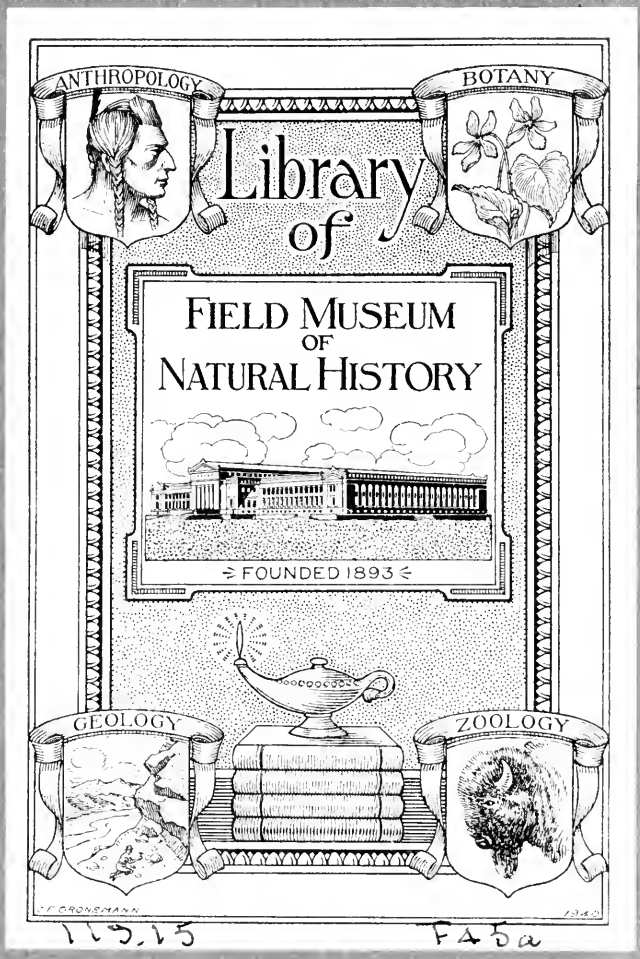
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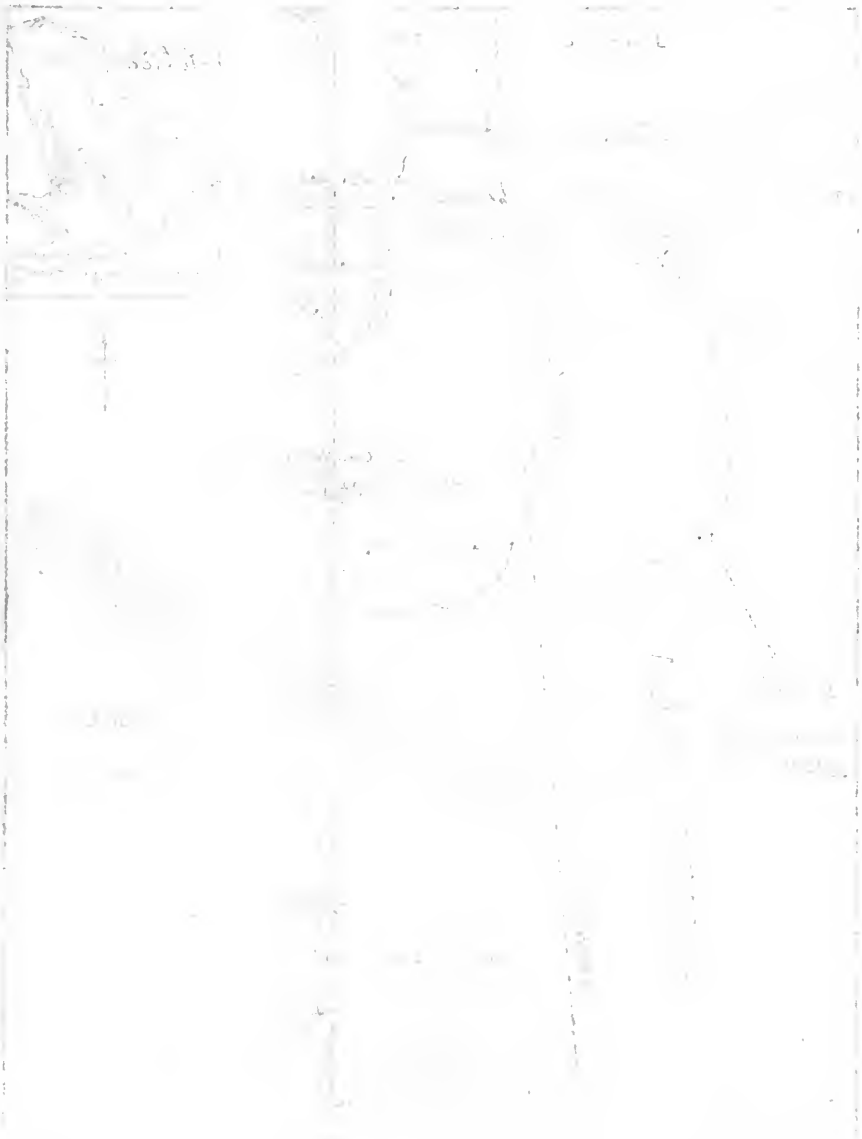

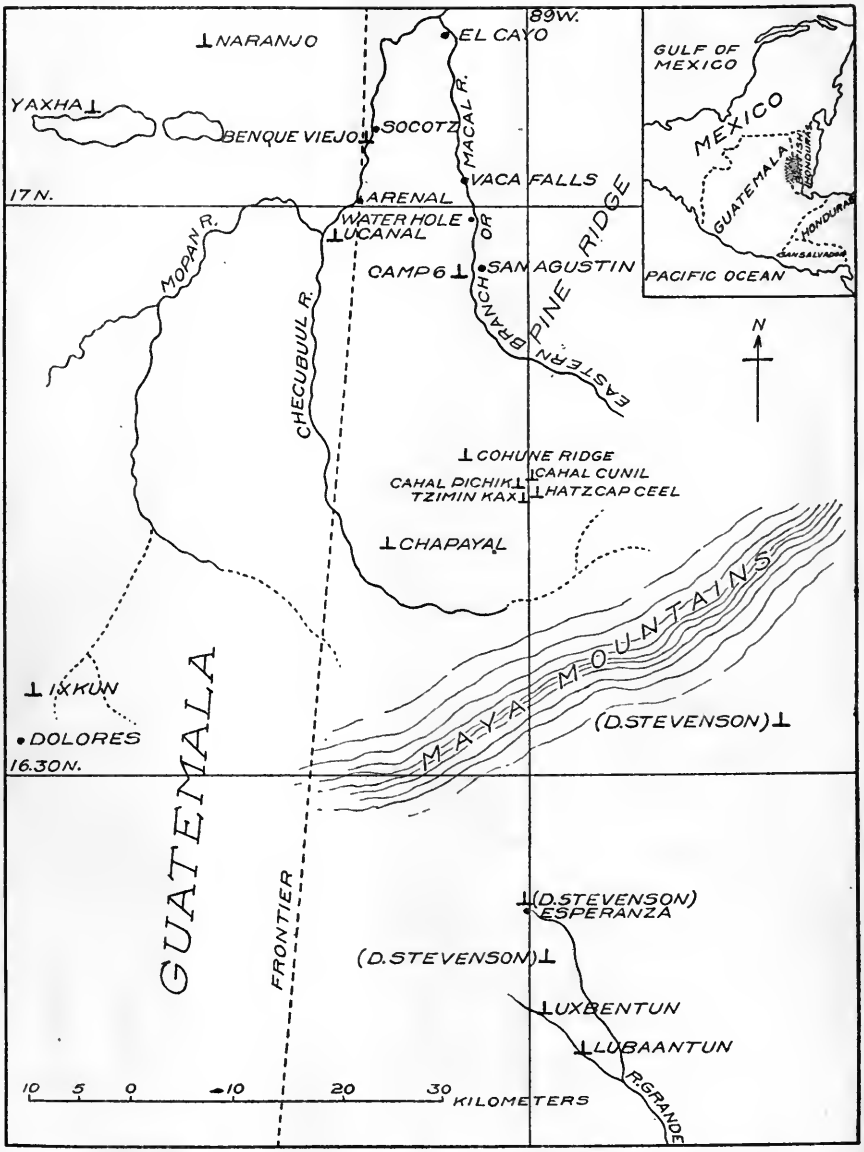

MAP OF RUINS OF SOUTH CAYO DISTRICT, BRITISH HONDURAS, AND ADJACENT REGIONS

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ARCHAEOLOGICAL INVESTIGATIONS IN THE SOUTHERN CAYO DISTRICT BRITISH HONDURAS

BY

J. ERIC THOMPSON

ASSISTANT CURATOR OF CENTRAL AND SOUTH AMERICAN ARCHAEOLOGY

FIRST AND SECOND MARSHALL FIELD ARCHAEOLOGICAL EXPEDITIONS TO BRITISH HONDURAS

28 Plates in Photogravure, 21 Text-figures, and 1 Map

BERTHOLD LAUFER

CURATOR, DEPARTMENT OF ANTHROPOLOGY

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ARCHAEOLOGICAL INVESTIGATIONS IN THE SOUTHERN CAYO DISTRICT BRITISH HONDURAS

I. LOCATION AND ENVIRONMENT

British Honduras is divided for administrative purposes into six districts. The Cayo District, one of these six and the scene of the investigations described in this publication, is situated on the western frontier of the colony, adjoining Guatemala. It occupies a block of territory, roughly oblong in shape and about equidistant from the northern and southern boundaries of the colony. The total area is about 1,830 square miles, and it forms the second largest district in the colony, being surpassed in this respect only by the Toledo District, which is about 300 square miles larger.

Despite its size, the population of the Cayo District is small, being estimated in 1923 at less than 6,000, which gives an average only slightly above three persons to the square mile. In actual fact the whole population is concentrated in the northern half, mainly along the banks of the Belize River; and the southern third of the district, the area dealt with in this publication, has no permanent population whatever.

The capital of the district and the base for all expeditions into the southern area is the town of El Cayo, also known as San Ignacio Cayo. The population of the town fluctuates, as the number is swollen during the dry season by a large number of chewing gum bleeders engaged in the chicle industry, who at that time are not working. The average population cannot fall far short of 1,500, and in the middle of the dry season probably reaches 2,000. Racially El Cayo is very mixed. Spanish-Indian half-breeds, many of them immigrants from the neighboring republics, predominate. There are also many English-speaking mulattos, men of Spanish-Indian-Negro blood, Negro descendants of the slaves introduced during the eighteenth and nineteenth centuries, a few Syrian and Chinese merchants, and a diminishing number of Maya Indians. The Spanish tongue predominates.

The North European population consists of the resident doctor, Dr. T. Patterson and his family, and the District Commissioner, virtual ruler of the area, a position at present held by Mr. R. Wyatt. I should like to take this opportunity of recording my deep gratitude

to Dr. and Mrs. Patterson for their kind help and hospitality offered me on many occasions.

El Cayo, which is situated on the eastern branch of the Belize River about two miles above the fork, is reached from Belize by means of gasoline launches that ply up and down that river. The journey occupies anything from thirty-six hours to six days depending on the amount of water in the river. The launches, which are chiefly engaged in carrying chicle (raw chewing gum, the product of the sapodilla tree, *Achras sapota*) downstream, returning with provisions, gasoline, etc., average about fifty feet in length, and have a beam of some seven feet. They are of very light draught owing to the shallowness of the river in many parts. The distance from Belize by river is some 135 miles, but as the crow flies the distance does not exceed sixty-five miles. There is also a track overland, officially designated a road, but which is impassable for vehicular traffic.

The area around El Cayo is rolling limestone country thickly covered with tropical rain forest, averaging a height of between five and six hundred feet above sea level.

The actual scene of the excavations carried out by the First and Second Marshall Field Archaeological Expeditions to British Honduras lies some twenty-five miles south-southeast of El Cayo in a direct line. There is situated a small water hole, which sometimes dries up during the dry season, known as Mountain Cow Water Hole.

During the dry season of 1928 when the First Marshall Field Expedition was in the field, the Mengel Lumber Company of Louisville, Kentucky, was carrying on logging operations in this area, cutting and transporting mahogany to the *bacardier* of Vaca on the eastern branch of the Belize River about fifteen miles by river above El Cayo. *Bacardier* is a local word used to denote the point at which the logs are placed in the river to await the floods that will carry them downstream to the coast. The word is, presumably, a corruption of the Spanish word *embarcadero* (a "quay" or "loading point"). The *bacardier* of Vaca was at that time connected with Camp 6, the headquarters of the Mengel Company's operations, by a lumber railroad some nine miles in length, which was used to bring the logs down to the river.

Mr. Stuart Williams, the manager of the Mengel Company's operations in the southern Cayo District, very kindly placed his own organization at the disposal of the expedition, and thereby personnel

and stores were transported to Camp 6 and Mountain Cow Water Hole at a minimum expense and maximum comfort. It would be no exaggeration to say that the whole success of the expedition was due to the never-ending help of Mr. Williams and his colleagues, shown in a hundred different ways, from the loan of mules and tractors, at a time when they were badly needed for the operations of the Mengel Company, to the hospitality so cordially offered by both Mr. and Mrs. Williams.

In 1929, however, when the Second Marshall Field Archaeological Expedition took the field, the Mengel Company had transferred its operations to Guatemala, working from a base below El Cayo, the railroad had been dismantled, and it was necessary to travel by land. A short description of the route followed to reach Mountain Cow Water Hole is given for the benefit of any future investigator.

From El Cayo take the paved road to Benque Viejo, distant about nine miles from El Cayo. Benque Viejo is a pleasant little Latin American-Maya town of some 800 inhabitants situated about a mile from the Guatemala frontier. Teobert Maler (1908, p. 76) met with some troubles at Benque and is outspoken in his criticism, describing the "miserable traders" as "good-for-nothing, inconsiderate persons" and the town as "this wretched Benque Viejo." However, Maler was in the habit of venting his vexations on places and their inhabitants where things went badly with him. In actual fact Benque Viejo is a prosperous town engaged in the chicle business, where it is possible to outfit for a trip into the bush, although at prices considerably higher than those current in Belize.

Mules can be hired either at El Cayo or Benque Viejo. From Benque Viejo take the Arenal trail. About two miles from Benque Viejo the trail forks. The trail to the right goes to Arenal, that to the left to Water Hole. Water Hole is situated on the now derelict railroad from Vaca to Camp 6. There is a good water supply, and excellent pasture for mules. The journey from Benque Viejo to Water Hole is about nine miles, and in the dry season it is easy to push on to Camp 6 the same day, another seven miles, following the old railroad track.

Camp 6 has a good water supply, excellent pasture, and a frame house, once the headquarters of the Mengel Company and their predecessors, the Starky brothers. This house should be good for another four or five years. Camp 6 is situated in the middle of a valley, and is surrounded by low hills. The elevation is in the neighborhood of 1,200 feet.

Next day Mountain Cow Water Hole should be reached without difficulty in the dry season. The trail follows the old railroad track south from Camp 6, a distance of five miles, to the old rail-head. Thence it bears away slightly to the right (south-southeast) across the high Starky Hill to Moho Tree, an old lumber camp, a farther four miles. At Moho Tree take the trail to the left leading south-southwest, a mile to Cohune Ridge. A couple of hundred yards beyond Cohune Ridge a trail branches off nearly at right angles to the left. This leads to Mountain Cow Water Hole, distant four and one-half miles.

The total distance by trail from El Cayo to Mountain Cow Water Hole is about forty miles.

Except in the rainy season there is no water supply at rail-head, Moho Tree, or Cohune Ridge. At Mountain Cow there is a fair-sized pond, which can be depended on at all times except in a very dry season. The pond is situated about twenty yards north of the center of the camp.

The actual position of Mountain Cow camp was found by Mr. N. G. B. Guy of the Surveyor General Department to be latitude N. 16° 47′, longitude W. 89°, which would place it about eleven miles east of the Guatemala frontier. The elevation, according to Mr. D. Stevenson of the Forestry Department, is 2,076 feet.

Mountain Cow Water Hole was previously occupied as a mahogany camp, and the surrounding country is intersected by old tractor roads. In 1927 lumber operations ceased in this area, and when the Marshall Field Expedition arrived there early in 1928, the camp was already partly overgrown, many of the tractor *passes* were reverting to forest, and most of the huts had either collapsed, or were in a dangerous condition.

"Mountain Cow" is the local Creole name for the tapir. The origin of the word is probably to be sought in Maya. The Maya word for the tapir was *tzimin*. On the introduction of the horse to the New World, the Mayas extended this word to cover the horse, since the tapir among the animals they knew most resembled the horse. Later, to avoid confusion, the termination *che* or *kax* was added to the tapir. By this time the horse was commoner than the tapir, and the word *tzimin* conveyed the picture of a horse more than that of a tapir. The words *che* or *kax* mean "wood" or "forest," so the word meant "horse of the forest." Translated into Spanish that became *el caballo de la montaña*. The word was next translated into English, the word *montaña*, however, being wrongly translated

"mountain." The horse became "cow" either in Spanish or in English, probably because the tapir resembles a cow more than it does a horse. The usual Spanish word, however, for the tapir is *danta*, and the modern Creole word was probably borrowed originally from Spanish-speaking Mayas.

Mountain Cow Water Hole is situated in rolling limestone country thickly covered with tropical rain forest (Plate XXV). Mahogany (*Swietenia macrophylla*), cedar (*Cedrela mexicana*), the sapodilla (*Achras sapota*), Santa Maria (*Calophyllum antillanum*), bullet tree (*Bucida buceras*), allspice tree (*Pimenta officinalis*), the breadnut (*Brosimum alicastrum*), the cohune (*Attalea cohune*), the ceiba (*Bombax ceiba*), the cabbage palm (*Sabal mexicana*), and a species of oak are the most outstanding trees. The forest is rich in orchids, aerial plants such as bromeliads, and the water-bearing liana.

Game is abundant. Jaguars, ocelots, howling and spider monkeys, agoutis, coatis, armadillos, peccary, warree, a large and small variety of deer, tapirs, ant-eaters, opossums, kinkajous, and skunks are all found in this area.

There are also a large number of bird species for a description of which the reader is referred to O. L. Austin's "Birds of the Cayo District."

There are no rivers within a radius of ten miles of Mountain Cow, consequently the ancient inhabitants of this region must either have dispensed with fish, or, more probably, made lengthy fishing trips.

The rainfall during most of the season is heavy, and only during the months of February, March, April, and May can one count with any certainty on a spell of dry weather. Owing to its elevation the Mountain Cow region is salubrious and comparatively free of mosquitoes. The nights are cool, and the days not oppressively hot. The soil is rich, although somewhat shallow, but in the valleys is to be found deep soil as good as any in the whole peninsula.

Some ten miles to the north, just beyond the Macal or eastern branch of the Belize River, the formation of the soil changes very abruptly from limestone to a poor sandy waste, on which thrive only pines and a few of the stunted varieties of hardy trees, as well as great stretches of coarse grass. Here are to be found outcroppings of granite, and, at a few points, surface beds of slate. Gold, too, has been found here in small quantities.

To the east and southeast the Maya mountains are massed around the Victoria Peak (height, 3,700 feet). To the west and southwest the

rain forest undulates in diminishing crests down to the southern Peten region, thrusting out, however, a spur in the direction of San Luis.

Except for a shortage of water the country is ideal for settlement, possessing the three main requisites for settlement by the Mayas, good soil, abundant game and a salubrious climate, owing to the high altitude of the site. In fact the sites grouped around Mountain Cow Water Hole are, as far as our present knowledge goes, the highest cities in the whole Maya zone of dated monuments, the only site to approach them in elevation being Copan, the altitude of which was calculated by Popenoe (1919, p. 126) at 1,900 feet. Other calculations, probably not so accurate, place the elevation at between 1,500 and 2,000 feet. On the other hand the site of Hatzcap Ceel, described in Chapter II, is considerably higher than Mountain Cow Water Hole, and may well be 2,250 feet above sea level.

The inhabitants of this region must have been cut off from practical communication with the cities to the south, such as Pusilha and Lubaantun, although the latter is only some forty miles in a straight line from Mountain Cow Water Hole; but the intervening country is very broken and mountainous, unsuitable in many parts for habitation and difficult to traverse.

Communications with the north were probably maintained through the city situated at Camp 6 (p. 278), Minanha, and Benque Viejo. To the west and northwest the country is easily traversed to Ixkun, distant about thirty-three miles, and Ucanal, distant twenty-seven miles. All of these sites were contemporaneous with the cities of Hatzcap Ceel and Cahal Pichik.

However, to anticipate, in pottery types at least the Mountain Cow sites are related to the cities in the Holmul-Uaxactun area. Probably more excavation will reveal that the whole of the Peten area north of Flores and the contiguous strip of western British Honduras form with minor regional differences one major ceramic zone.

That trade was extensive is shown by the excavation of quantities of sea shells, pieces of coral, and painted pottery of certain types, flint, possibly from the Holmul beds, obsidian that was probably brought from the neighborhood of Zacapa in Guatemala, and jade, probably imported from southwest Mexico.

Practically every hillside from between Arenal and Benque Viejo in the north, and the Mountain Cow area in the south, is terraced.

The terraces are faced with rough blocks of limestone, and vary in width according to the slope of the hill on which they are situated. They were, undoubtedly, erected to prevent denudation, irrigation in this area being impossible. Cook (1909, p. 17) is of the same opinion. Although I could find no positive evidence as to when they were erected, I should be inclined to place the period as the last three or four katuns of Cycle 9 and the first katuns of Cycle 10. Potsherds found on these terraces belong to this period; but this is, at the best, merely negative evidence, as only a superficial examination could be made. However, as the population was surely greater at this time than in the earlier period, the assumption might be made that the earlier and scantier population would have cultivated the lower level lands, and only pressure of population led to the terracing and cultivation of the steeper high slopes.

There is no information from historical sources as to what tribe was inhabiting this region at the time of the Spanish conquest of the peninsula. At that time the Mopans occupied the region directly to the west, and one can presume that the area around Mountain Cow, if inhabited at all during this period, was occupied either by the Mopans or a closely allied people.

The Mopans, who at one time and another proved to be such a thorn in the side of the missionary fathers, were on a low cultural level. They spoke a dialect of Maya somewhat different from that of Yucatan (J. E. Thompson, 1929, p. 37), and appear to have been allies of, or on friendly terms with the Itzas of Tayasal during the seventeenth century. We can only conjecture what people occupied this area when Maya civilization was at its height.

It has been generally assumed that the cities of the so-called "Old Empire" were occupied by Mayas, who spoke the Yucatecan dialect, and that they abandoned this region, migrating north into Yucatan during Cycle 9 and early in Cycle 10. A secondary migration to the highlands of Guatemala, according to Morley (1920, p. 459), took place at the same time and led to the erection of stelae at Quen Santo. Morley believes that these Mayas are the ancestors of the Quiche, Cakchiquel, and other highland tribes.

In objection to this theory one might suggest that seven hundred years, or, according to Spinden's correlation, nine hundred years is much too short a period for the development of languages so distinct as the Maya of Yucatan is from those of the Highlands of Guatemala. Furthermore, the Highlands of Guatemala were probably occupied long before the rise of the Maya "Old Empire."

Figurine heads and stone carvings found in the vicinity of Guatemala City certainly antedate Cycle 9. A migration of culture does not by any means imply that the bearers of that culture must have migrated as well—an assumption that is too frequently made.

Furthermore, the evidence that Yucatan was not occupied at an early date is ridiculously inconclusive. It is based on Mercer's superficial examination of a few caves in Yucatan (Mercer, 1896). As traces were found only of an occupation that is presumed to be late, it was concluded that there had been no earlier occupation. At best this evidence is merely negative, and applies only to a small area, but it is nullified by the fact that caves do not appear to have been used as dwellings by the Mayas, except in times of stress, and most caves in the "Old Empire" region contain nothing more than a few sherds of domestic use, and sometimes incense burners, confirming ethnological and literary evidence that they served as occasional places of worship.

As a working hypothesis the following scheme is suggested. The sacred 260-day almanac and the fundamentals of Maya civilization were common to all the inhabitants of the Maya region. The area of the so-called "Old Empire" was occupied by Chol-speaking peoples. Some of these Chols passed up the east coast of Yucatan and populated Ichpahtun, Tulum, Coba, Kucican, and Macanxoc before the close of the first half of Cycle 9. They emigrated from the Peten, and took with them the typical architecture and art of this region. In western Yucatan they probably came in contact with the Yucatecan Mayas, who were at this time by no means uncultured.

There was no migration of people from the cities of the "Old Empire" to the Highlands of Guatemala, but there was a current of culture flowing in both directions. The "Old Empire" region was never actually abandoned. A decay set in, possibly due to revolt on the part of the rank and file against intrusive religious ideas introduced by the priesthood and a tyrannous system of slave labor. The priest class was destroyed, and the inhabitants reverted to their old agricultural life, abandoning the erection of vast pyramids, complex religious groups, and stelae. The old knowledge of mathematics disappeared, but the layman's religion and a simple priesthood survived. Disease and war may have reduced the population, but never entirely wiped it out. That happened in the sixteenth and seventeenth centuries when smallpox, hookworm, influenza, and a host of new European diseases ran like a prairie fire through the Chol population, and the recent Itza-Yucatecan immigrants. Mean-

while in Yucatan and in the Highlands of Guatemala the old order survived in slightly modified form until the arrival of the Spaniards. In Yucatan Mexican influences from the Vera Cruz area made themselves felt.

This skeletal reconstruction of Maya history is, of course, mainly hypothetical. At least it has the advantage of accounting for a population occupying the region of the Cycle 9 cities in the sixteenth century. It explains certain artistic, architectural, and religious differences between the "Old Empire," and the cities of western Yucatan, and deals satisfactorily with the linguistic differences between the Chol-Maya area and the Highlands of Guatemala, setting back the split from the common ancestral tongue at least fifteen hundred years, probably much longer. The theory that the inhabitants of the "Old Empire" regions were Chols is not new. It was first proposed by William Gates (p. 615) some ten years ago. Whether the original inhabitants of the Peten were Chols or not is of no great importance. Elsewhere (Thompson and Pollock) I deal at greater length with migrations of culture into Yucatan. The time has clearly not arrived when we shall be in a position to sketch anything but a tentative outline of these movements.

On this theory the cities of the Mountain Cow area were inhabited in ancient times by Chol-speaking Mayas.

