypt. In the villa Albani is also a beautiful mosaic discovered in the territory of Urbino, which represents a school of philosophers, and another depicting the history of Hesione, daughter of Priam. In 1763 was found, in a villa near Pompeii (probably that of the Emperor Claudius), a mosaic representing three females with comic masks, and playing on various instruments. The name of the artist (Dioscorides, of Samos), was engraven thereon in Greek letters. There are, besides, a very great number of others which have been at sundry times dug up, and which present a greater or less degree of beauty and of excellence in the art.

Among the mosaics exhibited in the Crystal Palace was a magnificent table, by the Chevalier Barberi, executed for the Emperor of Russia. In that style of art it was a work of consummate excellence. The principal cities of Italy contributed to form its

border. Rome brought forward her glorious old Coliseum and her mighty dome of St. Peter's; Florence her Palazzo Vecchio, the old feudal residence of her former princes; Venice displayed her church of St. Mark; Milan her magnificent cathedral, that splendid wonder of Northern Italy, rearing its beautiful marble pinnacles of purest white towards the azure vault of heaven; Genoa, *la Superba*, gave her ample port and her noble amphitheatre of hills; Naples, its *pezzo de cielo caduto sul terra*, as its inhabitants term its glorious bay, over which Vesuvius reared its inauspicious head; while Palermo, with her *Dommo*, completed the magic circle. The rich tone of colour, the accuracy of delineation, and the perfect finish that were found in this admirable work, could not have been surpassed by the delicacy of miniature oil painting; so great, indeed, was its perfection, that the spectator might almost have required a microscopic examination to satisfy himself that the work of art before him was not the production of pencil and pigments, but of materials widely different.

There was another mosaic to which we would also direct attention, if it be not invidious to particularize where all were excellent of their kind; but we mention it, partly because it was a copy of a *chef-d'œuvre* of Italian art—Guercino's "John the Baptist"—and partly because it had been produced in the great parent school of Roman mosaic art, the studio of the Vatican. It was the work of Signor Raffaele Castellini. Although the *Studio de Mosaici* in the Vatican, which is maintained at great expense by the Papal government, chiefly for the purpose of decorating churches with mosaic copies of the masterpieces of Italian art, must be regarded as the great parent school, which has developed to its present state of perfection the art and mystery of mosaic working, there are, nevertheless, private establishments which produce works of great beauty for the decoration of mansions and palatial residences, and of these the mosaics in the Exhibition were beautiful specimens. Besides those already referred to, there were two handsome tables by Signor Boschetti, and others by Luigi and Domenico Moglia, presenting views of the Roman Forum, the Coliseum, the temples of Paestum, &c., which stood the test of close inspection, being very admirable works. Although the table above referred to, by the Chevalier Barberi—a name of European celebrity—was a most exquisite specimen, and well worthy of his fame, it is very much to be regretted that he had not been allowed to exhibit to the admiring eyes of all nations in the Crystal Palace a *chef-d'œuvre* which he had just completed for the Emperor of Russia, and which he had been obliged to transmit immediately to St. Petersburg; viz., a large octagonal pavement, containing twenty-eight figures, the central piece being a colossal head of Medusa, and the whole being surrounded by a border of fruits and flowers. The design was copied on a reduced scale from an ancient pavement in one of the rooms of the Vatican museum; but it would be impossible for any one thing to surpass another to a greater degree than that to which Barberi's copy excels the original in drawing, colouring, and style of execution generally. He was aided in his work by his Russian pupils, who were placed in his studio by the Czar for the purpose of learning the art of mosaic decoration, with a view to founding a school of mosaic at St. Petersburg.

The improvements in the mechanical parts of the operation of mosaic painting which have been introduced by Barberi are so great, that a work which would require upwards of four years for its completion in the Vatican studio, can now be executed by him in less than a year and-a-half. A remarkable instance of this celerity of operation was recently manifested at his studio, where a copy in mosaic of the St. Nicholas in the church of St. Peter, was made in something less than two years, although a similar work at the Vatican occupied from four to five years. The pavement above referred to took three years and-a-half in its execution. But these are works on the grand scale, to which the mosaics in the Exhibition only bore the relation of miniatures to full-length

paintings. The latter, however, were well calculated to impress on a mind hitherto unacquainted with mosaic works, a correct idea of this peculiar and beautiful branch of art.

The Florentine mosaics are very different in structure from the Roman, being composed of the most valuable marble, jasper, chalcidony, agate, lapis lazuli, &c., from which thin layers are cut out of such portions as can be made to represent leaves and flowers, in which form they are inlaid into a solid slab of black marble. This constitutes the ground; the pattern generally consists of wreaths of lilies, roses, vine leaves, or any other graceful or beautiful objects which require soft shades and delicate tints of colour. We have seen, at Florence, a table made in this manner, which was valued at several thousand pounds. And no wonder, for the pattern inlaid was of vine leaves exquisitely shaded, and the grapes were of rubies and amethysts. In the Pitti Palace, the residence of the Grand Duke, there are several of these splendid articles of furniture, fit adornments for so sumptuous and regal an abode. Its collection of pictures, too, is one of the most choice and faultless that is to be met with in all Italy. The finest specimens of Florentine mosaic were, in all probability, too costly and too easily injured to be sent for mere exhibition, for the specimens that were to be seen in an apartment adjoining to the Roman were very inferior to what we had seen in Florence, where we spent nearly a whole day in the manufactory, inspecting at our leisure the whole process of cutting the marble, and placing the thin pieces which formed the pattern in their appropriate places in the slab. The specimens in the Exhibition, however, showed very distinctly the plan of the work, and there was one sprig of roses in the centre of a round table, which might have been mistaken for the most exquisite painting, and which was more rich and mellow in its effects than any that could be produced by the mere laying on of colour. Great use is made in this work of a kind of green marble, the soft shades of which are often so managed in the cutting out, as to represent the folding over of the edge of a leaf, or the light side of one resting upon the darker surface of another. The landscapes in this style of art, of which there were two or three exhibited of a rather large size, we do not altogether consider as very successful. The materials employed are too untractable and rigid to admit of a free or graceful pencilling; neither in mosaic work, as in painting, can one line be passed over another, to impart that rich transparency, or that aerial mistiness which is so beautiful in nature, and which the practised hand of a master, with all the appliances afforded him in a well-arranged palette, can alone hope to imitate. But in graceful and even elaborate representation of foliage, fruit, flowers, and ornamental work, such as may fitly adorn the chambers of royalty itself, it is that the art of the mosaicist displays its utmost beauty and perfection.

We will now for the present dismiss our mosaics, and take up the kindred subject of

STAINED AND PAINTED GLASS,

which in lengthened display extended its brilliant and kaleidoscope hues throughout the half of the upper gallery above the nave, and attracted a general and admiring notice. Few of those who visit either our own cathedrals, or inspect the interior of continental churches, ever think of investigating the merits, much less examining the subjects, of the

“ ———— Storied windows, richly dight,
Casting a dim religious light,”

and which shed such a beautiful and mysterious glow over the structure. It was therefore a rare satisfaction to be enabled to scan closely the merits of those productions, whose principal claim to our attention was avowedly that of being an imitation of by-gone arts. Although the art of staining glass is lost in antiquity, its adaptation to

pictorial purposes is comparatively recent. Doubtless the mosaics of the Egyptians and Romans originally suggested the idea of transparent glass pictures; for, indeed, the earliest attempts were entirely composed of small pieces of glass of various colours, united by thin strips of lead, as may still be seen in old churches and cathedrals. The first records of pictorial glass work extant, date from about the year 800, in the days of Pope Leo III., when so many magnificent ecclesiastical edifices were erected, commenced, and designed.

Venice was chiefly famous for the manufacture of stained glass, the use of which was brought to high perfection with the pointed style of architecture in England. Fine specimens of the art may be seen in York Minster, the collegiate halls and chapels, and especially in the chapel of King's College, Cambridge. It is evident that the art of painting on glass may be divided into two perfectly distinct operations: firstly, the artistic design with reference to the capacities of the materials; secondly, the mechanical or rather chemical preparation and application of the materials themselves. Unlike most other descriptions of painting, in which vegetable as well as mineral colours are freely used, glass requires the exclusive use of mineral colours. The oxides of metals, such as gold, silver, cobalt, &c., are chiefly employed. These colours are, as it were, burnt into the glass. Some of them stain the whole substance, and are quite transparent; others mix with a substance called flux, and vitrify on the surface. These last are more or less opaque or semi-transparent, according to the mode in which they are applied.

Now, the ancients being more moderate in their demands on such a means, were more primitive, and perhaps more successful in their effects, whilst the moderns have progressed in an artistic point of view, but at the expense of the transparency, breadth, and simplicity of their ancestors. As a general rule, the modern paintings on glass are too much paintings in the strict sense of the word, too opaque in their shadows, and, in fact, too much shaded altogether. Whereas, painting on glass, to be really effective, should be almost entirely outline and colour, and as free from non-transparent, that is black shading as possible, for it must be remembered that all non-transparent colour becomes mere neutral tint when opposed to light in a window, and that the depth of the tint is mainly regulated by its transparency; hence the somewhat muddy character of the majority of modern paintings on glass. Where, however, the nature of the material is sacrificed to real excellence in the design, we are inclined to make great allowances; but, unfortunately, either most manufacturers of stained glass grudge the expense of employing competent artists to draw for them, or artists of merit consider it beneath their dignity, or lastly, the patrons of the art themselves regard it in too mean a light, and do not offer an adequate remuneration for the production of such painting on glass in their churches, &c., as we should desire to see, and seeing, to admire. Yet there are plenty of young artists who would be glad to make coloured designs for glass windows for a very moderate remuneration, and who are perfectly capable of good composition, correct drawing, and judgment in the arrangement and distribution of the colours. Upon those more especially, who, from the spur given to the art by the late Exhibition, may speedily be called on to fulfil the above requirements, we would impress the following suggestions, which we venture with all humility to advance for the guidance of adventurers in a new or revived domain of pictorial creation. In the first place it must be borne in mind that a stained glass window is not a mere painting, but a means of admitting light, modified and tempered, it is true, but still light, into the building to which it pertains. Hence an additional reason for the all-importance of transparency in glass window-pictures. Secondly, it must be remembered that these pictures are generally seen at a considerable distance; therefore, the boldness breadth, and above all, the harmony of the effect is far

more vital to its success than any minuteness of detail. Thirdly, it must be invariably present to the mind of the artist that he is not producing a work for isolated exhibition, but is labouring in combination with the architect of the edifice which his design is to adorn, and with which it is expected to fall in and harmonize—not to jar and contrast by painful and violent uses of light and shadow, such as, we are sorry to say, the late collection very plentifully offered. Actual white and black (that is, opaque shadow) ought to be almost entirely excluded from works of this kind. In a word, the window ought never to lose for an instant its character as a window, that is, an admitter of light, which is its absolute and æsthetic relation to the walls, columns, and domes of the building it illuminates. It is certain that the practical art of staining glass, which flourished in such perfection during the thirteenth century, has been in a great measure lost, and, notwithstanding all the efforts of modern chemistry to equal and surpass it in purity and brilliancy of colour, it remains unrivalled. On the other hand, painting on glass, when carried out by artists such as form the exceptions to the strictures above made, is decidedly pushed much further than in former times, as far as mere pictorial excellence is concerned. Whether it has advanced in its legitimate mission, that of an harmonious adjunct to architectural effect, we doubt. A new era has, however, commenced in the art, and we must take it as we find it, merely considering its merits with reference to the object intended to be attained, and not criticising it according to any abstract causes of glass window-painting, which, right or wrong, may form a part of our artistic conscience. In proceeding to notice the works in this department displayed in the Great Exhibition, we would premise that we are not amongst the devotees to this mode of decoration as a vehicle for high art; and consequently, must be prepared to view the various candidates as copyists of the art as developed at the early period when it was in vogue. The following observations therefore will be considered to be written with a feeling for “mediævalism.” As a general fact, we have to admit, that the English glass-stainers did not take the first rank in this branch of national competition. On taking a first and cursory view of the long range of stained glass windows and medallions in the northern galleries of the Exhibition, our attention was forcibly arrested by the striking works of MM. Marechal and Gugnion, of Metz, which, in almost every requisite quality, artistic composition, harmony of colour, and mechanical execution, excelled all the productions of their competitors. In the “Portrait of a Bourgemestre,” the richness of the dark yet transparent drapery was very remarkable. Perhaps the head was a little too bright a contrast to the deep background and dress. But in the large painting at its side no such defect was visible. “St. Charles Borromeo giving the Sacrament to the Victims of the Plague,” was remarkable as a restoration of mediæval life and sentiment. The drawing of the figures, rude and unsatisfactory, *per se*, was combined with a devotional sincerity in the expression and attitudes, and a local historical truth in the peculiar cast of feature, which denoted the revival of an obsolete art in a kindred spirit. The blue sky in the background admirably relieved the warm group of earnest figures in front, and the colouring was of a beauty which reminded one of the early Italian painters. Nor was it in pictorial effect and drawing only that Marechal of Metz excelled. His medallion of the thirteenth century style was an excellent specimen of colour and design. It harmonized with the rest of his paintings, and though simple in its outlines and its colours, it was rich both in chromatic harmony and general effect. Marechal is, in fact, the one great glass painter and stainer of the present day in Europe. His works have been long known and appreciated in France as the first in that line of art. His paintings in the windows of the church of St. Paul, at Paris, which were furnished some years ago, raised him at once above all his competitors in France, both as a glass stainer and an artist.

tions of merit in other glass-stainers and painters, we now pass on to a general examination of the works most worthy of attention in the late collection.

Messrs. Chance, Brothers, of Birmingham, exhibited a variety of paintings, amongst which we noticed a Virgin in a green robe, well contrasted with some rich crimson drapery. There was much breadth and simplicity about this figure. We also observed a landscape, which would have been very well, but for the excess of green in the arrangement of its colour. And here we may pause to mention a very curious fact as to the glass paintings exhibited, viz., that each manufacturer or artist seemed to have a peculiar love for one particular colour, in the production of which he succeeded better than in others. Thus Messrs. Chance's greens were pre-eminent for brightness and transparency; whilst, as we shall presently have occasion to remark, other glass-stainers excelled in other colours, and affected them more exclusively.

Mr. Edward Baillie exhibited a painting of "Queen Elizabeth listening to the reading of Shakspeare," which surpassed all his rivals in the violent contrast of its lights and shadows, and in the impenetrable opacity of the latter. We cannot say much for the faces or drawing in this group. However, the Queen's white satin robe was very brilliant; and the carpet was really so well executed, that we could have wished the remainder of the picture up to the same level. Mr. W. Wailes was enterprising in design, and displayed considerable brilliance of colour and transparency, but there was a rudeness and harshness about the paintings which were not pleasing. The St. Helen's Crown, Sheet, and Plate-glass Company sent a large painting of "St. Michael and Satan," in which the tail of the arch-enemy was prolonged to an indefinite degree. There was some spirit in the drawing, but the execution was lamentable in every respect. Some lions and unicorns by Tobay, the former yellow, and the latter white, were not very wonderful productions, nor in any respect likely to outshine the ordinary lions and unicorns of every-day life.

Messrs. Hetley and Co., of Soho-square, sent a very fine painting of the "Ascension." In this work the rich colour in the foreground contrasted well with the lightly managed atmosphere, against which the figure of the Saviour was seen in a "glory" very spiritually conceived and executed. M. P. Lafaye was doubly unfortunate in being placed by the side of Marechal, to whose works his specimens served as a foil. They were muddy in colour, and very inferior in design. Henri Fougue sent some curious specimens of mezzotinto transparencies, produced by glass or china, carved or modelled so as to produce the different gradations of light, shade, and tone, in a manner remarkable for its softness and purity of effect. M. Thibaut Dallet had a very brown monk, effectively drawn, but deficient in transparency. His "Judith and Holofernes" was a fierce piece, of strong expression, and somewhat crude but rich effect. Red is evidently the predominating and favourite colour with this artist. The "Lord's Supper" was more transparent, but with little merit either in design or colour. Herr Geyling, of Vienna, had a female figure leaning on a window-sill, which resembled an oil-painting in effect. The flesh of the face and hands, and the white chemise, as well as the dress, were well executed; but the opaque background was objectionable. As a work of art it reminded one, on the whole, of Jullien's coloured lithographs. We consider this a strong example of success in a line which ought never to be attempted by a glass-stainer.

M. Thevenot was chiefly noticeable for a blue turn of mind in his colouring. He had, however, some very tolerable saints on pedestals, which were edged with gold, most effectively rendered by transparent yellow glazing. His "Radecona" was a severe figure, with much depth and richness, yet too opaque for real brilliancy of effect. The small Gothic window, by M. Martin of Troyes, was remarkable as a quaint imitation of the old style, as regards artistic treatment and brilliancy of colour. Upon these grounds, it was

one of the most curious specimens in the Exhibition to lovers of the ancient glass-stainers and their peculiar characteristics.

The painted window by Mr. Gibson, of Newcastle, contained subjects illustrative of various passages in the life of St. Peter. It was in the Norman style, and consisted of six geometrical forms upon a richly ornamented ruby background, embodying the principal events from the apostle's life. The centre medallion was Christ's charge to Peter; the others respectively contained the Angel delivering Peter from prison; Peter denying Christ; Christ calling Peter from the ship; Peter's want of faith; and in a small quatre-foil was the martyrdom of St. Peter; the whole surrounded by an elaborately worked and richly coloured border. The colours of the glass were rich and full-toned, and judiciously combined. It is a subject for regret, however, that, in reviving this ancient art, as a medium, it should be considered necessary to imitate the barbarous style of drawing of the Gothic ages. We have thus glanced at a few of the most meritorious, or rather, to speak conscientiously, of the least sinning, amongst the exhibitors in the stained glass gallery. On a future occasion we shall return to the subject, when we shall give some account of Bertini's famous Dante window. Before taking leave of this subject, we would draw this general conclusion from the examples we have been examining. We would once more impress upon the improver and enterpriser in this branch of decoration, that simplicity, transparency, and moderation in light and shade, are the three great requisites after harmony of colour.

