

than would the constant, yet gentle, pressure exerted by the natural weight of the material of the stratum under normal conditions.

Thus four inches of accumulation effected when man was a factor might well indicate the deposition of double the actual material contained in the four inches of accumulation effected when man was not a factor. On the other hand, the very presence and needs of man cause depositions to accumulate, when not removed, at a rate much greater than by the normal processes of nature.

Passing through chambers 1 and 2 (Fig. 3), we entered a passage-way, the floor and walls of which are of a burnt-umber color, and absolutely non-reflective, making a gloom that the torches and candles seemed only

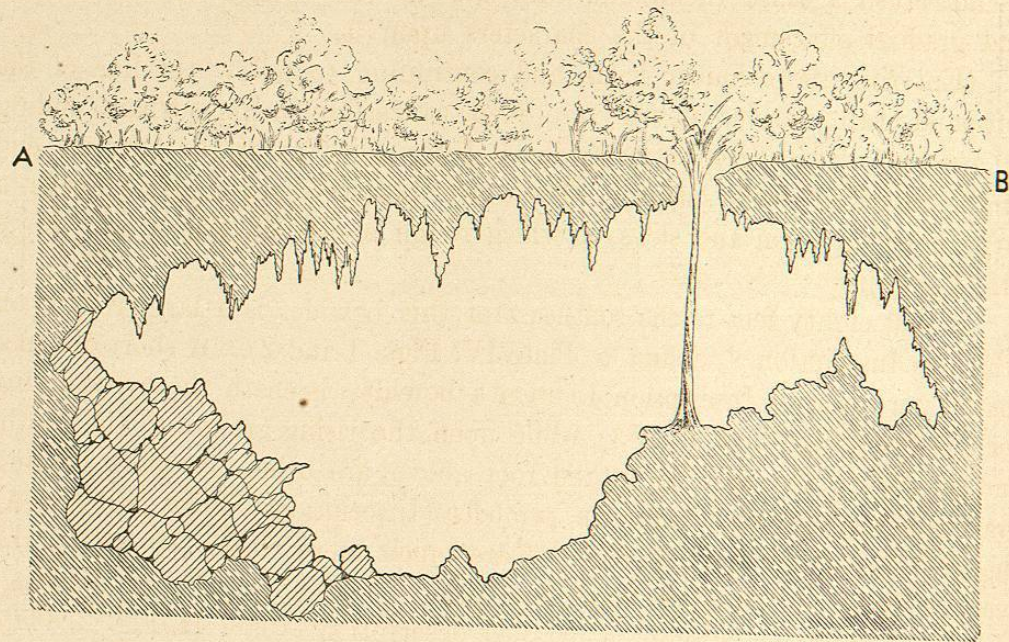


FIG. 5. — VERTICAL SECTION THROUGH CHAMBER 3, CAVE OF LOLTUN.

to emphasize and not to illumine. This passage-way opens into Chamber 3. In the southern portion of the domed roof there is an immense circular opening, and through it the light passes and illuminates the chamber that would otherwise be in impenetrable darkness. This we named the "Inscription Chamber" because of the inscriptions and devices carved upon the walls and boulders.

At the very entrance of the chamber (Fig. 4), the vertical wall is covered to the height of six feet with lines of hieroglyphs (Plate II. Fig. 1). These were probably never engraved very deeply into the stone surface of the wall, and are now in places rendered almost invisible by the disintegration of the surface of the rock. In many places in the cave the exceedingly low relief of the inscriptions could be explained by the theory that the same agencies that produced the stalagmites, and covered the

walls with a coating of lime, coated the inscriptions, also, and thus reduced them to scarcely perceptible outlines. But the inscriptions in Chamber 3 appear to have been carefully engraved upon certain portions of the walls where the accumulation was not forming. A thin coating of green mould one-eighth of an inch thick is the only formation that tends to hide them from view or lower their relief. If any inscriptions were engraved on the portions of the walls where the deposition of lime was taking place, all signs of them have disappeared.

These inscriptions are in partial obscurity; the entrance path winds directly in front of them, so near that, even without the instinct to press close to a solid guiding surface while in the darkness, the passer-by would brush against them, and thus aid in the erosion of the surface and gradual effacement of the characters upon it.