During the 1928 field season the staff consisted of Maya Indians from the village of Socotz under the foreman Jacinto Cunil, at one period a couple of *Ladinos*, and myself. During part of the 1929 season Mr. Jorge Acosta of Mexico City served as an assistant archaeologist. Mr. Amado Esquivel ("Muddy") was also employed during part of that season, and the laborers consisted of twelve San Antonio Indians and two Kekchis from San Pedro Colombia, Toledo, under the foreman Caterino Bol, a varying number of Socotz Mayas again under foreman Jacinto Cunil, a negress cook, and a negro muleteer. The Indians are good workers, although not physically as strong as negroes, willing and keen, and, if treated well, much ethnological information can be obtained from them (Thompson, 1929, p. 29).

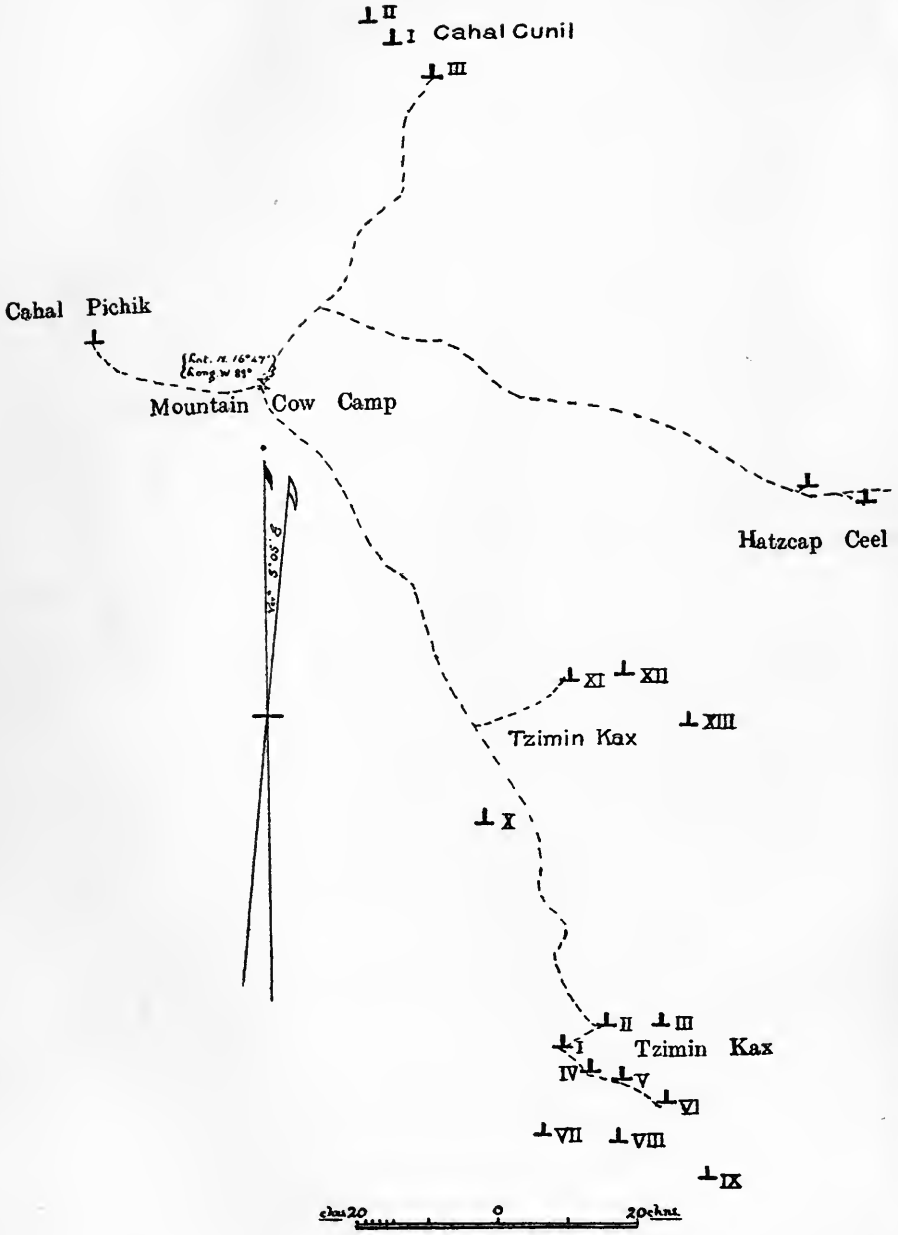


FIG. 1

Map of Mountain Cow Water Hole and Surrounding Ruins

II. GENERAL DESCRIPTION OF THE RUINS

Tzimin Kax

Southeast of Mountain Cow Water Hole and within a radius of half a mile lies scattered a series of small raised courts (Fig. 1). The name, Tzimin Kax, which is the Maya term for the tapir or mountain cow, has been given to the whole group. Altogether thirteen of these courts were located, and there may well be others hidden in the thick bush. They are as a rule roughly square in shape, and are in most cases located on the tops of small natural hillocks. The original builders appear to have chosen these small hilltops and extended them by piling round them masses of stone and rubble up to two or three feet higher than the natural level of the summit. The whole was then leveled off, forming, on a small scale, a typical Maya plaza. The method of construction is illustrated in the cross-section of Plazuela I (Fig. 2, b). On top of these platforms were erected small oblong or square mounds, which were invariably placed on the edges of the platforms. In some cases the mounds occupy all four sides of the platform. In other cases only two sides (Fig. 2, b), or three sides are thus treated.

In this publication the term "plazuela" is used to denominate a small raised court of this description. The word "plazuela" is the Spanish diminutive of plaza, a word used archaeologically to describe a Maya religious court around which mounds and pyramids are grouped.

The average plazuela at Tzimin Kax measures approximately 25 meters in each direction. They are usually oriented within three or four degrees of true north (the magnetic variation at Mountain Cow Water Hole being 5.05 degrees). There is considerable variation in the heights of the different plazuelas, but as a rule the floor is not more than four feet above the natural ground level. Sometimes, where a plazuela has been built on the summit of a natural hill, where the slopes on the different sides are not the same, the edges vary considerably in height. An example of this is supplied by Plazuela I (Fig. 2, b). Here the slope from the summit of the hillock is much greater to the east, with the result that the outside wall of the plazuela on the east side is slightly more than 3 meters high, but on the west side, where there is a much gentler slope, the wall that bounds the plazuela has a height of only some 60 cm.

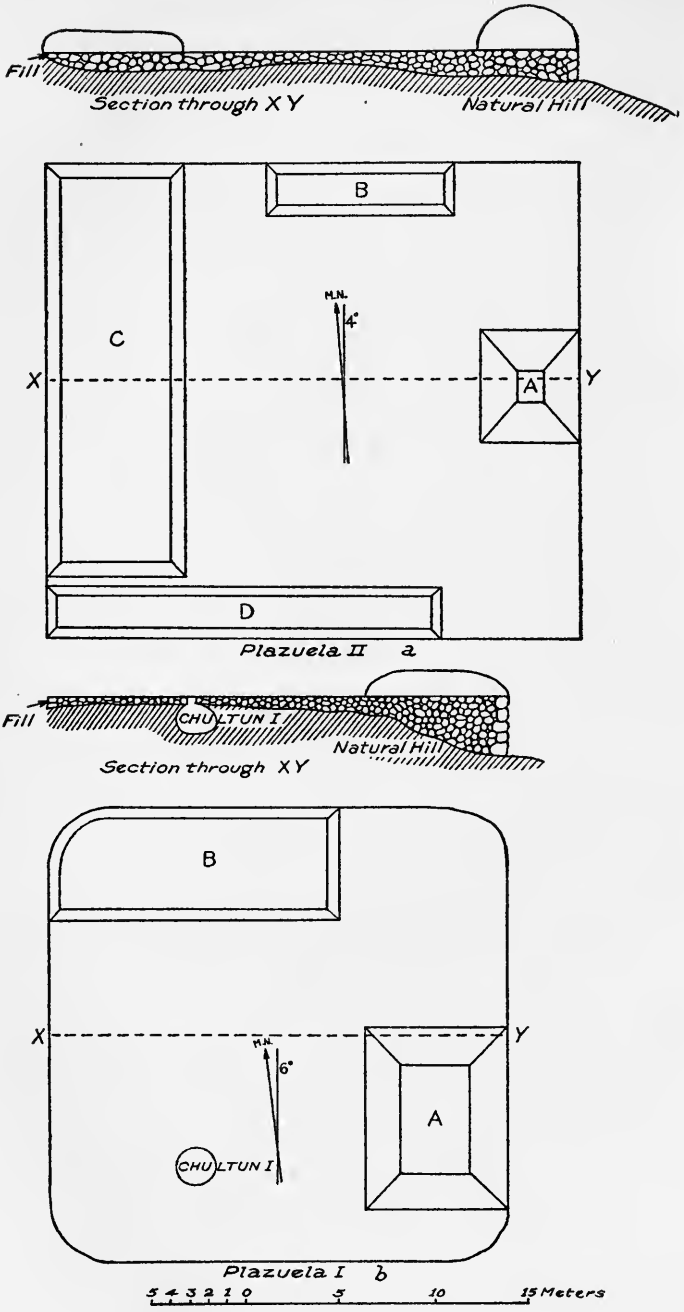


FIG. 2

Cross-sections and Ground Plans, Tzimin Kax:
a, Plazuela II; b, Plazuela I

The outside walls are made of blocks of stone, very roughly faced and quite unsquared. The interstices are filled with small chinked material as in a typical Maya fill. Usually the corners of the outside walls are square, but occasionally they are slightly rounded off (Plazuela I, Fig. 2, b). No evidence could be obtained to indicate whether rounded corners represent a different period to the usual square corners, but probably the two styles were contemporaneous.

The "fill" of the plazuelas is of typical Maya construction. Over the natural rock is a very thin natural accumulation of humus. On top of this is laid a bed of large limestone boulders and a small amount of rubble, but the fill is loose (i.e. the spaces between the boulders are not packed). This bed of large rock is carried up to within approximately 10 cm of the floor of the plazuela. Above this is a layer of packed fill. The material employed consists of small limestone rocks tightly packed with mortar and rubble. On this is laid the floor. The floors have, naturally, to a large extent disappeared from the surface, and where a floor is visible close below the surface, one can surmise that a later floor, since disappeared, had protected it. Worthy of remark is the extraordinary slowness with which débris accumulates in the Maya area. Despite the thick tropical vegetation, the depth of the débris that has accumulated since the abandonment of a site at a spot where there is no fallen masonry, rarely exceeds a couple of inches. In view of the fact that these sites must have been abandoned for at least a thousand years, one must conclude that the humus deposit is so very low owing to the high water content of the vegetation.

The mounds set on top of the plazuelas can be divided into two main types, those that are low, flat and oblong in shape, and those that are high and roughly square in shape. The ground plan of Plazuela II (Fig. 2, a) illustrates well the two types. Mounds B, C, and D belong to the first type, being oblong and averaging a meter in height. Mound A belongs to the second type. It is square in shape and almost 2.5 meters high with sides that slope in like the sides of a pyramid. Indeed, it might well be described as a small pyramidal structure. The mounds on all the plazuelas of Tzimin Kax conform to these types, and in describing one plazuela one describes all. The sides of the low oblong type are frequently faced with poorly made walls of two or three tiers of roughly faced unsquared limestone blocks. Sometimes a stucco floor passes through the center of the low mounds, indicating that at one period the mound had been lower. Occasionally one tier wall of the same

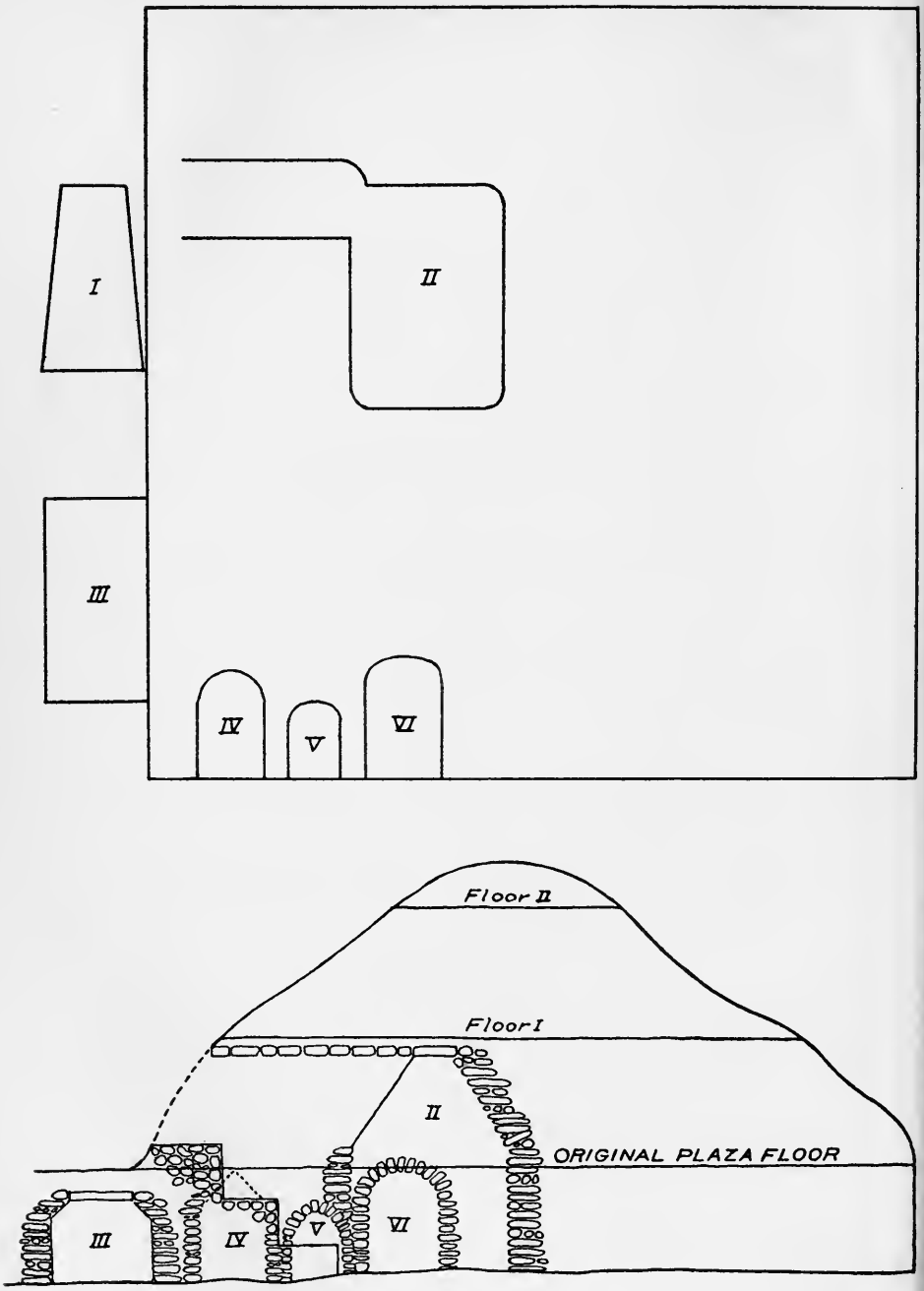


FIG. 3

Cross-section and Ground Plan of Mound A, Plazuela II, Tzimin Kax

type of masonry runs along the backs of the tops of the oblong mounds, and rarely along the sides. The fill of these mounds is the same as that of the plazuelas, consisting of a bed of loose fill covered with a bed of packed fill. Numbers of sherds were found in the packed fills. These, where identifiable, invariably belonged to the Holmul V period. However, by no means all of the low mounds were excavated, and it might be that among the unexcavated ones were some that contained sherds of other periods. There is no evidence as to the purpose these mounds served, but presumably wood and thatch buildings formerly stood on top, and they were nothing more than house substructures. One could hazard, furthermore, that the houses or temples that stood on top were not for the common people, for the amount of labor involved in building the plazuela and the richly painted potsherds point to occupants of wealth and rank.

Mounds of the second type, that is, those that are roughly square and of pyramidal type, are far less common than mounds of the first type. In a number of cases burials were found either in these mounds, or below the plaza floor directly in front of them. They are most frequently situated on the east side of the plazuelas, although this may have been nothing more than chance. Frequently there is a floor running across the mound about halfway between the base and the top. This would seem to indicate that originally the mounds served as substructures, on which small temples or houses were erected. Subsequently the building was abandoned or destroyed, and earth and soil heaped up on top.

A ground plan and cross-section of Mound A of Plazuela II is shown in Fig. 3. This proved to be the richest mound excavated at Tzimin Kax, for, with the vaulted chambers in front, there were no less than six burial groups associated with it. It will be noticed that the mound was built after the construction of the present plazuela floor, for this floor passes under the mound and was cut through to enable the different burial chambers to be constructed. Just above vaulted Chamber II there is a second floor, presumably constructed at the same time as the tomb it covers. Then, at some later date, the level of the mound was raised and a third floor added. Subsequently débris, possibly from some small shrine, covered this floor to a depth of a few inches, although possibly there may have been yet another floor on the summit, which in the course of centuries of exposure has disappeared.

Evidence of the occupation of the Tzimin Kax group during two periods—Holmul I and Holmul V—is given in Chapter IV. Most of the mounds and possibly some of the plazuelas belong entirely to the latter period. Tzimin Kax is not in the current archaeological sense of the word a Maya city, for the large religious structures, stelae, and palaces are wanting. However we have here, in all probability, a typical residential site, occupied by the wealthier Mayas. The large number of burials found at the different plazuelas does not conflict with this surmise, for Landa (section XXXIII) relates that it was customary in Yucatan for the dead to be buried under the houses. The same custom is still practiced by a number of Maya tribes including the Chol (Starr, p. 74), who bury children under the floors of their huts. This same custom, I was informed, is still practiced in the district around the source of the Cancuen River. Among the Cakchiquels the high priest was also buried in his house (Sanchez y Leon, p. 27). The Kekchis, too, have the custom of burying their dead under the floors of the "ermitas" (Sapper, 1897, p. 275). Blom (1927, p. 361) reports burial under the floors of the huts among the Bachajon Tzeltals. It is thus clear that hut burial is a very widespread Maya custom, and it does not seem unreasonable to suppose that the burials under the floors of plazuelas, or in the mounds themselves, are those of the actual inhabitants, who after death were buried under their own dwellings.

Presumably the inhabitants of Tzimin Kax, during Holmul V times at least, resorted to Cahal Pichik and Hatzcap Ceel for religious ceremonies. Evidence will be presented to show that the three sites were all occupied during the Holmul V period.

CAHAL CUNIL

The name Cahal Cunil has been given to another series of small plazuelas lying to the northeast of Mountain Cow Water Hole (Fig. 1). The name, which is Maya, means the town of Cunil, the site having been discovered by the foreman of the workers, Jacinto Cunil, a Socotz Maya. The distance separating Cahal Cunil from Tzimin Kax is not great, but it seemed best to differentiate the two sites by giving them separate names, as an earlier culture, which is probably pre-Holmul I, was found at Cahal Cunil, and this was not, apparently, represented at Tzimin Kax. However, both Holmul I and Holmul V also occur at Cahal Cunil. Cahal Cunil comprises about five scattered plazuelas, of the same general size and with the same arrangement of mounds as at Tzimin Kax. Undoubtedly

Cahal Cunil was another residential site of the same type as Tzimin Kax.

CAHAL PICHIK

The site of Cahal Pichik lies some six hundred yards west of Mountain Cow Water Hole, just north of the trail between Moho Tree and this place. The name means "The Town of the Emerald Toucanets," the site taking its name from the large number of birds of this species (*Aulacorhynchus prasinus prasinus*) noticed by Mr. Oliver Austin in the vicinity of the ruins.

The site was surveyed with a theodolite by Mr. N. G. B. Guy of the British Honduras Survey Department. The plan of the site shown on Fig. 4, as well as the plan of the ruins of Hatzcap Ceel and the general map of Mountain Cow Water Hole area, is the work of this gentleman. The task of surveying the ruins, involving, as it so frequently did, the estimating of the original corners of the mounds, which were badly destroyed in most cases, was a difficult one. Furthermore this was a branch of surveying never before attempted by any member of the British Honduras Survey Department. Mr. Guy is, therefore, to be congratulated on the exceptionally fine results he achieved.

Cahal Pichik is built on sloping ground, the natural level of the ground being much higher at the north end. As a result of this natural feature, the north end of the city is divided from the south end by being built on a raised plaza almost 5 meters higher than the rest of the ruins. On this small plaza (Group II) are situated seven mounds, only one of which, Pyramid Q, is of any importance.

The remaining eleven mounds are grouped around an extensive plaza with a breadth from east to west of 63 meters, and a length from north to south of 55 meters. The plaza is artificially leveled off, the height above ground level varying from a meter or more to a few centimeters owing to the slope of the natural level, to which reference has already been made.

This plaza, which, with its accompanying mounds, forms Group I, was the ceremonial center of the city, for in it had been placed seven plain stelae, five in front of Pyramid A, and two on Mound G (see chap. III). On the south the plaza is flanked by Pyramid A, an imposing structure with a present height of some 12 meters and a north and south base line of 36 meters. The pyramid was divided into eight or nine stepped terraces, which are now in a very collapsed condition. The corners appear to have been angular, but owing to their very damaged condition it is not possible to be certain of

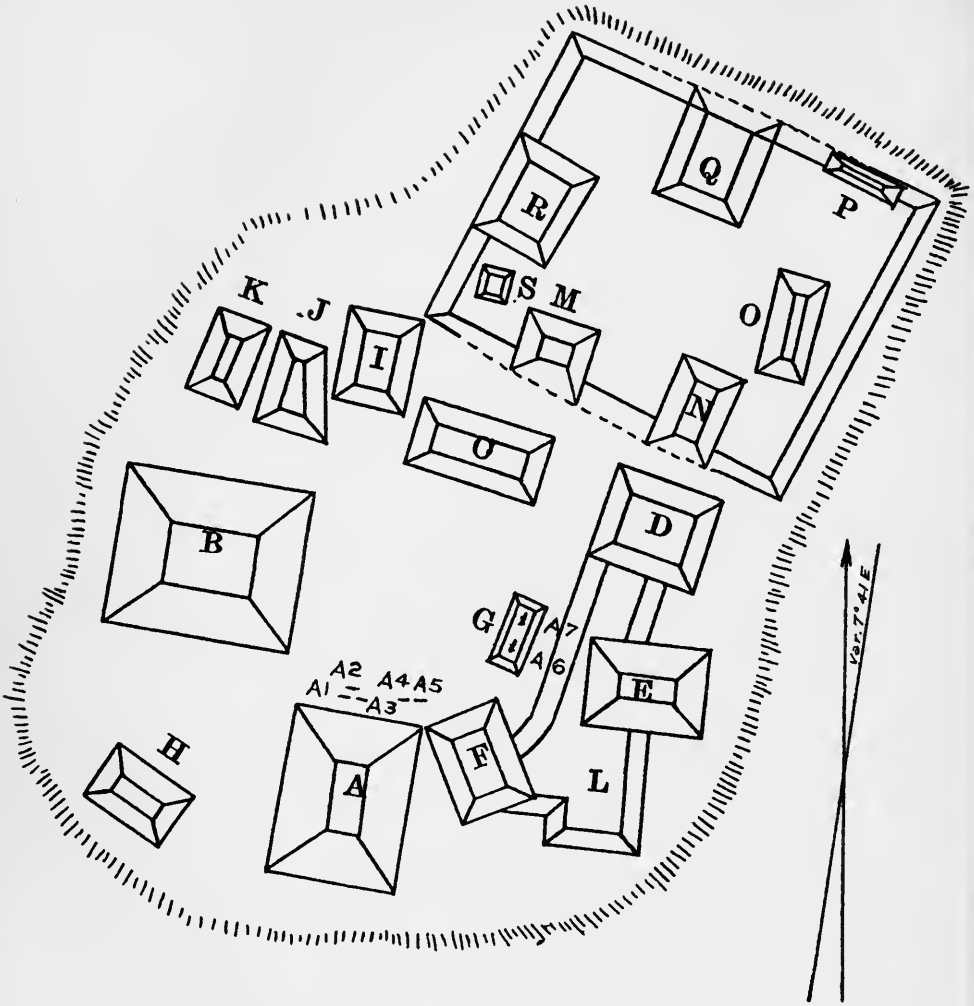


FIG. 4
Ground Plan of Cahal Pichik

even that. The interior consists of the usual loose fill of large limestone rocks. The summit of the pyramid is flat, measuring 11 meters from east to west and 9 meters from north to south. This was presumably reached by a stairway up the north or front face, but of this there now remain no traces. There are no signs of any structure on the summit. There were, however, three floors laid one on top of another, the top one being some 25 cm below the present level. The floors are uneven and poorly made. The 25 cm of soil above the first floor probably indicate that originally the top of the pyramid was surmounted by a wooden temple with thatched roof, such as are known to have existed in the Maya area. The soil is, apparently, mixed with a fair quantity of powdered stucco, such as one might expect to collect from the collapse of stucco covered *jacal* walls. The accumulation of 25 cm is too deep to have been natural at such an exposed spot, and too uneven to have been formerly covered by yet another floor which has now disappeared.

Pyramid B flanks the west side of the plaza, and was undoubtedly the most important structure in the group. The pyramid, which appears to have consisted of three terraces with rounded corners, is 42 meters square at the base, and a little over 13 meters high. The summit was crowned with a building, the back wall of which has a present height of 2.50 meters, making a total height for the pyramid and superstructure of 15.50 meters. The stairway, which once must have existed on the east face, has entirely disappeared.

The building was of a peculiar type. The back wall, which was 8 meters long, was made of stone, well faced, but not cut square or matched at all for size. From the ends of the back wall short sections of side walls project forward for a distance of almost a meter, enclosing an area obviously too narrow for a room. The presumption was that these side walls were carried farther forward by pole wall extensions. This surmise was confirmed by finding that the floor, which was of firm, well-made stucco, extended forward 8.10 meters from the back wall. There was no sign of a front wall, so, presumably, this also was made of poles and, possibly, wattle covered with stucco. Above the whole extent of the floor was a quantity of pulverized stucco, in which were imbedded a few small flattish faced stones of various sizes and a number of stucco ornaments. The stones were not numerous enough to have formed a vaulted roof, and furthermore the sections of pole wall would not have been sufficiently strong to bear the weight of a roof of this type.