CHAPTER XVI.

AN EARLY MORNING VISIT—A NOON-DAY STROLL—PEACEFUL CROWDS—PLEASING ADMIXTURE OF RANK—A GREAT DAY AT THE CRYSTAL PALACE—BRITISH HOSPITALITY—ENTERTAINMENT IN GUILDHALL TO THE QUEEN.

WE will now, for a short period, dismiss all particular criticism on the various productions of human industry and genius, and indulge in a retrospect of one of those calm and quiet days, which were frequently devoted by the assiduous visitor, satiated with curious examination, to a general and leisurely observation of what was passing in the busy microcosm around him. Our readers must be informed that it was the privilege of the "writers for the press" to wander unrestricted through the avenues of the glorious Crystal Palace, long before the general public were admitted—a privilege shared only with industrious exhibitors' attendants, and sundry busy gentlemen in red coats, known as sappers and miners. From one of these favoured votaries of the quill we are indebted for the following graphic description of its appearance at "early dawn," and the feelings it was calculated to awaken in the reflective mind. "It is scarcely possible," observes our writer, "for those who have not visited the wonderful Glass House, to conceive the curious effect its vast size and exquisite perspective have upon the mind. Its solitary grandeur at this hour can be likened to nothing of which we have hitherto had experience. It was like a forest in its stillness, but the songs of birds or hum of bees greeted not the listening ear—it was like a cathedral in its vastness and solemnity, but no masonic pillars, or heavy sculptured walls were there to break the light, and give the 'dim religious' air, so potent in its grandeur—it was like a fairy palace, in which a hundred thousand sleepers might have dozed away their lives, but that we knew it to be filled with the works of men's hands—it was like a dream of beauty, and light, and power, but that a passing

footstep awakened us up to reality and life—it was like—like nothing but itself, unsurpassable, indescribable, unique, amazing, real! The sun broke out, and added new beauty to the painted line of girder and column stretching far away. We gazed upward in never-tiring wonder and admiration, and caught new glimpses of beauty in the glass roof of the beautiful transept, tinted with all the colours of the rainbow. We looked around, and found the light reflected in glass and silver and bubbling water—for the hour was passing, and the hitherto silent fountains had begun to play. * * * Day had fairly set in, and where a solitary visitor was erstwhile standing, little knots had gathered; little knots, which, as the clock struck TEN, had become groups, which speedily swelled into assemblages, which presently became inconveniently close, and were at length a mass, a crowd, a mighty peace meeting. A throng, indeed; but there was wonder, and pleasure, and kindness on every face. We stood a minute in the corner of the gallery, beneath the ladies' carpet, and gazed upon the well-known spectacle. The sight of thousands in the Glass Palace was one worth seeing indeed,—for where the million is, there is love, and hope, and human passion. O, amazing thought! The GREAT GOD was in the midst!"

The interior of the Crystal Palace had now assumed that state of pictorial completeness in which it remained during the whole summer. Nothing more seemed wanting to it. Each day had added something to its picture, as well as to its uses; and we were never weary of repeating how in this wondrous edifice all had been so successfully contrived that every sense was satisfied. At every turn the eye was fed with beauty. In the fervid mid-day hours a delicious coolness filled the atmosphere. The low plash of falling fountains sent whisperings through the ears that were like sounds heard in a dream. Even the sounds which in ordinary buildings would produce discords, between the walls and under the roof of crystal combined into a strange and palpitating music. Few things in the mighty edifice were more remarkable than this effect. Great as was the daily concourse of people, the hum of voices seldom rose above the deep and trembling monotone produced by conversation in the open air. The talk of the fountains and the tones of minor musical instruments died on the ear at the shortest distance. The organ notes rolled but faintly down the naves, as they would have done along a line of forest trees,—the high swell and cadence falling gently on the unresisting medium in which they passed away. Even the click and whizz and whirl of machinery did not strike the ear with that sharp and semi-painful effect produced by them in close brick buildings. There were no echoes, reverberations, arrested or broken sounds. The noises passed away through the glass roof as freely as the light and sunshine entered by it.

Our holiday-makers from the country—the tens of thousands who poured into London from every great town of industrial England, were amongst the first to see the palace in its perfected beauty. The peasant's shilling in June returned him more than the peer's guinea did to him in May. Russia was then shut up in her frozen rivers,—Tunis had not quitted her burning sands,—Hindustan was out at sea,—France in great measure lay in her packing-cases,—America had barely stretched her limbs in her vast spaces,—Turkey was but preparing to transport herself from the Bosphorus,—Persia, for aught that could be ascertained to the contrary, was still in the heart of Asia. All these guests subsequently arrived. From China to Peru, from Norway to Arabia, the products, the art, the genius of all civilized nations, were at length in London. One nationality only was here unknown by name:—Naples furnished nothing to the industry of the world but a band of spies and secret police. The contribution was characteristic. Henceforth Naples is blotted from the list of civilized states.

The company assembled in the Crystal Palace day after day was scarcely less interesting than the collection of articles. During the whole of May the number of foreign visitors

was comparatively low. Where were the Germans, Americans, French, Italians, and other strangers?—was a question on every lip. They were not there. The passenger traffic across the Channel did not visibly increase. The artistic fancies which in multiplied prints had filled the parks and thoroughfares of the West-end with Spanish mantles, Turkish robes, Greek tunics, and other gorgeous dresses, seemed to have had no foundation in reality. A few days, however, rapidly developed this picturesque feature. The scarlet-robed Tunisian was not the only wearer of a bright costume in the Crystal Palace. The Andalusian cloak, the French blouse, the slouched hat of the Rhine, the turban of the East, the scull-cap of the Morea, and several other varieties of human envelopment might be seen there. It was curious and interesting to notice the wonder and delight of the wearers of these foreign garbs at all they saw and learned. Nothing, however, seemed to strike these strangers so much as the building itself,—so marvellously new, graceful, and imposing,—erected in a space of time so incredibly short, and with casualties so remarkably few for so vast a work. Next to this, the cotton and flax machinery seemed to fill them with most wonder. The rapid increase of provincial visitors was still more remarkable. Agricultural implements, during the first month of the Exhibition hardly glanced at, now obtained a large share of attention from scientific and practical men. The Essex or Devonshire farmer, somewhat impatient of mediæval courts, chiselled marbles, and Byzantine mosaics, might be seen diligently studying the last hints and improvements in ploughs, spades, harrows, carts, flails, threshers, clod-breakers, and so on. The Lancashire mechanic might be found intently poring over some new contrivance of a London machinist,—the Yorkshire wool-grower busy with comparisons between the produce of the merinoes of Saxony and of Spain. A very visible change was observable in the aspect of the area. There was a strong determination of visitors to the transept,—that being the centre and the point of intersection; but a more general distribution of company over the galleries and recesses was obvious at a glance. The holders of season tickets were probably, for the most part, persons to whom the æsthetics of the place, its artistic arrangement, its beauty and satisfaction to the outward sense, were the chief attractions. To these it was first and foremost a lounge and a panorama unequalled for comfort, splendour and variety. For the details which occurred beyond the first reach of the eye, and which did not form a striking part of the spectacle as seen from any favourite point of view, many of these visitors cared little. The naves, the transept, and the front galleries—the points from which the pictorial effects could be best taken, and the artist-sense most completely gratified—were the positions chiefly frequented by them. But visitors from the country towns and hamlets, from workshop and farm, seemed to have a different object in view. Less sensible perhaps to the grace and beauty which came out in gleams of light and gushes of melody at every turn, they appeared to set themselves more resolutely to study the particular construction and contrivances which had for them a practical interest. This was very noticeable with the artizan, both English and foreign. The blouses of Brussels and Paris seemed to examine with intense curiosity the work in precious metals exhibited by the great London houses.

Education of eye and mind was going on at a thousand points at the same moment, directly and indirectly,—formally and informally—by example, suggestion, and illustration. It did not seem to us that even what were called the “idlers” of the Crystal Palace were altogether idle there. If they did not appear to examine minerals, compare the merits of rival ploughs, or pay much attention to the wool and cotton fabrics of the western nave, it would be a great mistake to suppose that their time necessarily passed away unimproved. The morals of the Palace did not all lie in its details. There is an education of the taste, a cultivation of that love of beauty which every one possesses in a greater or less degree, which may be more important in some cases than the acquisition

of special knowledge. The most listless loungeur in the Exhibition was there at school. Consciously or unconsciously, he received at every sense lessons which cannot be altogether without effect in after life. The apparent idler might undervalue neither the edifice nor its contents; he might wish only to enjoy them both in his own way. Some minds cannot endure particulars. The poetic imagination loves to take in the whole at a glance—to embrace the grand synthesis by a single effort—not caring to stay its action until it may find time to analyze and separate the component elements of the picture. In such an edifice, Shakspeare or Raffaele, though a thousand things would have arrested them at last, would probably not have descended to the examination of details for many a day.

Contrary to prognostication, the shilling people passed through the building without disorder. There was no crowd the first day, no *émeute* in Hyde Park, no cry for soldiers and police. The Palace did not come down like a house of cards. The aristocracy did not cease their visits because the hard-workers chanced to come “between the wind and their nobility.” It was in this respect a very satisfactory circumstance to find that, along with the royal family, eight or ten thousand season tickets went in every shilling day—to see so many coronetted vehicles making their way through crowds of omnibuses to the doors—to observe how completely all social distinctions were for the moment merged in the general feeling of pride and admiration at the wondrous result of science and labour exhibited in the Palace of Glass. Never before in England had there been so free and general a mixture of classes as under that roof, and good results of many kinds it is to be expected will grow out of it in the future. Another circumstance surprised the would-be prophets. Instead of the artizans staying in the Crystal Palace all day long, as was expected, it was found that the shilling visitors remained on an average little more than half the time of the season-ticket visitors. Nor were the artizans, or the agricultural population, the only privileged persons among the lower orders who were gratified with a sight of the World’s Fair. The Duke of Wellington having been from the first one of the most assiduous visitors of the Crystal Palace, bethought himself how the regiments under his command might enjoy the same satisfaction. For this purpose leave of absence was given by the commander-in-chief to all regiments at home, from the 1st of June to the 30th; one field-officer, half the captains, and half the subalterns to be allowed the indulgence each fortnight in the month. In the same spirit, the Admiralty gave leave to the officials of the royal dockyards to absent themselves under certain regulations; and the orders in which this permission was conveyed, at the same time announced that the officers visiting the Great Exhibition were expected to report to their respective superintendents any new invention in machinery, or improvements in articles in general use, tools, &c., that might attract their attention, or anything that might strike them as useful or advantageous to the public service. The order issued to the workmen of Portsmouth Dockyard, gave notice that the period of leave to be granted to them for the purpose of visiting the Exhibition was to be extended to six days—the first half of the workmen to proceed to London on her Majesty’s birthday, returning on the Friday following; and the second half to proceed on the anniversary of her Majesty’s coronation. The admiral intimated to the men, that in case the fares of the railway were not reduced to what might be considered a low figure, he would place a vessel at their disposal for the purpose of conveying them to the metropolis.

As early as the 18th of June the human tide began steadily to increase in its mighty flow towards the Crystal Palace, an account of which day, although far inferior in point of accumulated masses to many that followed, we shall forthwith present to our readers. Notwithstanding the fluctuating character of the weather, the visitors began to pour in at an early hour, so that at two o’clock the interior might be literally called the World’s

Fair. The great increase of country visitors was becoming quite noticeable; and the foreigners, who formed a large ingredient in the company, were no longer exclusively of the stronger sex. French and German might be heard resounding through the building with a volubility which bearded lips would in vain strive to arrive at. From the sub-joined figures it will be seen that the great body of visitors came between the hours of ten and two o'clock, and there was a fair presumption that those were the hours at which the provincial contingents would arrive. The three o'clock return gave the steady ticket-holders who came day by day, and examined the wonders, section by section, a task which was sadly interrupted; while the later hours' returns might be supposed to indicate the mere loungers who promenaded the nave or sat about the crystal fountain; and they, most of all, were incommoded by the myriads who came for the vulgar purpose of seeing and being instructed by the Exhibition. The numbers at the last return taken were 62,532, being nearly 5,000 less than the return of the previous day, but considerably beyond any preceding day's work, and the following was their order of arrival:—Eleven o'clock, 18,637; twelve o'clock, 17,715; one o'clock, 10,315; two o'clock, 5,913; three o'clock, 4,423; four o'clock, 3,366; five o'clock, 1,476; and six o'clock, 687: total, 62,532. At a quarter to seven the bell rang, and in an inconceivably short space of time the building was left to the tranquil possession of its nightly guardians. This process of clearing out was not the least remarkable feature of the Exhibition. Great military authorities had said that it would be easy to collect 60,000 people in Hyde Park, but not so easy to get them out again; but at the Crystal Palace the problem was solved every day without any coercive means, save the inherent orderliness and good feeling of the people. There was no rushing, no noise, no confusion. The tide receded as gradually as it had advanced, and the only trouble the police had was to control the curiosity of the ladies about the diamonds, and to make abstruse arithmetical calculations touching the ingress and egress. This admirable order, too, it must be observed, was the spontaneous result of an undertaking of which all manner of evil had been predicted, and, we may conclude, wished too, after the manner of prophets in general, according to the pithy remark of Dean Swift—

“They'd rather far that you should die,
Than their prediction prove a lie.”

Nay, one wiseacre actually took the trouble to write a pamphlet under the title of *To-morrow*,—that the Great Industrial Exhibition was only the revival of its ante-type, the Tower of Babel, which was certain to realize in its effects the confusion of that never-finished structure, to which we owe so many different tongues, known and unknown, “the crash of Samson, the prostration of Dagon, the division of Solomon's kingdom, the handwriting on the wall, visible to all eyes, but comprehended by only one mind”—that one of course the author's.

In the meanwhile everything was done to do honour to the nation's guests by our willing countrymen. Besides a multitude of private hospitalities, dispensed with a heartiness that put the character for “pride and coldness,” by which we have been generally known abroad, somewhat in peril. Concerts and receptions at the Palace, *soirees* at the rooms of the Society of Arts, entertainments at the Guildhall, dinners at Soyer's Symposium, public breakfasts at the Inns of Court, evening parties at the meeting-places of the learned societies, followed each other in rapid succession. Peace was on every lip—welcome in every eye. To a degree that was scarcely conceivable before, we laid aside our insular airs, and became cosmopolitan under the mighty influence of the deed that we had accomplished. Like Pygmalion, we were inspired by our own work. Nor was this the only result. That which brought courtesy to the stranger, also brought calm to the house. Every unpleasant subject was kept down by

the accumulating interest attached to the Festival of Industry. Politics were forgotten in the general excitement, and the demon of religious dissension, which had so long haunted with its presence so many firesides in the metropolis, seemed to have vanished into thin air. Sculptors and artists entertained their continental brethren, and sent them back to their own countries crowned with fresh laurels. Nor, while the manifestations of jubilee appeared in the higher circles of society, did the world of artisans allow the occasion to pass by without contributing its share to the general fund of hilarity. The overseers and chief workmen employed by the contractors of the Crystal Palace proposed to give a solid English dinner of roast beef and plum-pudding to the foreign artisans employed in arranging the contents of their several countries. The crowning act of demonstration, however, took place about the middle of the season, when a grand civic entertainment to celebrate the successful results of the Great Exhibition of the Industry of all Nations, was given in Guildhall to her Majesty, Prince Albert, and the Royal Commissioners, on the ninth of July.

To say that the streets were crowded by loyal and enthusiastic thousands; that the windows and the housetops all along the line of procession, from Buckingham palace to Cheapside, presented seas of pleasant faces; that the illuminations in the city were grand, brilliant, and appropriate; that gay flags and banners waved across the streets; that her Majesty and the Prince were received by the multitude, as only a beloved queen could be; that the carriages made their way through dense crowds of enthusiastic people—a body-guard, brave, loyal, and true—cheered and welcomed with true British fervour; that on the arrival at the ancient Gothic hall, the august party were received with all honour by the first man in the city; that the procession of the queen through living walls of loving subjects was the great event of the evening; that thousands bent the willing knee to royalty; that the old crypt, made gay and beautiful for the occasion, was honoured for the first time by the presence of the queen; that a ball afterwards took place in the Guildhall—one of the finest rooms in Europe unsupported by pillars; that the grand preparations which the citizens had made were worthy of their ancient fame for hospitality; that in that noble hall stood the representatives of almost every civilized nation under heaven; that the whole passed off with the greatest *éclat*; and that loyal crowds waited in the streets till long past midnight to escort their queen home again when all was over: to say all this, was only to repeat what was already familiar to every man, woman, and child in the three kingdoms.

But some other considerations arose out of this royal visit; some other thoughts came uppermost on reviewing the events of that auspicious evening. Of themselves, the royal procession and the civic entertainment were but gaudy pageants, in which soldiers and horses, and gaslights, and crowds, and well-dressed people, and notable foreigners took part; but viewed in connexion with the purpose for which the fête was held, it became a direct recognition of the claims of labour on the part of the highest personages in the realm, or indeed in the world. The royal visit to the city was an event of which we, as a nation, had reason to be proud; for of all the thousands whose productions filled the great Industrial Bazaar in Hyde Park, there was not one who might not have been said to have been represented in the Guildhall on the ninth of July. In the principal city of the civilized world the queen and her husband acknowledged, by their presence, their infinite obligations to the industrious classes. Both within and without the noble hall there was much to teach and interest our foreign guests and neighbours. “In the spectacle of the day,” said an eloquent writer, “might be discovered a fair representation of that constitution and those institutions by the gradual growth of which Britain is what she is, while France and Germany are—what she is not. In the queenly yet domestic bearing of her Majesty, all might see what Britons love to see—that their sovereign is

not only their queen, but the first matron and lady of the land: in the crowded yet peaceful streets of our capital many a smaller city of the continent be taught that there are other safeguards for the sovereign and the public peace, than bayonets, and other *vivats* more hearty than the simulated plaudits of a people ruled by fear and force. And, above all, we trust it is in no sanctimonious or self-righteous spirit that we express some confidence that it will be long before, as a great city of trade, we forget that lesson which we have inscribed permanently on marble, and on that night in letters of fire, above the portals of the Royal Exchange—"The earth is the Lord's and the fulness thereof."

