

VISITS TO ART-MANUFACTORIES.

No. 5.—THE MOSAIC RUG-WORK OF THE MESSRS. CROSSLEY, OF HALIFAX.

WHEN, with his advancing intelligence, man began to construct ornamental articles to decorate his dwelling, or to adorn his person, we find him taking natural productions, chiefly from the mineral kingdom, and combining them in such a manner as may afford, by their contrasts of colour, the most pleasing effects. From this arose the art of mosaic, which appears, in the first instance, to have been applied only to the combination of dice-shaped stones (*tesere*) in patterns. This was the *opus musicum* of the Romans; improving upon which we have the Italians introducing the more elaborate and artistic *pietra dura*, now commonly known as Florentine-work. It is not our purpose to treat of any of the ancient forms of mosaic-work, further than it is necessary to illustrate the subject before us. The *opus tessellatum* consisted of small cubes of marble, worked by hand into simple geometrical figures. The *opus scilicet* was formed of different crusts or slices of marble, of which figures and ornaments were made. The *opus vermiculatum* was of a far higher order than these: by the employment of differently-coloured marbles, and, where great brilliancy of tint was required,—by the aid of gems, the artists produced imitations of figures, ornaments, and pictures, the whole object being portrayed in all its true colours and shades.

The advance from the *opus vermiculatum* to the fine mosaic-work, which had its origin in Rome, and is, therefore, especially termed Roman mosaic, was easy; and we find this delicate manufacture arising to a high degree of excellence in the city where it originated, and to which it has been almost entirely confined, Venice being the only city which has attempted to compete with Rome. To this Art-manufacture we more especially direct attention, since a description of it will aid us in rendering intelligible the most interesting and peculiarly novel manufacture of mosaic rug-work, as practised by the Messrs. Crossley. Roman, and also Venetian enamels, are made of small rods of glass, called indiscriminately *paste* and *small*. In the first place cakes of glass are manufactured in every variety of colour and shade that are likely to be required. These cakes are drawn out into rods more or less attenuated, as they are intended to be used for finer or for coarser works, a great number being actually threads of glass. These rods and threads are kept in bundles, and arranged in sets corresponding to their colours, each division of a set presenting every desired shade. A piece of dark slate or marble is prepared, by being hollowed out like a box, and this is filled with plaster of Paris. Upon this plaster the pattern is drawn by the artist, and the *mosaicisti* proceeds with his work by removing small squares of the plaster, and filling in these with pieces cut from the rods of glass. Gradually, in this manner, all the plaster is removed, and a picture is formed by the ends of the filaments of coloured glass; these are carefully cemented together by a kind of mastic, and polished. In this way is produced, not only those exquisitely delicate mosaics which were, at one time, very fashionable for ladies' brooches, but tolerably large, and often highly artistic pictures. Many of our readers will remember the mosaic landscapes which rendered the Italian Court of the Great Exhibition so attractive; and in the Museum of Practical Geology will be found a portrait of the late Emperor of Russia, which is a remarkably good illustration of mosaic-work on a large scale. We may remark, in passing, that the whole process of glass mosaic

is well illustrated in the Museum in Jermyn Street.

The next variety of mosaic-work to which we will direct attention is the manufacture of Tunbridge, which resembles still more closely the mosaic in wool. The Tunbridge-ware is formed of rods of wood, varying in colour, laid one upon the other, and cemented together, so that the pattern, as with the glass mosaics, is produced by the ends of the rods.

There will be no difficulty in understanding how a block of wood, which has been constructed of hundreds of lengths of coloured specimens, will, if cut transversely, produce a great number of repetitions of the original design. Suppose, when we look at the transverse section presented by the end of a Tunbridge-ware block, we see a very accurately formed geometric pattern; this is rendered perfectly smooth, and a slab of wood is glued to it. When the adhesion is secure, as in a piece of veneering for ordinary cabinet-work, a very thin slice is cut off by means of a circular saw, and then we have the pattern presented to us in a state which admits of its being fashioned into any article which may be desired by the cabinet-maker. In this way, from one block a very large number of slices can be cut off, every one of them presenting exactly the same design. If lengths of worsted are substituted for those of glass or of wood, it will be evident that the result will be in many respects similar. By a process of this kind the mosaic rugs—with very remarkable copies from the works of some of our best artists—are produced, and we proceed at once to a description of this Art-manufacture.

