

hard, compact laminations that seemed to have been the result of many fires. Directly under these ashes, in fact, embedded in the lower stratum, were found various potsherds, plain and striated ware, and several chipped flints. No trace of bone or any organic matter exists within this stratum of ashes, so far as we could ascertain.

Below this last layer of ashes was encountered a mass of rock fragments and boulders. Penetrating into this to a depth of two feet, nothing of interest was found, and for the time, at least, this excavation was abandoned.

The above excavation is one of nine, all yielding practically the same results down to a depth of four feet, when in the majority of cases the evidences of man's handiwork ceased.

In an excavation made in front of the large boulder that faces Inscription 2, at a depth of twenty-six inches below the present cave bottom, we encountered a peculiar object of hard-burned clay, possibly a stamp or seal. This object is circular, a little over one and a half inches in diameter, with a flat face and reverse plain, with a knob in the centre as if to serve as a handle. On the flat face is incised a spiral pattern, and its edges are scalloped (Plate VII. Fig. 1 a). This device, or symbol, in its convolutions bears a considerable and probably intentional resemblance to certain of the devices that appear carved on the rocks and boulders around, and upon the wall of the chamber. What signification this peculiar symbol has, is to me unknown; but, from the presence of some bright red pigment in the convolutions, I am inclined to believe that it was used to stamp the emblem upon some other object. This red pigment is possibly vermilion, as Mr. Alfred Maudslay assures me that he has found both the vermilion and the metal mercury in the ruined groups of Quirigua and Copan.

In making these excavations, great care was taken that the work should proceed in such a manner, and in such locations, that no false conditions could exist to injure the value of the information gained.

For example: the rains, as they fell, evidently entered the huge opening above in torrents, and, in certain localities, washed all before it, thus disturbing the natural arrangement of the accumulations, and, to a certain depth, mixing everything in inextricable confusion. Moreover, evidence was not wanting to show that, in times past, other water-sheds had been formed, and that water once flowed down the descending sides of the high portions of the accumulations upon the floor of the chamber in different channels than at present. This change may have been artificially produced by the inhabitants of the cave; but I believe that it was generally caused by the falling of masses of material from above, whereby, the old channels becoming choked up, the water was forced into others. As the object of this expedition was to observe the actual deposits as they

were originally formed, the places where this erosive action, whether of the past or present, was noted, were avoided.

It is worthy of note, as an interesting fact in connection with the query as to the amount of time necessary to produce such an accumulation of ashes, that Chamber 4 is considerably lower than Chamber 3; consequently, the rush of water during the rainy season washes from Chamber 3 down and into Chamber 4, where it is lost in the deep chasms that abound on all sides. The entire bed of the torrent is one solid mass of wood ashes and charcoal, almost free from earthy matter, but containing great numbers of potsherds, and I doubt not, if thorough search was made, many other interesting articles could be found embedded in the compact mass. It is several feet thick and of unknown width and length. It is covered with a superficial accumulation of *brown earth*, two feet deep.

In the passage-way, or sub-chamber, connecting chambers 3 and 4, is a beautiful work of nature. The native who first showed it to me called it the "baptismal font," and the name is very appropriate. A cylindrical pedestal of glistening, snowy-white material, with fluted sides and base, stands close by the wall of the passage. The centre of this column is hollowed, and in its beautifully curved top a cup-like cavity is formed, half shielded by

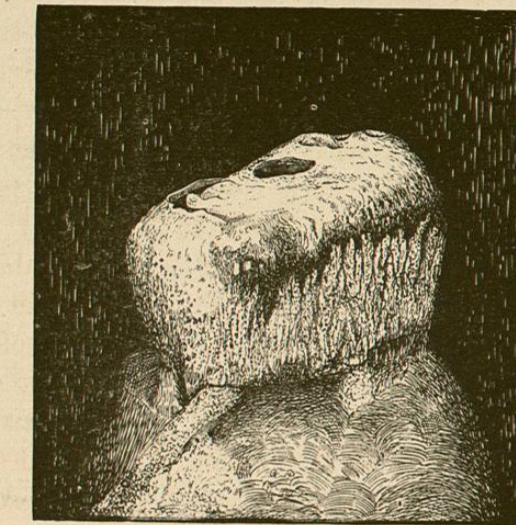


FIG. 7.—HALTUN, OR STONE WATER-TROUGH, COVERED WITH STALAGMITE.

a transparent veil of stalagmite. Not a drop of water is said to enter the cup from above, and yet it is always full of cold water, and the sides of the column are never free from the overflowing moisture. A reservoir, or conducting canal, naturally formed in the wall, contiguous, undoubtedly connects with it, and thus keeps it perpetually filled with water of almost an icy coldness. This phenomenon of naturally produced cold water, in a land where the water as it bursts forth in springs is actually tepid, would, if near to Merida, bring a fortune to its lucky owner. As it is, none but the occasional Indian sees the beauty of the reservoir and enjoys its refreshing contents.