Entering the chamber itself, and continuing to follow the line of the left-hand wall, various devices are seen carved upon its surface, ending in a series of hieroglyphs or symbols (Inscription 2) at the extreme end of the inscribed wall surface. These are placed about six feet above a large boulder, upon the sides of which rough steps had been hewn (Plate III. Fig. 1).

About eighty feet to the southeast of this boulder is a large rock upon which is Inscription 4, a and b (Plate IV. Figs. 1 and 2). A short distance to the northeast of Inscription 4, upon a boulder beneath the overhanging rock, is Inscription 3 (Plate V.); while upon the rising ground to the south, and nearer to the opening in the roof above, are other boulders bearing graven characters and unknown symbols (Inscriptions 5, 6, and 7). As the graven devices mentioned above are much more clearly shown by the accompanying photographs than they would be by any words or drawings of mine, I shall not attempt a detailed description (Plate II. Fig. 2, Plate III. Fig. 2). A peculiar character carved upon the eastern face of one of the boulders (Inscription 4, a) merits special attention and has caused me much thought. Its peculiar contour and general character almost irresistibly impel me to believe that it indicates a body swathed in mummy clothes (Plate IV. Fig. 1); and yet nowhere else in my researches among the vestiges of prehistoric man in Yucatan have I found aught that would lead me to believe such a custom ever existed in Yucatan.

It is also a fact that these cave chambers have innumerable niches and cavities, many of which still retain an evidently artificial form. These would be the places most suitable for the deposition of the bodies or mummies.

One cavity in particular attracted my attention. It was in the centre of a huge stalagmite that rose from the floor until it joined an almost as large stalactite pendent from the roof above. At a distance of eight feet from the surface upon which the stalagmite rested, I noted an orifice, evi-



dently shaped by human hands, in the centre of the surface of the stalagmite, in such a position that it faced the opening in the roof through which the light entered. Ascending close to it in order to examine it, I found that the orifice opened into a cavity just about large enough to hold a human body. The floor of this cavity was reasonably smooth, and the whole appearance was such as to lead me to believe it to have been a work of nature aided very much by the hand of man.