The tapestries of France have been long celebrated for the artistic excellence of the designs, and for the brilliancy and permanence of the colours. These originated in France, about the time of Henry IV., and the manufacture was much patronised by that monarch and his minister Sully. Louis XIV. and Colbert, however, were the great patrons of these beautiful productions of the loom. The minister of Louis bought from the Brothers Gobelins their manufactory, and transformed it into a royal establishment, under the title of *Le Teinturier Parfait*. A work was published in 1746, in which it was seriously stated that the dyes of the Gobelins had acquired such superiority, that their contemporaries attributed the talent of these celebrated artists to a pact with the devil.

In the Gobelin and Beauvais Tapestry we have examples of the most artistic productions, executed with a *mechanical* skill of the highest order, when we consider the material in which the work is executed. The method of manufacture involving artistic power on the part of the workman, great manipulatory skill, and the expenditure of much time, necessarily removes those productions from the reach of any but the wealthy. Various attempts have been made, from time to time, to produce a textile fabric which should equal those tapestries in beauty, and which should be sold to the public at much lower prices. None of those appear to have been successful, until the increasing applications of Indian-rubber pointed to a plan by which high artistic excellence might be combined with moderate cost. In Berlin, and subsequently in Paris, plans—in most respects similar to the plan we are about to describe—were tried, but in neither instance with complete success. Of course, there cannot now be many of our readers who have not been attracted by the very life-like representations of lions and dogs which have for the last few years been exhibited in the carpet warehouses of the metropolis, and other large cities. While we admit the perfection of the manufacture, we are compelled to remark that the

designs which have been chosen are not such as appear to us to be quite appropriate, when we consider the purposes for which a rug is intended. Doubtless from their very attractive character, and moderate cost, those rugs find a large number of purchasers, by whom they are greatly admired.

With these remarks we proceed to a description of the manufacture, every detail of which was shown and described to us with the utmost care, by the direction of the proprietors of this princely establishment, when a few weeks since we visited Halifax.

Every lady who has devoted herself for a season—when it was the fashion to do so—to Berlin wool-work, will appreciate the importance of a careful arrangement of all the coloured worsteds which are to be used in the composition of her design. Here, where many hundreds of colours, combinations of colours, and shades, are required, in great quantities and in long lengths, the utmost order is necessary; and the system adopted in this establishment is in this respect excellent. We have, for example, grouped under each of the primary colours, all the tints of each respective colour that the dyer can produce, and between each large division the mixtures of colour producing the neutral tones, and the interblending shades which may be required to copy the artist with fidelity. Skeins of worsted thus arranged are ever ready for the English *mosaicisti* in rug-work.

Such is the material. Now to describe the manner of proceeding. In the first place an artist is employed to copy, of the exact size required for the rug, a work of Landseer's, or any other master, which may be selected for the purpose. Although the process of copying is in this case mechanical, considerable skill is required to produce the desired result. This will be familiar to all who have observed the peculiar characteristics of the Berlin wool-work patterns. The picture being completed, it is ruled over in squares, each of about twelve inches. These are again interruled with smaller squares, which correspond with the threads of which the finished work is to consist. This original being completed, it is copied upon lined paper by girls who are trained to the work, each girl having a square of about twelve inches to work on. These are the copies which go into the manufactory. A square is given to a young woman whose duty is to match all the colours in wool. This is a task of great delicacy, requiring a very fine appreciation of colour. It becomes necessary in many cases to combine two threads of wool, especially to produce the neutral tints. It is very interesting to observe the care with which every variety of colour is matched. The skeins of worsted are taken, and a knot or knob being formed, so as to increase the quantity of coloured surface, it is brought down on the coloured picture; and, when the right shades have been selected, they are numbered, and a corresponding system of numbers are put on the pattern. In many of the rugs one hundred colours are employed. The selector of colours works under the guidance of a master, who was in this case a German gentleman, and to his obliging and painstaking kindness we are much indebted. Without his very exact description of every stage of the process, it would not have been easy to have rendered this rare mosaic-work intelligible to our readers. When all the coloured wools have been selected, they are handed, with the patterns, to other young women, who are termed the "mistresses of a frame," each of whom has under her charge three little girls.