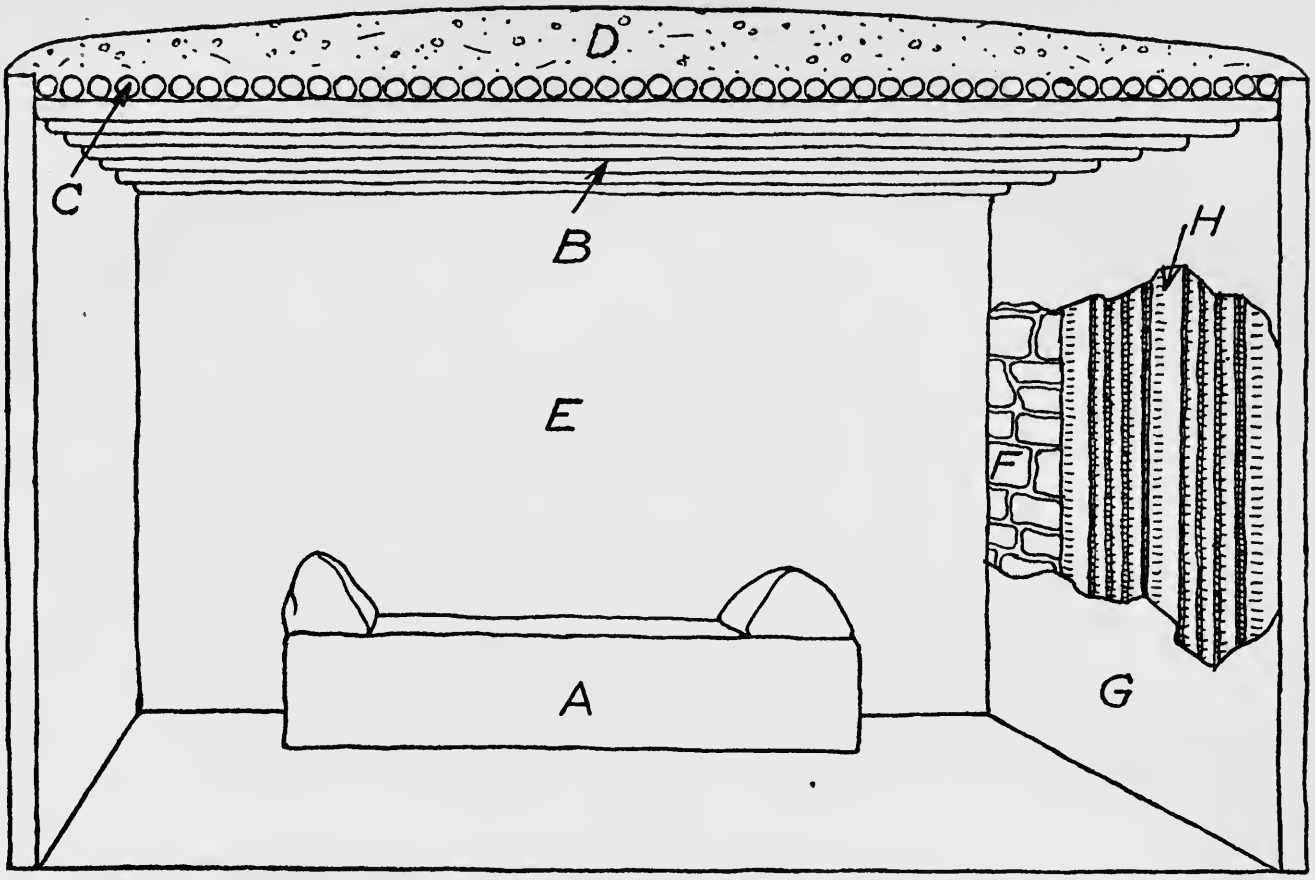


FIG. 5
Restoration of Temple B, Cahal Pichik

Flat roofs were not unknown in the Maya area, and I have already described one from the site of Lubaantun (Thompson, 1927, p. 308), which belonged to the "Old Empire" period. Although no pole impressions were found in the plaster in the present case, one stucco ornament, the back of which is in an excellent state of preservation, has a concave depression running the whole length of the back, and would fit very easily onto a pole. It does not seem too imaginative, then, to suppose that the roof of the temple of Pyramid B consisted of a series of parallel poles, laid on beams, and covered on the under side with stucco ornaments, and with a covering of small flat stones and plaster on top. Only a few stucco ornaments were in a good state of preservation, most of them having disintegrated into dust, but one or two of those that were partly preserved appear to have hieroglyphs, in particular one piece, now in the British Museum, which resembles the cauac glyph. Against the center of the back wall there was a long bench or altar of stone-faced rubble covered with a coating of excellent stucco. This was about 5 meters long, 1.05 meters high, and just short of 1 meter wide. It was surmounted at each end by sloping balustrades made of the same material and also covered with stucco. Under this was found another bench or altar of the same type, but lacking the flanking balustrades, and in the fill between were sherds of a coarse ware used for bowls exactly similar to those described from the fill of Pyramid Q at Hatzcap Ceel (p. 259). Beneath the section of back wall behind the center of this altar or bench was found Votive Cache 4, described on page 276. Their position against the center of the back wall of the room would indicate that these structures were probably altars rather than benches. Immediately beneath the floor of the room was a second floor, which ended where it met the inner altar, showing that it was contemporaneous or posterior to the inner altar, but older than the outer altar. A hypothetical reconstruction of this building is given in Fig. 5. The room is shown covered with stucco, except for one section (F), where the stones of the short flanking wall are shown exposed, and the pole work, which presumably carried the walls forward, is exposed (H). No attempt is made to show the stucco work on the ceiling.

Pyramid E is the third highest structure at Cahal Pichik. It stands partly on Terrace L and partly on the ground level. The height above plaza level is 9.50 meters, of which 3 meters are accounted for by the height of Terrace L. The pyramid was originally terraced and had square corners, but owing to collapse it is impossible to say how many of these terraces there were. There are traces of a stairway

leading up from Terrace L on the west side, but no traces of any building on top.

Mound I is a low mound 2.25 meters high, with the northern half surmounted by a second mound 2.25 meters higher, on which stood a building. This structure, like that of Pyramid B, appears to have been made of a mixture of stone and *jacal* construction. Structure I appears to have consisted of two rooms, which were divided by a wall running east and west made of poorly matched and roughly faced stones. The wall has a length of 10 meters, a width of 55 cm, and a present height of 2 meters. There is a doorway in this wall 85 cm wide, not placed in the center of the wall, for it is 1.25 meters nearer the west end. The front, or north, room has the same breadth as the medial wall, and a depth of 2.50 meters. It is enclosed on the south side by another wall with a doorway of the same breadth, also asymmetrically placed. This front wall is only 45 cm thick, and has a present height of only a little more than 1 meter. Of side walls to this chamber there is no trace, save for a row of unfaced stones of varying sizes placed along the east and west edges of the floor, where one would naturally expect to find side walls, so as to connect the ends of the front and medial walls. The only indications of the back room are the floor of well-made plaster, and the thick deposit of pulverized stucco and small stones covering it. Undoubtedly, in the case of this building the side walls of the front room and the side and back walls of the back room were made of poles and wattle. The modern Mayas of British Honduras frequently lay a line of stones against the outside base of their pole walls, and presumably the line of stones along the sides of the floor of the front chamber marks a similar type of construction. The roof must have been flat and coated on the under side with stucco, thus accounting for the large quantity of pulverized stucco encountered. The construction is similar to that employed in the building on Pyramid B.

A second floor was discovered 50 cm below the floor of the house, and immediately below this floor was found Votive Cache 7 (see p. 277) just north of the doorway between the two rooms.

There is a possibility that Mounds K and J formed a ball court. If such were indeed the case, the ball court must have been small, as Mound J is a few centimeters short of 3 meters high, and Mound K reaches a height of barely 2 meters. Both mounds are flat on top, and there are no signs of any structure on their summits. The length of the east face of Mound K is 18.50 meters. The west face of J is slightly longer, projecting a farther 1.50 meters to the

south. In the belief that the space between these two mounds might have constituted a ball court, excavations were made to lay bare the floor. This was a difficult undertaking, for the stucco floor had been largely destroyed by roots. Although in some spots the floor was plainly visible, in others the only indication was the creamy discoloration of the soil through the pulverization of the stucco. A cross-section of the space between the mounds is given in Fig. 6, a, and it will be noted that the flat section flanked by sloping sides associated with "Old Empire" ball courts is present. Under the slope of K an earlier floor was picked up for a short distance. This would indicate that the plaza was in occupation some time before Mound K was erected. The interiors of both mounds consisted of loose fill. No rings were discovered, but in view of the resemblance to the ball court close to the castillo at Coba (Thompson and Pollock) it is more than probable that the space between these two mounds at Cahal Pichik served a similar purpose.

Mound F, which adjoins Pyramid A, is also surmounted by a structure. The mound, which is 1.50 meters high, stands on Terrace L, the height of which is 3 meters. The structure was apparently of the same *jacal* type already noted in Structures B and I. There is no front wall, and the side walls are vestigial. The front room, to judge by the floor, had a width of 4.50 meters. The length was 5.40 meters. A wall of this length and with a present height of slightly over a meter divided this front room from a narrow back chamber, 4.80 meters long and only 1.10 meters wide. This inner room was 40 cm above the level of the front room, and was reached by a small door, 1.59 meters wide and 92 cm deep. The back and side walls of this back chamber were also made of dressed and roughly squared stone. The front room was, presumably, roofed with thatch and had side and front walls made of poles. Under the floor of the front room ran two earlier floors, the first 33 cm, the second 50 cm below it. These floors stopped at the back wall of the chamber. Under the floor of the back chamber was an old refuse dump, consisting of bones, ash, broken domestic pottery, and a few whole vessels embedded in a very rich black soil, presumably formed by the waste food dumped there. Among the objects found here were a number of fragments of vessels with internal handles of the type illustrated in Fig. 10, d. Their purpose is unknown. The remaining sherds belonged to domestic ware of a non-distinctive type.

Mound C, which faces Pyramid A across the plaza, has a height of 2.90 meters. The summit, which is crowned by a long building, is

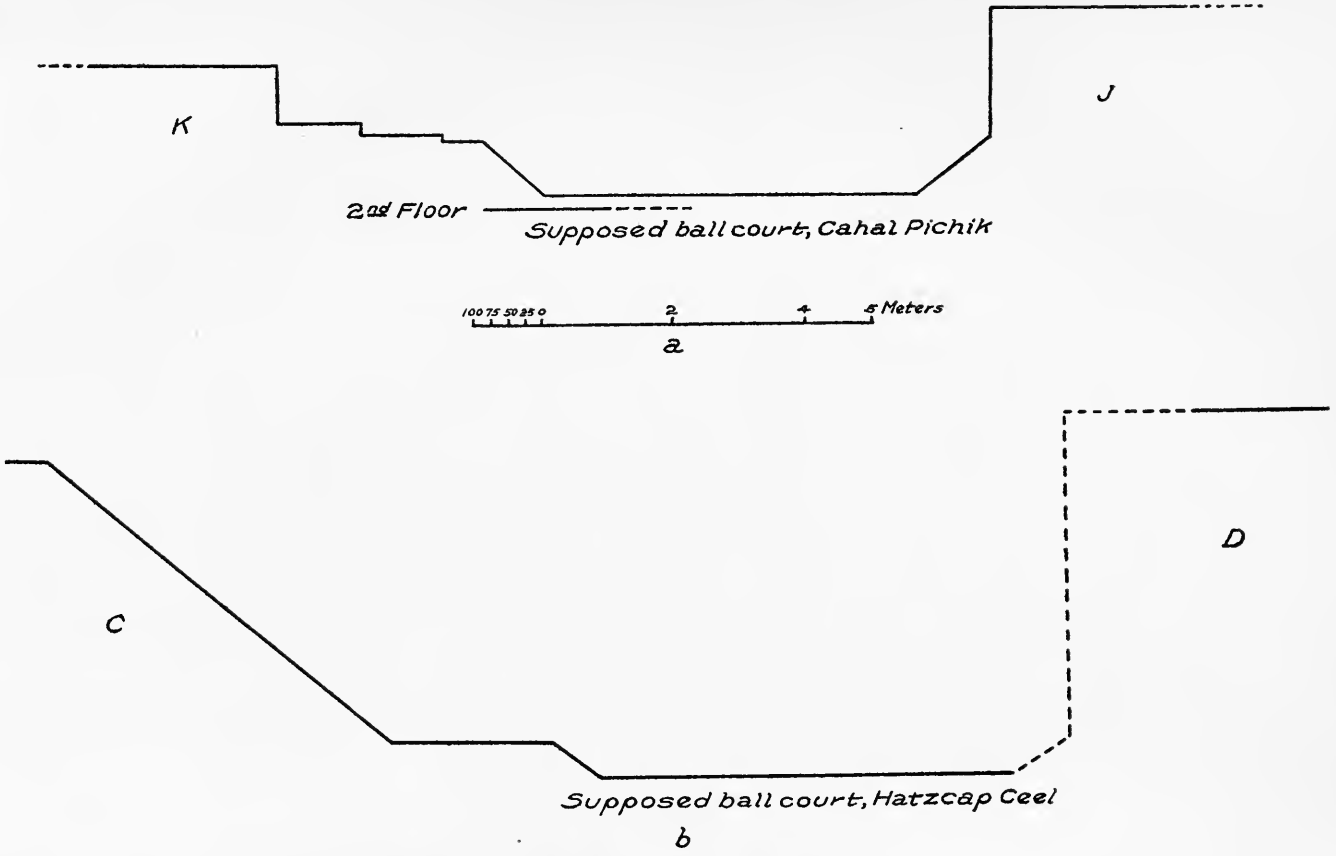


FIG. 6

Cross-sections of Supposed Ball Courts: a, Cahal Pichik; b, Hatzcap Ceel

approached by a stairway, 14.60 meters wide, which extends along practically the whole of the south, or plaza, side of the mound. The building consists of one room, the same length as the stairway, and 2.95 meters wide. The floor of the building, which is of the usual hard plaster type, is raised about 15 cm above the level of the top step of the stairway. There is no front wall, but the side and back walls, which have a present height of 1.25 meters, are made of roughly faced and almost unsquared stones. The floor was covered by a thin deposit of débris, higher close to the back wall, where it had been increased by stones that had fallen from the wall, and only a scant 10 cm toward the front of the room. Again, to judge by the scant débris and lack of a front wall, we appear to be dealing with a building with a thatched roof and a front wall of *jacal* construction. Under the floor of the room there were three earlier floors, that appeared to extend across the whole breadth of the mound. They were 77 cm, 1 meter, and 1.34 meters, respectively, below the present floor of the chamber.

Mound H, although of relatively little importance, supplied an interesting example of the continuous building and rebuilding practiced by the Mayas. The mound has a present height of 3 meters, and is surmounted by a low wall, nearly 18 meters long, which runs almost the whole length of the top of the mound, and has a present height of 75 cm. This wall, which has a door in the center, is set back about 2 meters from the north edge of the summit, and 1.57 meters north of it there is a row of stones running parallel and forming the north edge of the floor. The floor runs under the wall to the south edge of the top of the mound. Possibly the wall served as a medial wall of a *jacal* construction, consisting of a large room behind, and a narrow corridor in front. Such a structure would answer well to the description given by Bishop Landa of a house of the nobility. He writes:

"They cover their houses with straw, of which they have a great deal of good quality, or with palm leaves. The roofs are very steep so that rain does not penetrate them. Then they make a wall down the center, running lengthwise and with doors in it. The inner of the rooms thus formed, which they call the shoulders of the house, holds their beds. The other half of the house, which is the front room, they whitewash with very fine lime, and owners of nobility decorate them with frescoes. This front room serves as a reception room for guests. It has no door, but the whole of the front is open. However, the roof comes down very low as a protection against the

hot sun and rain storms, and some say as a protection against attack." (Landa, XX).

Villagutierre (book VIII, chap. 12) also remarks that some of the houses at Tayasal had a stone wall about a vara high, and above that level the construction was of wood and thatch. Presumably the roofs of Structures C, F, and H were thatched and pent-shaped, as in none of these structures was there enough accumulation of pulverized stucco and rubble to suggest a flat roof.

Under the top floor of Mound H were seven more floors. The four top floors extended entirely across the mound, the four bottom ones stopped 1.20 meters south of the medial wall, suggesting that the mound originally ended at this point, and was extended to its present depth when the fifth floor was constructed.

Counting from the top downward the floors were the following heights above plaza level.

Floor	Meters	Floor	Meters
1	2.90	5	2.21
2	2.87	6	2.08
3	2.79	7	1.75
4	2.62	8	1.12

Obviously several of these were merely repair floors, notably numbers one and two.

The only other mound of first rank at Cahal Pichik is Q. This, the only mound of importance on Plaza II, had a height of 6.75 meters. There is no structure on the summit, but four floors were discovered. The top three were close together, with spaces of four or five centimeters between them, the bottom floor 50 cm lower. Under the second floor was found a small votive cache described on page 277. Cahal Pichik yielded extraordinarily little non-domestic pottery, and, as the stelae are all plain, the dating of the site is not too sure. However, the pottery vessels associated with the caches in both Cahal Pichik and Hatzcap Ceel are of the same type (see chap. III), and on that basis the two sites can probably be classed as contemporaneous. The architecture, such as it is, would support contemporaneity.

HATZCAP CEEL

The ruins of Hatzcap Ceel lie a few yards less than a mile east by south of Mountain Cow Water Hole (Fig. 1). The city, the name of which means "cold dawn," is divided into two groups. The larger (Group I), consisting of twelve mounds, is built around a large ceremonial plaza (Fig. 7). The smaller group (Group II),

consisting of five mounds, is perched on top of a natural hill some 120 meters southeast of the main group.

In the main plaza, which is irregular in shape, were found the stelae described in Chapter III. On the left of the plaza is situated Pyramid A, the highest mound in the complex, and behind it is a small lagoon.

This lagoon, which is approached by a flight of steps, undoubtedly served as the water supply of the city. During the month of May, both in 1928 and 1929, the lagoon was dry, but at the close of the rainy season in January, 1929, the surface of the water was just level with the top step. The fact that the lagoon dries up in May of a normal year combined with the fact that no chultuns or depressions that could have served as reservoirs were located would point to the climate of this region having been damper during the period of the occupancy of the city than it is today, or, more probably, that the dry season was damper, due to a more even distribution of the annual rainfall.

Pyramid A seems to have been originally terraced, but the sides are badly collapsed and it is now impossible to state how many terraces the pyramid possessed, nor can one distinguish any stairway, although one presumably existed in former times on the east face. The pyramid has a height of 10.40 meters, and on the flat summit were the remains of a small structure that added another 2 meters to the total height. Unfortunately the structure was entirely destroyed by a landslide in the course of excavation before measurements could be obtained. Below the floor on which the building stood were two other floors at a depth of 25 cm and 1.32 meters respectively.

Pyramid F stands on a long terrace, and has a total height above the main plaza of 10 meters. The sides originally consisted of three or four terraces, but it was impossible to ascertain the exact number without fuller excavation. Presumably, too, there was originally a stairway on the west side, but of this no traces now remain. There was a small temple on top, the walls of which stood to an average height of only about a meter (Plate XXVI, Fig. 1). The temple consisted of a single room, which was entered by a doorway on the west side. The room measured 5.35 meters long and 1.75 meters wide, and was covered by a cream stucco floor in a good state of preservation 1.20 meters below the summit of the mound prior to excavation. The walls were made of roughly dressed, poorly squared stones, and were covered with several coatings of cream colored stucco.

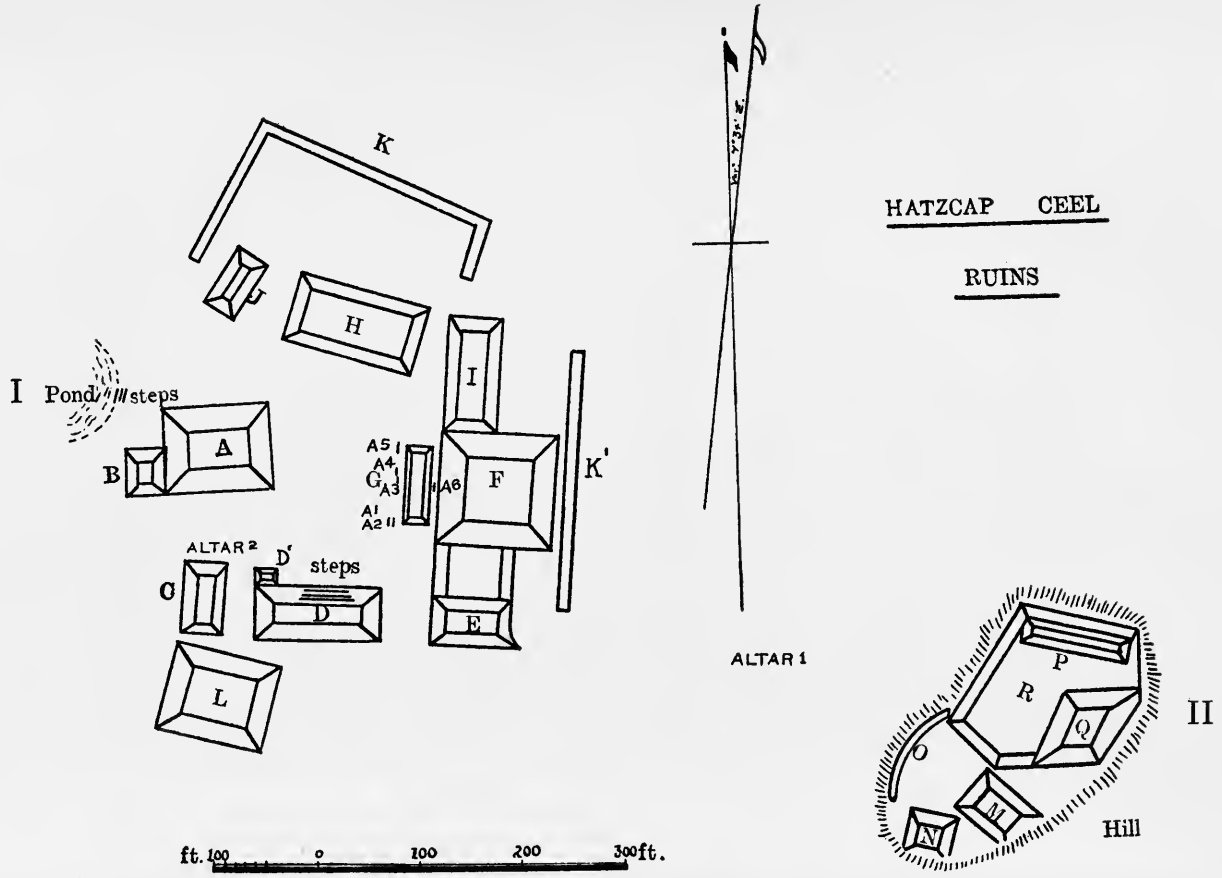


FIG. 7

Ground Plan of Hatzcap Ceel

The débris was greater in quantity than in the case of the buildings at Cahal Pichik, the floor being covered to a height of 1.20 meters, as noted above, but the walls, presumably, had an original height of at least twice this, and their collapse would account for almost all the débris, which consisted to a large extent of fallen stone. Had the roof, however, been of the corbeled type, the débris would have been much greater and would have filled the room to the level of the spring of the arch, and one must presume that the roof, in this case also, was not of the vaulted stone type despite the narrowness of the chamber.

The floor of a second chamber was found 1.20 meters below the floor of this first building, the space between being occupied by loose fill, which consisted of very large boulders, and a small layer of close fill on top. The walls of this lower chamber had been razed down to a height of only 31 cm. They were 60 cm thick, and were covered with a hard red stucco covering. The back wall was immediately below the back wall of the upper chamber, but the lower chamber was much narrower, having a breadth of exactly 1 meter. The chamber was of the same length as that above, and a doorway in the center of the west wall, 1.80 meters wide, led on to a terrace with a good cream stucco floor, which extended a distance of 2.25 meters to the west edge of the terrace.

A third floor was found 1.25 meters below the floor of the lower chamber, and below this floor, and immediately below the center of the doorway of the lower chamber, was a small circular cyst, 60 cm in diameter, 75 cm high, and roofed with three flat limestone slabs. In the cyst was Votive Cache 3 described on page 275.

The ceremonial plaza is flanked on the south side by Mound D. This has a height of 5.10 meters, and is approached on the north side by a flight of steps, which, when the city was flourishing, must have afforded a magnificent spectacle, but which at the present time presents an appearance of desolation and destruction owing to the bodily upraising of the stones by tree roots (Plate XXVI, Fig. 2). The stairway, which is approximately 12 meters wide, consists of a series of steps made of unusually large stones. Below are given measurements of four of the largest, but the general average falls little below these.

	LENGTH cm	TREAD cm	RISE cm
1	101	64	24
2	94	71	24
3	92	64	19
4	89	64	23

The employment in architecture of stones of such size was rare, but not unknown, in the Maya area. Stones of equal dimensions were used in stairways at Coba, in terrace walls at Lubaantun, as cornice stones at Chichen Itza, and were also employed at other cities. The transportation must have presented a serious problem.

There has been considerable speculation as to the method employed by the Mayas to move great masses of stone or wood, and in this connection there is a passage in Peter Martyr, which throws considerable light on this problem. Peter Martyr (Decade V, chap. 10), was speaking of Mexico, but doubtless the same method was employed in the Maya area. As the passage has never, so far as I know, been quoted, I give it in full:

"With their Copper Hatchets, and Axes cunnyngly tempered, they fell those trees, and hewe them smooth, taking away the chyppes, that they may more easily be drawne. They have also certayne hearbes, with the which, in steed of broome, & hempe, they make ropes, cordes, and cables: and boaring a hole in one of the edges of the beame, they fasten the rope, then sette their slaves unto it, like yoakes of oxen, and lastly in steede of wheels, putting round blocks under the timber, whether it be to be drawn steepe up, or directly downe the hill, the matter is performed by the neckes of the slaves, the Carpenters onely directing the carriage. After the same manner also, they get all kind of matter fitte for building, and other things apt for the use of manne."

From this it seems very probable that the Mayas transported their stelae and large stones from the quarries to the point of erection by means of rollers.

