

## AN EARLY POTTER'S WHEEL

NO clearer evidence is known to the archæologist as to the civilization of any early people, than the pottery which he finds in his excavations. Peoples who make fine and artistic vases are usually endowed with an acute and accurate æsthetic sense. If the faculty for producing beautiful pottery is combined with the knowledge of the potter's wheel, the archæologist is entitled to conclude that the civilization with which he is dealing is of a very high order.

The Egyptians are usually believed to have introduced the use of the potter's wheel to the ancient world; but, in this country at least, as far as the writer is aware, no example of the wheel they employed exists. The object to be decided here bids fair to be the oldest example in America.

In the course of the excavations carried on at various places, and under various auspices, in Crete, a number of large, solid discs of stone or terracotta have been found. These discs are about a foot, or a little over, in diameter, and have a thickness of about two inches, which means that they are of considerable weight. They are not confined to any one locality, but are found on nearly every site where the Minoan civilization has been uncovered.

Gournia, the principal excavation carried on in Crete for the University Museum, also yielded to the excavators its share of these objects, and, indeed, so many were found that the Cretan government permitted one to be sent out of the country, and it is at present exhibited in the Museum. It was discovered with objects belonging in what is known to scholars as the First Late Minoan period, which covers the time from 1700 to 1500 B.C.

The use of these discs has till very recently been in doubt. Miss Boyd (now Mrs. Hawes) who was in charge of the excavations at Gournia, in publishing her results, describes two of them, as "belonging to a class of objects which are numerous and puzzling. . . . The most reasonable explanation," she continues, "seems to be that they are 'tables of offerings'."

This theory was adopted, in default of a better, by many archæologists, and when there was occasion to publish any object of this kind, it was that name, usually enclosed in quotations, which was



Potter's Wheel from Crete—Upper Side.

FIG. 109.

given to it. Doubt, however, always existed; and now a French scholar, Monsieur Franchet, has, in the writer's opinion, conclusively proved that they were used as the tables, or wheels, of a rudimentary potter's apparatus.

The example in the Museum being, in all respects, like all the others that have been found, although a little smaller, the description given below applies to it, as well as to them. These objects are usually made of coarse clay, although examples of stone have been found. One side is always plain and is frequently a little depressed in the centre. The edges of the discs are sometimes given a rough border of a twisted rope pattern; sometimes they are beveled, more often, however, they are not treated in any way, as shown by the specimen in the Museum.

In the specimens of stone, too, where the addition of a border pattern would be an added expense and serve no practical purpose, the edges were left undecorated.

But it is the other side of the discs that is of the greatest interest. In the centre is always a slightly raised circle. In the specimen here published this is raised about five millimeters, and has a diameter of fifteen centimetres. This is smaller than the average. In the centre of this circle is a small conical hole; in this specimen it is two centimetres deep and three and a half in diameter; usually it is somewhat larger. One of those found at Gournia, and now in the Museum at Candia, has a central hole of a diameter of no less than twelve centimetres. The circle, in the centre of which the hole is made, is always intentionally roughened, by scratches or grooves, or merely by rubbing.

Mrs. Hawes, on finding a number of these objects at Gournia, was inclined at first to consider them potter's tables, but, on second thoughts, decided to abandon this theory, largely on account of the specimen with the central hole twelve centimetres across; a diameter "which militates against its having been a mere socket, rotating on a pivot. . . . The weight of these objects also," she adds, "is against this practical interpretation," and she concludes by saying that we must await further evidence to decide the point. In the meantime she declared herself in favor of giving them the tentative name of "tables of offerings."

In the year 1912-13, M. Franchet was sent from France by the Ministry of Public Instruction and Fine Arts to study the primitive pottery of Crete and Egypt. Owing to the war the publication



Potter's Wheel from Crete—Under Side.

FIG. 110

of his results was delayed and has only appeared within the last two years.

While in Crete, M. Franchet was much impressed by these discs and, in the writer's opinion, established on a firm basis the theory of their being potter's tables or wheels—a theory which tempted Mrs. Hawes when she first saw them in the years between 1901 and 1904, but which, as we have seen, she abandoned.

The apparatus of which these discs are the essential part was, according to M. Franchet, a very primitive affair, requiring two operators—the potter, who shaped the clay on the wheel, and his assistant, to whom was given the difficult task of keeping it in motion. It was necessary, of course, to have an apparatus that would spin as many times as possible without having to be started again. This can best be done with a heavy table or wheel, just as a heavy top will spin longer than one that is not weighted. Thus the weight of the disc, which was one of Mrs. Hawes's reasons for discarding the theory of the potter's table, becomes one of the principal reasons for M. Franchet's adoption of it.

In this connection he cites the Hindus, more particularly in the region of Benares in Northern India, who, he maintains, use a heavy wheel of solid clay, framed in wood, of precisely the same shape, and having the same characteristics, as the Minoan wheels, even to the conical hole on the under side. It is claimed that a Hindu potter can, in the period of one spin of his heavy wheel, fashion from fifteen to twenty vases.

It will now be asked how the Minoan wheel was operated, and when the heavy wheel was developed. According to M. Franchet, the central hole on the under side was not a socket for a stake or pivot, but the wheel was sealed to the stake on which it revolved. This stake was of the same diameter as the central circles, and the hole, according to him, had no other purpose than to strengthen the adhesion between the wheel and the stake. Remains of mortar were detected at these places on wheels in the Museum of Candia, and there seem to be some slight traces of it on the specimen in the University Museum. On the analogy of the outfit used by itinerant potters in Crete today, of which a diagram is given in his article, and which is of a most primitive nature, M. Franchet believes that the base of the stake was pointed, a piece of stone with a natural depression was selected as a socket, in which it rested, and the whole apparatus was spun by the assistant, like a giant top, by means of a strap

or cord. The heavy wheel assured not only a long spin, but great stability, there being very little oscillation, resulting in the creation of vases of a more regular and symmetrical shape than if a lighter wheel were used.

It is not believed that the heavy wheel was always known to the Minoan potters. In fact, the first wheelmade vases show imperfections that point to an even simpler device. The heavy wheel seems to have been introduced in the period known as the Second Middle Minoan, or about 2000 B. C. This period is one of the greatest epochs in the history of the pottery of prehistoric Crete, and marks a most significant advance in technical skill over the age immediately preceding it.

All the facts mentioned above combine in proving very conclusively that these so-called tables of offering are really to be regarded as potters' wheels. In this object, therefore, we have what is probably the earliest potter's wheel to be found in any museum in the United States, from a country which, at the period of its use, and largely through the knowledge of the principles involved, towered above most of its neighbours in civilization and artistic feeling.

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