The "frame" consists of three iron stands, the two extreme ones being about 200 inches apart, and the other exactly in the middle. These stands are made of stout cast iron, and

may be said to consist of two bowed legs, with two cross pieces of iron, one at the top of the legs, and the other about fifteen inches below, the space between them being that which is to be occupied by the threads of wool which are to form the required square block of wool. These frames are united together by means of cast iron tubes, running from end to end. The observer is struck with the degree of strength which has been given to these frames. It appears that, for the purpose of merely holding together a few threads of wool, a much slighter frame might have been employed; and we certainly were surprised when we were informed that, at first, many frames were broken, and that they were compelled to have the stronger ones at present in use. The cause of this will be obvious, when we have proceeded a little further with our description. At one end of these frames sits the "mistress," with a stand before her, on which the pattern allotted to her is placed, and a vertical frame, over which the long coloured worsteds are arranged. By the side of this young woman sits a little girl, who receives each worsted from the mistress, and hands it to one of two children, who are on either side of the frame.

Commencing at one corner of the pattern, a thread is selected of the required colour, and handed to the first girl, who passes it to the second, whose duty is to fasten it to a stiff, but slight bar of steel, about half an inch in width, which passes from the upper to the under bar of the frame. The third girl receives the thread, and carries it to the lower end of the frame, and fastens it to a similar bar of steel at that end. The length of each thread of worsted is rather more than 200 inches. It is well known that twisted wool does not lie quite straight, without some force is applied to it; and of course the finished pattern would be incomplete, if all the threads did not observe the truest parallelism to each other. To effect this, a stretching force equal to four pounds is required to every thread. The child who carries the thread, therefore, pulls the worsted with this degree of force, and fastens it over the steel bar. Every block, forming a foot square of rug-work, consists of fifty thousand threads; therefore, since every thread pulls upon the frame with a force equal to four pounds, there is a direct strain to the extent of 250,000 pounds upon the frame. When this is known, our surprise is no longer excited at the strength of the iron-work; indeed, the bars of hardened steel, *set edgewise*, were evidently bent by the force exerted.

Thread after thread, in this way, the work proceeds, every tenth thread being marked, by having a piece of white thread tied to it. By this means, if the foreman, when he examines the work, finds that an error has been committed, he is enabled to have it corrected, by removing only a few of the threads, instead of a great number, which would have been the case, if the system of marking had not been adopted.

This work, requiring much care, does not proceed with much rapidity, and the constant repetition of all the same motions through a long period would become exceedingly monotonous, especially as talking cannot be allowed, because the attention would be withdrawn from the task in hand. Singing has therefore been encouraged, and it is exceedingly pleasing to see so many young, happy, and healthy faces, performing a clean and easy task, in unison with some song, in which they all take a part. Harmonious arrangements of colour are produced, under the cheerful influence of harmonious sounds. Yorkshire has long been celebrated for its choristers, and some of the voices which we heard in the room devoted to the construction of the wool-mosaics bore

evidence of this natural gift, and of a considerable degree of cultivation.

The "block," as it is called, is eventually completed. This, as we have already stated, is about a foot square, and it is 200 inches long. Being bound, so as to prevent the disturbance of any of the threads, the block is cut by means of a very sharp knife into ten parts, so that each division will have a depth of about 20 inches. Hearth-rugs are ordinarily about seven feet long, by about three feet wide, often, however, varying from these dimensions. Supposing, however, this to represent the usual size, twelve blocks, from as many different frames, are placed in a box, with the threads in a vertical position, so that, looking down upon the ends, we see the pattern. These threads are merely sustained in their vertical order by their juxtaposition. Each box, therefore, will contain 800,000 threads. The rug is now, so far as the construction of the pattern is concerned, complete. The boxes into which the rugs are placed are fixed on wheels, and they have movable bottoms, the object of which will be presently understood. From the upper part of the immense building devoted to carpet manufacture, in which this mosaic rug-work is carried on, we descend with our rug to the basement story. Here we find, in the first place, steam chests, in which India-rubber is dissolved to form a gelatinous mass, in appearance like carpenter's glue.