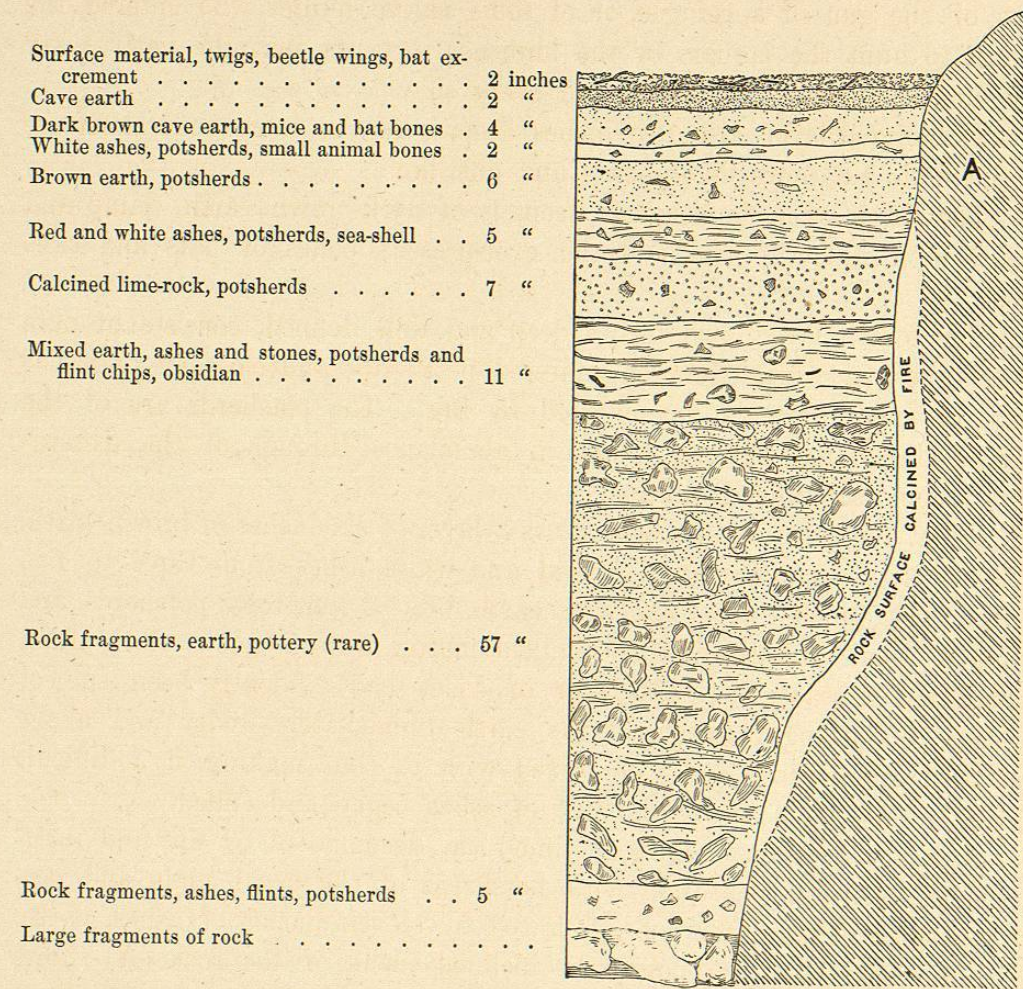


FIG. 6. — VERTICAL SECTION SHOWING LAYERS EXPOSED BY EXCAVATION NO. 1.  
Scale,  $\frac{1}{2}$  inch = 1 foot.

In none of these cavities, of which I examined more than a hundred, did I discover any traces of human remains. If any had been placed within they had been removed before I made my examination.

I made an excavation (No. 1) close by the rock upon which the device described as resembling a mummy had been carved. This excavation (Fig. 6) had a length of ten feet and a breadth of six feet directly in front of the carving. The first layer of surface accumulation excavated was two inches deep, and consisted of twigs and leaves blown in by the winds

that eddied in the huge opening above; with these were half-gnawed nutshells, fruit seeds brought in by cave mice and by fruit-eating bats, and bat excrement.

Buried in this accumulation, eight-tenths of an inch below the surface material of the cave, we encountered a small disk of iron, thin and with a hole in its centre. It resembles very much the eye of a rivet, and its presence can probably be explained by the fact of its once having formed a part of the gun of a refugee, or of some native hunter who entered the cavern to hunt the jaguars or the immense serpents that the natives say hide in the abysses that abound on every side.

The second layer, also two inches deep, is of the same general nature as the first, but more decomposed and dustlike.

The third layer, four inches deep, is of dark-brown earth, damp and mixed with stalactite tips and the ever-present bones of bats and cave mice.

The fourth layer, two inches deep and well defined, consists of pure white ashes, in which were encountered potsherds, and close by pieces of bones of small animals not charred by fire. The potsherds are of the plain and striated pattern found in abundance throughout the excavations among the ruined buildings.

Below this stratum of ashes occurs a layer of six inches of brown earth, followed by a second stratum of red and white ashes from three to five inches thick, much intermixed with earth, bits of lime-rock, potsherds, and bones of small animals; in this mixed matter were found a tooth of an animal and a sea-shell. This layer of ashes had evidently been subject to some disturbing influences; the earth immediately under and above had been ground into and well mixed with it, thus making it a difficult matter to ascertain where the line of ashes began and ended.

A layer of seven inches of lime-rock, decomposed by fire and intermixed in plentiful confusion with potsherds of the usual plain and striated patterns, then intervenes, followed by eleven inches of ashes, earth, and lime-rock. At this point the inclined plane of the rock (A) shows unmistakable signs of having been at some period subjected to such a heat that a large portion of its face has been converted into soft and friable, calcined stone. Below the last mentioned layer was one of earth, ashes and stones, in which were found a piece of an obsidian knife (no obsidian exists naturally in Yucatan), a cylindrical bead of burned clay of a jet-black color, a sea-shell, and many pieces of pottery.

In the succeeding 57 inches of deposit there was a simple commingling of lime-rock, fragments of earth, and very rarely a piece of pottery.

At a depth of eight feet from the surrounding surface was encountered an irregular layer of ashes having an average depth of five inches. These ashes were compressed by time, and the superimposed accumulations, into