CHAPTER XVII.

FOREIGN AND COLONIAL DEPARTMENTS—*continued.*

THE ZOLLVEREIN—ARTICLES OF FOOD AND CLOTHING—ARMS, CUTLERY, ETC.—FURNITURE, WALKING STICKS—CROCKERY—MACHINERY—OBJECTS OF VIRTU—STUFFED ANIMALS.

It is now, however, time that we should continue our examination of the "Foreign and Colonial Departments." We will accordingly direct our steps towards Germany; and, in the first place, we beg pardon of our friends in that quarter for any apparent neglect they may imagine we have been guilty of, in not noticing them at an earlier period. In the selection of the objects to which we have invited the attention of our readers, we have not been solicitous to follow any rigid systematic arrangement; fancy and freedom, as we believe we have already stated would be the case, have been our guides in our various wanderings through the interminable mazes of the Palace, and we shall still continue our researches under their immediate influence and direction.

Our readers are probably aware that the Zollverein—a name which occupied a large portion of the foreign side of the Crystal Palace—is not that of any individual country. On the contrary, it designates a union of several states of Germany, under one common custom-house law, indicated in the term zoll (*duty*), verein (*union*)—a policy, not a country, which brings under one series of fiscal regulations, concerning import and export duties, the subjects of several states of Germany, having in other respects different laws, and lying widely apart. It embraces Prussia, Saxony, Wurtemberg, Bavaria, Baden, Nassau, the two Hesses, and all the minor states of the centre of Germany, and comprehends altogether somewhere about 26,000,000 people. Hanover, Brunswick, Oldenburgh, Bremen, Lubeck, Mecklenburgh, on the north; Bohemia, Austria Proper and other German dominions of Austria, on the south, are not members of this union. Prior to its being formed, the thirty-seven states, large and small, into which Germany was divided, levied each its own duties and tolls on rivers and roads, and had its own custom-house officers to levy them. As the rule, no goods could be transmitted through any one of these states to another, or sent from one state to another, without being subject to all the vexatious delay of a custom-house examination at the boundaries of every state. The actual facts were still worse, for many noblemen and cities levied, till a very recent period, private tolls, and at their "bars" all goods were liable to a similar examination. The annoyance of this system, to say nothing of the accompanying annoyance of passports, which still continues, was immense, and far exceeded anything of which our people, long united under one government, and having amongst themselves internally a perfectly free communication, have ever practically had to form any conception of. To get rid of some

of these vexations, the states above mentioned, under the influence of Prussia, united themselves commercially about twenty years ago into one body, abolishing all intermediate tolls and customs duties, and levying only duties common to all, at the one extreme boundary of the confederating states, and dividing the revenue accruing among the different states composing the union, in proportion to their size, population, consumption, previous revenue, &c. All states not comprised in the union, and preserving their own revenue laws, are, so far as trade and customs duties are concerned, considered foreigners. The reader will see, therefore, that the name Zollverein in the Exhibition was a mere political designation for a great part of Germany, separating it from Northern Germany on the one hand, and from the Austrian dominions on the other; and such products of the industry of the 26,000,000 people comprised in this Customs Union as they were pleased to exhibit, it is now our intention to describe.

The department of the Zollverein was in the eastern part of the Crystal Palace, approximating towards the centre. It extended on both sides of the nave into the galleries, as well as on the ground-floor, having Russia on the east, and Austria on the west. Intermingled with it, however, was the space appropriated to Northern Germany, an arrangement justified by the geographical relations of the two, but at variance with the political designations, and which became the cause of some confusion. In truth, disorder in arrangement, singularly enough for the methodical Germans, seems to us to have characterised their part of the Exhibition. Although Wurtemberg, Saxony, and Bavaria, had distinct exhibition rooms on the south side of the nave, in which to display their cloths and shawls and stockings, in the grand centre hall of the Zollverein on the north, some of their most distinguished products, and the most distinguished products of the other states, were mingled with the products of Prussia, which disabled us from forming a just appreciation of the industry of the separate people, or of the whole Zollverein. In the medley, we could not compare and contrast what had been done by the lively, vain, egotistical, and royal Prussian, with the productions of the more solid and somewhat duller Hessian; nor could we conveniently distinguish between the industry which is rooted on the Iser, and that which flourishes on the Elbe or the Rhine. For the above reasons the general remarks which follow will apply in a great measure to the industry of all the Germans, not excluding even the Austrians, though we shall describe separately the Austrian part of the Exhibition; and we must, therefore, make our readers fully aware of the number of people to whom they apply. The Zollverein comprises about 26,000,000; Northern Germany, about 4,000,000; and Austrian Germany, about 7,000,000. The tracts of land inhabited by these people extend from the Baltic to the Iser and the Rhine, from the German Ocean to the Carpathian Alps, and embraces a great variety of soil, surface, and climate. It is rich in minerals and raw products, and is traversed by numerous large rivers. It is the best and principal part of central Europe. For such a country and such a people, the exhibition of their industry struck us as comparatively poor and comparatively uniform. There was a sameness in it throughout, not met with in any other part of the Exhibition, of equal pretensions.

In one great natural quality Germany is deficient, and the want of it has been much aggravated, instead of being relieved, by the policy of its governments. It has comparatively a small extent of sea-coast. Denmark and Holland shut it out from a direct connexion and communication with two parts of the ocean. It has had, therefore, in relation to other states, a small and not fast growing foreign trade. The many small states into which it was divided, and the absurd fiscal regulations in each, added to the want of ocean communication, till very modern times, limited and hampered its internal traffic. The consequence was, that the subjects of each state were pretty much confined to their own products for subsistence; and comparatively little separation of employ-

ments, or little division of labour ensued, and, as a consequence, little variety in the industry of the people. The Germans rather pride themselves on the circumstance, that division of labour is not extensive amongst them—that they are what they call many-handed; but that is only an approach to barbarism, when every individual provided by his own means for all his wants. To satisfy the common demands for food and clothing they all necessarily adopted the same or similar arts; and the same causes continuing to prevent the separation of employments, they have continued the same or similar practices. In conjunction with this, too, the respective governments undertook to a degree unknown in England to guide the industry of their subjects; and as they were generally actuated by a similar policy, and had similar objects to attain, they generally directed the industry of the people in similar paths. After the wants of food and clothing were supplied, the great object of the different governments, besides the common desire of military power, was to have luxuries provided for courts, which for a long period borrowed their ideas of luxury from the French court as a common model. Accordingly, as you passed amidst apartments hung full of cloth and of damasked lincn, with a profusion of swords and cutlery, walking-sticks, pipes, buttons, and common tools, models of old castles or modern residences, with some fine porcelain, some exquisitely carved ivory, some delicate bronzes, and some admirably stained glass, you found a great uniformity in the products of numerous distinct and different people, for which you were hardly prepared; nor was the impression removed by the appearance of some well prepared leather for different purposes, some valuable mineral and other raw products, several specimens of wool, and some splendid crystals and colours, the result of chemical arts, and a little well-wrought furniture. What is called Berlin-wool, raised carpeting scarcely fit to walk on, models of castles, dried fruits, a multitude of ornaments in cast iron, an abundance of toys, playing cards, much ordinary jewellery, piles of stockings and suspenders, with a few printed books, completed the miscellaneous assortment.

Many of the articles would excite surprise in any exhibition, but we were chiefly astonished to find them so many leagues away from the place where they were made. The Germans supposed they were to sell, as well as to exhibit; they looked on the Exhibition as a market, and thought that the cheapness of their hose, their cutlery, their common tools, and their cloth, would ensure them numerous customers. In fact, many of their articles had been exhibited avowedly only on account of their cheapness, not on account of their excellence, their rarity, or their beauty; and the exhibitors prepared and published a catalogue, in which the prices were marked, for the very purpose of showing that they can undersell the English, particularly in hose, cutlery, and cloth. Till the quality of the articles can be brought to a test, this appears to be possible. They imitate our patterns, and try to sell their goods as English. We noticed, and to our surprise, in the Saxon department, and amongst the hose, one or two pair marked very distinctly in good English letters, "Merino patent," an inscription which used to be stamped on a favourite English production. We had our doubts of the propriety of allowing such *contrefaçons* to appear in the Exhibition. They reminded us of what we saw on the Hartz mountains a great many years ago, where the shot cast at a celebrated lead manufactory were all packed up in bags, with the names and labels of English makers imprinted on them. We were told by an American gentleman in the Exhibition, "It is quite true the Germans have improved very much in making cutlery within a few years. I have had a great deal to do with them in the matter. They were anxious to sell their goods in our markets; but they were so clumsy, our people would not look at them. I then sent patterns of your best London and Sheffield makers to Solingen, and the Germans made their cutlery after these patterns, putting on them the name of Rodgers and Son, or some other celebrated English maker. The German cutlery looked very well,

and was sold cheap; but, on being tried, it proved to be not half so good as that of the English, and I doubt whether the sale will increase." In various kinds of cutlery the Germans made a great show; but it is evident even here, that the bulk of their articles were made after English patterns. The display was intended, too, we believe, more for foreign markets, than for consumption here. If the Exhibition had been a mart, where the artizan could have bought a pair of pincers, the dandy a cravat, the housewife a jar of preserves or of potted larks, and parents Christmas presents for their children, it could scarcely have been richer in the supply of these and similar articles from Germany. With some exceptions, which it will be our business hereafter especially to notice, the products of German industry, taken as a whole, therefore, might be characterized as displaying little variety; and many parts of it were trivial, neither adding to national wealth nor helping forward national greatness. Admitting the fact, but implying that the Germans have a richer and more varied industry than they have shown, which we doubt, a German writer in the *Allgemeine Zeitung* states "that Germany is here exhibited to foreigners as small change." Who, then, is culpable for having kept back the large coins and the more precious ingots, if they exist? German industry is not only uniform; it is obviously imitative. There is as complete a want of independent thought in their art as in their political reforms.

France had its *bijouterie*, its exquisite ornaments, its unmistakeable graceful luxuries, its adornments for boudoirs and persons; England had its solid and compact machinery, often as neat and elegant in form, though rigid, as it was useful; the United States had their rocking and other chairs, their sewing machine, and their almost infinite application of caoutchouc; Russia had its furs, its hemp, its malachite; even Austria, with its Vienna furniture and its Bohemian glass, which are German, had something of its own. Nay, Tunis and India shone out conspicuous and peculiar. Only Germany, of all the nations of Europe, had nothing apparently in the Exhibition which could be said to be characteristic of it, but its toys, a few skull-caps, and some useful specimens of domestic wool manufacture. Borrowing its ornamental arts mainly from France, its useful arts from England, the things it exhibited were chiefly imitations, very often deficient in the grace, the lightness, the neatness, and convenience of the originals. Its productions were solid, substantial, sometimes cumbrous, and generally honestly made, but they were all in the main French or English, rather than peculiarly German. Perhaps those who had the ordering of the matter wished chiefly to exhibit the success of the Germans as rivalling other nations, and rather brought forward European than German productions. They exhibited no specimen of their durable but old fashioned furniture; of their *frachtwagen*, with their loads packed and secured to resist the jolting of bad roads, like the cargoes of ships, which move not when tossed about by the waves; no specimen of their multifarious vegetable productions on which the bulk of the people live, or of the useful and comfortable garments that their domestic industry still provides for the great multitude, all of which are at once peculiar and picturesque; they are sometimes, too, convenient. Germany has many peculiarities, but they belong to a past age, and the Royal Commissioners who have presided over the German part of the Exhibition, were not desirous to exhibit them. "I cannot deny," says a celebrated writer, "that, in general, the specimens of German industry in the Exhibition (the fine arts not included) have no peculiar character, and give me the idea of its having been the intention to avoid exhibiting what is national. German industry appears in every department to lean on something foreign, or to be an imitation, and nowhere to stand on its own feet. At one place we see the hand of England, and at another that of France. I may be mistaken, but this is my very distinct impression." If, indeed, we turned to the machinery exhibited we found it of little importance; and the principal objects, such as the vacuum

pan and the Jacquard loom, very imperfectly improved, as compared with others in the building, were borrowed from England or France. The machinery exhibited, and generally, too, the tools and the cutlery, were imitations of those of England, and had nothing to recommend them but their cheapness.

The nature of German industry in general was brought into a strong light by the varied industry of Hamburgh, and the taste displayed in the exhibition of the articles sent from that city. It furnished no less than 123; while the rest of North Germany, the kingdom of Hanover, Lubeck, the two Mecklenburghs, supplied only 35. They consisted chiefly of useful and ornamental furniture, such as sideboards, sofas, chairs, &c., of a very superior description, clocks, musical instruments, specimens of oil-cake and refined sugar, charts, pianofortes, saws, rocking-chairs, looking-glasses, bird-cages, and a large assortment of walking-sticks. Here, however, instead of being merely hung against the wall, they were displayed in a cheerful tasteful manner, so that the Hamburgh room had a light and elegant appearance, superior to that of the central room of the Zollverein, in which were heaped together all the best and richest of its contributions. On entering the apartment, the spectator was much struck by a representation of the sun sending his rays on all sides, placed against the opposite wall of the apartment. It was composed of walking-sticks, chiefly from the workshops of C. A. Meyer, who employs several hundred persons, and exports walking-sticks to all parts of the world. In Hamburgh, as in London, it is a considerable trade; and, being a source of wealth, is not inaptly typified by the sun. Herr Meyer, the founder of the house, is a good specimen of what trade does for men in Germany as well as in England. He arrived in the city from Thuringia, with no other wealth than his skill in carving wood; and, by care, frugality, and an opportunity of exerting his talents, he has created a large establishment, and become one of the princely merchants of the city. He is an individual example of the general opulence and general industry and skill of Hamburgh. It was, and yet is, practically and truly free—not merely nominally a free city; and the success of its industry as displayed in the Exhibition, in comparison with the industry of the many long-enthralled states of Germany, did honour to its freedom. As we have already adverted to the sculpture, and intend including that from Germany, we do not extend our present remarks to the latter. German sculpture took a high place in the Exhibition; but that art, though treated successfully by the Germans, we need scarcely remark, was not peculiarly German.

With these first and general impressions, we now proceed to make a tour (from recollection) of the Zollverein department, commencing with that on the north side. Our attention was arrested at the entrance by an object which forcibly reminded us of the military character of the principal state of the Verein, and indeed of all the German states. Planted at the centre, as if to forbid entrance, or at least to allow it only on conditions, stood a remarkably well-mounted field-piece. The gun gave you an idea of solid and substantial work. At the same time it was highly polished; and the plain varnished carriage was a perfect model, on a small scale, like one of Maudslay's engines, of compactness and neatness, combined with great strength. The workmanship had the finish of a jewel, concealing in the instrument the power of a demon. Beneath it were polished cuirasses and other instruments or emblems of war, destruction, and death. This was the shape in which an invention of a new process for the manufacture of one of the most useful things shown in the whole department, cast-steel, was exhibited. We admire Herr H. Krupp's skill, but should have thought better of him and better of Germany, had it been displayed in rollers such as are employed with great success at Munich, for grinding corn; or surgical instruments, or something more appropriate to this peaceful age and to the Exhibition, than a model field-piece.

Close by it, however, inviting you to the confidence which the gun repelled, hung an altar-piece, in which were worked and emblazoned the words, "*Gott ist die Liebe; und wer in der Liebe bleibt, der bleibt in Gott, und Gott in ihm*"—"God is love; and who dwells in love, dwells in God, and God in him." There was not much in the article to admire, but the sentiment is very expressive of the affectionate kindly character of the Germans. The care they take to provide amusement and employment, as well as instruction for their children, as exemplified in one of their chief manufactures, and which a rugged hard people would have neither patience to begin nor the kindness to continue, was another illustration of the same characteristic. The more one traces their kindness in their manners, the more it is to be regretted that a contrary principle presides over their affairs, as typified by the field-piece. The softness of their character seems to allow a long dominion to a harsh political system; and a little more rugged energy amongst them would keep better in check the violence against which they now only direct a few enigmatic sentences.

Let us pass through the rows of arms, that were somewhat ostentatiously arranged in full display, and direct our attention to the various specimens of crockery, earthenware, or china, manufactured in the neighbourhood of Frankfort-on-the-Oder. It was clear, solid, and generally of pleasing forms, approximating more to our stoneware than to anything else that we are acquainted with, but was superior to that in its clear and uniform glaze. For neatness and utility, it was scarcely surpassed in the whole collection. The porcelain, both of Saxony and Prussia, was of course much more splendid; some of that was very much to be admired, and seemed to find numerous customers, for several of the articles of the Berlin manufacture were very soon marked, "disposed of;" but the porcelain, with its admirable paintings, came within the reach of a few, while the elegant and clean-looking *thonwaaren* was attainable by the many, and must contribute to the pleasures of all who use it. This ware is largely exported to countries with which England trades; and we are inclined, therefore, to suppose that it must be as cheap as our ordinary ware, and it is, generally speaking, more elegant, and appears less brittle. Combined with several other things which came from Frankfort-on-the-Oder, it gave us a much higher idea than we before had formed of that city as a place of manufacture. From the very circumstance that much of the cutlery, particularly that from Solingen, was made after English patterns, it appeared very good, and much superior to that which was formerly, and is still very much in use in Germany. Some of the surgical instruments, too, were very good—indeed they are said to be made better in Berlin than in any other part of the continent. Some of the common jewellery, the supply of which was large, was well set; but the bulk of it, as was to be expected from the quantity, was common, and rather tasteless. Germany abounds in metals; all the zinc in use comes from that country: but, with the exception of its being applied to roof a house, a model of which was exhibited, showing some very substantial workmanship, and for spouts, we noticed no other important application of this ductile, and now much used metal. Those who have visited Germany must be well aware that there are many uses to which it might be most advantageously applied: and it would unquestionably contribute to the health and comfort of the Germans, and the neatness of their houses.