On each side of the stairway, the mound, which is some 53 meters long, is faced with stepped back terraces, probably four in number. A wall, set back about 3 meters from the top of the stairway, runs along the center of the summit. It has a present height of 1.20 meters. A floor extends in front of the wall and passes under it, continuing behind, and thus obviously marking an earlier construction. There are traces of a second wall about 1.50 meters in front of, and parallel to the first wall. The space enclosed by these two walls forms a long narrow corridor. The summit of the mound behind the first wall is filled with "close fill" to the present height of the wall. The purpose of this construction is unknown, for it is too narrow to have served as a dance platform.

There is a possibility that the space between Mounds C and D served as a ball court. C runs parallel to the west side of D, although

its height is only about 4.75 meters. It will be noted that a small mound, marked D′ on the map, has been added to the northwest corner of D. Possibly the purpose of this addition was to extend the west face of D to the length required for a ball court. A similar addition occurs in the case of ball court I at Coba (Thompson and Pollock).

The length of the space between the two mounds is 21 meters, the flat section down the center being 6.50 meters wide (Fig. 6, b). Excavation was extremely difficult as the floor had almost entirely disappeared, and its position could only be judged by the faint, and at times uncertain, line of demarcation between the upper layer of earth containing a large percentage of vegetable matter, and the lower layer, in which pulverized plaster and small lumps of limestone gave a lighter color to the whole. It will be noticed that the cross-section bears a strong resemblance to the supposed ball court at Cahal Pichik. The width of the central flat section is practically the same in both cases. The length, too, is in both cases roughly the same (Hatzcap Ceel 21 meters, Cahal Pichik 18.5 meters). The first slopes are practically equal, and in both cases the east wall appears to run up in a straight line from the point of contact with the slope, although this is not certain in the case of the Hatzcap Ceel construction (shown in dotted line), as a serious landslide had taken place at this point.

As in the case of the supposed Cahal Pichik ball court, no rings were found, but at the north end of the passage, between the ends of D′ and C was found Altar 2, described on page 264. The altar had been let into the ground, with its face flush with the plaza floor. Possibly the date of the inscription (9.19.0-0-0, 9 Ahau 18 Mol) marks the period when the supposed ball court was dedicated.

Burkitt in his paper on the archaeology of the Highlands of western Guatemala shows ground plans of a number of ball courts. In almost every case there is an altar-like structure at one end of the court, bearing the same relation to the ball court as Altar 2 does to this supposed ball court at Hatzcap Ceel. See also the discussion by Blom (1928) of "Old Empire" ball courts.

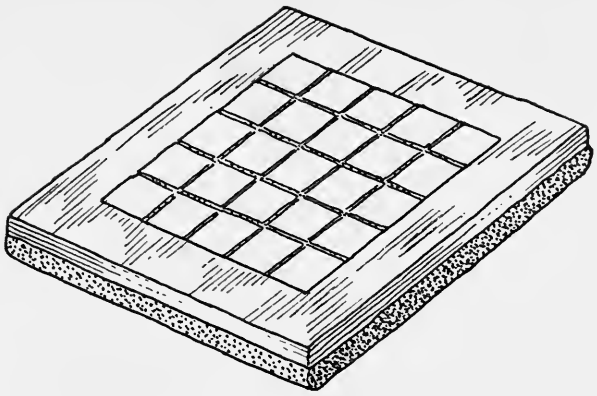
The north end of the ceremonial plaza is partly closed by Mound H. This resembles D in that the top is surmounted by a narrow low platform that extends the whole length of the mound. The front was originally step-terraced to the summit, a height of 4.25 meters. There is a transversal wall running the whole length of the mound, which is set back 3.20 meters from the south edge. This wall, which

was 1.27 meters high and 96 cm thick, formed the outside of the above-mentioned platform. The platform, which consisted of "close fill," was 1.25 meters wide and was contained on the far side by a facing wall, similar to that in front. Again the object of such a platform, which resembles that on the summit of D, is not clear.

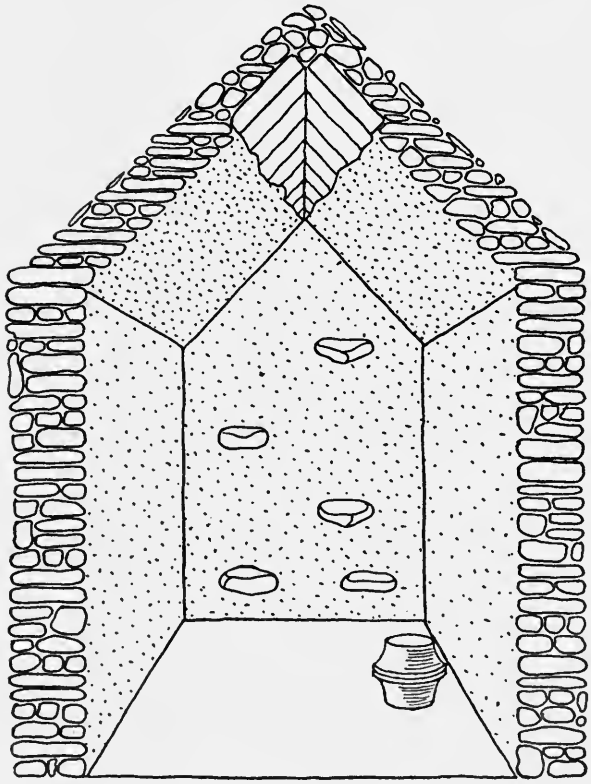
Pyramid E, southeast of the ceremonial plaza, was in a very collapsed condition. On the summit, which stood 6 meters above plaza level, were the remains of a very much destroyed building with low stone walls. Unfortunately three great trees, a *pich* and two mahoganies, had taken root on the summit, almost completely destroying the structure, and making excavation difficult and costly. Walls of an earlier building were found below, but the presence of the enormous roots, lack of time, and shortage of funds precluded a detailed excavation.

Mounds K and K′, which are about 2 meters high, form a sort of parapet to the plaza on the north and east sides. There is a low wall along the outer edge of K, and on the far side the ground slopes away rather steeply. One might suppose that the mounds formed some rampart for defense against attack from outside, but the sides where the ground is level and therefore presumably easiest to attack, are unprotected, as far as one can judge from present conditions. Nevertheless, one must not forget that when the Spaniards traveled through this area, they found towns defended by hedges of henequen. Indeed, the capital of the Chinamitas was called Tulunqui, which means "fortress of henequen" (Villagutierre, book VIII, chap. 11), for the town, which contained more than 8,000 inhabitants, was surrounded by a hedge of henequen. Still it would be rash to assume that the Maya cities of the "Old Empire" were thus fortified in the absence of further evidence.

No other mounds of the main group present features of importance. Of the second group (Group II), situated on the hilltop to the east, Mound N proved of most interest. Outwardly this mound, which had a height of 4 meters, showed no feature of marked interest. Excavations on the north side at the base revealed only "loose fill" composed of boulders, rather larger than usual. Excavations at the top brought to light a low wall with a present height of some 60 cm running along the top of the mound from east to west. This wall was in the center of a well-made plaster floor, which covered the whole of the top of the mound. Some 8 cm below this was another floor, which only covered the center of the mound in a narrow strip running from east to west. A farther 85 cm below was the apex of a



a



b

FIG. 8

Mirror and Burial Chamber, Hatzcap Ceel: a, Iron Pyrite Mirror from Votive Cache 2; b, Vaulted Burial Chamber, Pyramid N

vaulted chamber, which occupied the center of the mound down to plaza level. The vaulted chamber, which was made of stone, measured 2.54 meters long, 2.54 meters high, and 1.42 meters wide (Fig. 8, b). The walls were built of chink masonry interspersed with larger roughly faced stones. The vault, instead of finishing in the usual flat capstone, had a pent shaped top, which was formed by large flat stones resting one against the other. This is a not unusual variant of the corbeled roof, and occurs sporadically at a number of widely separated Maya cities. Obviously the building had been constructed solely to serve as a tomb, for there was no doorway, and no means of entering except by removing a section of the roof. An interesting feature was the presence of five stones that jutted out from both ends of the chamber on the inside. They had obviously been placed there during the construction of the building to serve as a ladder to enter and leave the tomb. It was very disappointing to find that such a well-constructed and large vault contained practically no funeral furniture. On the floor of the vault, touching the middle of the south wall, were two unslipped bowls with flat bases and everted rims (Cat. Nos. 188126 and 188127), the first placed mouth downward on top of the second. Height 9 cm; diameter 22 cm. The lower bowl, now in the British Museum, contained a quantity of ash and a small clay figurine. The ash was examined by Mr. H. W. Nichols, Associate Curator of Geology at Field Museum, who found it contained a high phosphatic percentage, indicating that the material was, in all probability, calcined bone. The figurine was of unbaked clay, apparently not even sun-dried, and broke into a large number of crumbling fragments on being removed from the bowl. The figure, which was extremely crude, represented a seated man with his legs stretched out in front of him, but with the knees slightly flexed outwards, so that the soles of his feet almost touched.

Cremation by certain classes of the community was a widespread Maya custom, and has been reported from a number of different sites in British Honduras. The bowls are of the same ware as the HH sherds which apparently date from the Holmul V period (p. 283). This would suggest that cremation was also practiced during this period.

There was another floor 1 cm below the floor of the vault. This was, apparently, the original plaza floor, and, as far as one could calculate, about 10 cm below the present plaza level.

Next to the vaulted burial chamber was another mound, which proved of interest. This was Mound M, which had a height of a little

over 6 meters. The sides had completely collapsed, and there was no evidence as to whether they had been originally terraced, or whether there was, originally, a stairway on the northwest side. Excavation on the summit revealed a roofless room with doorway on the northwest side (the axis of the room was 200°, true north). The walls, which were made of the usual poorly dressed and unmatched stones, have a present height of 2 meters and were 1.27 meters thick. The room was 7.95 meters long, and 2.64 meters wide. The doorway was 2.12 meters wide.

The chamber was filled to the present height of the walls with débris, consisting of stones, pulverized plaster and *sascab*. This would indicate that the building was originally roofed with a typical Maya corbeled arch, a surmise strengthened by the ground plan of the room. Unfortunately, in the Peten area it is impossible to make use of the presence or absence of the boot-shaped vault stones as an indication as to the type of roof used, as these appear to be confined to Copan and northwestern Yucatan. Resting on the floor in the doorway of the room were the fragments of three incensarios adorned with grotesque faces (Plate XXVII), of a type similar to that found in Vaulted Chamber III (p. 310). This burial belongs to the Holmul V period as will be seen later, and we can, therefore, presume that this temple was in use during Holmul V times, and that this period, too, saw its abandonment.

Together with the incensarios were found sherds of a bowl covered with spikes, somewhat similar to the Lake Amatitlan type, though the bowl was much larger, and, apparently, globular. G. Mason (Fig. 30) illustrates a vessel of this type found close to the pine ridge some fifteen miles northwest of Hatzcap Ceel, and sherds of a similar ware were found by E. H. Thompson at Xkichmook.

Beneath the center of the back wall of the building was found Votive Cache No. 2 described on page 274.

Beneath the floor of the chamber were found seven other floors. These were arranged in the following manner:

Floor 1, the floor of the chamber, was 1.92 meters above Floor 8.

Floor 2 extended under the building and to the back of the terrace. This would suggest that this was the original top of the mound, on which the building was subsequently erected. It was 1.59 meters above Floor 8.

Floor 3 was a short floor which apparently ran from the front edge of the terrace to underneath the middle of the front wall of the chamber. It was 1.35 meters above Floor 8.

Floor 4 was also a short floor, extending, apparently, from the front edge of the terrace to underneath the inside of the front wall of the chamber. It was 1.19 meters above Floor 8.

Floor 5 was uncovered from immediately below the doorway to below about the center of the chamber, where it ceased. Possibly it extended to the northwest edge of the mound. It was 98 cm above Floor 8.

Floor 6 started just inside of an imaginary line continuing the inside of the doorway downwards. Almost immediately below the center of the chamber it curved upward, forming a bank about 15 cm high. It continued at this higher level to the east edge of the mound. Height above Floor 8, 72 cm.

Floor 7 extended across the whole of the mound, and was 32 cm above Floor 8.

Floor 8 extended from the center of the mound to the east edge. Calculations show that this floor was a few centimeters over 2 meters above plaza level. Below the floor there was a layer of loose fill of unknown depth, as excavation was not attempted at a lower level. A point is reached in excavation in the Maya field, where the returns in material or information are infinitesimal in comparison with the cost, and such work can only be undertaken by institutions which do not depend on popular support for their existence. Pottery in small quantities was found at different floor levels, but without exception it was coarse, poorly-made ware that would throw no light on the time that elapsed during the raising of the pyramid level by the addition of seven floors, pottery such as was made by the Mayas in all stages of their civilization from early times to the post-conquest period.

Pyramid Q is the highest structure in the eastern group. It stands on an irregularly shaped terrace raised about 2.50 meters above the general plaza level. The summit of the pyramid stands 5.50 meters above this terrace, with a total height above plaza level of 8 meters. The sides of the pyramid consisted of set back terraces, of which there were originally in all likelihood four, each set in some 40 cm.

On the summit was an accumulation of earth and débris 45 cm deep, and below this a hard stucco floor. Below this there were five other floors at a few centimeters' interval, the space between the top and sixth floor being only 41 cm. The sixth floor, which starts at the back (east) edge of the summit, curves downwards at right angles

about 1.25 meters from the east edge, continuing to the west edge at a level 35 cm lower, thus forming a kind of stucco covered bench or altar. Standing on this and roughly in the center was Votive Cache 1 described on page 270, the richest votive offering found during the two seasons' work.

Excavations started from the back into the center of the pyramid revealed the usual "loose fill," which was, however, more compact than is usually the case. Running through this were several strata of ash, charred wood, and potsherds, each about 5 to 10 cm in depth. The charred wood was examined by Mr. Llewelyn Williams, Assistant in Wood Technology at Field Museum. He reports that the wood is in all probability pine (*Pinus cubensis*). Hatzcap Ceel is distant only a few miles from the open "pine ridge" country, where this tree, as the name indicates, is abundant. Pine wood was extensively used throughout Central America in pre-Columbian days. In Mexico it was used by the priests to blacken themselves, and held in high esteem as it was offered to the gods (Acosta, book V, chap. 26). The Popol Vuh relates that resin was offered to the important deity, Tohil (Jimenez, p. 42). Pine needles are to this day offered by the Indians of Guatemala (Lothrop, 1929, No. 1). In addition to its sacred use, the pine was the principal source of illumination in pre-conquest times in Central America; indeed, it is so used in many of the remoter Indian villages to this day. The numerous potsherds found with the ash and charred wood were, without exception, of low bowls of coarse unslipped ware. Several of them still had pieces of the charred wood and lumps of ash attached to the inside. This would indicate that in some cases the wood had been burnt in them, but this is not very strong evidence, as the ash may have come in contact with the potsherds only after both had been dumped together to raise the level of the pyramid. This type of sherd has been distinguished by the letters HH and is similar to that found in the fill of the altar of Pyramid B at Cahal Pichik.

No other mound in this group presents any feature worthy of particular attention. At the base of the slope leading up to this group on the side of the ceremonial plaza was found Altar 1. According to the guide, who showed me the altar, it had originally stood in the plaza of Group II. This question is dealt with in the discussion of the monument on page 261.

In addition to the four major sites briefly outlined in this chapter, there are a number of other small groups scattered around Mountain Cow Water Hole, but none of these are of any size or importance.

There is a group between Cohune Ridge and Mountain Cow Water Hole, just north of the trail and about one mile southeast of Cohune Ridge. Another, and larger, group lies close to the old Mengel Company's camp at Chapayal (also known as Chaparral), and other ruins were reported two "jornadas" south from Mountain Cow Water Hole by chicleros, who were working in that direction during the 1928–29 field season.

After the sites had been already briefly described under their present names, I learned that Hatzcap Ceel should have been spelled Hatzcab Ceel, but rather than cause confusion I have allowed the name to stand as in the form in which it was first published.

III. MONUMENTS AND VOTIVE CACHES

Monuments

Altar 1

At Hatzcap Ceel were found two carved altars and six plain stelae. Altar 1 was found during the 1928 field season at the west foot of the slope leading up to Group II (p. 259). The guide, Jesus Guerra, a mahogany lumber man, states that originally, he had heard, this altar stood in the middle of the plaza of the outlying group, but two of the laborers employed by the Mengel Company moved it down to its present position in order to transport it to El Cayo, as they understood that an American (Dr. Morley?) paid large sums of money for monuments with inscriptions. It had been dragged down to its present position with the intention of loading it on a mahogany truck and transporting it to Camp 6, but its weight made this a very difficult task, and the stone had been left there alongside a mahogany truck *pass*. This must have been about 1924 or 1925, as the truck *pass* had been abandoned for a considerable period, and was overgrown with young trees to such an extent as to be recognizable only with difficulty. The original discoverer's name was not learnt, but he was from El Cayo and was known in the mahogany camps as "El zarco" (the dark-haired man with blue eyes).

Personally, I feel that the altar more probably came from the ceremonial plaza in Group I. When shown to me by Jesus Guerra it was about equidistant from the two plazas, but with easier transportation from the ceremonial plaza. Furthermore the other monuments without exception were found in the ceremonial plaza, and it seems more credible that this altar also formed one of the group, rather than that it stood alone.

The altar, when found, measured 90 cm from top to bottom, and 56 cm from the edge to the break (Plate XXVIII). Unfortunately half of it was missing, and this missing piece included the whole of the principal figure with the exception of an outstretched arm, the hand of which grasps a curved baton or weapon. Baton-like objects are frequently portrayed on the stelae of different cities. The closest resemblance in this region is to be seen in the object held in the hands of the principal figures of lintel 6 at Yaxchilan. In this case the objects are clearly jaguar claws. A resemblance in general shape can also be seen to the manikin scepter, and possibly the baton on this altar at Hatzcap Ceel is a late development of the manikin scepter

to the point where only the general shape has been retained. A parallel to such modification is supplied by the ceremonial bar, the center of which develops from the writhing body of a snake to a straight bar.

The bottom left-hand corner is occupied by a seated captive figure in profile. His right foot is tucked under him, and his left leg is drawn up close to the body with the knee flexed. The head, which is screwed round so that it looks over his right shoulder, is well carved. The hair is worn straight back, and hanging down to the shoulder, and the ear that is visible has an ornament. The hands are bound behind the back, the right hand being tied to the left arm by a rope, which is bound round the wrist and round the arm above the elbow. The left hand is hidden behind the right arm, to which it is similarly bound with a rope. A small incised glyph close to the prisoner's back probably indicates that he is a captive, for the long hair, one of the characteristics of prisoners in general, is plainly marked. The use of long hair as a symbol of captivity probably originated in the frequent method of portraying capture by showing the captor dragging his prisoner by the hair. The figure is portrayed in a manner very similar to that of the left hand prisoner on Stela 1 at Ixkun, a monument also dating from the great period.

Above and to the left of the prisoner are ten glyphs arranged in two groups of six and four glyph blocks, lettered A, B, C, and D.

A1 reads 13 Ahau. The coefficient has been squeezed over to the right, as the space immediately above the top left hand corner of the glyph is occupied by the raised circular panel.

B1 is a rather unusual variant of the month glyph Uo. The usual cross-bands are present, and the cross-hatching, the distinguishing sign of the month Uo, has been clearly marked. S. G. Morley (1920, pp. 67 and 290) reads an almost identical sign as Zip, ignoring the presence of the cross-hatching, and basing his reasons on the similarity of the sub-fix to that of the undoubted Zip glyph on stela N, Copan. However, this latter glyph lacks the cross-hatching, and therefore might well be Zip.

The fact that the calendar round date 13 Ahau 13 Uo is a Hotun ending is additional evidence for accepting the glyph as Uo. There is no Hotun ending on a date 13 Ahau 13 Zip at any time within the widest limits possible for the erection of the altar, but 13 Ahau 13 Uo ends the period 10.0.5-0-0. This date, furthermore, is only twenty-five tuns later than the date of Altar 2, and is in the same

general period as the known dates from Benque Viejo (10.1.0-0-0), Ucanal (10.1.0-0-0), and Ixkun (9.17.10-0-0 to 9.18.10-0-0), the three nearest dated cities to Hatzcap Ceel, and the only cities in the Mopan drainage at which dated monuments have been found.

The inscription continues in A2 with an Ahau day sign with a coefficient which may be either 6 or 7. In the photograph the two outside elements appear to be crescents, such as were used for decorative purposes, but a close examination of the original reveals that this crescent effect may well be due to the uneven pitting of the stone, the surface of which has flaked off, for where the surface of the stone is intact, there is no sign of any crescent. Furthermore the element between the outside dots or crescents is longer than its companions. The decorative elements are frequently longer than the numerical dots, but rarely, if ever, shorter. Consequently, the whole reads best as 7 Ahau, with 6 Ahau a good alternative. The previous Hotun ending is the important cycle ending date 10.0.0-0-0, 7 Ahau 18 Zip, and it seems very probable that the glyph block A2 refers to this event. If the coefficient is read as 6, the date probably referred to is 10.0.10-0-0, 6 Ahau 8 Pop, the Lahuntun following the Calendar Round date with which the inscription opens.

B2 bears a very close resemblance to the glyph which serves as a secondary series introducing glyph. The two dots usually found in the glyph have here been replaced by a jagged line, but there seems no reason to doubt that this is merely conventionalization. The glyph undoubtedly serves to unite the two dates.

A3 is of unknown meaning, and B3 is similar to the Kan glyph except that it lacks the cartouche.

The inscription continues in C1-D1, where a Calendar Round date is given. Unfortunately both glyphs are so modified that they are difficult or impossible to read. As the month sign in D1 has a coefficient of 19, the day sign must be either Imix, Cimi, Chuen, or Cib. Imix and Chuen can certainly be eliminated, and the glyph, if day sign it is, must represent either Cimi or Cib. In favor of the former is the incised line in the bottom left hand corner, which may represent the bared jawbone characteristic of this day, but this is at best a very doubtful identification. The coefficient is clearly 10. The month sign is equally difficult, for it bears no resemblance to any recognized variant. C2 and D2 are also glyphs, the meanings of which are unknown.

The altar, then, was erected to commemorate the Hotun ending 10.0.5-0-0, 13 Ahau 13 Uo, which according to the correlation followed

at Field Museum (Thompson, 1927) fell on the day February 18, A.D. 835. This date does not occur on any other known monument throughout the whole Maya area.

ALTAR 2

Altar 2 at Hatzcap Ceel was found at the north end of the passage between Mounds C and D, practically on a line drawn between the north end of C and the north end of the extension of Mound D referred to on the map as D′ (see Fig. 7). It has already been suggested that this passage between the mounds may have served as a ball court, and the finding of the altar at one end would tend to confirm the surmise, for it was apparently a Maya custom to associate round altars with ball courts, as in the Highlands of Guatemala, at Cancuen, and possibly Lubaantun. Altar 2 was found set in the floor of the plaza with its face level with the surface of the plaza. The altar, which is round, has a diameter of 56 cm and a depth of about 15 cm (Plate XXIX). The top is carved with an inscription occupying twenty glyph blocks arranged in four columns of four glyphs respectively. The glyphs are unfortunately very worn. The carving can never have been in very high relief, but the glyphs appear as though they had been worn down not by weathering, but by friction. Possibly their present smooth appearance is due to their having been walked over constantly in ancient times.

A1 is squeezed in against the panel that encircles the inscription, and the space is less than half that of a normal glyph. The glyph is too eroded to yield any information.

B2 has a coefficient of 9 attached to a very worn glyph, the upper part of which might be the Cycle sign.

A2 has a coefficient of 19 on the left of a glyph which can be recognized without much difficulty as the normal form of the Katun sign.

B2 is very worn. It appears to be a rather elongated Tun sign of the normal form. The coefficient might be zero.

A3. The outline of the main glyph block shows the cartouche of the normal form of the Uinal. The coefficient looks like three large dots with the center dot the largest of all. This almost surely represents a worn zero. There is a superfix, which is probably ornamental, and two dot elements to the right.

B3. The glyph is contained in a cartouche and there is a tail below. The sign undoubtedly represents the Kin. The coefficient to the left looks like an eroded bar, but might be one dot flanked

by two crescents. Stretching one's imagination rather one might conceive of the coefficient being a very much flattened zero sign.

A4 is very worn. One would expect to find a day sign here, if this is indeed an Initial Series, but the glyph in question bears no resemblance to any day sign, not being enclosed in a cartouche. There is a coefficient of 0 or 3 to the left.

B4. The lower half of the glyph is similar to the lower part of Glyph F of the Lunar Series. This element also occurs occasionally in Glyphs C, D, and E of the Lunar Series.

A5. Occupying the corner, this glyph has been squeezed into a small space. From the glyph that follows it, one might hazard that it is Glyph X of the Lunar Series. This might be the form of Glyph X only found when the coefficient of Glyph C is 2.

B5 is clearly Glyph B of the Lunar Series. The rodent's head and the crossed band rectangular element are perfectly clear, although the ending bracket is here replaced by two dots. The ending bracket, although usually found with Glyph B, is sometimes absent.

C1 is clearly Glyph A of the Lunar Series with a coefficient of 9.

D1 is the corner of the inscription, and is illegible.

C2 appears to be Spinden's sacred fire symbol with flames curling up above and an ending bracket to the left.

D2. A face made out of a cauac sign with a vertical element to the left which might be a coefficient of 10, but is more probably non-numerical.

C3. There is a coefficient to the left which reads best as 9, but might be 7. The glyph is a head form.

D3 appears to be a head.

C4. With this glyph we are once more on safe ground. It records very clearly 9 Ahau.

D4 is equally clearly 18 Mol.

C5 is the Katun sign with a coefficient of 19, but there is no ending sign.

D5. This glyph is squeezed in against the panel. It appears to be ornamental.

The last three glyphs supply the date of erection of the monument—9.19.0-0-0, 9 Ahau 18 Mol, the equivalent of June 28, A.D. 910 in the Goodman-Thompson correlation.

