British Museum Expedition to British Honduras.¹

By T. A. JOYCE.

THE objective of the British Museum Expedition to British Honduras this season was the group of ruins situated between the Pusilha and Joventud branches of the Mojo River in British Honduras. A preliminary investigation of the area had been made in 1928 by Capt. E. L. Gruning, Dr. T. Gann, and Mr. H. Clive-Smith. The primary objects this year were to bring back as many as possible of the inscribed stone stelæ; to excavate a cave which gave indications of having been used as a pottery dump; to survey the main site so far as possible; to carry on excavation in the numerous mounds; and to prospect for other ruins in the neighbourhood. I was accompanied by Capt. E. L. Gruning, who undertook supervision of transport; and by Mr. Robert Ashton, who looked after the commissariat.

The expedition sailed on Jan. 31, and reached Punta Gorda, the jumping-off place, on Feb. 23, leaving for Pusilha on Mar. 4.

The cave appears to be a natural cavity in a limestone outcrop of some size, on the summit of which were a series of low mounds. Some of these mounds were excavated, but yielded no results beyond fragments of coarse domestic pottery, and the natural inference is that they were hut foundations. Entrance to the cave was made laterally from the lower level, but the opening here may be of comparatively late date, and produced by the fall of a large tree tearing away the side of the cavern. A kind of 'chimney' leads from the cave to the surface of the outcrop. It seems probable that this chimney was the original means of access to the cave, and that the ancient inhabitants of the village erected on the summit of this outcrop used this 'oubliette' as a convenient dump for broken and discarded pots. Yet it is quite possible that the cave was also, in a sense, a sacred place, because traces of five burials were found there. However, these burials may be intrusive.

The cave measures some 33 feet in length, and at its widest transverse diameter, 12 feet. Excavation carried down to the rock floor showed that the deposit measured some 10 feet in depth. The contents of at least one-half of the cave were removed in layers of approximately 1 ft. 6 in. to 2 ft. in depth. The soil in the cave was heavy and sticky from the surface to a depth of about 3 feet. Below that it was fairly crumbly, and easier to work and search.

When half the cave had been partially excavated to the depth of about 7 feet, it became apparent that the archaeological strata were not horizontal but curvilinear, the richest finds appearing immediately under the chimney. It is evident, therefore, that the greater part of the remains had been thrown down the chimney, forming a mound.

The results may be summarised as follows: The main bulk of the remains discovered consisted of pottery fragments of great variety. The greater portion consisted, naturally, of coarse domestic ware, so-called 'ollas' and dishes. But there was an unusually high percentage of bowls and tripod plates painted in slip, and frequently bearing hieroglyphic inscriptions. The quality of paste is extremely variable, ranging from a rather thick and friable ware to a very thin, hard, and perfectly fired pottery. The slip decoration comprises two or three shades of red, yellow, orange, and black. Most of the designs are outlined in the last.

Occasionally a peculiar grey colour is incorporated in the design, a grey which verges on blue, especially

when it is combined with one of the more brilliant reds. Certain fragments, few in number, show the remains of a thick turquoise-blue slip, rather coarse in quality, which was evidently applied to a completed pot and subjected to a secondary firing. This slip, which bears a remarkably close resemblance to the blue slip characteristic of Mexican Toltec ware, is for the most part imperfectly fired, and only survives in patches. This secondary slip, in a colour (and material) which has usually been associated with the Toltec period of Mexico, appears only in the lower strata of this cave, and seems to have been more or less experimental. There can be no question that the pottery of this cave antedates the Toltec period by centuries, and there is not the slightest indication of Mexican influence throughout the complex.

A chocolate-coloured ware, deepening to black, with impressed or incised ornament, thin walls and well fired, appears in small quantities in most of the layers. Incised and 'fluted' ware came from the lower strata. Engraved pottery (on which designs had been carved after firing, or at least sun-drying), also belonged to the lower strata.

The depth of the deposit provided six strata, of 1 ft. 6 in. to 2 ft. each, and these were numbered from 1 to 6 in a downward direction. By far the richest stratum was the fourth, in which examples of practically every style were found. The top stratum, consisting in the main of comparatively recent vegetable humus, was poor in remains apart from coarse domestic pottery. The remains characteristic of the deepest three strata include bowls of rather thick ware, painted with designs in black on yellow. So far as my knowledge goes, this ware has not been found at any other site. Here, too, were found fragments of polychrome ware, many of them well fired, ornamented with series of stepped coils or frets, a design which appears to have gone out of fashion in later times. The same statement is true of the fluted ware. The use of the peculiar grey slip, mentioned above, appears to start in the fourth stratum and continue until the second, while the turquoise-blue slip, probably involving a second firing, belongs to the fourth and fifth. The incised ware, though comparatively scanty, belongs to the third, fourth, and fifth strata, but the rare engraved fragments only to the fourth and fifth.