Passing to the west and north, opposite the room for the machinery of the Zollverein, we observed two specimens of massive safes for money and papers. One was remarkable for the ease with which its heavy doors were moved, and the other for the impossibility of opening it without receiving instructions from the maker, and both for their many conveniences. Four of them, we have understood, have already been ordered from Germany, in consequence of their having been exhibited among us. The machine-room looked bare, and at least was quite spacious enough for the machinery the Zollverein chose

to place in it. We believe that Germany is richer in such contrivances than the Exhibition showed. We should pronounce it very backward, were we to judge solely of the specimens that were sent. Cards for combing, made of imported materials, seemed to us very inferior to those made in Manchester. Engines for coining, punching, and milling were good, but nothing extraordinary. Civilization and the power of man are directly in proportion as he is enabled by skilful machinery to command the assistance of nature. As he makes the expansive power of steam, or the weight of the atmosphere, or the rushing of streams, work for him, he is strong and powerful. Machinery being generally private property, men cannot be constrained to display it when they fear that the secrets connected with it may be discovered; and hence the samples in the Zollverein were not specimens of the best machinery of Germany. If they were, we should form an unfavourable opinion of the past, and a very unfavourable augury for the future of that country.

Now coming back to the south, we enter the great centre room of the Zollverein, crammed full of the *bijoux* of German art, before describing which, let us direct the attention of our readers to a somewhat elegant pillar which stood on the western side. It represented a group of Amazons—they being apparently great favourites with the Berlin artists, the great Amazon in the nave being only one of many in the Exhibition—made of cast-iron, at the foundry of Berlin, but curiously inlaid with silver. It was remarkable for the simplicity of its form and the beauty of its workmanship. The striking characteristic, indeed, of most of the productions in the centre hall, where were collected the gems of the Verein, was, we think, beauty of form. The principal contents of the hall were statues, statuettes, painted glass ornaments, pictures, one or two cabinets or ladies' desks, porcelain, &c., all belonging to the fine arts, and all in general distinguished by this characteristic. Even the Berlin porcelain, which occupied a large space in the room, and part of which was copied from renowned works of antiquity, such as the Warwick vase, was as beautiful in form as it was in its ornament, and the designs on it, after Meisner, Vischer, and others, were as fine as art can produce. Less meretricious in ornament than the productions of Paris, and less encumbered with it than those of London, the artistic productions of Berlin, and indeed of all Germany, were chiefly agreeable from the beauty of their forms. Even the elaborate carvings in ivory from Darmstadt, particularly the large goblet, on which the great victory of Hermann or Arminius, from a picture in the possession of the Grand Duke of Baden, was carved in *alto relievo*, were as remarkable for their graceful shape as for their admirable execution. By crowding their finest room with almost innumerable articles of *virtú*, puzzling us to distinguish between them, and losing admiration for individual specimens in multiplicity, the Germans informed us that they set a high value on these comparatively trivial things. The production of them is what the influential government have chiefly encouraged; they have impelled the skill of the people in this direction, and we may expect therefore—or where shall we seek for the utility of royal or noble patronage?—that the arts which spring from them or grow up under their encouragement, shall be marked by superior taste. Amongst the ancient Greeks, and amongst the inhabitants of India, a keen perception of beauty of form seems to have been inherent, and is found almost equally in some of their earliest productions, which have descended to us, as in their latest. But, amongst the Saxon and Scandinavian tribes, judging from the rude figures of their old idols and earliest heroes yet extant, a perception of fine forms was not innate. It required cultivation, and has been cultivated by studying the examples of the people who were endowed with these perceptions. The highborn and well-educated, the opulent and the ruling classes, have been the means of extending that cultivation. They are conduits through which the old Greek perceptions have been conveyed to their uncultured and uncultivated countrymen. Thus we find their influence and the influence of courts

more beneficial in these arts than in any others. Modern artists cannot boast of much novelty of conception. Their finest works, whether of sculpture, painting, or architecture, are generally imitations of the ancients. Nature is as pure and as free as in the times of the Greeks; but man's present perceptions are so mixed with ancient and derived knowledge, that they are confused; and artists are often the most graceful when they return to the original forms. For many years, even for centuries, European artists and their patrons, have aimed at little more than at diffusing amongst the rude people of the North a knowledge of the forms that sprang up intuitively in the minds of the Greeks, and that they have only acquired by a laborious process. By the Exhibition this species of cultivation was rapidly extended; and it seemed likely to do more, in a few weeks or months, to diffuse amongst our people a knowledge of graceful and artistic forms, than had before been done in ages. For the first time almost in our history, the common people of England were brought familiarly into contact with, and derived instruction from, the clear, definite, and brilliant conceptions of the Greeks, embodied in forms that have been preserved and spread by the influence of artists and courts through all Europe. Of our people, too, we are happy to say that the females share largely in the enjoyment and improvement. By a curious, and yet easily traced connexion, establishing a moral relation between the most ancient and most modern nations, the keen powers of perception of the beautiful in nature with which the old Greeks were endowed, and which were denied to the ancestors of our race, causing a great moral difference between them, are now made to subserve to the improvement of the English. By the Exhibition the bulk of our people were made familiar with form derived from antiquity, and of which they could otherwise never have attained a conception.

Among the articles of *virtù* exhibited by the Zollverein, the bronzes were well worthy of attention, particularly a statuette of Beethoven; we may also notice a large collection of miniatures on ivory, painted in a bold style, by a new method, by Hilder, a Wurtemberg artist. Amongst the articles of utility, the cloths, which were very abundant, took the first place in the Zollverein; and remembering that the manufacture of fine cloth is rather modern in Germany, and that homespun woollens, till very recently, formed the staple dresses of the bulk of the peasantry, the progress of the Germans in making fine cloth does them great credit. For some of that they may thank our restrictive laws, which partly force their industry into that channel, and compel them to grow wool and weave it, instead of growing corn and exchanging it for woollens. The damasks of Saxony and the linens of Silesia, the latter now not so highly honoured as they were wont to be, also occupied a large space in the halls and in the galleries, and they are very old and very favourite productions of Germany. In damask linens they excel; and the productions of Messrs. Proels, senior, and Sons, of Leipsic, in the Saxon department, may be mentioned as an excellent example of the produce of the German looms. Many of the woollens that came from Prussia were as remarkable as the celebrated Berlin wool for the richness of their dyes; and there were some common enough cloths at the end of the gallery of the Zollverein, on the south side, worth notice on account of the boldness and distinctness, and the meaning—for many of our patterns are utterly destitute of any meaning—of the designs which ornament them. We discovered, on referring to the catalogue, that the designs were copies of wood-cuts after Albert Durer, and we do not see why such things should not generally be reproduced, rather than unmeaning scrolls. We need say nothing of the patterns and the wool which were profusely displayed throughout the Prussian department, which has acquired a world-wide reputation as Berlin work, the delight of our wives, daughters, and mothers, and very often of no little comfort to ourselves in its results, if we are occasionally annoyed by it in its progress. Patterns, as well as the materials for embodying them in the canvass, abounded in almost

every part of the Zollverein, together with carpets, rugs, table-covers, &c. In fact, the two circumstances of the splendid dyes and the excellent designs, for which Prussian workmen and artists are famous, have combined to make Berlin work so general a favourite. In damask linens, in fine cloths of various kinds, and in woollens of every description and for every use, the Zollverein was particularly rich. Taken as a whole, woollens were not only the most useful, but the most conspicuous production of German industry, and that in which they have attained the greatest excellence, and are making the most rapid advances. Connected, too, with them, we must add that there were numerous specimens of very fine wool, the produce of the German provinces and other flocks. Berlin has been famous, at least since the time of Diesbach, 1710, when Prussian blue was discovered, for its chemical products; and all through the eighteenth century, as well as before it commenced, some of the most distinguished names in the annals of chemistry were those of Germany. After the woollens, the chemical products of the Zollverein in the Exhibition ranked high. The specimens of beet-root sugar, which were perfect, and the product entirely of chemical art, the specimens of perfumery, of various salts and pigments, the crystals of several substances exhibited, all testified to the fact that the Germans continue on this point to deserve their well-acquired reputation.

In the vast and very miscellaneous productions which they sent us, we can only particularize a few more. We observed numerous specimens of types and of books, ornamented and plain, which did honour to German typography and their skill in illustration. Contrasting some of the books displayed there by Decker and others, with the ordinary books and newspapers of Germany, it is impossible not to wish that in the matter of paper at least some of the substantiality of the books exhibited might be imparted to the common productions of the booksellers. But it is probable, after all that is said of the durability of books, that the most flimsy are the best adapted for our transition age, as not likely long to stand in the way, either on our bookshelves or in our minds, of the improved works of which they are to be the parents. Connected with books, were many maps, geological as well as geographical, with a large globe to show the comparative elevation of the mountains of the earth, and other helps to diffuse knowledge. The Germans are not behind in applying papier mâché, which will take any form, and which, though made from refuse, is one of the products of human skill best adapted, of all those yet acquired, to various figured ornaments, as well as to many useful instruments and utensils. The Germans exhibited many specimens of their success in papier mâché, the name of which informs us that the art is neither of English nor of German invention. As we had specimens of our coal, so the Germans, particularly in the Hamburg department, exhibited many specimens of their charcoals, of which they make great use, and which they apply in various forms to various purposes. They showed us, also, many of their mineral products, particularly from Nassau, from which little else had been brought than ores of lead, copper, zinc, manganese, iron, &c. Other things in which they excelled, or at least made a good show, were philosophical and musical instruments—characteristic of their harmony and their devotion to science. In the Hamburg department, we found not only some excellent furniture, but veneers fifty-four plates to the inch: or the mahogany was cut into planks, each of which was only the fifty-fourth part of an inch thick. Till a recent period, when Sir Robert Peel abolished the duties on furniture woods, the inhabitants of Hamburg had a considerable advantage over our furniture makers, and they sent great quantities of furniture over to various parts of America. They still carry on this profitable and useful business; but our people are now in a better condition to compete with them than they were, and, by the abolition of the duties, a valuable trade has been preserved to our country.

Here we must stop. Though the productions of German industry were by no means

so numerous, so rich, nor so varied as those of French industry, with which, excluding Austria, they might be most appropriately compared—though the Germans were in the Exhibition remarkably deficient in machinery—their products were numerous and miscellaneous. In general, except as to cast iron, bronzes, chemicals, dyes, and some woollens, German industry seemed a step below that of either France or England. It is, however, plain, that the Germans have a great aptitude for improvement: we regard them as only recently aroused to a due sense of their relative position in knowledge, skill, politics, and morals, to the rest of Europe. They occupy a noble country; and as they become sensible of their wants, they cannot fail to achieve a commanding success. In them we have great reason to be interested, and them we must wish to see strong, prosperous, and united. They stand between European civilization and Cossack barbarity; and the hope we have that the latter will not be suffered to advance and prevail westward, rests on the Germans, and rests on the improving people as contradistinguished from their interfering, and, we are afraid, sometimes retrograde rulers.

Before we entirely take our departure from the Zollverein department, we must not omit to notice one very amusing and interesting feature it possessed; we allude to the collection of stuffed animals, which were indeed so admirably got up, that they were worthy of the attention of Waterton himself, the great Nimrod of South America, of whose prowess in the savage wilderness, among the *feræ nature*, his own ancestral halls in the heart of Yorkshire afford ample testimony, and whose redoubtable arm slew, in single combat, every grim specimen he has therein collected and so skilfully preserved. Judging from the crowd that was always collected around the stuffed animals in the Zollverein department, it would seem to have been the most popular group of objects in the Glass Palace. Doubtless, some part of its attractiveness was due to the predominance of family parties in the collection. Quite independently of treatment, any artist who introduces the young of animals and the instincts of maternity in operation, is sure of attention. Here we had partridges and their young, hawks and their young, a hooded owl protecting her nestlings from the onslaught of weasels, a female fox and her cubs awaiting their sagacious sire, who is bringing them a partridge to feast upon. There were also groups in caricature. Stoats and weasels, in sportsman-wise, pursued their game of young hares and rabbits. A party of kittens were enjoying the pleasures of the tea-table, and various other amusing groups were exhibited, in which the artist had succeeded in throwing a most whimsical air of sentimental gentility. The most attractive portion, however, of this display, consisted of a series of *tableaux* from the old poem of *Reynard the Fox*, a great favourite with the German children, and which we remember to have seen powerfully illustrated in the dark mysterious etchings of Roland Roghman. The incidents that were selected for representation were, the Cock receiving Reynard's confession of sin—Reynard leading the Hare to Court as a witness—Reynard at Home, carelessly reposing on a sofa, his tail resting on his left arm, and equipped with sash and dagger, *à la brigand*. Our hero was next seen attacking the hare on his way to court, after which he was represented giving the cat a letter of introduction to court. It was impossible to conceive anything better than the attitudes of all these animals, and they had just as much clothing put upon them as was necessary to produce a good effect.

CHAPTER XVIII.

LABORIOUS TRIFLES—INGENIOUS ABSURDITIES—THE ISLAND OF LAPUTA—DUNIN'S IRON MAN—THE EARTH A LIVING CREATURE—THE MEDICAL WALKING STAFF—ARTICLES IN MUTTON FAT—WONDERFUL ACHIEVEMENT WITH A PENKNIFE—CHINESE NICK-KNACKS—WILLOW WOOD COTTAGE—ELABORATE CORKSCREW—SELF-ADJUSTING RAILWAY—WONDERFUL KNIVES AND SCISSORS.

As the whole world was invited to display their talent, their industry, and their inventions, and to contribute to the vast display of human genius in the great show of the World's Fair, it was to be concluded that the public would occasionally have to put up with the productions of dreaming insufficiency, as well as to be gratified with the elaborate creations of scientific usefulness, and which, indeed, might serve as a foil to the more predominant examples of opposite excellence. And this was singularly the case. We will accordingly proceed to enumerate a few of the absurdities, which, in amusing variety, were brought before the eyes of the curious and astonished observer in the Crystal Palace.

“There are more things in heaven and earth
Than are dreamt of in your philosophy,
Horatio,”

was the shrewd observation of the sagacious Hamlet, but we feel assured that even his philosophy never indulged in such wild speculations as were put forth in the ever-memorable year of 1851, to an admiring world, in the far-famed precincts of the wondrous House of Glass.

Philosophy in Sport made Science in Earnest, was the title of a little book which we recollect reading with very great pleasure some years ago; and, published at a time when the generality of the community had hardly begun to inquire “in earnest” into the important secrets of natural and physical science, now every day producing such useful practical results, the modest duodecimo in question did good service by awakening and inviting very many individuals to the pleasures and advantages of various branches of study, which they would otherwise never have dreamed of including within their province of intellectual observation. But “philosophy in sport” is not always “science in earnest,” and industry, unguided by the unerring truths of philosophy and the essential demands of utility, is sometimes nothing better than industry “run mad.” Industry is one thing, and caprice is another and a very different thing: in like manner, we may say that ingenuity is one thing, and whimsicality another; persevering good sense is one thing, and persevering folly a very different thing: so of workmanship and the production of a useful article, when compared with a prolonged waste of human labour in concocting and finishing a trifle, a toy, or an absurdity. These things all involve a different species of effort and result, and call for a very different sort of estimate. Amidst the innumerable examples of well-applied labour in the Great Exhibition, it must, nevertheless, be confessed that there were also a considerable number, amounting, indeed, to a motley variety of articles, in the construction of which we are bound to say that much thought, and yet more labour, have been grievously misapplied.

Foremost amongst these we must place Count Dunin's “Man of Steel,” which is an invention of so singular and so puzzling a nature, that we feel convinced the author of it must have taken his degree in the academy of Laputa, among the celebrated professors there so admirably described by Swift. Indeed, as respects the utter inutility of his most

elaborate production, he has gone far beyond the experimental philosophers of the Flying Island. The worthy experimentalist who ingeniously attempted to extract sunbeams out of cucumbers, had at least some pretence towards a useful purpose; and the learned and literary world would have had reason to bless, had it but succeeded, the projector of the noble idea, far superior to the wonderful calculating machine, from the aid of which "the most ignorant person, at a reasonable charge, and with little bodily labour, might write books in philosophy, poetry, politics, laws, mathematics, and theology, without the least assistance from genius or study." We shall not attempt to enter into a description of this most desirable piece of machinery, but we think it might be worth the while of the ingenious inventor of "the great iron man" were he to carefully peruse the whole of the renowned Gulliver's account of the proceedings of these sublime philosophers of Laputa, nothing doubting that he would profit by many of the hints and descriptions he would there find detailed. This piece of mechanism was in the figure of a man, and was constructed of seven thousand pieces of steel. Most of them appeared to be either springs or slides, and they were so put together and arranged as to be capable of a graduated movement, by means of which the proportions of the whole figure might be expanded from the standard size of the Apollo Belvidere to that of a Goliath. From these colossal proportions it might again be contracted at pleasure to any size between them and its original standard. The mechanism was composed of 875 framing pieces, 48 grooved steel plates, 163 wheels, 202 slides, 476 metal washers, 482 spiral springs, 704 sliding plates, 497 nuts, 8,500 fixing and adjusting screws, with numerous steadying pins, so that the number of pieces was upwards of 7,000. The only utility we ever heard suggested as derivable from this elaborate piece of mechanism, was its applicability to the various measurements of army clothiers or tailors, as it would serve for the figures of men of various sizes. We do not know whether this was the purpose assigned to it by the inventor, as it seems a very absurd one; the same result being far more easily attainable by the incomparably more simple means of half-a-dozen dummies, or wooden lay-figures.

