

dreamt of. The greater the number of minds occupied in this manner the greater was the chance of the advancement in the perfection of art. In these days when men were perplexed with doubts, and the political atmosphere was darkened, surely it was better to turn to nature, which would teach us to "turn our spears into plough-shares and our swords into pruning hooks." The lecturer concluded amid applause.

### MOSAIC DECORATION.

The art of representing various outlines and patterns by means of small fragments of different coloured minerals or artificial substances is one of very ancient date. What is now termed "mosaic work" was known and practised in Assyria and Babylon, as also in Egypt, and attained to high perfection among the Greeks and Romans. This ancient art was much used by the early Christians, and after falling somewhat into disuse in the dark ages was revived in Italy at the end of the sixteenth century. The decoration of the dome of St. Peter's gave a fresh impetus to Roman mosaic workers, and a school was established for instruction in the art, which still survives, and is known as the "Fabrica."

The numerous remains of mosaic work found in the buried cities of Herculaneum and Pompeii and the traces of mosaic or tessellated pavements which have been discovered wherever Roman influence or colonization extended, prove how universal was the employment of this mode of decoration in the first few centuries of our era. Like all the Roman arts, that of working in mosaic seems to have been borrowed from the Greeks; and from the writings of Pliny we have good reasons for believing that this work first became prevalent in Rome about 80 B. C.

Roman mosaic work has been divided into four classes,—namely, the pictorial consisting of fictile and vermiculated work, and the tessellated and scetile work for paving purposes. There is no doubt that the mode of working with small cubes, or *tesserae*, as the fragments were named by the Romans, was first employed for pavements in the production of the tessellated work. Most of the examples of ancient mosaic work which have been found in England belong to this class, and some of the finest specimens of tessellated pavement have been found at Pompeii and at the Baths of Caracalla. The Roman *tesserae* were generally small cubes of marble about three-quarters of an inch in each direction. The designs were, in the earliest work, confined to simple geometrical figures. The next variety is the *opus scetile*, or sliced work, for which thin slices of marble were employed, and which were formed into designs of a more complicated character. The pavement of the pantheon is one of the most splendid examples of this style of work; no ancient specimen has been discovered in any other country except Italy.

Passing on to wall decoration we have next the *opus fictile*, for which artificially made *tesserae* were first used. It was the facility afforded by such materials for obtaining an effective and durable wall covering which gave to the mansions of imperial Rome their chief splendor. Indeed the *vitreae pasetes*, or walls of glass, seem to have been among the most general of the modes of decoration employed by the wealthy Romans. From the descriptions of specimens of this fictile work it would appear that the *tesserae* were almost exactly similar to the modern enamel *tesserae* termed *smalto* by the Italian worker. The fourth and last class of Roman work was the *opus vermiculatum*, divided into three sub-divisions, dependent upon the sizes of the *tesserae* employed. The substances used for vermiculated work were in most cases very small and irregular-shaped fragments of rare, coloured marbles, but in the finer sort of work, gems and fictile *tesserae* were often introduced. In the coarsest work of this class, termed *opus majus*, and chiefly adapted for pavements and ceilings, the *tesserae* were generally very uniform in size and arrangement, and the effect produced was similar to that obtained by the modern mosaicists.

There are few remains of mosaic work in great Britain of post-Roman date until we come to the monuments in Westminster Abbey, which were no doubt executed by Italian artists employed by Henry III. The shrine of Edward the Confessor bears the date of 1270. During some restorations at the abbey, Sir Gilbert Scott found in the soil beneath one of the tombs numerous fragments and chippings of the *tesserae* employed in the design, and the evidence that they were actually produced on the spot appears to be incontestable. This mode of working in mosaic, in which each *tesserae* is fixed into its appointed place and securely cemented to those around it as the work proceeds, is what we may term the ancient method, in contradistinction to the plan now generally adopted in forming mosaic pictures, in which the entire mode of proceeding is changed.