In this passage-way, or sub-chamber, is a second phenomenon of considerable interest, and in this the hand of man can claim to have exerted a controlling influence. A large "haltun," or stone water-holder, holding several gallons, had in the unknown past been raised upon a base of

several large stones until it was at an altitude of four feet from the cave bottom of to-day, and directly under a spot where the drops of percolating water fell; in time the percolation not only filled the haltun with water, and thus supplied the means with which to quench the thirst



FIG. 8.—ROCK CARVINGS, CAVE OF LOLTUN. †.
After tracing by E. H. Thompson.

stones so arranged as to appear heightened by the uniform film of mould dust that covers all the lower portion of the cave. In one corner a haltun, or water-trough, had been cunningly sunk into the floor surface and projected so far each way that the water dripping constantly from



FIG. 9.—ROCK CARVINGS, CAVE OF LOLTUN. †.
After tracing by E. H. Thompson.

the stalactite points of the outer wall could be utilized by the occupants of the chamber without detection or exposure. In another corner, charred wood and ashes were found, beside postherds and flint chips. This instance is but one of many similar ones that are seen in the chambers of the cave. I have found a great many of these haltunes in various portions of the cave. Chamber 3 contains the largest number of any of the chambers I have visited. In order to furnish data for the future worker, we took a haltun of ordinary size, the present location of which is about twenty-five feet northwest of Inscription 7, and carefully removed the crystalline envelope of lime. This coating, two and one-half inches thick upon the outer rim of the cavity, three and one-half inches thick on the inner bottom, and one and one-fourth inches thick upon the outside structure of the haltun itself, was removed with considerable difficulty. This accomplished, the legend "E. 1888" was

of the cave-dwellers, but coated the whole structure—base stones and haltun inside and out—with a transparent and thin, but constantly increasing, coating of lime. To-day the structure stands, a solidified, rounded mass of white lime. Through the several inches of transparent envelope the ancient haltun can still be seen.

Within the northern wall surface of Chamber 3, there is a small opening leading into a large cavity, in fact a small chamber capable of holding comfortably several persons. The opening from the large chamber into this small one is skillfully barricaded and made smaller by large stones so arranged as to appear to be the work of nature, and this effect is heightened by the uniform film of mould dust that covers all the lower portion of the cave. In one corner a haltun, or water-trough, had been cunningly sunk into the floor surface and projected so far each way that the water dripping constantly from the stalactite points of the outer wall could be utilized by the occupants of the chamber without detection or exposure. In another corner, charred wood and ashes were found, beside postherds and flint chips. This instance is but one of many similar ones that are seen in the chambers of the cave.

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chiselled in letters half an inch deep upon the side of the haltun nearest the passage-way. The haltun was then restored to its original position, and left until succeeding years, possibly centuries, and renewed deposit shall make it serviceable to science by recording the rate of stalagmitic deposit.

The entire year might be spent in this cave with good results to science; but it was not deemed advisable to spend a long time during one season in the cave. Constant exposure to the cold, damp air and the sudden changes of temperature, as each day the laborers ascended and descended, caused coughs and colds until, from pure humanity for the health of our faithful natives, we were forced to leave cave work, and migrate to the high and drier region surrounding the Labná group.

REPORT OF EXPEDITION OF 1890-91.

DECEMBER 1st of the season of 1890 found us again at the cave.*

The engineering work done by Mr. Paige, and the excellent photographs made by Mr. Sweet, during the previous season, enabled us to get started on direct investigation in a very short time.

About half-way down the descent from the surface to the first chamber, there is a ledge shelf, or cleft, so deep and sheltered as to be



FIG. 10.—PERFORATED SHELL. †.
Ornament.



FIG. 11.—PERFORATED SHELL. †.
Ornament.

almost a chamber. This seemed a promising field for investigation, as its position would naturally lead us to expect fruitful results.

Carefully dividing the shelf floor into sections, for systematic investigation, we commenced the excavation. The earth as it was dislodged was carefully inspected *in situ*, and the sides of the cuts carefully examined and worked into with hand, brush, and small trowel. The observations were minutely made and noted, and the loose earth was carefully sifted.

* The expedition this season consisted of EDWARD H. THOMPSON, *Director*, and MARSHALL H. SAVILLE, *Assistant and Photographer*.