

GLASS MAKING.

The art of glass-making is of very high antiquity. The oldest known specimen of transparent glass is a bottle about three and one-fourth inches high, discovered by Mr. Layard in the ruins of the N. W. palace at Nineveh, and now in the British Museum. It was blown in one solid piece and then hollowed out by a machine. It has engraved upon it the name and title of Sargon, accompanied with the figure of a lion. Its date, therefore, is the latter part of the seventh century, B. C. The art, however, has been practiced in Egypt many centuries before this. There was discovered at Thebes a glass bead bearing the name of a king who lived about 1,150 B. C. The monuments carry us back much farther even than this. On the paintings at Beni Hassan, which belong to the reign of Ousirtasen I., who reigned B. C. 2,000, we have the figures of glass blowers at work, and on the monument of the tenth dynasty, some two centuries earlier still, are drawings of bottles of transparent glass containing a red wine.

The skill shown by the ancient Egyptian glass blowers is almost incredible. Except perhaps in point of brilliancy—and the evidence here must necessarily be wanting, in consequence of the chemical changes which time causes in the substance of glass—they seemed to have equalled, and in some instances surpassed any productions of more modern times. Their art in introducing different colors into the same vase has, I believe, as yet found no imitators. One very curious specimen of their remarkable skill has been preserved. It is not quite an inch in length, by one-third in breadth, and one-sixth in thickness, and contains a figure of a bird resembling a duck in very bright and varied colors.

The most delicate pencil of a miniature painter could not have traced with greater sharpness the circle of the eyeball or the plumage of the neck and wings. The most wonderful thing, however, is that the picture goes all through the glass, so that both sides show the same figure. The way in which it must have been made was by arranging threads of colored and uncolored glass in such a manner as to produce the required figure at each end of the mass. The threads were then united by heat, each thread being adjusted separately. The bar of glass thus made would be cut into horizontal sections, each section of course containing the figure. In some cases of similar work the details are so fine as only to be made out with a lens, which accordingly must have been used in its manufacture. It is extremely interesting to find that Mr. Layard discovered a magnifying lens at Nineveh. Many specimens of Greek glass have come down to us. Mr. Webb exhibited no fewer than thirty-three specimens in the Loan Collection at South Kensington. Of Roman glass, examples are much more numerous; the Museo Borbonico alone has two thousand. The Romans themselves considered a colorless glass as the most precious kind. Nero gave as much as six thousand sesteria (nearly \$50,000) for two cups with handles on each side. The most valuable example of Roman glass that has come down to us is the famous Portland or Barberini vase—"Portland's mystic urn"—as Darwin calls it, now in the British Museum. In 1845 it was wondrously broken into fragments, but has been most admirably restored by Mr. Doubleday only one very small piece being wanting. This vase which was found in a tomb supposed to be that of the Emperor Alexander Severus, who was murdered A. D. 235, is composed of two strata of glass, blue and white. The surface was then carved like a cameo, leaving white figures on a dark background. It was purchased from Sir William Hamilton by the Duke of Portland. At her sale the Duke of Portland, after a private understanding, it seems, with Wedgwood, bought it in at £1,029 10s.

ARTIFICIAL HANDS.

A writer in *Once a Week* says: "A celebrated artificial limb-maker tells us, 'Some years since I devised a hand which, by a series of concealed cords and springs, possessed the power of grasping and retaining with some slight amount of force any light substance placed in contact with it, the governing power being the fall of a small column of mercury placed in a tube within the arm part of the apparatus. The object I had in view was that the elbow being flexed, and the lower arm being placed at an inclined plane, the gravity of the quicksilver, acting upon a kind of plug to which the centre cord was attached, should at once produce a closure of the fingers, while the return of the mercury to the lower end of the tube, upon the arm being lowered, would permit light springs to bring back the fingers to their starting point.'

This plan did not succeed, and the joints had to be made so loose that they gained lateral motion, thus giving anything but a natural appearance to the fingers; and the metal, in spite of every care taken to secure it, continually escaping, rendered useless the contrivance."

The highest effort of mechanical genius in this direction was that called forth by the mishap of M. Roger, who had the misfortune to lose his right arm below the elbow. This serious disability would have prevented his following his profession, were it not that the loss fired the ambition of a young Prussian to supply him with a limb that would serve the purpose of 'historic declamation.'

It strikes one that the movements of operative singers are so purely mechanical, as a rule, that the task was not so difficult after all. Be that as it may, however, M. Von Peterson has won the admiration of all the practitioners in his art by making an arm and hand which could not only give the well known operative flourish, but which enabled M. Roger to grasp and draw a sword from its scabbard."

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