The question next arises as to whether the glyphs from B1 to B3 form an Initial Series. Actually we have a reading of 9 attached

to a doubtful glyph, 19 attached to a glyph that is very probably the Katun sign, a possible 0 Tuns, a Uinal glyph with a coefficient that is probably zero, and a Kin sign with a very doubtful zero sign attached. The next glyphs are too worn to yield any information, but in B5 and C1 we have unmistakably the last two glyphs of the Lunar Series. These two glyphs are never found save with an Initial Series, and their presence is a sure indication that the first glyphs form an Initial Series. Furthermore no Initial Series is known without a terminal date, but the only possible glyphs that could express a terminal date are either D2 and C3 or 9 Ahau 18 Mol given in C4-D4. The former may be ruled out for two reasons. Firstly because they bear no resemblance to any day sign or month sign, and secondly because there is no secondary series to connect them with the terminal date of the inscription. The Calendar Round date 9 Ahau 18 Mol, on the other hand, is in agreement with the tentative reading of the Initial Series with the exception of the Kin coefficient, which is a very doubtful zero. Under these circumstances the Initial Series is best read as 9.19.0-0-0, 9 Ahau 18 Mol, the terminal date being separated from the Initial Series by a Lunar Series and five other glyphs. Although it was not a Maya custom to separate the terminal day sign and month glyph in this manner from the Initial Series, at Quirigua and Copan both signs sometimes followed the Lunar Series, and at Naranjo on Stelae 8, 13, and 14 several glyphs intervene between Glyph A of the Lunar Series and the month glyph. These Naranjo dates are respectively ten, thirty, and twenty Tuns earlier than the date of Altar 2. As this custom was in force at about the same time at a city so close to Hatzcap Ceel as Naranjo, we may infer that this method of recording dates spread from Naranjo, a Maya city of first rank, to the relatively small and provincial site of Hatzcap Ceel, and was there further modified by moving the day sign from its usual position before the Lunar Series to its present position after the intervening glyphs.

The Katun 9.19.0-0-0, 9 Ahau 18 Mol is recorded on monuments at the following cities: Uaxactun, Quirigua, Piedras Negras, Naranjo (2), and Tonina. At the first three sites the dates are recorded as Initial Series, at Naranjo by Period Endings, and at Tonina by a Calendar Round date.

Altar 2 is twenty-five Tuns earlier than Altar 1, and possibly the five Hotun intervals between these two dates were marked by uncarved stelae. One must also take into consideration the possibility that Hatzcap Ceel and Cahal Pichik alternated in raising monuments,

as Morley believes may have been the custom in some Peten Maya cities. In that case the fifteen known monuments from the two sites would have been erected in the course of three and one-half Katuns. Placing the known dates in the center, this would mean monuments were erected every Hotun ending from 9.18.0-0-0 to 10.1. 10-0-0. Such an arrangement is, naturally, one of pure conjecture.

All the remaining monuments both at Hatzcap Ceel and Cahal Pichik are plain. The custom initiated by Mr. Frans Blom of designating plain stelae with a letter to mark the group in which they were found combined with a separate series of consecutive numbers for the group will be followed.

UNCARVED MONUMENTS

At Hatzcap Ceel, in addition to the two altars already described, there were found six plain stelae or altars grouped around Mound G in the principal plaza of Group I. Five of the monuments were placed just in front of the west face of Mound G, an insignificant low platform facing Pyramid A (Fig. 7). The sixth monument was in the center of the east face of Mound G. All six monuments were made of limestone, and were well carved with even smooth surfaces.

A1 was found at the southwest corner of Mound G. It had fallen face forwards, breaking into three major and half a dozen minor pieces. The top was squared off with the corners slightly rounded—a feature met with in stelae from Ixkun, Benque Viejo, and Pusilha. Height 2.42 meters, width 45 cm, depth 30 cm.

A2 is probably an altar. It was found lying in front of Stela A1 as though still in its original position. However, there is a small possibility that it was a short squat stela set at right angles to Stela A1, but as this is an unusual position for a stela and the dimensions are unusually small, it can be taken as practically certain that it was an altar. Originally it appeared to have been covered with a coating of blue stucco, for a small piece about an inch square was found still adhering. It has been generally assumed that plain stelae were originally covered with stucco, on which were painted the glyphs, but in the vast majority of cases the climate militates against the conservation of any of their original covering. The shape is oblong and the corners are rectangular. Length 1.48 meters, breadth 1.07 meters, height 28 cm.

A3 was in front of the center of the west face of Mound G, facing west, and was the highest stela in the city. Unfortunately when

falling it had broken into a large number of fragments. The top was slightly rounded. Height 2.80 meters, width 80 cm, depth 28 cm.

A4 was also, presumably, an altar. It was found two or three meters north of A3 lying flat and unbroken with its long axis parallel to G. It is oblong in shape and the corners are rectangular. Length 1.45 meters, width 95 cm, height 30 cm.

A5, another altar, was located at the northwest corner of Mound G about 1 meter south of the corner and with its long axis at right angles to Mound G. It was broken in two pieces and was oblong with rectangular corners. Length 1.65 meters, width 90 cm, height 32 cm.

A6 was found almost touching Mound G in the center of the east side. It was a stela, and had broken in three pieces at least, the cross-section being slightly oval. The butt was still in position showing that the stela had been broken by the fall of some large tree. Height of the recovered fragments 1.45 meters, width 68 cm, depth 27 cm.

Of the eight known monuments, then, from Hatzcap Ceel, seven were found in Group A, and the eighth may well have come from this same group.

At Cahal Pichik no carved monuments were located, but there were seven plain monuments in the principal plaza (Group I). Of these Nos. A1 to A5 were in line about 5 meters in front of Pyramid A. The remaining two stelae, A6 and A7, were placed on Mound G, a low platform very similar in shape and size to Mound G at Hatzcap Ceel, where, as explained above, all the plain monuments at that site were found.

A1 was found broken in several pieces and had obviously fallen forward. It was the westernmost of the line in front of Pyramid A. The top was squared off and the corners slightly rounded. Height 1.94 meters, width 83 cm, depth 30 cm.

A2 was also broken in pieces when found, but appears from its shape and position to have been an altar. The main block was lying immediately in front of, and at right angles to, Stela A1. The breaks, which consist of slices off the corners and both ends, also support the assumption that this monument was originally an altar placed horizontally in the position in which it was found. Length 1.40 meters, breadth 77 cm, height 30 cm (Plate XXX, Fig. 1).

A3 was found immediately east of A1. It was broken into a number of fragments, which were difficult to fit together. A few

fragments of white stucco were found still adhering, none of them larger than an inch square. When erect it probably faced east or west, as the fragments were roughly in an east-west line. Height of recovered fragments 1.70 meters, breadth 93 cm, depth 32 cm.

A4 is oval in cross-section. When found the lower half was still standing, and the top half was found lying immediately in front. The stela was located in front of the northeast corner of Pyramid A and in line with Stela A. The stone was, as in the other cases, of limestone, but of a much harder quality, and more of a marble than in the case of the other stelae. The top was sharply curved, almost coming to a point. Height 2.94 meters, breadth at widest point 67 cm, depth 44 cm.

A5 was found broken into many fragments, which were scattered around the base of A4. The stela, for such apparently it was, was rectangular in cross-section. The recovered fragments had a total height of 1.75 meters, but some were so shattered as to make it impossible to fit them together again. Breadth 78 cm, depth 44 cm.

A6 was found with the lower half still standing on Mound G close to the southeast corner. Excavation revealed that this mound had originally been of a low rectangular shape with its sides, a meter high, faced with well cut and well matched stones. In fact the masonry was the best encountered at this site. The monument had been erected with its back touching the east face of this containing wall about one meter from the south corner. Subsequently the mound had been enlarged by the addition of some two meters of fill on all four sides. The stela was left in position with the result that it was buried in the addition to a height of about a meter. The stela is almost round in cross-section and the top is rounded off. This was the only stela not excavated to the base. The portion above ground has a height of 1.75 meters, breadth 45 cm, depth 34 cm.

A7 was found close to the northeast corner of Mound G, in line with A6. Apparently it had been placed in position after the addition to the mound, for there was no sign of a base extending down to the floor. The monument was completely shattered into small fragments and it is impossible to give any measurements. The material was a dark slate with a high percentage of quartz, in this respect resembling Altar 1 at Hatzcap Ceel.

VOTIVE CACHES

In a large number of Maya cities votive caches of pottery, jade, shell, flint, or obsidian are found immediately below the stelae. Such

is the case at Uaxactun, Naranjo, and Benque Viejo, all of which sites are probably in the same cultural area. Indeed the only carved stela at Benque Viejo (Xunan Tunich), at the base of which were found two eccentric flints, is not only in the same drainage, but practically contemporaneous with the dated monuments at Hatzcap Ceel. One would, then, expect to find votive caches below the stelae and altars at Hatzcap Ceel and Cahal Pichik, but such was not the case.

The bases of all the stelae and altars at the two sites were examined, with the exception of Altar 1 at Hatzcap Ceel and Stela A6 at Cahal Pichik, but in no case was any cache or sign of votive offering found. Votive caches were also frequently placed in pyramids and below the floors and walls of temples.

No votive caches were found at Tzimin Kax or Cahal Cunil, presumably because these sites were primarily residential as opposed to religious centers. At Hatzcap Ceel and Cahal Pichik, however, a large number of votive caches were located. These are numbered and described below.

VOTIVE CACHE 1

Votive Cache 1 was found in Pyramid Q of Group II at Hatzcap Ceel. As already explained on page 259, the cache was found resting on a kind of bench below five other floors. The cache, which was contained in a vessel, was surrounded by the usual fill, and had obviously been placed there in position close to the back of the pyramid and halfway between the north and south edges before the construction of the floor above, as there was no sign of the floor having been broken to allow of the insertion of the cache after its completion. Above this spot would have been the center of the back wall of a fair sized temple. It may well be that originally Pyramid Q was crowned by a *jacal* temple, in which case this cache would have been located so as to lie directly beneath the center of its back wall. In Plates XXX, Fig. 2, XXXI, XXXII and XXXIII are shown the contents of the cache. The tall vase contained all the objects except the large jade ear-plug (Plate XXX, Fig. 2), which served as a top to the vessel, the real top being placed leaning up against the side of the vessel. The vessel (Cat. No. 188137) is made of poorly baked unslipped and unpainted pottery. Tall, cylindrical jars of this type with lids seem to have been very commonly used for votive caches at Hatzcap Ceel, and we shall find them associated with other caches. Inside the contents were piled up with a considerable admixture of earth. On top was the long celt with hieroglyphic

inscription (Cat. No. 188135), which is illustrated in Plate XXXIII. This celt had been broken into three pieces which allowed of its insertion in the vessel. The material is a hard green black diorite, highly polished, and with a good cutting edge. The cross-section is elliptic. On the front are incised eleven glyphs in two columns. The left hand column (A) has five glyphs, the right hand column (B) six. None of the glyphs are surely decipherable, but several are recognizable. B5 represents a hafted celt and the following Glyph A6 is probably an Ahau sign. The hafted celt placed in the eye represents the number six, and possibly standing alone in this manner it may have the same meaning. In that case the two glyphs together might just possibly mean 6 Ahau. B6 is the jaguar glyph, the jaguar being the god who ruled over the month Pop. Although there is no precedent for reading an inscription in this manner, and such a reading must be taken as purely tentative, the three glyphs might read "6 Ahau falling in the month ruled over by the jaguar god." Actually the Lahuntun ending 10.0.10-0-0, 6 Ahau 8 Pop fills this requirement and furthermore is only five years later than Altar 1. Other glyphs can probably be identified. A2 probably represents the head of the black god, Schellhas' God M. The nose is similar as, too, is the treatment of the eye. If this identification is correct, it would be a happy one, for God M, according to Schellhas (p. 35), is a war god, and his head would be very appropriate on a stone ax. B3 possibly represents the head of a rabbit. B4 may represent a hand holding a glyph, a common Maya combination. The ax is 27 cm long, 8 cm wide at the widest point, and 3 cm deep across the short axis.

The large jade ear-plug (Cat. No. 188134), which as already stated served as a cover to the vessel, is of poor quality light green jade with very little polish. Possibly the specimen had been exposed to fire as there was a considerable number of brown black stains on the surface, when it was found. A peculiar feature was the pentagonal ridge behind, which served to hold it in position in the ear. Frequently ear-plugs are found singly and not in pairs. Among the modern Santa Cruz de Bravo Mayas the chiefs wear a single gold ear-plug as a sign of rank and possibly this was an ancient custom, and a reasonable explanation of the finding of single ear-plugs in caches. The specimen under discussion is one of the largest yet reported from the Maya area, having a width of 12 cm, a height of 11.5 cm, and a depth of 3.4 cm. The corners are slightly rounded

and there are a number of incised parallel lines at the base of the surface.

Another, but smaller, ear-plug was also found inside the vessel (Cat. No. 188136). This specimen, which is of a dark green jade of good quality, has a very deep flange. On the under side of the rim is a dab of red identified by Mr. Nichols as cinnabar, and an incised line cuts across one part of the under side, forming the cord of a segment. It would appear that it was originally intended to cut off the segment and possibly square the rim of the ear-plug, but this intention was abandoned after the first line was partly cut. Diameter across rim 6 cm, depth 2.5 cm.

One of the most interesting objects found in the vessel was the jade amulet (Cat. No. 188139) with human face shown in Plate XXXI, Fig. 17. A drawing of the amulet is shown in Plate XXXII, Fig. 3. The material is a polished, dark apple green jade of excellent quality. Of interest is the triangular appendage to the face, which may have been a bird's beak similar to that of the Tuxtla statuette; indeed the stylistic treatment of the two objects is in certain respects similar. Lothrop (1926, I, p. 93) believes that the inspiration of the Tuxtla statuette must be sought among the Chorotega, in which case the amulet under discussion may have been imported from the same people, possibly from the vicinity of the Nicoya peninsula or the great lakes; the style at least is un-Maya. A drawing of the back is also shown in the same plate (Fig. 4). This clearly shows two different techniques. The hollow was made by first drilling with a hollow drill of bamboo or bone and presumably using sand as an erosive. After this hollow had been drilled to only a slight depth, a larger sized drill was employed and a spot nearer the head was chosen, although partially overlapping the drilling already made. Next a cord was passed through the upper side perforations and worked up and down, cutting with the aid of sand a straight horizontal line. In this way the material to be removed was divided into three pieces, and could then be chipped off without danger of breaking the whole object. The method of manufacture is clear in this case because the lines which were used for fracture were ground deeper than they were required, and, with the exception of the top half of the smaller circular drill, were still visible after the three pieces had been chipped off and the surface ground smooth. The specimen is now in the British Museum (length 6.5 cm, breadth 4.5 cm, depth 1 cm).

Another interesting jade amulet from the cache is shown in Plate XXXI, Fig. 15. This specimen (Cat. No. 188154) represents a monkey. The carving is rather crude, and the jade has been subjected to fire, for the back, when found, was crumbly, small uneven fragments breaking off. Height 3 cm, breadth 4 cm, present depth 2.5 cm.

There were also three small jade figurines, all of the same general type and averaging about 3 cm in length and about 1.5 cm in width (Cat. Nos. 188140, 141151). All have small round holes for the eyes, a small hole or incised triangle for the nose, and have the arms bent so that the chin rests on the clasped arms, shown by two diagonal incised lines marking the line between arms and stomach. A small wedge removed from the base and a nick at the waist line mark the legs. There is a transversal perforation for suspension. The work is extremely crude. In addition to the jade figurines there were found nine shell figurines of a similar type (Cat. Nos. 188142–188150), several of which are illustrated in Plates XXXI, Figs. 8–11, and XXXV, Figs. 2–7. The treatment is practically the same as that of the jade figurines, except that in all cases the feet are turned out. In some cases the face is shown only by two converging lines which presumably represent the nose; in others the eyes are shown by small holes. Some have holes bored for suspension, but others lack them. In all cases the arms are bent at the elbows, so that the hands rest on the chest or immediately below the chin.

In addition to these shell figurines there were half a dozen small unperforated shell buttons (Plate XXXI, Fig. 6), four shell amulets crozier shaped, one perforated and the other plain (Plate XXXI, Figs. 1, 2, and 5), two wedge-shaped amulets (Plate XXXI, Figs. 3 and 4), some forty gastropod shells perforated to be worn as a necklace, a small shell globular button bored through the center (Plate XXXI, Fig. 7), and several shells, either unworked or with a single perforation for suspension. Among other objects of marine origin were a piece of coral (Plate XXXI, Fig. 16) and a piece of pumice stone. An object of interest from the cache was a circular disk of slate (Plate XXXI, Fig. 13) with beveled edge. Similar disks of sandstone seem to have been highly prized by the Mayas, for they were used as centers for mosaic disks (Carnegie Year Book, 1928, p. 297). Possibly the slate disk under discussion formed the center of a small feather mosaic disk set on wood, of which no trace now remains. The specimen has a diameter of 7.5 cm. A peculiar

implement of soft limestone (Plate XXXI, Fig. 18) was also found in the vessel. The surface shown in the photograph is slightly convex, the back is straight. Its purpose is unknown. In addition there were also a few small jade beads. Fragments of dorsal spine bones of small fish, a few small bones from the paws of a jaguar, or possibly a puma, and some bones of an unidentifiable bird complete the contents of the cache. The bones suggest a food offering.

VOTIVE CACHE 2

This was found underneath the center of the back wall of the temple on top of Pyramid M at Hatzcap Ceel. The cache had been placed in a large urn (Cat. No. 188435) with a lid. The vessel is of the same general type as the urn of Votive Cache 1, although much larger. The vessel is made of a sandy paste of rather coarse quality, and is covered on the outside with a deep red slip, but only the lid is slipped on the inside (Plate XXXIV, center). The base, which is flat, shows traces of something having been burnt on it. One would suspect copal, but no waxy substance was found, nor was there any distinguishable smell. One of the jade beads, however, that formed part of the contents, showed traces of having been subjected to considerable heat. There is a hole on one side just below the rim on to which the lid fits, and a second hole a quarter way round the circumference. Presumably there were two further holes opposite these, making a total of four, but pieces of the vessel are missing at these points, and the question can not be settled. The sides are very slightly convex. Height with lid in place 26 cm, diameter 22 cm.

The urn had broken into a very large number of pieces, and the contents spilt out on to the ground. These consisted of nine tubular and globular jade beads, one of which, a tubular bead 5.5 cm long and with two raised bands in the center, still retained traces of red pigment. One of the globular beads was of considerable size, having a diameter of some 6 cm. There were two small jade figurines of the same type as those found in Cache 1, with hands resting on the breast and features and limbs shown by shallow incised lines. A small jade ear-plug completed the tally of jade objects. In addition there were two shell beads, a shell figurine (Plate XXXV, Fig. 8) a number of unperforated sea shells, a piece of coral, and a small piece of pottery 5.4 cm square with beveled edges and slightly concave, as though made from a sherd of a large olla. The piece was unslipped and unpolished on the top surface, but the back was covered with a good

red polish. We shall return to this piece in the discussion of the contents of Votive Cache 3.

The cache was obviously placed in position before the building of the temple, for it lay immediately below the floor of the temple, which ran unbroken below the back wall. It is accordingly earlier than the incensarios described on page 257.

VOTIVE CACHE 3

Vótive Cache 3 was found below the floor of the lower temple of Pyramid F at Hatzcap Ceel, and immediately below the center of the doorway (see p. 251). It differed from other caches in that it was placed in a specially built cyst 60 cm in diameter, 75 cm high, and roofed with three flat limestone slabs. The votive offerings were placed in a handsome urn (Plate XXXIV, left). This, the largest container of votive offerings found, is made of a good sandy paste covered with a red slip on the outside. There are eight small holes for suspension set in pairs at even intervals around the circumference, immediately below the rim on to which the lid fits. Height with lid about 45 cm, diameter 30 cm. The vessel is almost cylindrical, but the sides taper very slightly towards the top. Inside was another vessel of rather coarse unslipped ware with flat base and everted lip, and in this were placed the offerings. These consisted of eight small shell beads, six small jade beads, three shell figurines of the same general type as those found in Votive Cache 1 and the jade figurines in Caches 1 and 2. The arms are bent at the elbows and shown clasped under the chin and the feet are turned out at right angles (Plate XXXV, Fig. 9). In addition to this there were four cephalopods, only one of which was perforated for suspension, and an iron pyrite mirror.

This mirror (Cat. No. 188443) consists of some twenty-two small squares of *Limonite pseudomorph*, a weathered concretion of limonite around a form of pyrite nucleus, which were found in a fairly good state of preservation, and possibly another ten, which were almost entirely oxidized to nothing. Mr. Nichols states that the original pyrite has entirely disappeared, having been converted into the limonite concretion, which in turn is in process of mutation into oxidized iron. None of these squares were in position, but several of them were resting on a small square piece of pottery that apparently formed the matrix. This piece of pottery, which is 6.5 cm square, undoubtedly was a sherd from a large olla, which had been subsequently cut square, and the sides cut diagonally so that they

sloped towards the back. Having once been a sherd of an olla, the face was naturally slightly concave, but as a concave surface would not have made a satisfactory bed for the pyrite squares, the outside had been rubbed down until the whole of the front presented a fairly flat surface on which the iron pyrite squares could be laid. As a consequence of this the face shows an inner circle where the slip of the original sherd is still visible, whereas on the rest of the face it has been ground off. Fig. 8, a, is a drawing of the mirror showing the probable manner in which the pyrite squares were arranged. It will be recalled that a similar piece of pottery was described as having been found in Votive Cache 2, and in view of the finding of the mirror just described, it would seem that the pottery square from Cache 2 also was originally the matrix of a mirror. Cache 3 was particularly well protected from damp and roots, and for that reason the limonite concretions were in most cases in a fair state of preservation. Cache 2, on the other hand, was more exposed to damp and seepage owing to the fact that the urn had broken and had not originally been placed in a cyst. There were, however, on the base of the urn and even on the face of the pottery square accretions of oxidized iron, such as might be left were iron pyrites, after being transformed into limonite concretions, to corrode away entirely. In view of this additional evidence, it does not seem unreasonable to suppose that Cache 2 also originally contained a mirror.

Votive Cache 3 can be dated with some accuracy, for on the floor immediately above it were found two sherds of the painted ring-bowl ware, with designs such as were very abundant during Holmul V times painted in red and black on a yellow ground. The cache could not be later, therefore, than Holmul V.

VOTIVE CACHE 4

This was found immediately below the center of the back wall of the temple behind the altar of Pyramid B at Cahal Pichik (see p. 241). The cache was not contained in a large urn with lid as in the previous caches discussed, but was placed in a low flat-bottomed bowl with everted lip, on top of which was placed a second bowl of exactly similar size (height 6.5 cm, diameter 17 cm), shape and texture. These vessels are of rather coarse ware of a deep red color, unslipped and unpainted (Cat. Nos. 188177–78, Plate XXXVI).

The contents were a jade bead and a jade amulet. The amulet (Cat. No. 188180) is carved with a head in profile of the typical Maya coarse type with large nose and heavy features. Height

4.3 cm, breadth 4.5 cm. It is perforated with a transversal hole close to the top, and undoubtedly was a prized possession. Unfortunately it had, apparently, been exposed to fire, and was slightly cracked and discolored.

VOTIVE CACHE 5

This was found under the bottommost of the three floors on the summit of Pyramid A at Cahal Pichik towards the back of the pyramid and about midway between the east and west sides. It has already been suggested (p. 241) that there may have been a wooden structure on the summit, and if that were indeed the case, the cache would, one would imagine, have been directly beneath the center of the back wall of such a structure. The contents were found in a cylindrical vessel (Cat. No. 188199) of coarse unslipped ware of the same general type as those used to contain Votive Caches 1, 2, and 3. However, in one respect it differed from the others, in that there were four handles placed below the rim at equal intervals. These had been made separately and attached to the main body subsequently, with the result that they had fallen off, and do not show in the plate (XXXVII). The lid, instead of being straight sided, was bowl shaped, but fitted well on to the rim of the jar. Height of vessel with rim 15.5 cm, diameter 13 cm.

Inside were twelve pieces of jade, all of them carved as tubular or globular beads with the exception of two small and well made ear-plugs and a small triangular amulet with a crudely incised face on the front. There were, in addition, three or four shell beads and two small halves of a bivalve with holes for suspension (Plate XXXVII).

VOTIVE CACHE 6

This cache was found under the second floor of Pyramid Q at Cahal Pichik (see p. 248). There were no signs of any structure on the summit of this pyramid, but the cache was about halfway between the east and west edges of the summit and not far from the back or north edge. The objects, which were a small jade ear-plug, a small jade bead, and two perforated shells, were found in a pottery bowl of coarse unslipped and unpolished dark red ware with an almost flat base and everted lip. Height 7 cm, diameter 22 cm (Cat. No. 188171).

VOTIVE CACHE 7

Just north of the doorway leading from the front to the back room, and under the lower floor of Mound I was found Votive

Cache 7. This was contained in a tall cylindrical jar with lid of the type described in connection with Votive Caches 1, 2, and 3. The votive offerings consisted of two small figurines, one of jade, the other of slate. The jade figurine (Plate XXXV, Fig. 10) is of the same type as those found in Caches 1, 2, and 3. The slate figurine (Plate XXXV, Fig. 11) is also stylistically closely related to this group of figurines. The nose is indicated by an inverted incised angle, and the eyes and mouth are shown by parallel horizontal incised lines. The hands are clasped across the chest, and a vertical incised line marks off the two legs. There is no perforation for suspension.