But hold! it behoves us to speak with deference and humility in this matter, seeing that the Council of Chairmen of Juries, the supreme heads of wisdom, to whom the dispensation of the Exhibition honours was intrusted, thought proper to reward the constructor of this huge mechanical toy with a "Council Medal." Yes, hear it Troughton and Simms, who talk about novelties in astronomical instruments, to which a council medal was denied, though recommended by the jury; hear it Claussen, whose newly-discovered, and nationally important processes in the preparation of flax received only a common medal; hear it, Losely, whose compensating pendulum, one of the most ingenious and valuable improvements in horology in the whole Exhibition—hear it Applegarth, whose vertical printing machine—hear it all ye whose performances had to share the common fate of merit in "a certain degree;"—the Jury in Class X. ("that of philosophical instruments, and processes depending upon their use,") awarded, and the Council of Chairmen confirmed to Count E. Dunin a council medal—"For the extraordinary application of mechanism to his expanding figure of a man!" After reading this result, we began to be somewhat doubtful about all we set out with touching "philosophy in sport," and nice distinctions between "ingenuity" and "whimsicality" and so forth; and in a moment of bewilderment and irritation, were almost upon the point of consigning the notes upon which the rest of this article will be composed to the fire. But fortunately, we were restrained from so doing, by an urgent application for "copy" from a quarter which is not used to be denied, and therefore we proceed with the task upon which we set out. Still in the philosophical instrument department, we come upon "an apparatus of a peculiar construction, showing the ebb and flow of the tides,"

exhibited by a Mr. Ryles, of Cobridge, Staffordshire Potteries, who thus describes the novel theory it is intended to illustrate:—"The article I sent to the Exhibition, is an apparatus to illustrate the idea of the earth being a living creature encased in a shell, as a snail-house or sea-shell, and by the action of the heart, causing the tide to ebb and flow! Press down the blower, and the heart (as seen through the glass that is on the top of the shell), will contract, causing the tide to rise; let out the air of the shell, and the heart will expand, causing the tide to fall." He adds, "I want a patron that would enable me to show how *the tide causes the rotatory motion of the earth*, which only poverty prevents my doing." Mr. Ryles has *not* received a council medal, nor a prize medal, nor even "honourable mention," which, considering the honours heaped upon the "expanding figure of a man," we consider hard. The least Count Dumin could have done, would have been to have shared his council medal with Ryles, and, thrusting the model of the "living creature" constituting the earth, into his "extraordinary application of mechanism," exhibit its expansibility by revealing "the action of the heart" of the encased monster.

Dr. Grey invented a medical walking-staff, containing instruments, medicines, and other professional articles. Would not a small tin case have answered the same purpose far better, and far more conveniently, as it might be put into the pocket, where the "medicines," not being half so much "shaken" as in the walking-staff, would have less chance of fermentation or other injury? An "artificial silver nose" has been invented by Mr. Whitehouse. We will not pronounce rashly upon this; but it strikes us, that all artificial noses, both in shape, size, and the amount of nose required, will depend upon the amount wanting by an individual, and the size and shape, in fact, suited to his particular case; the material also of which the nose is manufactured would very often have to be regulated by the special circumstances.

Art-manufactures in *mutton fat* are certainly a novelty, and Mr. W. E. Hall, of Bideford, exhibited "a socle, or kind of vase," made of a mixture of mutton fat and lard. We should fear that in a hot summer, or in a cold winter, when a good fire is needed in the room, these articles would be extremely liable to a change of form not at all contemplated by the inventor; nay, there might be occasions on which they would "run away" altogether. Mr. M'Clintock, of York, exhibited a chain in regular links, the whole of which, we are informed, had been cut out of a solid block of wood: to what purpose, except to the unnecessary length of time such a performance must occupy, we are totally at a loss to conceive. Mr. M'Clintock has, however, been surpassed by a lieutenant of the navy, whose name has escaped us, and which we do not know where to look for in the Catalogue, who had achieved the same result from a block of wood, with the help of no other tool than a penknife. Will anybody endeavour to surpass them both, we wonder, by doing the same thing with a pin? We do not very well know what to say about the "ostracide," the instrument with a grand name for opening oysters, and bearing a close resemblance to a pair of sugar-nippers. It may be useful, or it may cut the oysters to rags in the operation; we hope not; but Messrs. Brown, of Newcastle, will excuse us if we hint, that, to avoid this, it may be necessary to practise opening oysters with the ostracide almost as much as with the old-fashioned oyster-knife.

"The semibreve guitar" of Mr. Dobrowsky was a good thought enough for a new name, and for a fresh attempt to prolong the sound of the notes of the guitar; but if the inventor would have us understand by the term "semibreve" that his instrument will sustain a note of any such duration, we must plead absolute scepticism to the possibility of any instrument of this kind being made to accomplish such a result. The enharmonic guitar, manufactured by Panormo, of High-street, Bloomsbury, claims for

its original inventor and designer no less a personage than the ingenious Colonel Perronet Thompson, M.P., who some years ago invented a new kind of organ. Of the enharmonic guitar lately exhibited, it was announced that it was "capable of being arranged in the perfect ratios for upwards of twenty keys." We do not doubt this; we accept it at once, not only from what we know of the scientific capabilities of a guitar, but of the great scientific attainments of Colonel Thompson: but after his enharmonic guitar has been "arranged" for any of these keys, what will be the effect of "playing" in them, amidst all this mechanical interference with the finger-board? So much for the impediments to execution, to say nothing of tone. We must say, in justice to Mr. Panormo, the manufacturer, that, being convinced his own simple guitars on the Spanish model have more tone in them than any other, we regret he should have employed so much labour in the construction of this very ingenious, learned, and impracticable invention.

Mr. Jones, of Lombard-street, exhibited "a silent alarm bedstead to *turn* any one *out of bed* at a given hour." This is certainly one of the most amusing inventions we ever heard of. It assumes a degree of density in the sleeper which no alarm can affect, or else a singular amount of luxurious weakness of purpose. The bed, therefore, acts the part of resolution for the sleeper; and having been "set" over night for a given hour in the morning, the said incorrigible sleeper finds the bed revolve so as to tilt him out; and a bath being placed by the bed-side, he may at once be relieved of all need for summoning a resolution either to get up or to take a plunge.

The Chinese have long been famous for their caprices of invention, and whimsicalities of workmanship, over each article of which the greater portion of the lives of several artisans appear to have been expended. They exhibited some of their celebrated ivory balls, richly carved outside, and containing another, a size less, inside, richly carved also, with open-work, to show you that there are balls within balls to the extent of twenty or more, each cut clear of the rest, and carved and capable of being turned round—the whole of these being produced by means of a variety of curious tools and instruments, out of the first solid ball. This, they assert, nobody else can do; and it may be true, for the Chinese are capable of wasting any amount of time upon any triviality. But the Chinese are not the only people who have a love for difficulties, for the sake of the unnecessary labour and time they involve, which give the articles so much additional value in their eyes. If Quang Sing, of Canton, carves and engraves upon peach-stones, and makes baskets and boxes with the stones of apricots and nectarines, Mr. Jacob, of Coventry-street, displays egg-shells with carvings and engravings upon them, and "views inside." If Shee-king, of Macao, delights in wasting his own life, and the lives of others whom he employs, in carving a nest of ivory balls out of one solid ball, instead of obtaining a similar result, (if the world *must* have these toys) by the regular tools and simple means of ivory workmanship, we find several of our own countrymen equally assiduous in substituting a common penknife in order to perform operations which proper tools would effect far more easily in a tenth, perhaps a hundredth part of the time. There seems, in fact, a sort of mania for this penknife-work. Mr. Aston, of Chelsea, executed a model of St. James's Church, South, in cardboard, with a penknife; Mr. Scollick, of Birmingham, exhibited a model of St. Paul's Cathedral; and Mr. Dickenson, of Waterloo-place, a model of York Minster, each in cardboard, and each employing no better instrument than a penknife. M. Schmitzer, of Jerusalem, exhibited two vases carved out of a species of sandstone found in Jerusalem, with a penknife, which the proprietor, Sir Moses Montefiore, gravely takes care to inform the world was "an ordinary penknife."

In like manner, we found an exhibitor who displayed a model cottage composed of

2,000 pieces of willow wood (these also were all carved with a penknife); and there was a table to be seen which was composed of 2,000,000 of separate morsels, all inlaid in mosaic-work. The practical philosophers and economists of modern times complain of the great waste of human labour in the construction of the Pyramids of Egypt—let them consider the same subject in reference to this table. Many of our readers were, doubtless, like ourselves, much struck with the model of a ship, made with bottle-corks, and rigged in the same fashion. The object of this “caprice” we cannot fathom. Mr. Cossens, of Holborn, exhibited a model made in elder pith; and Mr. Clifford, of Exeter, displayed models made “of the pith of the common green rush,” which he carefully informed us was such as is “used in making rushlights.” In one of Hogarth’s prints there is a capital satire upon the expenditure of extraordinary means to produce a simple result. You see a pile of complicated machinery, which indicates that an operation requiring great power is about to be displayed. The skill of the artist in the design and the arrangement of light and shade causes the eye to travel about and examine the various parts of the machinery, in order to ascertain the work it is about to perform, when finally you discover, at the bottom of the great machine, an ordinary wine-bottle, the neck of which is corked, and the whole of this machinery is evidently employed in “drawing the cork.” Of a similar kind of elaboration, in order to effect a very simple object, we fear we must class some of the new inventions in horns and flutes, to the former of which many complicated crooks and curves, and to the latter many scarcely practicable keys have been added, merely to enable the instrument to produce a certain note which might be omitted with no great loss, or produced by other means. Nothing injures tone more than a superabundance of mechanism. Vivier always plays on the old French horn, without any of the complicated improvements, and Nicholson used to play on a flute much simpler than many now exhibited, and we have never heard any performer who gave so much tone to the instrument.

An American inventor, of the name of Wood, exhibited a combination of the pianoforte and violin, with which he assumes that pieces can be played with the effect of these two instruments in concert. Something like this, no doubt, may be accomplished by giving an attachment to the piano, which shall produce a resemblance to the sound of a violin; but in the present instance the inventor has literally attached a violin, played upon by four bows, which are put in motion by a separate set of keys on a small upper finger-board, which cause the bows to “saw” (as we may truly say) upwards and downwards, with an effect which we frankly confess to be indescribable. One might see the whole operation, and a more ludicrous thing, both to see and hear, it has seldom been our lot to experience. Moreover, there was nothing new in the contrivance. The “Philosophical” Jury, Class Xa, however, discovered some peculiar merit in it, and awarded the maker “£50 for the expenses incurred in constructing his piano-violin;” a slice of “solid pudding” (as *Punch* describes his imaginary award of £20,000 to Sir Joseph Paxton), far more acceptable than medal or “honourable mention.”

An inventor exhibited “a model of a carriage,” which supplied its own railway, laying it down as it advanced, and taking it up after the wheels had passed over. This was no doubt extremely ingenious, but, unfortunately, it *supposed* the existence of a level line for the operation, so that its utility becomes rather questionable. A drinking-glass was exhibited, with a partition for soda and acid, to be mixed separately, the junction of the two streams effecting effervescence only at the moment of entering the mouth. Few people could “stand this,” we should think. In the windows of most of the great cutlers of London may be seen knives with an extraordinary number of blades; and on the ground-floor of the Grand Exposition was exhibited a large glass-case, as big as a handsome summer-house, full of all sorts of fine cutlery and other workmanship in

steel, the most prominent features of which were several of these preposterous knives. Some seemed to have 50 blades, of all sorts of shapes and sizes, others 150 blades, and one or two of them, we felt assured, could not display less than 400 or 500 blades. To accomplish this capricious feat, the inventors were always obliged to have recourse to a strangely thick handle of an utterly impracticable kind as to all handling: and in the glass-case referred to might be found one in the shape of a cross, thus combining four handles, each one crowded with blades; another had the handle in the shape of a star or double cross, thus combining six handles, each one bristling with blades, and arranged at the end of each handle in the form of a fan of bright penknives and blades of instruments. But all these were surpassed in capricious ingenuity by a "knife," the handle of which, if we must call it so, is a combination of three handles, each in form of a cross, the largest being in the middle. The three crosses are combined by an upright shaft, and each of the three comprises four handles. Thus, we have twelve handles in one, and from each of the twelve there stuck out a shining fan-work of blades and steel instruments of all conceivable shapes, and all real or imaginary offices, not one of which could be put in operation amidst such a crowd. It was one of the most wonderfully useless things we ever saw. As to the number of blades and tools, they defied calculation. In the same case might be seen miniature knives, which were actually of the same kind, and presented numerous blades from a handle of an inch and-a-half in length. Also miniature knives and seissors of an inch long, of half an inch long, and of a quarter of an inch long; and, by way of completing the wonder, twelve pairs of miniature seissors, placed in little brass scales, which showed that the whole twelve only weighed half a grain. They required a microscope to be seen properly, when it became manifest that they were perfectly formed seissors. We suppose Messrs. Rodgers would say, in explanation of all this fancy-work, that the *use* of it was to show the world what Sheffield could do, not only in work, but in play.

CHAPTER XIX.

SCULPTURE—*continued.*

JOHN HAMPDEN—SHAKSPERE—FLAXMAN—THE ELDON GROUP—DR. JENNER—THE MARQUIS OF BUTE—BACCHUS—ARIADNE—VIRGINIUS—EARLY SORROW—EVE—THE LION IN LOVE—CUPID—PAOLO AND FRANCESCA—YOUTH AT THE STREAM.

OF all the forms of the beautiful, perhaps none excite the admiration and sympathy of the public mind in a higher degree than the products of the sculptor's art. To the uneducated eye, the human form, modelled in clay or chiselled in pure white marble, seems fraught with grace and vigour, and an unconscious education of the feelings is going on as it gazes on the wondrous symmetry of a Venus de Medici, or beholds the agonizing throes of a Laocoon. To the man of taste and refinement the process of thought and appreciation is different, though the ultimate effect is the same;—to both there is profit. While the ordinary mind is absorbed, spell-bound, entranced in a kind of admiring awe, the educated man admires, criticises, appreciates. Though the art-education of both men has been conducted on different principles, the result arrived at is precisely similar, and both are equally informed and humanised.

The art of sculpture, with the kindred arts of modelling, carving, and casting, are of

very remote antiquity. The ancients availed themselves of almost every known substance capable of being cut or moulded into form; and we find the remains of figures, architectural ornaments, vases, lamps, and pedestals, in marbles, woods, metals, ivory, bone, granite, porphyry, basalt, alabaster, stucco, wax, clay, and terra cotta, or baked earth. There is no reason to doubt that the art of sculpture was known before the flood; and we have certain evidence that it was practised in India and America by civilised races of men, known now only traditionally, and of whom no other traces remain. Indeed, the late discoveries of Mr. Layard in Nineveh, prove incontestably that the sculptor's art was practised, and arose to a remarkable degree of perfection, thousands of years ago. Universal as language, the art has risen from the rude forms of savage worship to the perfection in which we view it in our public buildings, our streets, and lately in the Crystal Palace. The productions in sculpture are either complete figures or groups, which may be viewed from all sides; or objects more or less raised, without being entirely detached from the back-ground with which they are connected. This is called *relief*, the kinds and degrees of which are defined by modern writers and artists by the words *alto*, or high relief, where the objects project so as to be nearly distinct; *basso*, or low relief, where the figure is slightly raised from the back-ground; and *mezzo*, or half-relief, where not more than the face and half the figure is raised from the place on which it is sculptured. Examples of these were to be seen in the Exhibition, and there are some also in the British Museum. Nothing can be more simple than the mechanical processes of sculpture. As soon as the artist has conceived his subject, and made his drawing upon paper, a model in clay, or some soft material, is executed in *little*. In the production of the model it is that the artist-mind is displayed; if *that* be true and natural, its transference to stone or bronze is a matter of comparatively minor importance. Upon a frame of wood or iron, the figure is built up to the size it is to assume in the chosen material, and moulded by the hands and certain simple instruments in wood and ivory. Arrived at this stage, the drawing, or original idea of the future statue is reconsidered; and by the assistance of the human figure, minutely studied, is carried to completion. Statues are frequently modelled nude, and afterwards draped; and that accuracy of form, and gracefulness of outline may be obtained, draperies are commonly placed upon lay figures, the details of which are copied by the artist. When the clay model has sufficiently dried and shrunk, a mould is made of it by covering it with gypsum or plaster of Paris. When this is sufficiently hardened, the clay within is carefully removed, and there remains an exact mould of the model. This being carefully washed, and the interior brushed over with a composition of oil and soap, the mould is thoroughly filled in all its parts with a semi-liquid mixture of gypsum, which, in a few days, becomes sufficiently hard to allow the mould to be removed, and thus a complete cast of the model is procured. From this short description of the method almost universally pursued, it will be seen how the plaster casts in the Crystal Palace have been produced.