Decorative motives derived from the vegetable world have hitherto been regarded as very rare in Maya art; but the Pusilha potters made great use of a design resembling a twisted liana with dependent buds. This design, which lasted from the fifth to the second stratum, is particularly characteristic of the site and is more frequently met than any other. Another 'vegetable' design, of flower-petals, is also found in the second, third, and fourth strata.

Associated with these upper strata (second to fourth) is a very interesting class of ware in which the designs, usually formal, are painted in a singularly brilliant red on a buff ground. Some of this ware is magnificent from a technical point of view. In many cases the paste is marvellously thin and light, perfectly fired; and the slip-decoration is so highly burnished that it gives the illusion of a glazed surface. The rare pale grey slip appears on vessels of this class, emphasising details; and some of the vases show a stippled ornament in red, which must have been applied by means of a stiff-bristled brush or its equivalent.

As regards the animal world, figures of monkeys are shown on fragments from the fourth and fifth

¹ From a paper read at a special meeting of the Royal Anthropological Institute on Dec. 10.

strata, and also birds. The finest piece of painting was a single fragment, which in style recalls the art of Palenque, discovered in the sixth stratum. A number of tiny bowls, of very rough ware, often in the form of birds or animals, were found in the middle strata. These may have been votive offerings, or, more probably, children's toys.

As regards the plates, tripod and plain (with a simple ring foot), the ware is thicker and coarser than that of the bowls, and the feet, where present, are of the cascabel pattern, hollow, and enclosing a small clay pellet which forms a rattle. The rims are usually surrounded with a band of painted design, based on textile art, or the 'twist-and-bud' pattern, often supplemented with a row of glyphs. The centre is usually occupied by a formal design (often cruciform), but sometimes by the figure of an animal or snake or human being.

Apart from fragments of *metates* and *manos* (the

tripod slabs and rollers used in grinding maize), stone remains were remarkably few, and represented by only three spear-blades of flaked chert. Obsidian flakes and cores were found in quantities.

A remarkable bone pendant was discovered in the second stratum. This is formed from the ascending ramus of the right mandible of a human lower jaw. The condyles have been filed off, and just below the notch a hole has been pierced for suspension. The exterior surface is covered with relief carving, the main feature of which is four glyphs arranged in a square. This object, which is probably an amulet, is, I believe, unique.

Objects of worked shell are rare, and limited to a few beads. The most interesting is a large spiral shell, which had been rubbed down on two sides, so that the remaining portion represents the central longitudinal section. Small river-shells, some pierced for suspension, were found in quantities.

New Sundial in the Royal Botanic Gardens, Kew.

SOME months ago a beautiful pillar which had come from the old Kew Bridge, and had been presented to the Royal Gardens by Mr. George Hubbard, was set up in the grounds of Cambridge Cottage. Prof. Vernon Boys, having learned from

minutes nobody minds. After all, the dial gives local apparent time and it is too much trouble for most people to ascertain the correction necessary to obtain Greenwich mean time. Prof. Boys has no patience with such slackness. He has aimed at getting the time to the nearest minute. Not only is his dial made with the greatest precision; it carries an inscription on the southern or upper cube which

FIG. 1.—New sundial in the Royal Botanic Gardens, Kew.

the Director that a sundial was required to stand on this pillar, generously offered to provide one which would be worthy of the position. Prof. Boys has designed a dial and made it himself. It is now in place and can be seen and proved by the public (Fig. 1).

Nowadays a sundial is generally regarded as a mere ornament to a garden, and if it is in error by a few

FIG. 2.—'Dial' of the Kew sundial.

gives in clear figures the correction to be applied to deduce Greenwich mean time from Kew apparent time on any given day of the year. This is contained in a table of 88 entries calculated from the equation of time of next year (a year half-way between two leap years), for each day, to which the time corresponding to the longitude of Kew has been (algebraically) added. Any member of the public by adding the correction of the actual day to the time shown by the sun, or subtracting as the case may be, will have Greenwich mean time.