VOTIVE CACHE 8

This, the most spectacular of the votive caches, was found in Pyramid B at Camp 6, about twelve miles northwest of Mountain Cow Water Hole (see Fig. 9). Pyramid B was about 10 meters high, and there was no trace of any structure on its summit, or remains of any floor. The cache was found about the center of the mound some 40 cm below the surface, where the loose fill began. The spot was marked by a large accumulation of very black earth, which would suggest that it was accompanied by a large food offering, possibly of maize or meat. The contents were placed in a large jar with a flat base and slightly barreled sides (Plate XXXIV, right). Height 25 cm, diameter 20 cm. The ware is coarse and unslipped, but on the front in low relief is a crude human face and two rosettes, one on each side. Resting on top of this and placed upside down, was a flat-based bowl with everted lip of the type found in Votive Cache 4. On top of this again rested two large oyster shells. Inside the jar were found the three very fine pieces of jade shown in Plates XXXVIII, and XXXII, Figs. 1 and 2. The jade figurine shown in Fig. 1 of Plate XXXVIII and in Plate XXXV, Fig. 13 (Cat. No. 188021) is again of the same general type as those already described. The treatment of the arms and legs is similar, although the carving is in very low relief. The nose is shown by two incised lines meeting at the bridge. The eyes alone differ, for the lines, instead of being parallel, meet at the outer corners. A hole has been bored vertically from the crown of the head, but only reaches down a little over 1 cm. The jade is a light green color. On the back was a yellowish stain with a little sticky black material adhering. This was scraped off and upon being held under a flame gave off a faint odor similar to that of burning rubber. The material was very scanty, and possibly not sufficient to make the test certain, never-

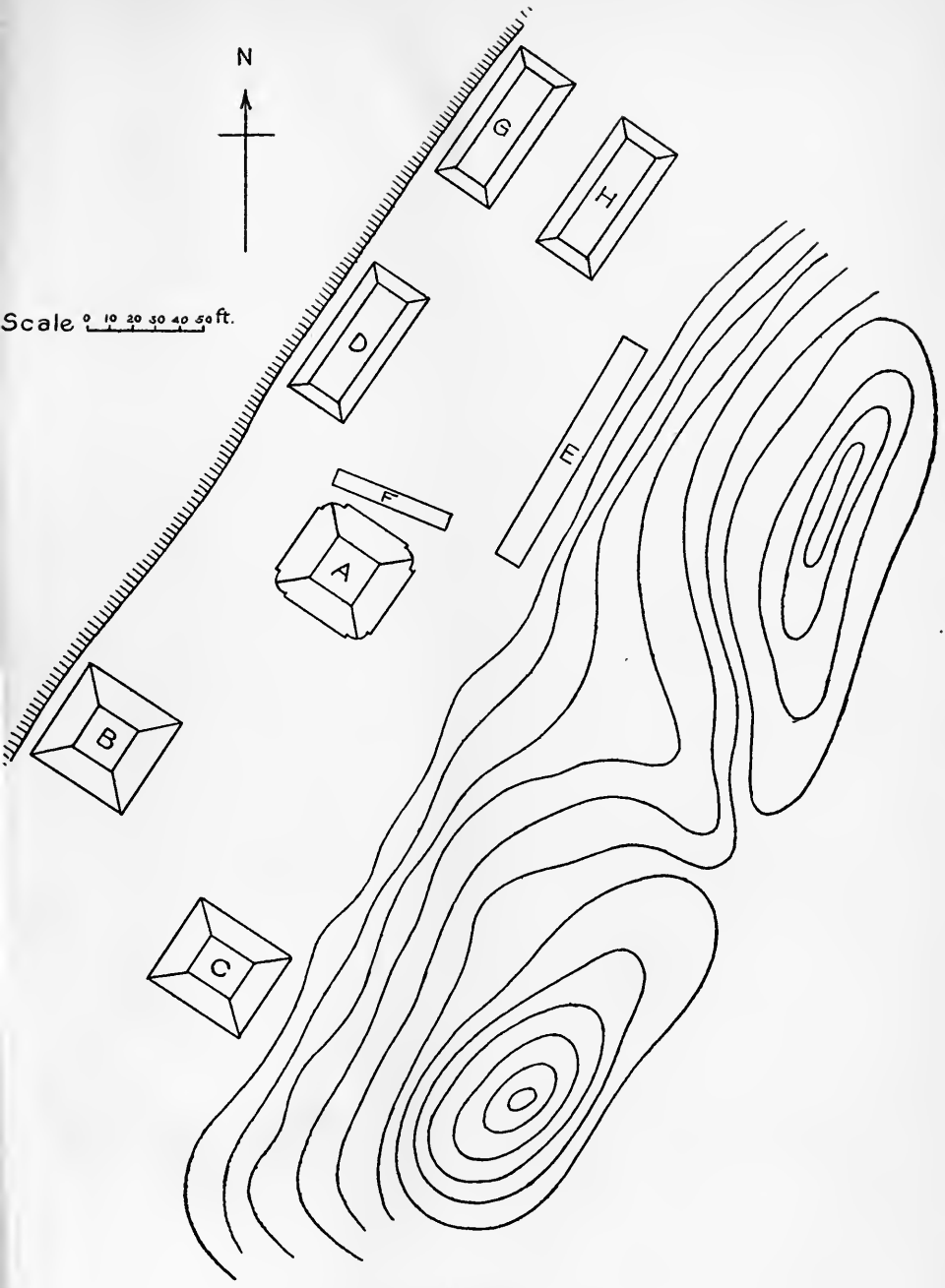


FIG. 9
Ground Plan of Camp 6 Ruins

theless I was expecting to smell the odor of copal, and, therefore, the rubber smell did not, presumably, originate in my imagination. The burning of rubber was not an unusual practice in Central America. Palacio (p. 31) describes the burning of a deer's heart with copal and rubber during a special dance, and doubtless the custom was once widespread. The figurine has a height of 6 cm, and is 3 cm wide.

The mask (Cat. No. 188023), shown in Plates XXXII, Figs. 1 and 2 and XXXVIII, Fig. 2, is undoubtedly the finest jade object yet found in British Honduras. The specimen, which is now in the British Museum, is of light apple green jade of excellent quality. The small holes that serve as the pupils of the eyes and as nostrils may have originally contained fillings of shell, obsidian, pyrite, or some such metal, the nostril holes possibly serving to hold a nose plug in position. The workmanship is sophisticated and worthy of the best Maya traditions. The drawing of the back illustrates once more the extensive use of the hollow rotary drill with sand. The position of the holes on the rim—one on each side above and three at the base—suggests that the mask was worn suspended on the breast with a second ornament suspended from it. This was a frequent Maya custom as a glance at the principal figures on the stelae plainly shows (height 7.5 cm, breadth 6.5 cm, depth 2.5 cm).

The last object found in the cache was a well-made jade ear-plug (Cat. No. 188022) shown in Plate XXXVIII (Fig. 3). This also is made of pale apple green jade of excellent quality (diameter 6.5 cm, depth 2 cm).

VOTIVE CACHE 9

This cache, also, was found at Camp 6. Pyramid A at this site is situated on the south side of the plaza, and both from its position and size may be considered the principal pyramid in the group (Fig. 9). It has a height of some 10 meters, and is surmounted by a small block-like structure of rubble faced with poorly dressed stone. This stands in the very center of the summit of the pyramid. Length 3.35 meters, breadth 1.17 meters, height 1.85 meters.

The pyramid was divided into a series of terraces, the exact number of which it was impossible to ascertain with exactitude owing to their collapse at the upper levels, but as far as one could judge they must have numbered four. In addition to the terraces there was a series of buttresses, somewhat similar to those of the principal pyramids at Tikal, but with the difference that, whereas the latter extend almost to the corners of the terrace faces and give the effect

of being recessed corners, at Camp 6 the buttresses do not extend so close to the ends of the faces (Plate XXXIX, Fig. 1). The corners of the pyramid are also slightly rounded off, a feature not met with at Tikal, but found associated with the buttress supports at Coba (Thompson and Pollock).

On the surface of the summit, in the vegetable mold that had accumulated since the abandonment of the site, were found the remains of an incensario of the same general type as those shown in Plate XXVII, although not so elaborate. Beneath the floor that covered the summit of the pyramid and underran the small structure were found a number of sherds of a painted ring-based bowl of the kind which are shown in Chapter IV to belong to the Holmul V period. This is of interest as it serves to place the cache within certain limitations of time. There were four other floors below the one that passed below the structure. The second is 2.5 cm below the top one, the third, fourth and fifth, 1.97 meters, 2.43 meters, and 2.55 meters respectively lower than the top floor. The cache was found placed in a flat based bowl with everted lip, which rested on the bottom floor. The bowl (Plate XXXIX, Fig. 2, f) was very similar to that found with Votive Cache 4 (Plate XXXVI), except that the ware was of better quality, and it had been covered with a dull brown slip (height 6 cm, diameter 17 cm).

Inside were found two shell beads, two jade beads, and three shell figurines. Two of these figurines (Plate XXXIX, Fig. 2, c and g) are of the same type and technique as those already discussed from other caches, although somewhat more bold. The third (Plates XXXIX, Fig. 2, c, and XXXV, Fig. 16) is of somewhat different type, but is obviously stylistically related to the rest. The arms, instead of being bent at the elbows and resting on the breast, hang down at the sides, and the feet are not turned out. The vestigial appearance of the arms and the absence of any nose would suggest archaic art, but its association with other objects already roughly dated precludes such an attribution.

VOTIVE CACHE 10

This also was found at Camp 6 at the bottom of a small mound situated about 1.5 km to the west of the main group. The mound was found to contain a very high percentage of sherds, almost all of which could be attributed to the Holmul V period. The mound was made of earth, and this would suggest that the sherds antedated the mound, and had found their way into it when earth

containing them was brought to build the mound. At the very base was found a well-made olla in many pieces, with a design of slashed "coffee beans" in relief and stick depressions arranged in half moon designs. Resting on the base of the olla were three figurines, two of slate and the third of shell. All three are of the same general type as those already discussed, having their arms bent at the elbows and with the hands clasped across the breast and feet turned out (Plate XXXV, Fig. 12).

COMPARATIVE STUDY OF CACHES

An examination of the contents of these various votive caches reveals a general resemblance extending to all of them. Below are tabulated the principal characteristics, an x marking the presence of the feature, a space its absence.

TABULATION OF VOTIVE CACHE CONTENTS

Votive Cache	Small Crude Figurines with Arms Clasped on Breast	Urn of Cylindrical Type with Lid	Flat-based Vessel with Everted Lip	Pyrite Mirror	Stratigraphical Information
1	x	x			[1]
2	x	x		x(?)	[1] and [5]
3	x	x	x	x	[3]
4			x		[2]
5		x			
6			x		
7	x	x			
8	x	x	x		
9	x		x		[3]
10	x				[4]

[1] Found above sherds of coarse unslipped ware of marked type referred to as HH.

[2] Found below sherds of coarse unslipped ware of marked type referred to as HH.

[3] Found below sherds of Holmul V resting on floors.

[4] Found below sherds of Holmul V which, mixed with earth and clay, formed part of the fill above and around cache, and may, therefore, have been earlier than cache.

[5] Found below temple floor, on which rested incensarios almost surely of Holmul V period.

Seven out of the ten caches contained the distinctive little figurines, which, whether of jade, slate, or shell, conformed to the same general type. Furthermore five of these seven were also distinguished by having a container, which was in the shape of a slightly barrel shaped cylindrical urn. The containers of four out of the other five were flat based vessels with everted lip made of coarse unslipped pottery, but in two cases both these distinct types of pottery were found together in the same cache. This shows that the two types were at least partially contemporaneous, which in turn is supported by the marked similarity in type of the figurines. It can be taken then, that all the caches, with the exception of

No. 10, are contemporaneous within fairly wide limits. Votive Cache 10, however, contained three figurines, two of which belong stylistically to the same group, and allow us to put this cache, too, in the same group as the other nine.

Two of the caches—Nos. 3 and 9—were found under Holmul V pottery with one or more floors shutting off the caches from the pottery, but in the case of Cache 10 there is a probability that the cache was later in date than the Holmul V pottery found above it. Cache 2 was found under incensarios (Plate XXVII), which very probably date from Holmul V times. This would suggest that as the caches both antedate and postdate Holmul V finds, they were contemporaneous with this period. Finally Caches 1 and 2 are later than the coarse pottery known as HH, but in the case of Cache 4 sherds of HH ware are later than the cache. This again suggests that the caches and the pottery are contemporaneous. Unfortunately there is no evidence to indicate when pottery of the HH type was being manufactured, except what is suggested from its relation to the caches.

There is ample evidence to show that Holmul V extended over a long period in the upper Mopan drainage, and was contemporaneous with intensive development at Tzimin Kax and Cahal Cunil. Unfortunately little pottery that can be definitely assigned to one period was found at either Hatzcap Ceel or Cahal Pichik, but such as there is belongs, with the exception of some sherds on the summit of Pyramid N at Hatzcap Ceel, to the Holmul V period, showing that these two sites were occupied, and probably intensively developed, during this period. This is an added argument for assigning the caches to the Holmul V period.

Shell figurines of a similar type and size were found by Dr. Maudslay in a votive cache in Mound 4 at Copan (Maudslay, Text, p. 20; Plates, Vol. I, plate 21). The vessel in which they were contained is of the cylindrical shape already found associated with caches in the Mountain Cow region, and the crude face in the front bears some resemblance to that of the front of the jar which served as the container of Votive Cache 8 at Camp 6. Unfortunately there is no means of dating the cache at Copan, beyond the fact that as it is in the great plaza, the date is probably late. In that case these figurines probably occurred in a Copan period contemporaneous with Holmul V.

IV. BURIALS

Holmul I Period

CHULTUN A, TZIMIN KAX

Chultun A in Plazuela I at Tzimin Kax was discovered owing to the caving in of one of the sides. Its location may be seen by a glance at Fig. 2, b. The circular limestone slab over the mouth was still in position about 15 cm below the original floor level. At this point the plazuela floor is only some 30 cm above live rock. Consequently the neck is partly excavated out of the limestone rock, and partly built up through the artificial "fill" by means of a circle of roughly dressed stones.

There are two possibilities deducible from this construction of the neck. The chultun may have been excavated prior to the construction of the plazuela, and, being still required after the plazuela was built, was made accessible by raising the mouth to within a few centimeters of the floor level by lining the edge with roughly dressed stones as indicated. Alternatively the chultun was hewn out after the construction of the plazuela. However, the interest depends not so much on the period when the chultun was constructed, but on whether the burial contained in it antedates the construction of the plazuela. This is extremely unlikely unless it was a Maya custom to open the graves of the deceased at certain intervals for offering food or for other purposes. For had the chultun been used as a burial chamber prior to the construction of the plazuela, and not been reopened at intervals, then there would have been no purpose in extending the funnel through the plazuela "fill." We may presume, therefore, that the chultun, possibly after its use as a water reservoir, grain bin, or for some other purpose, was used as a burial chamber by the same people who built the plazuela, or their successors.

Inside the chultun beneath the débris of the collapsed side were found the three vessels shown in Plate XL.

The vessel on the left (Cat. No. 188027) is presumably a pot stand, as it is similar in shape to a vessel excavated at Holmul with another vessel resting on it (Vaillant, 1928, Fig. 212). It is made of poor, coarse red ware, unevenly fired so that it shows a black line down the center of the paste. There is no slip. Instead the outside was originally covered with a thin white stucco. Subsequent thin coats

of red, yellow, and finally a dull blue-green, stucco were painted over. Most of this stucco has disappeared, but a few traces still remain. Height 11.2 cm, diameter 12.2 cm.

The tetrapod bowl (Cat. No. 188025) in the center was covered with a rich orange slip. On the inside this is relieved only by an overlap of the red of the rim, and a thin red line immediately below this. The base is slightly concave. The design on the side is painted red outlined in black on a cream base. The legs, which contain pellets to produce a rattle, and the under side of the base are painted orange. The clay is well mixed and evenly fired of a light sandy color with a touch of pink in it. This specimen, which fell to the British Honduras Government in the division of the finds, is now in the British Museum. Height 15 cm, diameter 29 cm.

The vessel on the right (Cat. No. 188026) has also been covered on the outside with an orange slip. The design is in black, the band below being red. The inside, of a dull sandy cream color, is unslipped. This specimen is now in the British Museum. Height 13 cm, diameter 17 cm.

The skeleton was in a very bad state of preservation, and could not be saved. It appeared to be lying on its left side with the head pointing northeast, the legs flexed and slightly drawn up. Although the soil was carefully searched only some half dozen teeth were found, and the burial was probably secondary. The tetrapod was set on the north side of the chultun, the bowl on the east side close to the head, and the bowl-holder in the southwest part close to the feet of the skeleton.

The pottery associated with this burial belongs to the same period as that of the earliest pottery found by Dr. R. E. Merwin at Holmul, which Dr. G. C. Vaillant of the American Museum of Natural History has styled "Holmul I" (Vaillant, 1928, Part III, Chapter IX; and 1930). The tetrapod (Cat. No. 188025) and the bowl-holder (Cat. No. 188027) can without hesitation be assigned to this period, and as the bowl (Cat. No. 188026) belongs to this same burial, and is therefore contemporaneous, it, too, can be classified as Holmul I.

In this publication the names given by Vaillant for these different periods, Holmul I to V, are retained, although with the reservation that such a designation does not necessarily imply contemporaneity of styles at the two sites. Tzimin Kax is situated in a peripheral region, and the time sequences of pottery types may have been retarded or even merged in this area.

CHULTUN B, TZIMIN KAX

Chultun B was found a short way to the west of Plazuela X. In shape it resembled Chultun A. The mouth, which was situated in the center, was 60 cm in diameter, the chultun itself being 1.20 meters deep. A low ledge of limestone was left on the floor of the chultun, forming a wall separating an arc of about one-third of the diameter of the chultun. This appeared to have been designed as a separate receptacle, but was empty.

Almost immediately below the mouth of the chultun, and resting on the floor, was found a fragment of a cranium. A few inches to the south of it was a piece of rib, and a few inches to the north of it a fragment of what was probably a femur. The scanty remains would indicate that the burial was probably secondary.

In Plate XLI are shown the three vessels found in this chultun.

The vessel in the center (Cat. No. 188168) is a tetrapod of the type associated with Holmul I. It has been covered both inside and out with a red slip of a deep port wine shade. The legs, which like those of the tetrapod in Chultun A are shaped in the form of a woman's breast, are fuller and rounder than those of the former. One of them contains a pottery ball to serve as a rattle. There is a thin band of black paint passing along the top of the rim, and what appear to be a few traces of brown-black paint on the base of the bowl. The paste is practically identical with that of the other tetrapod except that it is slightly ruddier in color. Height 15.5 cm, diameter 29.5 cm.

The vessel on the left (Cat. No. 188170) is of peculiar interest owing to the fact that it has a design similar to that of the early "archaic" sub-lava culture from El Salvador. Dr. S. K. Lothrop of the Museum of the American Indian, Heye Foundation, illustrates pottery with this design from Santa Elena, El Salvador (Lothrop, 1927, Fig. 5). However, the vessel from Chultun B lacks the thickened and everted lips. The composite silhouette is much simpler and there is a vestigial ring base. The slip is a deep orange-red and the design, which consists of five radiating series of six wavy parallel lines, is of a faded black. The ware is poorly baked. Height 8 cm, diameter 21.5 cm.

Apparently this design must have been very widespread at an early period. Field Museum possesses a small vessel (Cat. No. 188621) from Playa de los Muertos, Uloa Valley, Honduras, which closely resembles the specimens from Santa Elena, El Salvador. It

has four small conical legs, thickened and everted lip, encircling groove, and elaborate design of parallel wavy and curved lines of faded black on a dull orange-brown. Probably this form of decoration together with four feet continued into Holmul I times in the southern Peten area in a slightly modified form.

The vessel on the right (Cat. No. 188169) with restricted orifice and incised and relief decoration on an unslipped ware is not typical of the Holmul I period. It is, to anticipate, typical of the culture that preceded Holmul I in the northern and central Peten area, and has been found also in the lowest levels at Uaxactun. Sherds of vessels of this type were found at Cahal Cunil, and they are discussed on page 328. Nevertheless this type of ware continued in use after Holmul I was in full swing. There were a number of rotted bones and a few teeth, but not sufficient to account for a primary burial.

CHULTUN C, TZIMIN KAX

Chultun C at Tzimin Kax was found below the floor of Plazuela VI. It had been exposed through the root of a tree which had dislodged the chultun cover, and caused a certain caving in of the sides. Inside was found a skeleton in a very poor state of preservation. It appeared to have been placed resting on its right side with the knees slightly flexed, the left hand stretched out in front of the face, the right hand above the head. The skull was in a very poor condition, but appeared to have been twisted round so that it lay face downwards pointing to the southwest.

A number of vessels were found with this burial. In Plate XLII are shown three of the principal finds.

The vessel in the center is a tetrapod (Cat. No. 188101). It is covered with a rich orange slip on which is painted on the inside a fish in red outlined in black. The rim is painted with a red band, and there are two further narrow black bands immediately below the rim on the inside. The tops of the legs are also painted red on the outside. The colors employed are of the same shade as those of the tetrapod and globular bowl with everted lip from Chultun A. The feet are of a shape also met with at the earliest period of Holmul associated with the same low sides (see Vaillant, 1927, Fig. 218). They contain clay pellets that rattle. The vessel is made of a well mixed sandy brown paste, slightly finer than that of the tetrapod of Chultun A, and evenly fired. It was found close to the feet of the skeleton. Height 10.5 cm, breadth 26 cm.

The vessel on the right (Cat. No. 188105) is another bowl-holder of the Holmul I type but more elaborate. It is covered with the same rich orange slip noted in the tetrapod, and the same shade of red is employed as a band at the two rims. Nine small triangles have been cut away in the neck of the vessel and these are enclosed in lightly incised triangles. The paste is similar to that used in the tetrapod and is evenly fired. This vessel was found close to the left hand of the skeleton. Height 12.25 cm, diameter 14.75 cm.

The globular vase on the left (Cat. No. 188103) is of a type hitherto unreported from the earliest Holmul horizon and is in many ways more typical of the fifth period. The vessel appears to have been covered originally with the orange slip typical of Holmul I at Tzimin Kax, but of this there now remain only the faintest traces, and those only on the inside. The outside, also, was originally covered with an elaborate design in black and red, but only a little of this now remains, not sufficient to give any clue to the pattern. The paste is of a different quality, a little coarser and not so well fired. Height 11 cm, breadth 17.25 cm.

Plate XLIII shows about two-thirds of a flanged bowl (Cat. No. 188104) that was found in Chultun C also close to the feet of the skeleton. The type is somewhat reminiscent of the vessel (Cat. No. 188169) from Chultun B. The shape is the same and the decoration of the two vessels is not dissimilar. The simple band in relief with vertical "thumb-nail" marks in No. 188169 is here replaced by a scalloped flange with transversal lines on the upper surface. Above this flange is a series of inverted semicircles in very low relief resembling the three in relief on No. 188169. Finally the insides of the lips of both vessels are decorated with broad shallow incised bands. No. 188169 has only one incised band, the vessel under discussion from Chultun C three such bands. In short the vessels can be assigned without hesitation to the same general period.

Some sherds of a biscuit-barrel shaped bowl with incurved rim (Cat. No. 188106) were found in the same chultun, but are not illustrated. The vessel was covered with a deep orange slip. Below the rim the design is painted in red and black. A band of petals is carved in low relief below. The paste is well kneaded and evenly fired. The outline of the original shape is suppositious as to height, as the center of the belly of the vase is missing.

There was also found in this same chultun a ring-based plate of the period corresponding at Tzimin Kax to Holmul V. This vessel (Cat. No. 188102) was probably originally covered with a slip of light

orange of different texture to that of the tetrapod and bowl-holder in the same chultun, judging by similar vessels found in other graves. Traces of a design in red and black are visible on the upper inside, but not sufficient to allow of its reconstruction. The vessel is made of a poor red paste, poorly fired, of a different texture to that of the tetrapod and bowl-holder. Height 5.75 cm, breadth 24 cm. This vessel is so untypical in shape and texture to the general run of the Holmul I period pottery, that one is almost inclined to think that both it and the barrel shaped bowl are intrusive. Possibly a more satisfactory explanation is that the burial falls at the period of transition from Holmul I to the later period corresponding to Holmul V.

This conclusion is borne out by the presence in the chultun of a number of shell ornaments. These shell ornaments (Plate XLIII) are found frequently in burials of the later period, but have not hitherto been reported from Holmul I graves with the exception of shell beads reported from a Holmul I burial at Santa Rita (Gann, 1918, p. 75). Altogether ten of these shell objects were found in the chultun, and in such a position (between the left hand and skull of the skeleton) as almost to rule out the possibility of their being intrusive. Some of these shell ornaments in this and other burials are perforated for suspension, but the majority are not so treated. Often, though not invariably, they are found in pairs. Of the ten, two were in the shape of nine pointed stars, one was a six pointed star, and the remainder discoidal. All were plain with the exception of two of the circular ornaments. These show an incised design consisting of a circular center with four arms radiating from it with pear-shaped objects set between. Enclosing this are two bands with alternate plain and incised squares. Finally at the rim there are a number of incised lines stretching to the edge of the first band. The whole was originally brightly colored. Traces of red, yellow, and a brown or faded black are visible. Apparently the yellow was used to cover the unincised parts, while the red was used to cover the incised sections, the faded black serving as an outline for the red. This is shown by the black being found beneath the red, and it would appear that the black was first painted on, then the red was painted over the black with a thinner line. On the back there is a coating of some resinous substance, which undoubtedly served to glue the disk into a frame, which was possibly of wood. As the back of the disk is convex, owing to the original shape of the shell, the matrix must have been specially cut to receive it. There are two holes for suspension near the top, nevertheless there is no doubt that the shell was attached to a

matrix, possibly to be worn as a breast ornament, or as a face for a wooden ear-plug. The other eight ornaments no longer show any trace of this gum, but several show the marks of tools used in shaping them. There is a series of tool-made grooves about 4 mm wide on the back of one of the discoidal ornaments, which were surely made during the process of thinning down the disk, and would have served secondarily as a rough surface, to which the gum would adhere.

In addition to these shell disks and stars a gastropod with the top sliced off and six holes bored down the side was also found in the chultun. Two of the holes were unfinished.

No other burials of the Holmul I period were found at Tzimin Kax.

VAULTED CHAMBER I, CAHAL CUNIL

In Plazuela I at Cahal Cunil true stratification was encountered, two burials being found one above the other, and separated by two floors. The relations between the two burials are discussed on page 330. The under burial, which naturally represents the earlier of the two, consisted of a vaulted chamber containing pottery of the same Holmul I period as was found in Chultuns A, B, and C at Tzimin Kax.

The vaulted chamber, in which the pottery was found, was situated directly beneath Mound N. It had an internal length of 2.34 meters, a breadth of 88.5 cm, and a height from the floor to the vault slabs of 72.5 cm. The walls of the chamber consisted of unfaced and unsquared stones, mostly of small size, and chinked with small fragments of stone. No traces of stucco adhered to the walls, and it is doubtful if the walls were originally so treated, for the débris on the floor did not appear to contain stucco dust such as usually forms where stucco has peeled off the walls. The regular Maya vaulted arch was employed to roof the chamber, the slabs placed to roof the gap between the two vaults being of an unusually large size. They averaged 84 cm in length. One of them was spotted on the under side with dabs of what appeared to be a pale red paint, but may have been caused by stains from some lichen.

The chamber was built running northeast to southwest at an angle of thirty-eight degrees off true north. This is in agreement with the general axis of the plazuela. The apex of the vault was 34.5 cm below Floor 3 of the plazuela. This floor had disappeared immediately above the center of the grave, but the gap was 30 cm smaller than the breadth of the vault, thereby showing that it would have

been impossible for the vault to have been made after the laying down of this floor.