The model is to be executed in marble. The process of transference is a matter of mechanical rather than inventive skill. By means of a long steel needle, attached to a pole or standard, and capable of being withdrawn or extended, the exact situation of numerous points and cavities in the figure to be imitated are ascertained; and the statue is rudely blocked out and pointed. A superior workman, called a carver, then takes the marble and copies the more minute portions of the work by means of chisels, files, and rasps; and the statue being now in a sufficiently forward state, the final finishing touches are given by the sculptor himself. In the production of the model and harmony of effect, beauty of feature, variety of texture and surface, and consistency of detail in form and expression in the finished statue, the sculptor's skill is eminently displayed;

and while the ancients relied almost on the chisel for their effects, the modern artist in marble approaches the surface of his statue with extreme caution, and employs safer means of giving a perfect finish to what may bring him both fame and fortune. With this preface, then, we shall now proceed with our remarks on the sculpture in the Great Exhibition, and, in doing so, begin with a noble name, dear to Englishmen, and to every lover of freedom throughout the whole civilized world. We allude to the immortal Hampden, whose stalwart form in plaster cast, modelled for a statue in marble, which now is placed in the new palace at Westminster, formed a conspicuous and attractive object in the Crystal Palace. And certainly, when we consider the part its original played in the history of his country, we can conceive no better site for it than among the senators of Great Britain "in Parliament assembled." The contemplation of this fine statue failed not to recal to our minds the interesting actions of this noble man's life. Born in London, in 1594, he entered at an early age as a commoner at Oxford, which seat of learning he left for the profession of the law, studying for a short time in one of the inns of court. The death of his father, however, putting him in possession of an ample estate, he retired to Buckinghamshire, and for a while pursued his quiet career as a country gentleman. Events, however, arose, which called forth the natural energy of his mind. Cousin-german to Oliver Cromwell, he could not look calmly upon the usurpations, as they were considered, of Charles I.; and, therefore, he soon attached himself to the popular party. In 1626 he entered the House of Commons, and soon after married a lady of the Foley family. In Parliament he uniformly opposed the arbitrary practices of the kingly prerogative, and the illegal impost of ship money; and, being prosecuted for his adherence to the popular cause, and for the part he had taken in reference to a contemplated emigration to New England, he defended himself in person against the crown lawyers in the Court of Exchequer during a trial which lasted twelve days. Although he lost the cause, his defeat was looked upon as a triumph to the popular party. Henceforth he took a leading part in the contest between the Crown and the Parliament; and when at last an appeal was made to arms, he accepted the command of a regiment in the Parliament army, under the Earl of Essex. His military career, however, was short; but it was long enough to prove his courage and perseverance. Prince Rupert coming suddenly upon the Parliamentary troops, near Thame, in Oxfordshire, Hampden eagerly headed a few cavalry that were rallied in haste, and, in the skirmish that ensued, received a wound in the shoulder, which proved fatal. After lingering in much pain and suffering for six days, he died on the 24th of June, 1643. His death was as great grief to his own party as it was a source of joy and congratulation to the adherents of the crown. Time, the great leveller, has enabled us, however, to look with cooler judgment and clearer sight upon the great transactions in which Hampden and Cromwell were engaged. Party feeling on the subject of prerogative has died out, and all parties are in this day agreed to call the original of this fine statue by his ancient cognomen—"the patriot Hampden."

As we are now upon the subject of great men, we will advert to a name illustrative of all that is great and excellent in the world of poetry,—“Sweetest Shakspeare, fancy’s child,” to whose worth, all writers in every succeeding period, from the grave and philosophic Milton to the incomparable author of *Rasselas*, have delighted to bear testimony.

The former has summed up his eulogium in the following vigorous sonnet :—

“What needs my Shakspeare for his honored bones
The labour of an age in piled stones,
Or that his hallowed relics should be hid
Under a star-ypointed pyramid ?

Dear son of memory, great heir of Fame,
 What need'st thou such weak witness of thy name?
 Thou in our wonder and astonishment
 Hast built thyself a live-long monument,
 For whilst to the shame of slow-endeavouring art,
 Thy easy numbers flow, and that each heart
 Hath from the leaves of thy unvalued book,
 Those Delphic lines with deep impression took,
 Then thou our fancy of itself bereaving,
 Dost make us marble with too much conceiving,
 And so sepulch'r'd in such pomp dost lie,
 That kings for such a tomb would wish to die."

We have presented our readers with an engraving of a statue of our immortal bard, by Bell, which, from its graceful and dignified character, attracted considerable notice among the lovers of the plastic art.

Descending to more modern times, we must not forget to notice the statues of lords Eldon and Stowell, remarkable for the accuracy of the likenesses, and the calm dignity of the attitudes. These noble statues, executed by the late Musgrave Watson, were carved each out of a single block of marble, the whole weighing upwards of twenty tons. The admirable group, representing the brothers, John, first Earl of Eldon, who was nearly twenty-five years Lord High Chancellor of Great Britain, and William Baron Stowell, twenty-nine years Judge of the High Court of Admiralty, is the property of the present Lord Eldon, for whom it was executed by the above-named eminent sculptor. Alas, for the fame of the gifted! Mr. Watson lived long enough to achieve but not to enjoy fame. It is the old story over again: genius lives in obscurity and dies in poverty; and then all at once the world wakes up to the knowledge that a great spirit has gone from out its portals. Quite grieved and beside itself, the world of wealth wrings its hands in impotent regrets, and raises a monument to the memory of the genius which a little encouragement and a little sympathy would have kept alive. Let us pass on. Although we have already, in a former part of this work, paid the passing tribute of a word in favour of another statue by this lamented artist, which graced the sculpture court,—we again, to give him "honour due," bring the name of the illustrious Flaxman to the recollection of our readers, in order that such of them as had not an opportunity of admiring the exceeding beauty and tranquillity exhibited in the features of the talented artist during the late Exposition, may now be informed that they may still enjoy that privilege, by paying a visit to the Flaxman Gallery at the London University, where, through the praiseworthy exertions of a friend of the great artist, and the generosity of his near relative, besides the statue itself, an interesting collection of *bassi relievi*, and finished pieces of sculpture from the same talented hand, are placed in a handsome apartment, in lasting memorial of his immortal genius.

We next have to notice the fine models for statues of Dr. Jenner and the late Marquis of Bute, by Mr. J. Thomas. The names of both physician and peer are familiar to the public ear, the first as the discoverer of vaccine inoculation (a discovery of incalculable importance, considered in its proper light), and the last as being the descendant of the famous prime-minister under whom the peace of Fontainebleau, in 1763, was concluded.

In our description of the sculpture from Tuscany, we omitted to make mention of several pieces of merit which we shall in the course of these strictures duly enumerate. And first we shall direct the attention of our readers to a fine recumbent figure of Bacchus—

"Bacchus who first from out the purple grape
 Crushed the sweet poison of misused wine—"

and a graceful and poetical representation it is of the joy-inspiring god, not the semi-Silenus of the drinking songs of our forefathers, but as he is invariably represented in the Grecian mythology, almost "*severe* in youthful beauty," and a fitting inamorato of the fair Ariadne whom he wooed and won. Even the grave and lofty Milton deemed him worthy of his muse in his poetical epistle to Diodate—

And why should revelry and wine
Be shunned as foes to song divine?
Bacchus loves the power of verse,
Bacchus oft the Nine rehearse;
Nor Phœbus' self disdains to wear
His berries in his golden hair,
And ivy green with laurel twine;
And oft are seen the sisters nine
Joining in mystic dance, along
Aonia's hills, with Bacchus' throng.
In frozen Scythia's barren plains
What dulness seized on Ovid's strains;
Their sweetness fled to climes alone
To Ceres and Lyæus known.

What but wine with roses crowned
Did the Teian lyre resound?
Bacchus with pleasing frenzy fired,
The high Pindaric song inspired;
Each page is redolent of wine
When, crashing loud, the car supine
On Elis' plains disjointed lies,
And soiled with dust the courser flies.
'Rapt with the god's all-pleasing fire,
The Roman poet strikes the lyre,
And in measure sweet addresses
Chloe fair with golden tresses;
Or his loved Glycera sings,
Touching light th' immortal strings.*

Whilst we are on this classic ground we must not forbear to notice the "Ariadne" by Kirk, who was represented sitting by the sea-shore, in melancholy-wise, after she had been deserted by the faithless god. Our readers will doubtless recollect the beautiful picture by Titian illustrative of the same subject.

"Virginius and Daughter," the production of P. Mac Dowell, R.A., next claims our attention. It was worthy of it; we all recollect the story of the stern old Roman who preferred plunging a dagger into his daughter's heart rather than she should become the mistress of a tyrant. How exquisitely was the idea rendered! The indignant father, with his dead child on his knee, raised his hand to heaven and denounced the base Appius Claudius, in a voice that was impressive enough to command for him sympathy and popular applause. Considered as an artistic performance this group might be pronounced first-rate. It stood in the south transept. Mr. Mac Dowell's "Early Sorrow," in the sculpture court, and his "Eve," in the south transept, were really fine, and second to, perhaps, no nude figure exhibited—not even excepting the famous Greek Slave.

"The Lion in Love," was a group in plaster, by S. Geefs, of Schaarbeck, near Brussels, and its place in the Exhibition was in the main eastern avenue, immediately before Simonis' famous equestrian statue of Godfrey of Bouillon. A small figure in marble, by the same artist, of Cupid, the God of Love, was sufficiently demonstrative of the graceful and poetic character of the sculptor's mind. With what almost human feeling the "brute enthralled" looked up into the face of its fair enehantress, and with what tender care the beautiful maiden tended her leoline lover! Really a fine conception, adequately worked out. Like Una, she had captivated the Lord of the Forest—

—————"With those suppliant looks,
And voice more beautiful than poet's books."

Another group in plaster, "Paolo and Francesca," by Mr. A. Munro, next claims our attention. Mr. Munro, in this little group, sought to realize the incident described by Dante, or rather by his heroine, Francesca, for she is supposed to relate her own sad story to him, in the following passage, as translated by Cary:—

—————"One day
For our delight, we read of Lancelot,

* *Milton's Latin and Italian Poems.* Translated by J. G. STRUTT.

How him love thrall'd. Alone we were, and no
 Suspicion near us. Oft-times by that reading
 Our eyes were drawn together, and the hue
 Fled from our alter'd cheek. But at one point
 Alone we fell. When of that smile we read,
 The wish'd smile, so rapturously kiss'd
 By one so deep in love, then he, who ne'er
 From me shall separate, at once my lips
 All trembling kiss'd. The book and writer both
 Were love's purveyors. In its leaves that day
 We read no more."

We need hardly say a word to point out the difficulties which too obviously surround the treatment of such a subject in sculpture; at least, if it be attempted to represent *all* that the poet conceived of it. One point referred to in the passage, "the hue fled from our alter'd cheek," it is impossible to render through the medium of marble, because it is *never* colourable, and even to express the idea of strong emotion as conveyed through the eyes, is a thing not to be attempted in the plastic art. Nevertheless, Mr. Munro, who is a young artist of very considerable promise, produced a very pretty and graceful composition, though at the same time one which, costume, accessories, and all considered, would have been better adapted for a painting than a work in plaster. As regards expression, he certainly accomplished a great deal—much more than we should have been prepared to expect: the face of Paolo was earnest and impassioned in the extreme: it told of a devouring passion long pent up, first revealing itself; that of Francesca confessed a reciprocity of feeling, but with a modest hesitating reserve, which was admirably true to the more delicate poetry of the situation. Since this group was exhibited, we are glad to understand that Mr. Gladstone has commissioned the artist to execute it in marble.

"Girl Praying," by Mae Dowall. This very graceful production reflected the highest credit upon Mr. Mac Dowall's talent. The expression was extremely charming, and the attitude simple and effective. It stood in the southern transept, where it was greatly admired. The "Youth at the Stream," a statue in marble, by J. H. Foley, A.R.A., was one of the most attractive in the Exhibition. It stood in the transept to the east of the Glass Fountain. As a work of art it was extremely successful in its graceful and poetic character, while for ease of posture and delicacy of execution it might be said to be perfect. It has been remarked that the statuary in the Crystal Palace attracted much more attention from the general public than was expected. This was not surprising. The higher classes were familiar with the kind of sights to be seen in the Crystal Palace; but to the multitude they were new, rare, and surprising. The Exhibition was literally the greatest "sight" recorded in the history of the world, even if we attach to the phrase nothing but its commonplace import in the minds of idlers and "gadabouts." It was in this point of view that it supplied attraction, and, we should think, satiety to the wealthier or more listless class of visitors. Mechanics and operatives went naturally to the rival productions of their own competitors in various parts of the globe. Their observations took a turn of their own; nor would it have been easy, perhaps, to impress a man who had never travelled in search of "sights" with the prodigious magnitude of the specimen before him; but if our tourists and pleasure seekers will but reflect for a moment, they may discover that the capacities of an ordinary life have been just now concentrated into the experience of a fortnight. Not five years' travel nor a thousand pounds could have enabled a man to see what one shilling brought before his eyes; and one of the most striking morals of the Exhibition was that suggested by the astonishing influence which must have been exer-

cised in amassing the collection. The spectacle was intended to be little more than a magnified "exposition" on the original French pattern. It turned out to be such a wonder as the world never saw. We read in Arabian fables that magicians could place before enchanted spectators the visible treasures of the universe. These very treasures were laid bodily at our feet by no other magic than that of national power. Every visitor carried away his own impressions, more or less profound, correct, or serviceable, as the case might be, but still distinct and characteristic; nor would it be easy to find two persons, even of the same abilities and station, who would give the same account of their sentiments or the same description of the show. There is an education which is not taught by books. It was working out its mission in the Crystal Palace.

From these classical subjects we now turn to one of stern reality, "The Wounded American Indian," by Stephenson. Those who have seen the inimitable representation of the Dying Gladiator, in the gallery of the Capitol at Rome, will, we think, trace in this work a remarkable similarity, both in character and attitude, to that most wonderful statue, which might indeed induce a belief that Mr. Stephenson had drawn his inspiration from that celebrated performance. Be that as it may, he has unquestionably produced a work of great merit. We were told the effort of the sculptor was to give a correct representation of the Indian races of North America. The figure was represented wounded and fallen, thereby typifying the race. While in the act of stringing his bow, he had received the wound; the moment the fatal arrow is felt, he relinquishes the effort and hurriedly pulls it from the wound. In the moment that succeeds, he realises his danger, and his left hand drops powerless, partially clinging to the fatal arrow, while a faintness creeps over him. The right arm instinctively supports the body, and prevents its falling. Beneath the right hand is his own arrow, in his ears are an eagle's claw and a small shell. Sufficient ornaments and implements only have been introduced to give character to the subject. It was the first statue ever executed in American marble. It stood to the north-east of Power's Greek Slave. Is it not suggestive that the Americans, proverbially a 'cute people, should have so publicly drawn attention to slavery and the extinction of the aborigines of the Far West?

Mr. E. B. Stephens' group of "Satan Vanquished by St. Michael," which stood on the left in the South Transept, was a composition not without merit, though it certainly did not attain that high poetic character which we look for in works of that class. The subject was severely treated, without, however, its appropriate dignity; the Archangel stood erect, without any attempt at attitudinising, whilst the Enemy of man, whom he had just overthrown, crouched in the dust beneath his feet. There was a total absence of human passion in the expression of the faee; a point in strict accordance, perhaps, with the heavenly nature of the personage represented, but which, on the other hand, would impose upon the artist the necessity of realising the supernatural dignity attaching to him—a task in which he was not at all successful. A word with regard to accessorial details. It is certainly recorded that the Archangel brought down a chain from heaven to bind the Serpent; and in a work of sculpture commemorative of the event, some reference might properly be made to it, as being by no means unimportant; but, at the same time, we could have wished that the said chain had not been made quite so much of, and in such hard angular outline as Mr. Stephens employed; that it had been, at most, faintly indicated as encompassing the prostrate Evil Spirit, and not held up in triumph, in the hand of the Archangel. All such efforts at perfectionising petty details are unworthy of art, and betray a want of confidence in its higher resources. The "Cain," by Jehotte, was a spirited attempt, in plaster, after the school of Michel

Angelo,—but crudely wrought out. The catalogue stated that the first murderer was supposed to be exclaiming, “My punishment is greater than I can bear;” but, for this, the attitude was inappropriate. It would have suited better for the first impulse of horror on seeing the dead body of his brother. We shall resume our remarks on the sculpture of the Great Exhibition at a future opportunity.

CHAPTER XX.

FOREIGN AND COLONIAL DEPARTMENTS—*continued.*

RUSSIA—GOLD, SILVER, AND PRECIOUS STONES—RAW MATERIALS—MALACHITE DOORS, ETC.—WORKS OF ART—MANUFACTURES, ETC.—SPAIN—RICH PLATE—TOLEDO BLADES—FURNITURE—MINERAL PRODUCE, ETC. ETC.

THIS immense empire, occupying nearly one-seventh of the terrestrial part of the globe, and one twenty-seventh of its entire surface, was represented at the Exhibition by specimens of her chief agricultural and mineral produce, as well as by the productions of her looms and workshops. The magnificent candelabra placed at the entrance of their principal department, and the splendid profusion of diamonds, rubies, emeralds, pearls, and turquoises therein exhibited, attested to the wealth and showy magnificence of the Imperial Autocrat, the Emperor of all the Russias. In no country in Europe is there so large a quantity of jewels used as in Russia. The imperial family never travel without an abundant supply of them, to distribute among those whom they deem worthy of their favour. It was not, however, in these gauds and trinkets that the mighty empire of Russia was chiefly represented at the Great Exhibition, but in her vases, her doors of malachite, her specimens of gold, platinum, and iron, the produce of her mines; in the skins, furs, leather, bristles, and tallow, the produce of her numerous herds of cattle; and, above all, in the varied specimens of corn, flax, hemp, &c., the productions of her vast and wide-spreading plains. We shall offer a few remarks as we proceed on various points connected with these raw materials, but we will first describe that portion of the Russian exhibition which was exclusively devoted to the display of the most rare and costly articles, destined for those alone whose wealth enabled them to set no limit to the indulgence of their tastes.