In an adjoining room were numerous boxes, each one containing the rug-work in some of the stages of manufacture. It must now be remembered that each box represents a completed rug—the upper ends of the threads being shaved off, to present as smooth a surface as possible. In every stage of the process now, all damp must be avoided, and wool, like all other porous bodies, has a tendency to absorb, and retain, moisture from the atmosphere. The boxes, therefore, are placed in heated chambers, and they remain there until all moisture is dispelled; when this is effected, a layer of India-rubber solution is laid over the surface, care being taken, in the application, that every thread receives the proper quantity of the caoutchouc; this is dried in the warm chamber, and a second and a third coat is given to the fibres. While the last coat is being kept in the warm chamber, free from all dust, sufficiently long to dissipate some of the solvent, the surface on which the rug is to be placed receives similar treatment. In some cases ordinary carpet canvas only is employed; in others, a rug made by weaving in the usual manner is employed, so that either side of the rug can be turned up, as may be desired in the room in which it is placed. However this may be, both surfaces are properly covered with soft caoutchouc, and the "backing" is carefully placed on the ends of worsted forming the rug in the box. By a scraping motion, the object of which is to remove all air-bubbles, the union is perfectly effected; it is then placed aside for some little time, to secure, by rest, that absolute union of parts, between the two India-rubber surfaces, which is necessary. The separation of the two parts is, after this, attended with the utmost difficulty; the worsted may be broken by a forcible pull, but it cannot be removed from the India-rubber. The next operation is that of cutting off the rug, for this purpose a very admirable, but a somewhat formidable, machine is required. It is, in principle, a circular knife, of about twelve feet diameter, mounted horizontally, which is driven, by steam-power, at the rate of 170 revolutions in a minute.

The rug in its box is brought to the required distance above the edge of the box, by screwing up the bottom. The box is then placed on a rail, and connected with a

tolerably fine endless screw. The machine being in motion, the box is carried, by the screw, under the knife, and, by the rapid circular motion, the knife having a razor-like edge, a very clean cut is effected. As soon as the rug is cut off, to the extent of a few inches, it is fastened by hooks to strings which wind over cylinders, and thus raise the rug as regularly as it is cut. This goes on until the entire rug is cut off to the thickness of three sixteenths of an inch. The other portion in the box is now ready to receive another coating, and the application of another surface, to form a second rug, and so on, until about one thousand rugs are cut from the block prepared as we have described.

We hope the account which we have given of this singular manufacture has been intelligible. Having seen the entire process, under the guidance of most intelligent gentlemen, who were obligingly directed by the Messrs. Crossley to describe everything to us, the whole appeared particularly simple; when, however, we attempted to convey in words the details of this wool mosaic, we began to feel many difficulties. Hoping, however, that we have sufficiently described the operation, we have only to remark, in conclusion, that the rugs being subjected to careful examination, and being trimmed round the edges, by young women, are ready for the market.

The establishment of the Messrs. Crossley, which gives employment to four thousand people, is one of those vast manufactories of which England may proudly boast, as examples of the industry and skill of her sons. Here we have steam-engines urging, by their gigantic throes, thousands of spindles, and hundreds of shuttles, and yet, notwithstanding the human labour which has been saved, there is room for the exertion of four thousand people. The manner in which this great mass of men, women, and children is treated, is marked in all the arrangements for their comfort, not merely in the great workshop itself, but in every division of that hill-encompassed town, Halifax. Church, schools, and park proclaim the high and liberal character of those great carpet manufacturers, one division, and that a small one, of whose works we have described.

ROBERT HUNT.

SYDNEY, LADY MORGAN.

A Memory.

THE great literary link between the past and present is broken; the most remarkable woman of the present century, who was an author at its commencement, has been taken, at an age so advanced, that the stated "seventy-six" seem to those who knew her, very far short of the years Lady Morgan had numbered. Her playful verses recently written and printed, are evidence that she had no intention to betray what has been called a "woman's greatest secret;" the exact date of her birth can only be guessed at, for, during the last century, "registers" in Ireland were, if kept at all, singularly imperfect. Lady Morgan and Lady Clarke (the latter has been dead some years) were the daughters of Mr. Owen-son, an Irish actor, respected by all who knew him, and gifted with considerable musical, as well as dramatic talent; much of both was inherited by his daughters. Lady Clarke, the younger, married young, was blessed with children, and devoted herself to the domestic, and occasionally the social, duties, which are inseparable from Irish nature. Her sister's affections and energies from early childhood, were dedicated to literature; she wrote songs and tales before she was fourteen; but Miss Owen-son's first grand coup was "The Wild Irish Girl;" it created a *furor* about the years 1803-4, which it would be easier to imagine than describe—"pushing" through six or seven editions. The world declared