Below the floor of the grave there was a stratum 7.5 cm thick of rough limestone blocks, then below this again a thin uneven layer of black earth, varying from 1 cm to 10 cm in depth, which rested on live rock. No sherds or artifacts were discovered in this belt below the tomb.

The vault contained seven pottery vessels, five of which are shown in Plate XLIV.

The vessel on the left at the top (Cat. No. 188402) belongs to the typical Holmul tetrapod group. The slip is a highly polished deep red. The feet are mammiform, and contain clay pellets that rattle. The ware itself is made of a rather crumbly paste, poorer in quality than that of the tetrapod of Chultun A, Tzimin Kax. The lip, which is everted, is slightly thickened. Height 10.25 cm, breadth 19 cm. Another tetrapod bowl from the same vault of similar shape, ware and color is now in the British Museum.

The bowl with expanding foot on the right at the top (Cat. No. 188403) is also of a shape met with during Period I at Holmul (Vaillant, 1927, Fig. 214). Originally it was covered with a red slip, but this has been badly pitted by erosion. The paste is of rather poor quality of a brick red color. Height 9 cm, breadth 20.5 cm.

The small jar in the center (Cat. No. 188404) is almost totally un-Maya in shape and feeling. Around the shoulder are small semicircular incised lines similar to those found on many of the cooking pots of this and the preceding period. The clay used is of a peculiar soapy nature unlike that used in any other vessel of this general area with which I am acquainted. This soapy feeling, easily noticeable to the touch, applies not only to the slip, but the paste as well. The slip is somewhat thick and comes off easily in flakes, like paint flakes off an old piece of iron. The color of the slip is a dull sandy brown, the paste a yellow flecked with gray. Height 7 cm, breadth 7 cm.

Below on the right is shown a cooking pot with everted lip (Cat. No. 188406). The vertical handles are three in number, and through them passes a "thumb-nail" marked band in relief, which clearly represents a cord. In this instance this identity is established by the two sections that hang down halfway between the handles and undoubtedly represent the hanging ends of the cord. The vessel typologically belongs to the preceding period (see page 325). It is made of a poor coarse paste, and was badly fired, being a light brick

red on two sides and fired black on the other two sides. There is no slip. Height 12.5 cm, breadth 12.5 cm.

Below on the left is a unique vessel (Cat. No. 188405). The bowl is flat-based and stands on four small solid legs of the diameter of a dime at the base, about 0.75 cm high, and slightly conical. In the center of the bowl squats a very naturalistic toad complete with warts. Both the toad and the frog were intimately connected with thunder and rain god worship (Thompson, 1930, p. 150) and possibly this vessel was used in connection with some religious ceremonial. Both the bowl and the toad were originally covered with a light red slip, but of this practically no traces now remain. The bowl is made of an unusually coarse clay that is extremely gravelly and with a consistency almost like concrete. The vessel has been unevenly fired. One side is badly overfired, and the other shows slight black markings. Height 7 cm, breadth 21.25 cm.

There was a further cooking pot of the olla type (Cat. No. 188407) in the vault made of a coarse unslipped paste, which is also somewhat gravelly. The color is a mauve-black. There is no decoration, but the pot is provided with an unthickened everted rim. Approximate height 10.25 cm, approximate width 13.5 cm.

A pair of large jade ear-plugs now in the British Museum (Field Cat. No. 278) was also found with the pottery. One was smashed in fragments, the other had a diameter of approximately 6.5 cm. Together with these were two long tubular beads each of a light gray green jade and 16 cm long. There was also found an obsidian knife flake. The only skeletal material found in the burial vault was two or three small pieces of bone that might have been human, but were too fragmentary to be identified.

This burial supplies evidence, then, that during Holmul I times the Mayas were already utilizing excellent jade, although undecorated.

BURIAL III, CAHAL CUNIL

Immediately beneath Floor 3 of Plazuela I at Cahal Cunil, and about 2 meters east of the south half of Mound N was found a very interesting burial (see Fig. 16). The tomb, which was lined with stone and built at an angle of thirty-one degrees magnetic, was 1.75 meters long, and had a total depth of 81 cm. The sides were not parallel, but starting at the northeast end with a width of 50 cm, gradually widened until they were 59 cm apart at the center, then converged again until at the southwest end they were only 54 cm apart. There was no arched vault, but the roof consisted of a series

of flat limestone slabs laid across the top. These slabs were of considerable size, the measurements of two of them being 1.12 meters long by 56 cm wide, and 1.30 meters long by 43 cm wide respectively. They varied in thickness from 5 to 15 cm, and were joined together by *mezcla*. The floor of the tomb was covered to a depth of 28 cm with a dusty soil, in which were found the remains of seven skeletons. The northern half of the tomb was occupied by two of these, which had been seated facing north with outstretched legs crossed, in one case above the knees, in the other case a little above the ankles. The remaining five skeletons had been jammed into the southwest half of the tomb, first two abreast, then a single skeleton, then two more abreast at the end. The skulls, which all faced toward the northeast end, were found associated with the ribs, but the long bones were in inextricable confusion. The articular surfaces had been destroyed in most cases, and only one skull was in a sufficiently good state of preservation to be retained. In the division of finds this skull fell to the British Honduras Government, and was sent to the British Museum. There it was examined by Dr. G. Elliot Smith of the Institute of Anatomy, University College, London, and Corresponding Member of Field Museum, who very kindly sent me the following information:

"The skull is that of a youth of from eighteen to twenty years of age, whose skull shows the same type of deformation [as that described on p. 321] but in a more extreme form, in particular the asymmetry of the occipital region is very much more extreme than it is in the older person [p. 321]. It is not possible to determine the precise age, but as the third molar was only recently erupted and the other teeth show no sign of wearing, I should think the smaller figure that I have given you is more likely to be the correct one. The sex is male."

Obviously seven corpses with the flesh still adhering could not have been placed in this narrow tomb, and the burial of most, if not all, of the bodies must have been secondary. There was, unfortunately, no funeral furniture, save one large sherd of an olla, on which rested the skull described above. There is no distinguishing character in its shape that would enable this sherd to be assigned to any particular cultural period. Actually the ware is the same as that of most of the smaller ollas found in the fill under Plazuela II at Cahal Cunil (p. 328 and Fig. 18). The paste is the same rather coarse gravel colored a very striking red brown. The polished surface is the same rough violet black color. This ware appears to pertain to two periods.

The deposit under Plazuela II probably belongs to a pre-Holmul I period (p. 330) and the ware is also found on the Holmul I horizon. The small olla (Cat. No. 188407) from Vaulted Chamber I, Cahal Cunil, is of exactly similar ware (p. 292), and this burial actually belongs to the Holmul I period. As Vaulted Chamber I, Cahal Cunil, and Burial III, Cahal Cunil, are in the same plazuela and under the same floor (Floor 3), they are probably of the same date. Thus we can assign this burial with some certainty to Holmul I, noting at the same time that in the Mountain Cow District multiple burial, secondary burial and head deformation occur in the Holmul I period.

SUMMARY OF HOLMUL I BURIALS

Around Mountain Cow Water Hole there flourished a culture, the pottery of which is similar to that found in the earliest period at Holmul in general shapes but the ware and decoration are inferior. The discovery of these four groups of pottery considerably expands the types that comprise this culture. This culture was shown by Vaillant to have preceded Holmul II to V at Holmul, and evidence is given on page 330 that in the Mountain Cow Water Hole district Holmul I was earlier than Holmul V. The intervening periods II to IV do not seem to occur in this area. This would not appear to be due to an abandonment of the locality over a considerable period, as in Chultun C at Tzimin Kax both periods occur in what is probably a transitional stage. Possibly Holmul I continued to flourish in this peripheral region after it had disappeared in the type locality. It is even possible that its first appearance in the Mountain Cow area was subsequent to its disappearance at Holmul through a delayed diffusion to the former locality from its original center, wherever that may have been. Head deformation, secondary and multiple burials, worked jade ornaments, obsidian blades, and vaulted burial chambers are found in this period.

On the other hand, in the Holmul I period around Mountain Cow cooking pots are found that belong also to the preceding period (p. 330). Vessels of this type occur in four of the five groups of Holmul I material described above. The tetrapod shapes and the decoration on one vessel in particular (Cat. No. 188170) are in all probability a survival from the "archaic" cultures, widespread over middle America.

In the tabulation of burials of Holmul I period given below the following shapes occur at the type locality:

Tetrapods with mammiform legs and round bottomed bowls (Vaillant, 1927, figs. 205–208).

Tetrapods with slightly tapering legs and flat low sided plate (*op. cit.*, fig. 218).

Bowl-holders (*op. cit.*, fig. 212).

Bowls with expanding feet (*op. cit.*, fig. 214).

TABULATION OF BURIALS OF HOLMUL I PERIOD

Burial letter or number	A	B	C	I	III
Locality	T.K.[1]	T.K.	T.K.	C.C.[1]	C.C.
Chultun	x	x	x		
Stone chamber				x	x
Tetrapod	x	x	x	x	
Breast shaped feet	x	x		x	
Cylindrical feet			x		
Bowl stand	x		x		
Globular jars with constricted neck	x	x	x	x	x[4]
Incised and modeled relief on jars		x	x	x	
Globular bowl			x		
Ring based bowl without flange		x	x		
Hard, well fired paste	x	x	x	x	
Paste of not very good quality			x	x	
Good, hard slip	x	x[3]	x		
Slip of poor quality			x	x	
Worked shell objects			x		
Stone implements				x[2]	
Jade objects				x	
Head deformation	?	?	?	?	x
Single burial	x	x	x	x	
Secondary burial	x	x		x	x
Multiple burial					x

[1] T.K. designates Tzimin Kax, and C.C. Cahal Cunil.
[2] One obsidian knife blade only.
[3] Slip not so good as burial in Chultun A.
[4] One sherd of olla only.

HOLMUL V PERIOD

Mound A of Plazuela II at Tzimin Kax yielded a crop of burials of the Holmul V period. This mound (Fig. 2, a, and Fig. 3) was situated on the east of the plazuela, and it may be no more than coincidence that so many burials seem to have been associated with mounds on the east side of plazuelas.

VAULTED CHAMBER II, TZIMIN KAX

This vaulted chamber was situated in the center of Mound A of Plazuela II. It was the most elaborate found, being provided with a lateral passage and stairway leading down into the chamber

(Fig. 10, a). The tomb was built running north and south with an angle of four degrees magnetic. The walls of the chamber and the false arch were very well made of roughly dressed slabs of limestone of different sizes, but usually rather flat. These stones were evenly laid so as to form a fairly flat surface. Chinks and holes between the stones had been filled in with small fragments of limestone. The corners of the vault were slightly rounded. The lateral passage and steps were also covered with a Maya vault. Presumably the whole interior had once been covered with a coat of stucco, but of this no traces now survive, although the dust and soil on the floor of the tomb might well, to judge by its color, have been formed to a certain degree by powdered stucco plaster, that had fallen from the walls and roof.

The upper sections of the two ends of the chamber slope in just as the vault of the sides. This is not an uncommon feature in Maya construction. At the corner where the stairway debouches on to the chamber both arches were prolonged till they met. This is the usual Maya method of dealing with this architectural problem, and is best exemplified by the vaulting in the "Castillo" at Chichen Itza.

Unfortunately the entrance at the mouth of the lateral passage had partially collapsed. Apparently the mouth had been sealed up in ancient times with a short wall of stones, but the upper tiers had been removed, possibly by the uprooting of a large tree, the roots of which had forced their way between the stones. Consequently the contents of the tomb had been badly damaged by the acids exuded by the decay of the numerous leaves that had been blown in and by the droppings of generations of bats. More serious damage had been done by rodents, which from time to time had used the chamber as their den. They had smashed many of the pottery vessels into fragments, and would appear actually to have removed fragments from the chamber. Many vessels were found only half complete, although every kerosene can load of soil was carefully worked over by hand. In fact sherds of vessels were found outside the chamber that fitted on to fragments found inside. The former were found just below the surface. The entrance of the vault was too small, when discovered, to admit of the entrance of a person who could have removed them from the tomb.

Scattered around the chamber and mostly in fragments were found twenty-five complete and incomplete vessels, a shell necklace, a stone ax, a spearhead blade, a small jade ear-plug, a jade button, two very small jade beads, thirteen shell buttons of varying diameter,

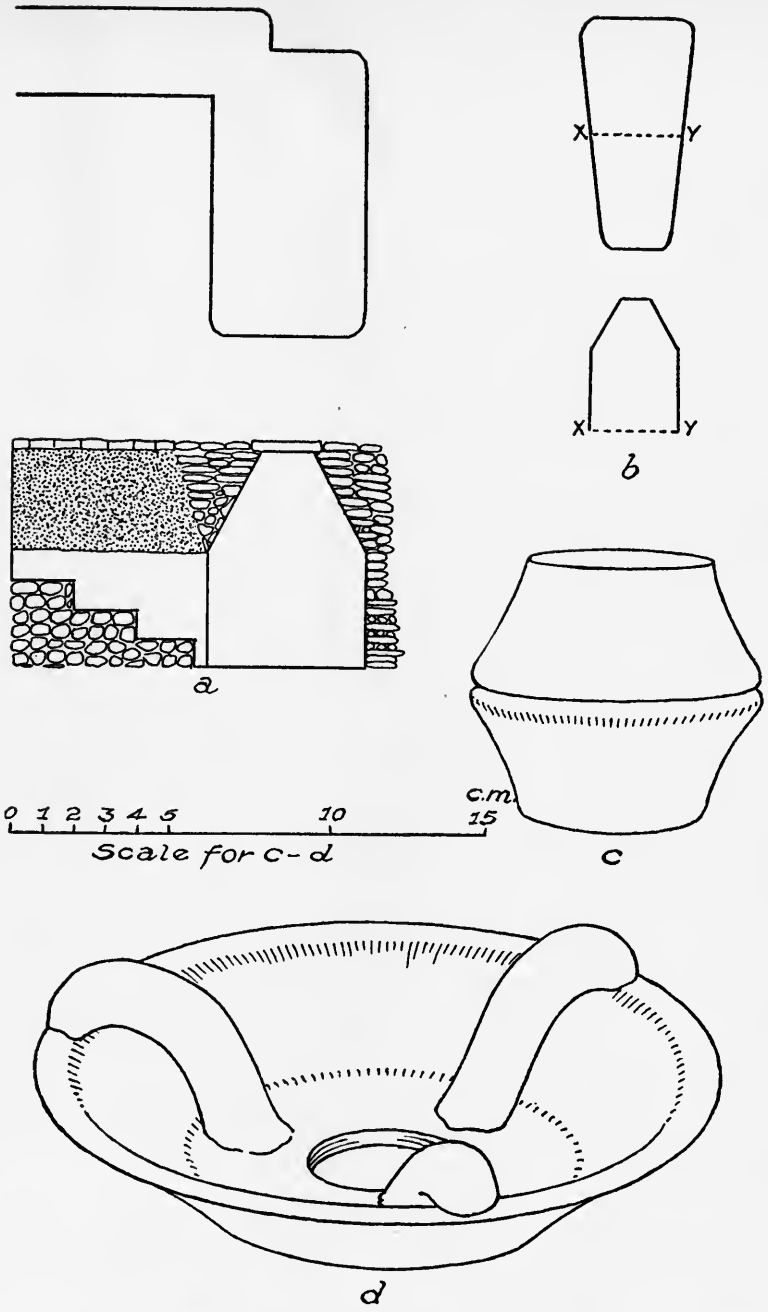


FIG. 10

Ground Plans and Cross-sections, Tzimin Kax: a, Vaulted Chamber II; b, Vaulted Chamber I.
c, Pottery Vessels from Burial IV, Tzimin Kax.
d, Vessel from Mound F, Cahal Pichik

and some fragments of obsidian knife-blades (Cat. Nos. 188053–188084 and 188123–188155). The principal shapes encountered are shown on Plate XLV and Fig. 11.

The commonest shape found in this grave, or indeed on this cultural horizon, is the ring-based plate. Of the twenty-five vessels found in this chamber no less than eleven were of this type. There are small variations as to size and as to depth. Most of them are around 29 cm wide and from 5.5 to 6 cm high (Fig. 11, k). These plates were originally all painted in red and black on an orange ground, but the paint in most cases has disappeared from almost all, if not all, of the surface and there remains only the unslipped paste worked down to a smooth surface. The paste is poor and unevenly fired. The color ranges from a deep black to a dull light red, and the vessels in their present slipless condition are semi-porous.

Where the design has partially survived it is clear that in every case it was divided into two zones by means of bands of black and red paint of varying thickness that pass around the interior dividing the rim from the base. The rim zone was occupied either by a series of similar bands or simple geometric designs. The base of the interior of the plate was occupied by designs also executed in red outlined in black on an orange base. These designs appear to have been paintings of reptiles, animals and other subjects treated in a very conventionalized manner. However, in no case are the designs from the center of the plates from this vault sufficiently preserved to allow of the identifications of the subject. No. 188068, now in the British Museum, has a design that might represent a conventionalized feathered serpent. No traces of paint are noticeable on the outsides of these plates except for a single red band directly below the rim. They are very often carelessly made, the rims sagging down at various points in a warped manner. Undoubtedly the potters relied for their effect very largely on the painted designs, and now that these have disappeared with the lapse of centuries the plates have a poor appearance.

In one case (Cat. No. 188070) there is a small groove encircling the interior of the plate about 3.5 cm from the rim. This undoubtedly served the same purpose as the painted bands which divide the rim decoration from that of the center of the plate.

In another case (Cat. No. 188119) there is the same interior incised groove combined with a flange which encircles the exterior of the plate at the same distance from the rim. This plate is now in the British Museum.

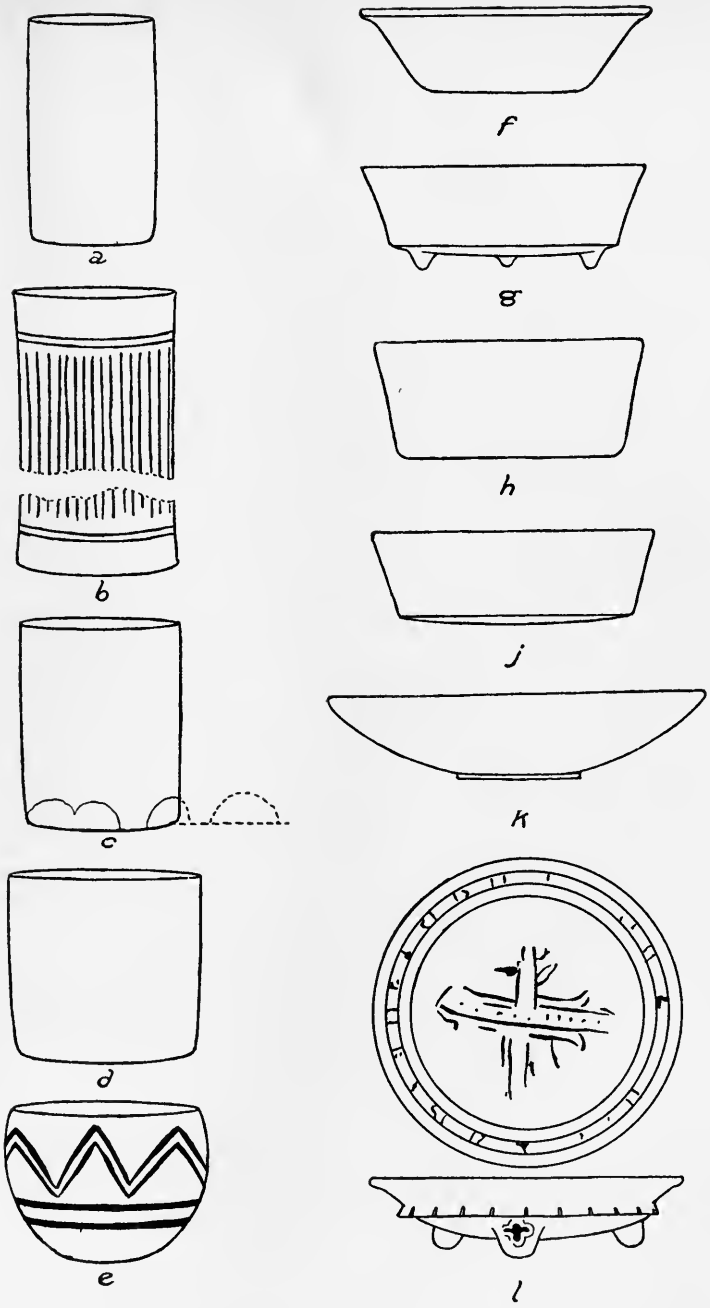


FIG. 11

Pottery Shapes, Vaulted Chamber II, Tzimin Kax, Holmul V Period
One-sixth actual size

The second commonest shape found in this chamber is that of the flat-based cylindrical jar. Of this type nine examples were found in this burial, most of which were fragmentary. They can be subdivided into two groups, those with high sides and narrow diameter and those with low sides and wide diameter.

The jar (Cat. No. 188067) shown in Fig. 11, a, is typical of the first group of which only four examples were found in this burial. The vessel was made of a thin paste of rather poor quality and underfired. It was covered with a black slip which tends to rub off leaving a ruddy brown surface which shades to olive. Height 18.5 cm, diameter 10.25 cm.

The second jar of this group of vessels with high sides and narrow diameter is No. 188072. The paste is of very good texture and has been well fired. The outside was covered with a light cream slip on which had been painted horizontal red bands below the rim. Below these the surface had been divided into panels by vertical red bands. Each panel contained a design in red and black on the cream background, but of this nothing now remains save a few daubs of red and some black spots on cream bands outlined in black. The vessel, when new, must have borne a strong resemblance in shape and color to a cylindrical jar from Yalloch now in the Museum of the American Indian, Heye Foundation, and illustrated by Gann (1918, plate 26). The base is unfortunately missing from No. 188072, and it is, therefore, impossible to give the original height. Present height 15 cm, diameter 9.5 cm.

The base and fragments of the rim of a third jar of this sub-group were also found. The vessel (Cat. No. 188227) was made of a poor paste badly fired and was covered with a deep umber red slip. At least one vertical groove ran from top to bottom of the outside, but this was the only decoration. Diameter 10 cm.

The last jar of this sub-group (Cat. No. 188118) is remarkable for its great height. It is made of fairly good paste rather thick and covered inside and out with the black slip that tends to rub off, but which in this case has a certain polish. Height 22.5 cm, diameter 11 cm.

Of the second group composed of cylindrical jars of wide diameter and comparatively low sides five examples were found in the vaulted chamber. All of these except one had been covered with the black slip that tends to rub off leaving a dirty olive brown surface.

A typical example is that shown in Fig. 11, d. This jar (Cat. No. 188177) differs, however, from the rest found in this chamber in

having the base very slightly rounded; all the rest have the base perfectly flat. A scarcely noticeable vertical curve exists, a feature not found in the other jars. The vessel is made of a poor paste badly fired, and is slipped both inside and out with the black slip to which reference has already been made (height 15.5 cm, diameter 14.25 cm).

A feature of peculiar interest is found in the cylindrical jar (Cat. No. 188288). Close to the base three small circles have been cut out to a depth of about 0.25 cm. These are not quite complete, the base cutting off a small arc. Two of them are joined together, the third is separate (Fig. 11, c). Presumably they were filled with some decorative element which has now disappeared, possibly a different colored clay, pieces of carved wood, bone or shell. The technique might be described as crude cloisonné. The vessel is made of a fairly good clay, fairly well fired and covered with the usual dull black slip that tends to rub off (height 16 cm, diameter 12.5 cm).

A few fragments of a jar of wide diameter were found with a white cream slip with a red band just above the base. The sides are very thick (75 mm) and the paste is of yellow sandy color.

Sherds of a jar (Cat. No. 188123) recovered show that incised lines were also employed at this time. The jar, which is incomplete (Fig. 11, b), has been poorly decorated; the lines are not parallel and the spacing between them is uneven. The vessel was underfired and the paste is black all the way through. The slip is of the easily rubbed off black variety. A section from the middle of the jar is missing and it is therefore impossible to give the height, but it must have exceeded 19 cm. The diameter is 12.5 cm.

Fragments of two or three other cylindrical jars were found, but in no case does sufficient remain to allow of a reconstruction of their shape.

Probably the finest vessel found in the tomb is the tripod bowl (Cat. No. 188073) shown on Plate XLV, Fig. 3, and Fig. 11, l. This vessel is now in the British Museum. The design on the inside is red outlined in black on a cream base. The design, unfortunately, is somewhat effaced. The legs, the sides of which are rather thick and decorated with a cutaway in the shape of a cross, are hollow (height 7 cm, diameter 25 cm).

The second tripod bowl (Cat. No. 188064), shown on Plate XLV, Fig. 1, is covered with the same black slip of poor quality already noted in connection with the cylindrical jars. Both this bowl and the one previously described are provided with flaring flanges with deeply incised vertical lines. Height 6.75 cm, diameter 26.75 cm.

The only other tripod vessel found in this chamber is the bowl (Cat. No. 188077) shown on Fig. 11, g. This is a vessel of poor paste covered with a well burnished red paint, which, however, flakes off very easily. The base is slightly rounded, and the legs are solid. Height 7.5 cm, diameter 21 cm.

Two round-based bowls were also found in the vaulted chamber. Both are straight-sided.

The first (Cat. No. 188063) is made of an underfired paste which was originally covered with a cream slip (Fig. 11, e). Over this had been painted a design in red outlined in black and enclosed in horizontal bands. Practically all this design has disappeared. All that remain are traces of horizontal bands and some diagonal lines in red. Height 11.25 cm, diameter 15.25 cm.

The second bowl (Cat. No. 188093) is of the same shape, but the paste is of better quality. It was covered with a bright red slip which has largely disappeared. Height 13.75 cm, diameter 16 cm.

The bowl (Cat. No. 188066), shown on Fig. 11, h, has a very slightly rounded base. It was originally covered with the same black slip that tends to rub off to a dirty brown and which was used so frequently to cover the cylindrical jars. The clay was very badly kneaded as it is full of small holes and was also underfired. Height 9.25 cm, diameter 20 cm.

A bowl of the same general type (Cat. No. 188074) is shown on Fig. 11, j. This had been covered with a light red slip of high polish, which easily rubs off. Height 7.5 cm, diameter 23.25 cm.