By the pillars at the entrance of this *sanctum sanctorum* of wealth and splendour, stood the two great candelabra we have already alluded to. They were from the manufactory of Krumbigel, of Moscow, and spoke well for the taste and resources of the “frozen Muscovite.” They were of richly-gilt bronze, each ten feet in height, and made for fifteen lights, and were valued at £500 a-piece. Looking from the centre aisle into the compartment, the most striking object was the folding doors of malachite, thirteen feet high, panelled and ornamented in gilt bronze. Our readers have probably made acquaintance with malachite as a precious stone, in brooches, jewel-boxes, and other small articles of ornament, but never dreamt of seeing it worked up into a pair of drawing-room doors. The effect was exceedingly beautiful; the brilliant green of the malachite, with its curled waviness, like the pattern of watered silk, and its perfectly polished surface, was heightened by the dead and burnished gold of the panellings and ornaments, and set one imagining in what sort of fairy palace, and with what other furnishing and decoration the room must be fitted to satisfy those who had made their

entrance by such precious doors. They were valued at £6,000. The large vases on either side of the compartment were also, pedestals and all, in malachite like the doors, ornamented in gilt bronze, and were valued at from £1,500 to £3,000 a-piece; and to show that a whole suite of apartments might be decked out in the same bright precious stone, there stood to the left, and not far from the doors, a mantelpiece, in Louis Quatorze style, before it ran quite wild in confusion of ornamental form; the fender, hearth, fire-back, and grate, in bronze gilt and burnished gold; the mantelpiece in beautifully-shaded malachite, with just enough of ornament for contrast; and on either side of this splendid fire-place were a table and chair of the same material. The chairs were valued at £120 each, the tables at £400. In the next compartment the malachite (carbonate of copper), was exhibited in the strange-shaped rough lumps in which it comes from the mine, and in every stage of preparation. It is found in the copper-mines of Siberia and the Ural Mountains, and has lately been met with in equally large pieces, and of not less beauty, in the Burra Burra mines, in Australia. That in the Exhibition was from the mines of Prince Demidoff. The manufacture of articles of malachite is in itself a work of art; and, smooth as the surface seems, it is made up of a multitude of variously-shaped little pieces carefully selected to produce particular patterns, and which in their fitting require the greatest exactitude. In the doors there might have been some 20,000 or 30,000 pieces imbedded in cement, made of the malachite itself. The doors were of wood covered with copper, the malachite being about a quarter of an inch thick. The vases were of three-quarter inch cast iron, and the malachite in the same way inlaid. Nor was this the only precious stone made to serve such large uses in this Russian compartment; there were also upon the left-hand side, near the great candelabrum, three real jasper vases, one of them three feet six inches in height, which excited the admiration of those most skilled in such matters, by the exquisite cutting of its border of leaves, which, as the process is not explained, they have come to the conclusion must have been done by mounting the diamond, the only mineral of sufficient hardness to cut agate, in some specially contrived machine. The value of this vase was not stated, but the cost of the workmanship alone exceeded £700, and the vase could certainly not be under £2,000. These vases were the property of the emperor, and were made at his own manufactory at Katrinburg. The great vase in the centre front was in porcelain, from the imperial manufactory at St. Petersburg, and was valued at £2,500.

To the left and right in front were jewels valued at £40,000, and which were exhibited by M. Bolin and M. Kammerer, both crown jewellers at St. Petersburg. Nothing could exceed their richness and splendour. The plate, which was on another table at the right, and comprised a great variety of articles, was entirely from the workshop of M. Sizikoff, of Moscow, one candelabrum shown by whom contained two cwt. of silver, and set forth an incident memorable in Russian history. The Duke de Merti, Grand Duke of Muscovy, in a fierce battle with the Tartars, in 1380, fell severely wounded by a blow on the head with a hammer, a main weapon of warfare with the Tartars at that time. The duke, surrounded by his staff of knights in armour, lay under a fir-tree, faint, and, to all appearance, dying, when a soldier of his army galloped up and announced the battle won—the duke revived and recovered. The candelabrum represented the fir-tree and the above incident. On the same side of the compartment was an ebony cabinet, designed by Baron Clott, one of the first artists in the Russian empire. On the top was a bunch of grapes, in amethyst, so modelled that, as the light fell upon them, they seemed to show the very juice of the real fruit of the mountain ash in coral. In the background were seen specimens of inlaying in wood for floors; a Warwick vase, in hammered iron, from Warsaw; a curious carpet, very bright in its

colours and effect, made in squares of squirrel-skin, surrounded each by a border of needlework; and near this stood a cabinet, made by M. Yanebs, of St. Petersburg, in light wood, with porcelain medallions, from the imperial manufactory, valued at £500, and a second porcelain vase of azure and gold, from the same works.

Almost all the articles exhibited in this Northern Bay were the produce of a system, almost universal among the monarchies of Europe, of carrying on royal or national manufactories, as a matter of luxury and as an example of taste. Such in France are the national manufactories of Gobelins tapestry, of Beauvais carpets, and Sèvres china; in Prussia, of iron-casting and porcelain; in Saxony, of porcelain; and in Tuscany, of mosaic in *pietra dura*. To several of these establishments, particularly in Russia, and in the Gobelins establishment in France, schools for instruction in drawing and painting, as applied to manufactures, are attached for the benefit and the due training of workmen. In England, it is with difficulty that money is obtained for schools of design; but although we wisely rely on private enterprise for manufacturing excellence, it would pay us to devote more money to cultivate taste.

On leaving the splendid department dedicated to luxury and the fine arts, we found in the small avenue to the north some more real and utilitarian specimens of Russian industry, in a set of very handsome carriages, of a peculiar national form. These were the Russian drosky, equally available on wheels, or in the winter on runners, and the favourite carriage of Russian gentlemen. They were on four wheels, very low, with a strong iron forked perch, and a double body, the first of which either held one or two persons abreast. There were specimens of both kinds. The other merely held a seat for the driver, who sits close upon his horse or horses; when a pair are used, the correct thing is for a shaft-horse to trot, while the second, harnessed to an outrigger, gambols at a canter beside him. They were very stylish, and the workmanship deserved unqualified praise, except in the shafts, which were heavy and clumsy. The leather splash-boards round the wheels were particularly well arranged; no stitching appeared, and they looked like pieces of solid japan; the lining and the varnishing were equally well finished. If the wood was sound and well seasoned, they were not dear at the price set upon them—£47. A set of harness in the large room was also of a fashion peculiar to Russia. It is difficult to explain, to those who have never seen them in use, the arrangement of a great birchwood bow, which is an indispensable ornament of Russian harness, and from which bells are suspended over the horse's neck.

The staples which constitute the export trade of Russia were exhibited in great variety; one part of the walls was hung with leather, including choice specimens of the "Russia" dear to book collectors. Amongst the boots and shoes were a pair of dress-boots, made of the thinnest and best calf leather we ever remember to have seen. It was as soft and flexible as kid, but stronger. We were informed that the material is much used in Russia for full dress boots. If it can be delivered here at a reasonable price, a large demand is certain. On the same counter as the leather were a number of stockings, shoes, and other articles made of felt by the Russian peasantry. A very curious manufacture, indeed, well worth the examination of the trade. Each article seemed felted separately, and made solid yet soft. On the opposite table were basins, jugs, cups, helmets of the same material japanned inside and out. They were light, tough, and not to be broken. A wash-hand jug and basin were rather dear (17s.), but they would be famous articles for sea voyages. Gutta percha has been tried for that purpose, but it melts in tropical climates.

A trophy of sheafs of seed-bearing agricultural produce, very elegantly arranged, containing every kind of wheat, barley, oats, rye, buckwheat, flax, hemp, peas, and beans, grown in the Russian dominions, occupied the centre of a counter, round which were

arranged in bowls the seed and flour of these articles. Among them our cooks may find it worth while to try a small kind of dried pea for winter use, in soups, of a very sweet taste. On the walls around were specimens of the famous Russian hems, raw and manufactured, with canvass, and ropes, and twine, which, with grain and tallow, have been too well known to our merchants for this last hundred years to need further notice. The dried provisions included *caviare*, dried sturgeon, isinglass, a substance resembling isinglass made up in the shape of a rude whip, which is obtained from a fish called the *Vesiga*, and used in Russia to make pies. But, perhaps, the article most likely to become a new staple of commerce, was the *glaze*, then imported, as we were informed, for the first time. This article, so much used in this country for making sausages and soups, in clubs, hotels, and great houses, is obtained in Russia by boiling down the flesh of horned cattle, which, on the plains of the interior, are only valuable for their hides and tallow. Anything that can be made out of concentrated meat or glaze is so much additional profit. But it is an operation which requires care—a little burning will spoil the whole boiling. Liebig gives directions for the operation in his last work: as commonly conducted, the product affords very little nourishment.

The specimens of iron and copper, in ore and in a manufactured state, were numerous. The iron, some of which was of a very fine quality, is a matter of interest to us, because Russia, in conjunction with Spain and Sweden, supplied most of the iron consumed in this country for more than one hundred years, between the time that the timber for charcoal in Surrey, Sussex, Kent, Staffordshire, and Worcestershire, was exhausted; and the successful application of coal to smelting iron, by Abraham Darby, at the Colebrook Dale Works, in 1713, and the application of the use of blowing cylinders, instead of bellows, at the Carron Works, set up by Smeaton in 1760. Our connexion with the Russian iron is of very ancient date. In 1569 the English obtained, by treaty, the right of seeking for and smelting iron ore, on condition that they should teach the Russians the art of smelting this metal, and pay, on the exportation of every pound, one halfpenny. Every branch of mining received great development under Peter the Great, who seems to have neglected no branch of material prosperity. It was under his reign and direct patronage that the Demidoff family rose to importance as miners, and obtained the property which has rendered them ever since one of the wealthiest families in Europe. Up to 1784, Great Britain imported a continually increasing quantity of iron from Russia, which in that year amounted to 40,000 tons; after that period, in consequence of improvements in machinery for smelting by coal, the importation gradually declined to about 5,000 tons in 1805, and continued at that figure up to 1837, and, probably, is about the same now, being all of one quality in the trade, called C. C. N. D. old sable iron, which is used for the manufacture of steel.

The fire-arms and white-arms exhibited had all been made at one of the four crown manufactories, where the work is done, under the inspection of government officers, by serfs of the crown. The oldest manufactory is at Tula, where, besides muskets and side-arms, the iron-work of horse harness, iron bedsteads, files, chains, &c., are made. This establishment was burnt in 1834, according to the rumour of the day, by the workmen, who hoped to get rid of the forced labour imposed on them by the ceaseless wars of the emperor in Turkey, Persia, and the Caucasus. Under the Russian royal factory system, increased work does not give increased wages. But the Tula establishment was rebuilt.

In the North Gallery, the emperor exhibited, with other furs, a black cloak made from the neck of the silver fox, which he valued at £3,500; this valuation brought out a letter from Mr. Nicholay, the well-known furrier, who offered to make a finer cloak for £1,000, and explained that black and silver fox skins, so much valued in Russia, and

so little used here, are chiefly imported into London from the territories of the Hudson's Bay Company, and then purchased up for the express purpose of "being smuggled as occasion may offer." What a commentary on the Russian protective system! In the back of the same case as the furs, were two splendid specimens of twilled shawls, by a Cossack woman, from white goats' hair, of wonderful fineness. One of these shawls was the property of the empress, and justly valued at the price of Brussels lace. Russian manufactures are for the most part inferior and dear; while mineral, vegetable, and animal produce could be supplied in unlimited quantities, at a profit, if roads were made and facilities given to trade. But Russia is essentially a military country, prepared to take advantage of events, and probably the emperor considers that a large trade might produce inconveniently pacific tendencies in his own land-owning nobles.

We will now, by a special privilege granted to every one who visited the Palace of Wonders, of rapid transition even from the far east to the remote west, pass at once to a different region of the globe; and leaving the numerous tribes, civilized or barbarous, of the wide extended empire, enter upon the territories of the most Christian king—the country so celebrated for love and war—the land of song, and of the chivalrous *hidalgo*; and more than all, the land wherein the incomparable knight of *La Mancha*, and his no less incomparable squire, pursued their romantic adventures.

The intelligent visitor to the Spanish court in the Crystal Palace could hardly glance over its scant collection without some regretful reflections on the mutability of human greatness, and the liability to decadence in all great and powerful states. When he thinks that the comparatively unimportant objects that were there arranged, "few and far between," and which only served to reveal the nakedness of the land, were all that could be sent forth by the people who overthrew the great and gallant Moors, who colonized America, who received into their laps all the gold of Mexico, and all the silver of Peru, who equipped the world-famed armada, happily without success, to "fright this isle from its propriety;" the country of Ferdinand and Isabella, the kingdom of Charles V., the birthplace of the *Cid* and of Gonsalvo de Cordova, and the foster-land of Columbus,—how cheap must he not hold the result of mere military glory, and the gains of conquest and rapine, as compared with the honest profits of legitimate commerce, and the development of the industrial energies, as exemplified in the career of our own happy land. Yet there is hope for Spain. Nature, always young, is as bountiful to that country as when she fed the legions of imperial Rome, or tempted the invasion of the Saracens,—or when, at a later period, the invader himself, hanging up his sword and buckler, and betaking himself to the arts of peace, converted the whole surface of the country into one vast garden, glowing with the orange and the grape, and decorated its cities with those light and graceful arabesques which have made the *Alhambra* one of the architectural wonders of the world. The wheat of Spain is as fine, her olives are as plentiful and well-flavoured, her timber is as abundant and valuable, as when she victualled vast fleets for discovery or for conquest, or built those leviathans of the deep which gave Ferrol the foremost place among the naval arsenals of Europe. What is better still, her men have not, in the main, deteriorated. Protracted political convulsions, always demoralizing, may have lowered the standard of patriotic feeling and of manly energy in her large cities, where also the strong infusion of Jewish blood has, no doubt, had its effect in making avarice take the place of nationality; but her rural peasantry, her mountaineers, and her muleteers, are the same brown manly fellows as ever, living frugally, walking proudly, and ready at any moment to play over again the guerilla game of the Peninsular war, and to teach the invaders that the spirit of old Gothic Spain is "not dead, but sleepeth," and as dangerous when aroused as at any former period of her history.

Foremost in the Spanish Court stood the silver-gilt tabernacle from Madrid, a gorgeous specimen of ecclesiastical plate, showing the direction in which Peninsular art received its greatest stimulus. The world-famous blades of Toledo also held a conspicuous place in the proud display of their vaunted armoury. There were several specimens of the black lace of the country, in robes and veils, with which Byron was so enchanted, when worn "by an Andalusian girl going to mass," and some gold and silver stuffs used in the sacerdotal costumes of her innumerable priests. In the more substantial manufactures there were specimens of coarse woollen cloth, but not so many nor so good as one might have expected in a country where the most voluminous of cloaks is an almost universal article of costume. But we believe the fact to be that the best Spanish cloaks are made of French or English cloths; indeed we know that in our own woollen districts there are particular descriptions made expressly for the Spanish and Italian markets. The priests of both countries affect a certain tinge of "blue black" in their ordinary costume, and our English manufacturers, with an expansive liberality that does them infinite credit, contrive to hit their reverences' taste to a shade. The only specimens of metal work in addition to the arms which came from Spain, were a few ornamental iron bedsteads, which were certainly very creditable specimens of Spanish workmanship, and might have taken their place beside some of the best articles of the kind made in this country. Another class of Spanish artificial productions that remains to be noticed was the inlaid cabinet work, of which the *piece de resistance* was the octagonal table sent by Perez of Barcelona. As a monument of patient industry it was certainly wonderful, containing, as we are told, three million of pieces, worked up into a design of which the most prominent feature was the shield with the arms of England in the centre. The general effect hardly justified the labour bestowed in the construction, the decoration being so minute as to require a powerful magnifying glass to show off its beauties. There were some other specimens of furniture, but they do not require any special notice. The centre of the court was devoted to a large case containing specimens of the minerals and cereals of Spain, in both of which that country is superlatively rich, and in describing which we can hardly do better than quote M. Ramon de la Sagra, whose "*Notes sur les Produits Espagnols*," enter very fully into the subject. The writer commences by complaining that "Les échantillons envoyés par les différentes contrées de l'Espagne et ses colonies à l'exposition de Londres, ne peuvent donner qu'une faible idée de ses richesses naturelles," and affirms that, with the exception of some choice mineral specimens, the articles exhibited were insignificant and ill chosen. He instances the wonderful quicksilver mines of Almaden, of which the specimen sent over "semble plutôt faite pour la boîte d'un élève, que pour donner une idée approximative de ses merveilleuses galeries." The writer also complains that the exhibitors wanted variety in their specimens, and that they gave more importance to metallic minerals than to combustibles, in which the mineral wealth of Spain is most prominently developed. M. Ramon, in his classification, first calls attention to the vast beds of coal, which he states are to be found in the Asturias and various other parts of the kingdom, and gives tables of the expence at which the article can be delivered at Santander and other places on the coast. But it is to be regretted that his calculations are made in Spanish weights and Spanish money, and would, therefore, hardly be capable of comparison by the general English reader. He hopes for a glorious future for this trade when the railroads of Alar and Santander, and of Madrid and Valladolid, shall be opened to public traffic. Sulphur, he states, abounds in Murcia and in Salamanca; and that the recently-introduced article of commerce, asphalte, has been discovered in large quantities in the province of Loria, and is now worked by a company. Of the salts to be found in Spain, M. Ramon gives a long catalogue, and proceeds to the metals, in which he very properly

gives the first place to iron, the most useful. Leon, he says, abounds with this metal of first necessity, where also is to be found kaolin, that indispensable ingredient in ceramic manufactures. Abundant mines exist also in Alava and Guipuscoa, and specimens of their produce were to be seen in the gallery of the Crystal Palace, in the shape of two pieces of cannon manufactured by the Carlists, in the village of Onate, in the year 1837. The riches of Spain in lead are, according to our author, really surprising, there being hardly a province in which it may not be found in abundance. Copper, zinc, and tin, antimony, nickel, and cobalt, are also among the mineral treasures of Spain; and, lastly, gold, which is beginning to be sought for in the beds of various rivers.

CHAPTER XXI.