The modern plan is due, we believe, to the skill and ingenuity of Dr. Salviati, of Venice, whose name is associated with the revival of many beautiful almost lost arts connected with the manufacture of the famous Venetian glass, and the products of the island of Murano. Sir Henry Layard tells us that Dr. Salviati taught his workmen to reverse the cartoon, or the design prepared for the reproduction in mosaics, that is, to trace it from the back; the *tesserae* were then placed face downwards on the smooth surface of the paper design, each *tesserae* being temporarily retained in positions by means of common paste. Of course the workman sees only the back of his picture, and this method would scarcely be applicable to very delicate work, but it is all-sufficient for ordinary decorations of an architectural character, and when once the workman has acquired skill and proficiency in this plan of arranging the *tesserae*, he can judge of the work as it proceeds, from the appearance of the back, almost as well as he could from its finished surface. When the design is completed the under surface is covered with liquid cement, which runs into all the crevices and securely embeds the *tesserae*; the paper design is then removed, bringing to light the perfectly smooth and level surface of the completed picture, now seen for the first time.

Another plan by which the necessity of putting together the *tesserae* in the actual spot they are to occupy is prevented, is that which has long been practised in the Fabrica at Rome. The method of working is as follows:—A containing rim or band of thin metal shaped to the actual size of the finished design, and attached to a slab of hard cement, which is to form the back of the panel. Over this is then spread a layer of soft or rather rotten plaster of Paris, which is brought up level with the edge of the metal rim and the finished surface of the picture. On this bed of plaster, the design to be worked in mosaics is then carefully traced, and the workman can commence his picture. He cuts out with a small chisel the form of each *tesserae*, and having selected one of the right color, he dips it in cement and secures it in position. In time the whole of the plaster is scooped out and replaced by the mosaic work of the finished design. This plan resembles that followed in making inlays in marble and *pietra dura*, has many obvious advantages over the earlier method of working the subject *in situ*, as it enables the rough surface of the mosaics to be readily smoothed down and polished, and greatly reduces the cost of the work.—*Cassell's Magazine of Art.*

**THE LATEST ELECTRIC LAMP.**—The Maxim lamp, which is mentioned as accomplishing the results sought for by Mr. Edison, is an incandescent lamp, having a filament or conductor, which is placed in a glass globe from which the air has been exhausted and replaced by the vapor of gasoline. If there is any weak point or thin part in the carbon filament when the current is passed through it, this point or part will become hotter than the rest, and will decompose the gasoline so as to deposit carbon in the form known as coal-gas carbon upon that particular spot. When this spot as been built up to an equal conductivity with the rest of the filament, the current from the machine is increased with the effect of seeking out the next weakest point or thinnest part, and repeating the process just described. In this way the filament becomes glazed with gas carbon. The gasoline is then withdrawn from the globe, and the lamp is ready for use.

**TO TEST ENAMELLED IRON-WARE FOR LEAD.**—Take ordinary vinegar, which dilute with four times its weight of water, and to which add 5 per cent. of table salt. The solution is poured into the vessel, and left in it for twelve hours at ordinary temperature. After this time the liquid is examined for lead by means of sulphide of ammonium. If the liquid acquires a black or dark-brown colour, the enamel is dangerous; if the colour is only light yellow or light brown the vessels may be used.

**TRANSPARENT GOLD.** If a solution of gold in aqua regia is centralized by carbonate of soda, and a solution of oxalic acid is added, the gold is precipitated in a brilliant yellow powder. On examining this precipitate by the microscope the flakes are found to have a triangular or hexagonal form and to be translucent, the color of the transmitted light depending on the thickness of the crystals.—*Les Monde.*

**THOUGHT RULES THE WORLD.**—It makes no noise, but lives on and reigns when all the bustling and shouting that seemed to stifle it are hushed, and whilst the great works, which it guided the hand of man to do, have either perished or remained to tell of a pomp and vain glory gone forever. Thought is with us in the words of wisdom that "Shall not pass away," and to which we do well to give heed.