INDUSTRY AIDED BY SCIENCE—ARTIFICIAL LIGHT—PHOTOGRAPHY—DAGUERREOTYPES—CELESTIAL OBJECTS—THE MOON—FALLS OF NIAOARA—APPLICATION TO METEOROLOGICAL SCIENCE—ROYAL OBSERVATORY—COLOURED DAGUERREOTYPES.

WHEN, according to the ancient Greek fable, Prometheus drew down fire from heaven to inspire with the breath of life the image he had formed, the writer of that myth little imagined to what purposes the application of light from the all-vivifying rays of the sun would, in future ages, be employed in the world of science and of art—purposes which impart a vivifying principle and activity to operations which the utmost labour and ingenuity of man could in no other way accomplish. For the following remarks, which we have selected from some papers which appeared in one of our leading journals, we are indebted to the learned pen of the philosophic Dr. Lardner, and which we shall forthwith, without further apology, submit to the consideration of our readers.

And, first, with respect to artificial light.—Marvellous are the uses, says the learned Doctor, to which science has rendered heat subservient; those which have been obtained from light by the combination of the researches of the mechanical philosopher have not been less striking. Ready-made flame is fabricated in vast establishments, on an enormous scale, and transmitted in subterranean pipes through the streets and into the buildings and dwelling-houses, where, after the close of the natural day, an artificial day is thus created, guiding us in the pursuit of business or of pleasure, and adding to the sum of life by rendering hours pleasant and useful, which must, in the absence of artificial light, have been lost in torpor, or in sleep. It is supplied according to individual wants, in measured quantity, and at every door an automaton is stationed, by which a faithful register is kept of the quantity delivered from hour to hour. Flame, which is in most cases the source of artificial light, is gas rendered white hot. The gas, such as is prepared for the purposes of illumination, contains, in the latent state, the heat which, in the process of combustion, renders it incandescent. The moment combustion commences, the gas entering into combination with the oxygen, which is one of the constituents of the atmosphere, the heat which was till then latent becomes sensible, and affecting the gas itself while combining with the oxygen, renders it *white-hot*. Lamps in which artificial light is produced by means of a liquid combustible, may be reduced to two classes: one in which the liquid is drawn to the wick by capillary attraction, and the other in which it is propelled by mechanic agency. It is evident that in the former the distance of the reservoir from the wick must be more limited than

in the latter. Hence we find that the mechanical lamps, known as Carcels and Moderators, are more elegant in their form than those which, depending on capillary action, have oil vessels of greater or less magnitude immediately under the flame, and which therefore cannot be sinumbral. Of the capillary lamps, in which oil or fatty liquids are burnt, the most simple is that called the solar lamp; but by far the most brilliant in its illuminating power is one of recent introduction, called the camphine-lamp.

Of the mechanical lamps exhibited, especially in the foreign department, the most efficient and the most elegant in its form was the Carcel lamp. The more scientific expedients for the production of artificial light depend, in general, on imparting such an intense heat to a solid body as to render it vividly incandescent, without, however, liquefying it or causing its combustion. The expedient of this class which is best known is the oxy-hydrogen light, by which the microscope and lanterns for dissolving views, exhibited in the Polytechnic Institution, are illuminated, and which were found in various improved forms in the Exhibition. We refer more particularly to an apparatus improved by the Reverend Mr. Beechy, and exhibited by Messrs. Abraham and Co., Liverpool.

The apparatus for the production of the electric light, which is still more intense than the oxy-hydrogen light, and produced under conditions which present greater probability of being ultimately adapted to economical uses, were exhibited in different forms by Messrs. Deleuil and Co., and by Messrs. Duboseq, of Paris. This light is of the most intense splendour,—so much so, that it cannot be looked at without protecting the eye with coloured glasses. The colour and quality of the light is similar to that of the sun, as is proved by the fact, that when it is analysed by the prism it gives the same component parts. It is only just here to state, that the merit of the first application of the electric light to the microscope, and to the general application of optical phenomena, is due to M. Leon Foucault, who has lately obtained a world-wide celebrity by his beautiful experimental test of the rotation of the earth.

PHOTOGRAPHY.

It resulted, from scientific researches on the properties of solar light, that certain metallic preparations were affected in a peculiar manner by being exposed to various degrees of light and shade. This hint was not lost. An individual, whose name has since become memorable, M. Daguerre, thought that as engraving consisted of nothing but the representation of objects by means of incisions on a metallic plate, corresponding to the lights and shadows of the objects represented, and as these same lights and shades were shown, by the discoveries of science, to produce on metals specific effects, in the exact proportion of their intensities, there could be no reason why the objects to be represented should not be made to *engrave themselves* on plates properly prepared! Hence arose the beautiful art now become so universally useful, and called after its inventor, *Daguerreotype*.

The object of which it is desired to produce a representation, is placed before an optical instrument, with which every one is familiar as the camera-obscura. An exact representation of it, on a scale reduced in any required proportion, is thus formed upon a plate of ground-glass, so that it may be viewed by the operator, who can thus adjust the instrument in such a manner as to obtain an exact picture of it. If it be desired to make a portrait, the effect of the posture of the sitter can thus be seen, and the most favourable position ascertained before the process is commenced.

When the light is favourable, four or five seconds are sufficient to produce the desired effect by the processes which have been hitherto generally adopted. According as it is less intense, the necessary time may be greater but should never exceed a minute. One

of the defects of Daguerreotype, as applied to portraiture, arises from the impossibility of bringing the entire person of the sitter at once into focus. To render this possible, it would be necessary that every part of the person should be at precisely the same distance from the lens of the camera, a condition which obviously cannot be fulfilled. It happens, consequently, that those parts which are nearest to the lens, as may be particularly remarked with respect to the hands, will be represented on a scale a little greater than those which are most distant; and if the instrument be adjusted so as to bring the nearer into very exact focus, the more distant will be proportionably out of focus. These defects cannot be removed, but they may be so much mitigated as to be imperceptible. By using larger lenses the camera can be placed at a considerable distance from the sitter, without inconveniently diminishing the size of the picture. By this expedient the difference between the distances of different points of the sitter from the lens will bear so small a proportion to the whole distance, that the amount of distortion arising from the cause just mentioned may be rendered almost imperceptible. Large lenses, however, when good in quality, are expensive, and it is only the more extensively-employed practitioners in this business that can afford to employ them.

The discovery of this beautiful application of the chemical properties of light is of very recent date. Efforts to fix illuminated images by means of the chemical agency of light, were made by Wedgwood and Davy as early as 1802, but without success, no preparation being discovered sufficiently sensitive to be affected by the subdued light of the camera. Sir H. Davy obtained a faint impression of the illuminated image produced in a solar microscope; but being unacquainted with any method of suspending the further action of light on the picture, no permanently perfect effect resulted, and the subject was laid aside. In the fourteen years which elapsed between 1814 and 1828, the labours of M. Daguerre and M. Niepce were directed to the solution of the problem. In 1827, a memoir was presented by the latter to the Royal Society, accompanied by several specimens of *heliographs*,—*sun-drawn* pictures. These, which are still extant, show that M. Niepce was acquainted with a method of forming pictures, by which the lights and shadows are represented as in nature; and when so formed, of rendering the picture proof against the further effects of light. M. Niepce, however, having concealed his processes, describing only the results, the society could not, according to its rules, admit his memoir into the Transactions. The surfaces upon which he produced his pictures were those of glass, copper plated with silver, and well polished tin. Those upon which M. Daguerre produced his first pictures, were paper impregnated with nitrate of silver. About six months before the disclosure of the processes of Daguerre and Niepce, Mr. Fox Talbot read before the Royal Society a memoir, in which he explained his photographic researches, and showed the manner in which he produced upon paper, rendered sensitive by chemical preparation, photographic pictures.

The vast number of beautiful sun-drawn pictures, on various sorts of surfaces, which were presented in the Exhibition, demonstrate how great and how rapid has been the progress of the art from the date of its invention. These results are invariably denominated either from the name of their inventor or discoverer, as daguerreotype and talbotype, or from the chemical principle by which the surface destined to receive the picture is rendered sensitive to light, as cyanotype, chrysotype, chromotype. Pictures produced by the photographic processes are of two kinds: first, positive pictures, in which the lights and shadows correspond with those of the object represented; and second, negative pictures, in which the lights and shadows are reversed; the lights being represented by shadows, and the shadows by lights. In the talbotype process, as it is sometimes called, the picture produced in the camera is usually negative. This picture being laid upon another paper, coated with chloride of silver, and then exposed

in sunshine, a positive picture, corresponding exactly with the negative one, is obtained. Mr. Samuel Butler, of Peterborough, obtained a council medal for a beautiful series of photographic pictures obtained by this process, called photographic printing. The pictures represented scenes in and near Peterborough and Bury St. Edmunds. The application of glass to photography has lately occupied many experimentalists, and more especially Sir J. Herschel. The surface of the glass is *albumenised* by a coating of a solution of the iodine of potassium and the white of egg. This having been carefully dried, is washed with a solution of the gallo nitrate of silver, previously to being placed in the camera, by which it is rendered highly sensitive to light. Messrs. Ross and Thompson obtained a council medal for this improvement. Among the numerous uses to which this invention is applicable, examples were presented in the Exhibition of its power in delineating, with incontestable accuracy, the lineaments of celestial objects. Thus, photographic images of the sun and moon were exhibited; also images of the solar spectrum, produced by a prism on surfaces prepared with iodide and bromo-iodide of silver. The application of this process to produce permanent pictures of astronomical phenomena, so transitory in their appearance as to render any direct and accurate observation of them difficult or impracticable, such, for example, as certain appearances in the solar eclipses, would be highly advantageous. Among the most interesting objects presented, were daguerreotypes of the clouds, taken in boisterous weather, forming an instructive study, not only for the meteorologist, but the artist. In photography, the American department was peculiarly rich; and it is but just to state, that many important improvements in the details of photographic processes have been supplied by the skill and unwearied experimental research of our transatlantic cousins. Mr. J. Whipple, of Boston, exhibited several remarkable daguerreotypes, among which one of the moon was especially remarkable. In this picture, taken by means of a large equatoreal, the lineaments of the lunar surface were very beautifully displayed. Mr. Bond, another American, exhibited at one of the late meetings of the association, several daguerreotypes of the moon, taken with the twenty-three feet equatoreal of the Cambridge University (United States) Observatory. Mr. Bond, however, stated, that although very steady, the instrument was not sufficiently so to give pictures with very high powers. Sir David Brewster stated, that if daguerreotypes of similar magnitude had been taken on transparent sheets of gelatine paper, and so placed before a telescope as to subtend an angle of half a degree, they would assume the same appearance as the moon itself. Mr. J. H. Whitchurst, of Baltimore, exhibited some beautiful daguerreotypes of the Falls of Niagara. The cloud of white spray which rises from the base of the fall, and the white sheets of foam on the water, contrasted with the trees and the surrounding scenery, produced a remarkable effect. It is generally imagined that the motion of the water and of the spray would render a distinct picture by daguerreotype impracticable. In practice, however, this is not found to be attended with any injurious effect upon the result.

One of the most striking, and we may add, unlooked for uses of the photographic art, is its application to the constructing of a self-registering apparatus for meteorological phenomena, an invention of Mr. Charles Brooke, of London, who has been most deservedly rewarded for it by the council medal. It is known to all who take an interest in physical science, that the most important laws which prevail in atmospherical and terrestrial phenomena, are intimately related to the horary and diurnal variations of the barometer, thermometer, hygrometer, the declination-needle, dipping-needle, and, in fine, to the changes which continually affect all those delicate and sensitive instruments, which the skill and genius of scientific men have contrived, to indicate the succession of meteorological phenomena manifested around us. To obtain a perfect record of the

indications of these several instruments, it would be necessary that an observer should be stationed at each of them continually, night and day, in all seasons, to note down their changes, which are continual, and sometimes sudden, such as cannot be foreseen or anticipated. These changes, moreover, are in some cases so rapid and fleeting, as to be incapable of exact estimation or measurement, even by the most vigilant and practised observers. The object of the invention of Mr. Brooke is, to make the phenomena keep a constant and unerring *record of themselves* in photographic writing. Without attempting a detailed description of this very beautiful automatic apparatus, which, besides, could not be made intelligible without several complicated drawings, the general principle by which its indications are made, may be briefly and clearly explained. A pencil of light brought to a focus by spherical or cylindrical lenses, or reflectors, is so governed, that its point or focus has motion identical with, or bearing a known proportion to, the motion of part of the instrument which affords the indications to be registered. Thus, if the instrument be a magnetic needle, the axis of the lens or speculum is made to coincide with, or make a known and constant angle with the needle, and therefore, to participate in its movements. The focus of the pencil, refracted or reflected, receives a corresponding motion. If it be a column of mercury, as in the case of a barometer or thermometer, the direction of the pencil of light is varied, either by means of a float, which rises and falls with the mercurial column, or by transmitting the light through the tube, so as to produce the shadow of the column, in which case the movement of the shadow will be registered. The focus of the luminous pencil is made to fall upon a sheet of photographic paper; and if both it and the paper were stationary, a spot would be produced upon the paper at the place where the focus falls upon it. If, owing to the variation of the instrument, whose indications are to be recorded, the focus of the luminous pencil moves, a line will be traced on the photographic paper, the length of which will bear a known relation to the variation of the instrument. Thus, if it be a magnetic needle, a variation of one degree east or west in its direction, may impart a motion of an inch right or left to the focus of the luminous pencil, and a line of corresponding length would be traced upon the photographic paper. But by this means nothing would be recorded, except the extreme variation of the needle, in a given time. An observer would still be necessary, and nothing would be accomplished more than is already attained by the self-registering thermometers, which show the maximum and minimum temperatures indicated during a given interval. The apparatus is, however, rendered perfect by rolling the photographic paper on a cylinder, which is moved by clock-work, so that a known length of the paper moves under the focus of the luminous pencil in a given time. When the focus of the pencil is stationary, a straight line is traced on the paper, in a direction at right angles to the motion of the paper, and therefore parallel to the axis of the cylinder; but when the focus moves, as usually happens, to the right and left alternately, an undulating curve is traced upon the paper, the distances of the points of which, from a known base line (also traced upon the paper,) show not only the particular minute and second at which each change took place, but the actual state of the instrument at that moment. In this way, the heights of the barometer and thermometer, the variations of the declination and dipping needles, the directions of the wind-vane, and, in fine, the indications of all other meteorological instruments, are faithfully and continually registered from minute to minute, and from hour to hour, by night and by day, in summer and winter, and in all positions which it may be necessary to give the instrument of observation, whether on the summits of lofty towers or mountains, in the caves of the observatory, or in the workings of mines, hundreds or thousands of feet above or below the common surface, in the absence, and independent of any other care or interference on the part of an observer save that which

is necessary from time to time to supply this ever-wakeful and ever-active scribe with a fresh supply of paper. An apparatus, constructed in this manner, has been adopted for registering the meteorological indications of the instruments at the Royal Observatory at Greenwich, with the greatest advantage. Since its introduction, the staff of observers has been reduced in number, and the fatiguing process of nocturnal observation has been altogether superseded. Specimens of the registers obtained by this apparatus were exhibited in the Crystal Palace, including a lithographic fac-simile of one day's work of all the instruments.

There is no question connected with photography which the public regards with so much interest, as that which refers to the possibility or probability of producing sun-drawn pictures of objects in their natural colours. The fact which has been established, from a variety of experiments, that the rays by which photographic pictures are produced, are rays of *dark light*, and are distinct from colorific rays, are certainly unfavourable, *primâ facie*, to this expectation. Nevertheless, it is certain that within the last two years Sir John Herschel succeeded in drawing a coloured picture of the prismatic spectrum; and, in a recent letter addressed by him to Professor Hunt, he affirms that he had specimens of coloured pictures of the spectrum, in light colours upon a dark ground; and adds, at present he is not prepared to say that this will prove an available process for coloured photographs, *though it brings the hope nearer*. Professor Hunt himself says, that he has obtained beautiful coloured pictures of the spectrum upon daguerreotype iodidated tablets, on which the colours had peculiar softness and brilliancy. M. Edmund Bequerel is stated to have obtained, recently, bright impressions in colours. Mr. Hill, of New York, affirms that he has obtained more than fifty pictures from nature, in all the tints of natural colouration. The process by which this is said to have been effected is not disclosed, but is said to be a modification of daguerreotype, one material, however, altogether new, having been introduced. It is said that the process will be made public so soon as the manipulatory details have been perfected.

Although our limits exclude us from entering into the details of some other wondrous facts, which the untiring researches of scientific men have disclosed in this department of physics, we must not omit to mention that M. Moser, of Königsberg, has shown that light constantly emanates from all bodies, even *in complete darkness*, and that when placed near each other, they receive upon their surfaces reciprocally *pictures* of each other. These photographic pictures, however, are invisible, and continue to be so until they are developed by the application of certain vapours, such as that of water, mercury, iodine, &c. These marvellous discoveries of M. Moser have been fully confirmed by other more recent enquirers. Attempts have been recently made, with more or less success, to remove the metallic or *leaden* hue, which has been found disagreeable in daguerreotype portraits. This is effected by colouring them, by means of dry colours rubbed into the incisions made by the action of the light. These coloured daguerreotypes, though more open to objection on artistical grounds, are, nevertheless, decidedly popular, when judiciously executed. Artists, and especially miniature painters, are naturally opposed to daguerreotypes. The *artist* can soften down defects, and present the sitter under the most favourable aspect. The *sun*, however, is no flatterer, and gives the lineaments as they exist, with the most inexorable fidelity, and the most cruel precision. Nevertheless, it is known that some of the most eminent portrait-painters, those whose productions have raised them above petty feelings, do avail themselves of the aid of daguerreotypes, where well-executed representations of that kind are attainable, and they see in this no more degradation of their art, than a sculptor finds in using a *cast* of the subject which his chisel is about to reproduce.