The bowl (Cat. No. 188071) with flaring rim shown on Fig. 11, f, does not appear ever to have been slipped. The walls are thick and the paste is a dull red brown. The firing is uneven, the base and one side having been overfired. The base is flat. Height 6.5 cm, diameter 21.25 cm.

The last shape found in this grave is represented by a very beautiful shallow bowl (Cat. No. 188092) shown in Plate XLV, Fig. 2. The vessel is made of a rather soft clay poorly and unevenly fired. The inside and the upper half of the outside are covered with a bright well-burnished red slip. The slip on this vessel is the same as that used to cover vessels 188077 and 188074. Height 5.75 cm, diameter 25.75 cm.

On Plate XLVI are shown a number of the smaller objects found in the vault. The necklace has, of course, been restrung, the perforated shells having been found scattered all over the floor of the

chamber. They belong to the *Olividae* family, and must have been brought from the coast in trade. The leaf-shaped spear-point is of a honey-colored flint and a very fine example of pressure flaking, having at its point of greatest thickness close to the butt a thickness of a little less than 4 mm. Length 15.5 cm, breadth 6.25 cm.

The ax-head is made of granite and is remarkable for the backward curve of the cutting edge. As a general rule Maya axes from this area, or indeed, to the best of my knowledge, from any area, have either a straight cutting edge, or one that is convex, but with a symmetrical curve in relation to the sides. This specimen is now in the British Museum.

A small jade ear-plug (Cat. No. 188088) not shown on the plate was also found. This is of a very beautiful apple green color, and is now in the British Museum. It is wide at the top, but the sides slope inwards to form a short line at the base. There are two incised lines forming a Saint Andrew's cross, and the back was pierced transversally, but one of the holes has broken away.

With these objects were found a number of scattered and broken fragments of bones and three almost complete sets of teeth. Unfortunately, the teeth, which were the only skeletal material worth saving, were thrown away in error before they could be examined with care. Their large number would suggest multiple burial, which was probably secondary.

VAULTED CHAMBER I, TZIMIN KAX

This burial was found below the eastern edge of Mound A of Plazuela II, the mound in which Vaulted Chamber II was found (Fig. 3). The edge of the mound covered the top of the chamber when it was found, but this may have been due to the side of the mound having collapsed to a certain extent. In all probability the chamber was originally made just touching the front of the mound. In any case the vaulted chamber was constructed in relation to Vaulted Chamber II, as they are parallel, and the pottery types of both chambers belong to the same period.

The tomb was oblong with the corners slightly rounded. The length was 1.80 meters and the breadth at the south end 90 cm, but this tapered down to a breadth of 53 cm at the north end. The total height was 1.02 meters, the spring of the vault occurring at a height of 66 cm from the floor. The widest end pointed to seven degrees west of magnetic south (Fig. 10, b).

Inside were found the very damaged remains of a skeleton lying apparently on its left side with skull at the south end and placed midway between the two walls of the chamber. The knees were flexed and almost touching the west wall about halfway down the side. Below the knees the legs were turned back so that the feet rested in the center of the tomb and about 30 cm from the north end. No teeth were found in the tomb, although a very careful search was made. This would suggest secondary burial.

Close to the remains of the skull and placed upside down was the ring-based bowl (Cat. No. 188051) shown in Fig. 12, b. The paste is of poor quality and very lightly fired. The inside was originally covered with an orange slip on which the design has been painted in red outlined in black. The decoration on the inside immediately below the rim is somewhat worn, but appears to have consisted of alternate sections in black and red. The red has almost entirely disappeared. The saurian-like monster depicted may be meant to represent Itzam-kab-ain, "the whale with crocodile feet," an earth deity mentioned in the legend of the creation in the Chilam Balam of Chumayel (Martinez, 1910). Height 8.5 cm, diameter 30 cm.

Resting on its side and with its mouth against the west wall about the center was found the second vessel (Cat. No. 188050) shown in Fig. 12, a. The vessel is a ring-based bowl of fairly good ware. The design on the inside was painted on an orange base in black and red. It represents a bird's head, and may be that of a heron known to the Mayas as *sakbok* (cf. Tozzer and Allen, plate XV, fig. 1). Height 8.25 cm, diameter 23.5 cm.

Close to the feet of the skeleton were found the fragments of a tall cylindrical jar (Cat. No. 188052) of the same type as those already described from Vaulted Chamber II. The jar had been smashed into a thousand pieces by the fall of some stone, and was beyond repair. The paste is rather friable and underfired, there being a black line down the center. On an orange base a design had been painted in red outlined in black. It is impossible to reconstruct the design, and one can not say more than that it contained a number of spirals and curves and appears to have been very similar in shape and decorations to a Holmul V vase (Vaillant, 1927, fig. 242). Nothing else was found in the tomb except part of the broken hand of a metate.

VAULTED CHAMBER III, TZIMIN KAX

This burial vault was also associated with Mound A of Plazuela II. It was to the south of, and in line with, Vaulted Chamber II, to

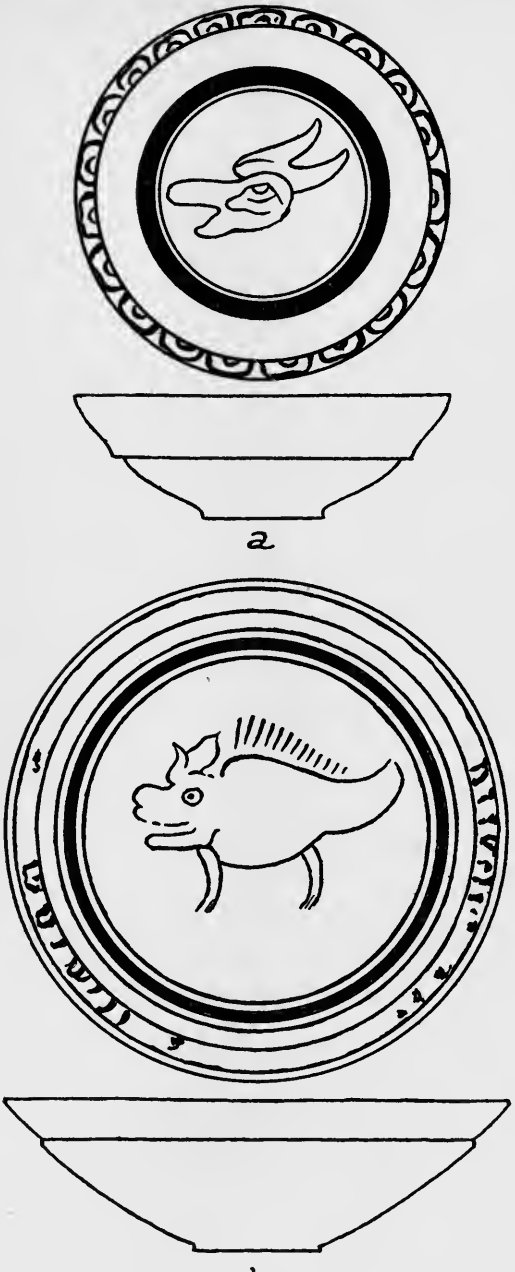


FIG. 12
Pottery Shapes, Vaulted Chamber I, Tzimin Kax, Holmul V Period
One-fourth actual size

which both in size and shape it is very similar (Fig. 3). Unfortunately the contents of this burial, too, had been badly damaged by a large feline, probably a jaguar, which had used the vault as its lair after the collapse of two of the vault slabs. Its skeleton was found about a foot above the floor of the burial, mixed up with broken pottery.

Inside the vault were found pieces of pottery of various types. Ring-based bowls of the type found associated with the two previous burials also occurred in this tomb (Cat. Nos. 188363, 188366, 188371, 188372; Fig. 13, f). There are two further vessels of this type now in the British Museum (Cat. Nos. 95 and 125 of Second Expedition). They are similar in every way to the flangeless kind illustrated on Fig. 11, k.

A ring-based bowl with flange (Cat. No. 188347) found in the vault is shown on Fig. 13, k. The vessel is made of a poor friable clay, which was apparently covered with a brown-orange slip, but of this there remain practically no traces. The flange is exceptionally wide and the lip of the vessel is everted. The shape is somewhat reminiscent of Holmul II (Vaillant, 1927, fig. 227). Height 9.5 cm, diameter 23.75 cm.

Figure 13, h, shows another type of ring-based bowl (Cat. No. 188344). This vessel is made of a better clay than that usually employed during this period, and was covered with a deep red slip both inside and out. Height 7.25 cm, diameter 23.75 cm.

Another type of ring-based bowl (Cat. No. 188365) from the same vault is shown on Fig. 13, j. This vessel is incomplete, but enough remains to allow of its reconstruction. The paste is rather coarse, and unevenly fired. There is a small groove below the inverted rim. Height 13.5 cm, diameter 30.5 cm.

Yet one more variation of the ring-based bowl was encountered in this burial. This is the plate (Cat. No. 188349) with ring-base, three small conical feet with rattles, and vestigial flange shown on Fig. 13, e. The vessel was originally covered with a dull red slip, of which little now remains. Height 4.75 cm, diameter 20.5 cm.

In addition to this vessel combining three legs with a ring-base, there were two other tripod vessels in the grave. The first (Cat. No. 188348) is shown in Fig. 13, d. The shape is typical of the Holmul V period (Vaillant, 1927, fig. 215 and Joyce, 1927, p. 103). The paste is well made and evenly fired. It is covered all over with a heavy creamy white slip on which a design was originally painted. Of this, unfortunately, there remain but few traces. On the inside

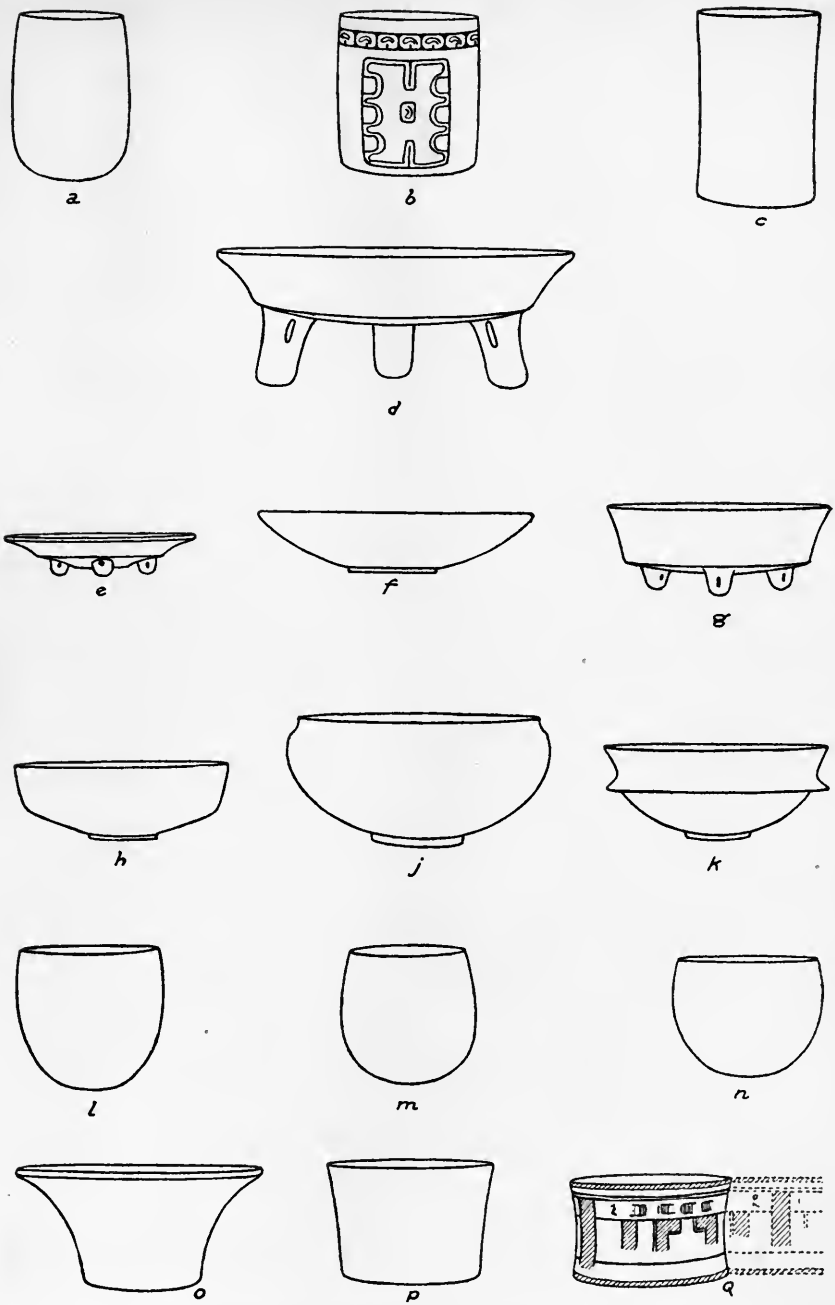


FIG. 13

Pottery Shapes, Vaulted Chamber III, Tzimin Kax, Holmul V Period
One-eighth actual size

there remain only a series of parallel red stripes which start about halfway down the inside and continue on to the base, and two horizontal bands which encircle the side above the point where the vertical stripes begin. The outside above the base was painted black on the same creamy white base, and the legs, which are hollow and contain clay rattle pellets, were painted red on creamy white. However, in neither instance does enough of the pattern remain to allow of a reconstruction of the design. When new this vessel must have been a very beautiful specimen. Height 13.75 cm, diameter 34.5 cm.

The other tripod bowl (Cat. No. 188350) is shown on Fig. 13, g. The vessel has rather thick walls of a poor clay. It was covered with an orange slip on which was painted both inside and out a design in red and black. Few traces of this now remain, but it is possible to note a red band on the inside and the remains of a curvilinear pattern in black as well as two narrow black bands below the red. The legs are hollow and contain pellets. Two of them have four vertical slits made for baking purposes. The other leg has only two slits. Height 9.5 cm, diameter 23.75 cm.

Cylindrical jars were well represented among the contents of the vault. The finest (Plate XLVIII) is now in the British Museum (Field Cat. No. 103). The incised monkey is rather hastily executed, but, if not examined too closely, would pass as a very naturalistic representation of a spider monkey in a typical attitude. The jar is covered with a black slip, and can be placed in the category of tall cylindrical jars with narrow diameters (see p. 300). Height 26 cm, diameter 11.5 cm. The band of hieroglyphs around the top is shown in Fig. 14, c. Similar monkeys are found on pottery from Pusilha, Copan, the Uloa Valley, Yoxiha, and other sites.

Another cylindrical jar with incised design is shown on Fig. 13, b. This jar (Cat. No. 188343) is made of a poor rather gritty underfired paste. It has been covered with an olive black slip of the type described on page 300, which varies in color according to the intensity of the firing, and the amount of rubbing and wear it has undergone. On the outside it shades imperceptibly from a brick red through dull brown to an olive black. The design is in intaglio, there being three panels containing the same design. Height 16.75 cm, diameter 13.75 cm.

No illustration is given of an undecorated cylindrical jar (Cat. No. 188342) as the shape is the same as that of the jar described above. The paste and slip are the same, although in this case the

color is a more uniform olive black. The basic paste as in the above case is black. Height 15 cm, diameter 13.75 cm.

On Fig. 13, c, is shown an exceptionally tall cylindrical jar with flat base (Cat. No. 188370). The paste is of very poor quality, and has been covered with the usual olive black slip. Height 21 cm, diameter 13 cm.

Fig. 13, a, shows a drawing of another cylindrical jar (Cat. No. 188362) of poor paste and the same olive black slip, but with a slightly rounded base. Height 17 cm, diameter 11.5 cm.

A squat jar with flat base and slightly flaring sides (Cat. No. 188379) is illustrated in Fig. 13, p. The paste has a light olive color and has been very lightly fired. The walls and base, which are exceptionally thick, have been covered with a light brown slip shading into black. Where the slip has worn off, the paste presents a very rough and coarse appearance, and disintegrates very rapidly. Height 11.75 cm, diameter at top 16.75 cm.

There were four round-based bowls with straight sides. Of these the finest, indeed the finest vessel found in the Mountain Cow area, is shown on Fig. 14, a.

This bowl (Cat. No. 188346) is made of a sandy colored paste which has been covered over with a pale cream slip. On this has been painted the design in red outlined in black. The scene represents men carrying birds on their backs. Originally they were probably five in number, but only one figure is in a fairly good state of preservation. The men are shown with their heads turned to the left, but their bodies face straight to the front. A grafite at Tikal (Maler, 1911, Fig. 15) shows a head-dress similar to that of the figures on the vase. The short trunks worn by the men appear to resemble those depicted on a number of stelae at Naranjo and other sites. These stelae date from different Katuns of the great period, but the three sculptures that appear to bear the closest resemblance are those found on Stelae 6, 7, and 8. These three monuments date from the period 9.17.0-0-0 to 9.19.0-0-0. The conclusion is elsewhere (p. 333) reached on other grounds that this burial dates from about this period. Probably the vessel is a trade piece, manufactured in some other city and exported to Tzimin Kax. The birds which the men carry on their backs can not be identified with certainty, but probably represent ocellated turkeys. Above the main scene is a series of identical glyphs representing a very conventionalized head with a "wing element" behind, and in front a bar which may represent the

number five. Originally there must have been fifteen of these glyphs. The bowl has a height of 14.5 cm, and a diameter of 15.25 cm.

The bowl (Cat. No. 188361) shown in Fig. 13, l, differs from the painted bowl just described in having the sides slightly curved, the diameter below the center being a centimeter less than at the rim. The vessel is made of a firm paste, well fired. The slip is the usual olive black. Height 13.5 cm, greatest diameter 13.5 cm.

Another bowl of the same type (Cat. No. 188367) is shown in Fig. 13, m. The paste is underfired and covered with the same olive black slip, which in the bowl in question tends more to a ruddy brown on the outside, possibly because of underfiring. In the case of all bowls and cylindrical jars, the greatest heat appears to have been applied on the inside. Height 11.5 cm, greatest diameter 13.5 cm.

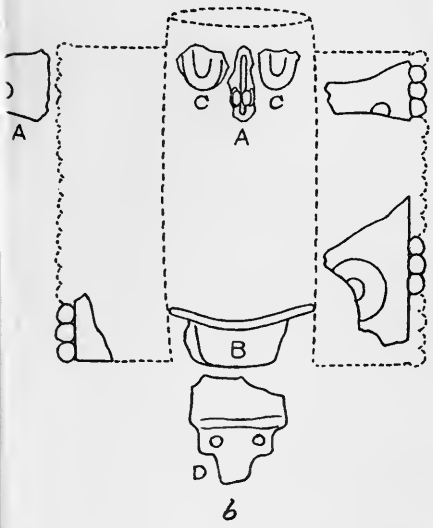
Yet another bowl of this type, also underfired and covered with the olive black slip (Cat. No. 188369), is not illustrated. This vessel has never been repaired and it is, accordingly, impossible to give its dimensions.

Two bowls with flaring sides are shown in Fig. 13, q and o. The first (Cat. No. 188345) is a very fine example of Maya ceramic art. The paste is of average quality, but rather poorly mixed, there being many small holes in the texture. The inside is covered with an orange cream slip, on which are painted two red bands, one broad at the rim, the other narrower just below it. The outside of the vessel is covered with a creamy white slip on which is painted in red and black the design shown in the figure. The red is very deep and highly burnished. The lateral elements of the upper design are, unfortunately, partly obliterated. The base is slightly convex. Height 10.75 cm, greatest diameter 18 cm. The vessel may have been imported.

The second bowl with flaring sides (Cat. No. 188364) is very different. The paste is coarse and contains a high proportion of gravel, and is badly underfired. The firing, too, is uneven, with the result that one side is blackened. There is no slip, but the paste varies in color on the outside through brown to black. The inside is a uniform black. Height 12.5 cm, greatest diameter 25.5 cm.

With the other pottery pieces found in this vault were the remains of an incense burner with wings (Cat. No. 188378). The incensario was made of coarse pottery only very slightly fired, and had to a very large extent disintegrated back into the soil. This vault was excavated in January before the close of the wet season and when the soil

a



b

c

FIG. 14

Objects from Vaulted Chamber III, Tzimin Kax, Holmul V Period:
a, Polychrome Bowl; b, Restoration of Incensario;
c, Glyphs from Jar on Plate XLVIII

held a very high percentage of water. Due to the hole caused by the collapse of two of the vault stones the water from the mound seeped down into the vault destroying to a large extent porous pottery and skeletal material. In fact those fragments of the incensario that had not disintegrated entirely could be pared with a knife as easily and with as little resistance as one would cut a piece of cheese. The receptacle, presumably at the base, had been used to hold copal, for on cleaning out the dirt in the corners a smell of copal was very noticeable. This class of vessel has always been termed incense burner or incensario, but previously this classification had been based on surmise. This single example serves to prove that incense burners of this type were in use in Holmul V times. As its contemporaneity depends on this single find, it would be as well to state that fragments of the incensario were found on the floor under skeletal material and under pottery, and could not have fallen into the vault after the collapse of the vault stones. A reconstruction of the vessel is shown in Fig. 14, b. The nose is marked A, the receptacle B, and what may possibly have been the eyes C. The outlined portion represents the actual parts brought back to the Museum, the rest is reconstruction based on the incensario shown on Plate XXVII and on other fragments excavated but abandoned at Mountain Cow Water Hole. The vessel was, apparently, supported in front by a "Tau" shaped foot, marked D on the drawing. The back is concave to fit on the round face of the jar. There were also found three or four rather large sherds of ollas which are not illustrated, as they were found above the rest of the grave material and may well have fallen into the grave with other débris on the collapse of the two coping stones.

On Plate XLVII are shown a number of the shell gorgets and ornaments found in the vault. The specimen in the shape of a six-petaled flower is one of a pair, the other being in the British Museum. There were also two further gorgets with cut-out designs of the same general type, as well as others of diamond and star shape. These are now in the British Museum.

No jade or stonework of any kind was found in the grave.

On the floor of the vault were the remains of six jawbones and many fragments of long bones, unfortunately in too poor a state of preservation to be recovered. The jawbones, fragments of skull, and teeth occupied the center of the vault, and on top and around were scattered large quantities of bones. The long bones indicated that several skeletons had occupied the vault. Squeezed as tight as possible not more than two bodies could have been buried in the vault

at one time. It does not seem likely that the vault was reopened from time to time to allow of fresh burials, an unlikely procedure when one considers that the grave was sealed with the usual copestones, and that there appeared to be a few inches of mound over these. One must, then, fall back on the conclusion that secondary burial was practiced and that the skeletons, after being exposed to the atmosphere or buried in an ant heap, were piled into the vault. This is borne out by the fact that the majority of the teeth required for six jawbones were not found. Against this it might be argued that the jawbones were trophies worn by one or two warriors, as Landa describes, but in refutation one can cite the large numbers of long bones and the assumption that a warrior, who wore trophy jawbones, would at least take measures to prevent the teeth falling out. Finally attention has already been called to the probable practice of secondary burial at this site in earlier times (p. 293) and further evidence is presented on page 287.

A fine example of filed teeth was found among the skeletal material (Cat. No. 188351) and is illustrated on Plate XLVII. The two central incisors of the upper jaw are filed half across, and the outer incisors as well as the canines are filed straight across. This method of filing is that associated with the sun god (Schellhas God G), this god being very frequently depicted with this form of tooth mutilation.

In addition to these teeth filed across several teeth were also found in the same vault which had been filed downwards. Two examples are shown on Plate XLVII.

On the same Plate is shown a tooth that is both filed at a right angle and has been drilled for the insertion of a filling, which, unfortunately, had fallen out and was not recovered. This was found in the same vault.

BURIAL VII, TZIMIN KAX

Burial VII was found beneath the east mound of Plazuela XII at Tzimin Kax. The burial was flush with the floor of the plazuela on the west side of the mound. The grave itself was square in shape, some 1.40 meters in each direction, and was enclosed by a single line of undressed stones. There was no roof, the earth of the mound having been piled straight on top of the burial.

In the grave were found seven pieces of pottery, four of which are illustrated in Fig. 15, a, b, c, and f.

The pottery included two typical ring-based bowls with flanges (Cat. Nos. 188472 and 188473). The latter is illustrated in

Fig. 15, a. It was originally covered on the inside with a dull orange slip, on which had been painted a design in red, outlined in black, but of this few traces remain. Concentric red and black bands occupy the outer third of the circle below the rim, and a shallow grooved line was made on the inside directly opposite the flange. On the outside the orange slip covered the zone between the rim and the flange and on it have been painted, in a very careless manner, two red bands. The paste and firing is better than that usually found in this type of ware. Height 8.25 cm, diameter 29.25 cm. Height of No. 188472, 8 cm, diameter 31 cm.

Figure 15, b, shows a round-based bowl with slightly flaring sides (Cat. No. 188475). This vessel is made of poor paste very badly fired and the thin walls crumble to dust on the slightest provocation. The vessel is decorated with vertical shallow fluting and has been covered with a red slip both inside and out. Height 14.75 cm, diameter 17 cm. On Fig. 15, c, is shown a flat-bottomed bowl with everted rim (Cat. No. 188474). The sides are rather thick and made of a coarse fairly well-fired paste. The surface was probably never slipped, only rubbed to bring the fine grains to the surface. Height 7.25 cm, diameter 18.75 cm.

The last vessel illustrated (Cat. No. 188476) is an incomplete cylindrical jar with flat base and slightly flaring sides (Fig. 15, f). The vessel is of a rather poorish paste which has been rubbed smooth on the outside and then covered with a stucco, cream-colored with red bands. Subsequently it appears to have been covered with another coat of stucco, this time of a gray-blue color. A number of sherds belonging to a large cylindrical jar of Holmul V type were found in a deposit of sherds of this period on a floor below a small mound at Camp 6. This jar had been covered with a thin coating of fine stucco, the colors employed being a vivid pink and a bright sky blue, which had been arranged in bands. In neither of these two cases had the vessels been slipped before the stucco was applied.

Another round-based vessel of rather coarse ware (Field Cat. No. 220) is now in the British Museum.

Together with this ceramic material were found three canine teeth of a tapir, an obsidian blade, a small unworked chunk of rock crystal, and an eccentric flint. The eccentric flint, the only one found in the Mountain Cow district, has three arms, two forming a crab claw arc, the third "Tau" shaped (Fig. 15, g).

Above the floor of the grave, which was uneven, were a number of sherds which might possibly have formed part of the grave furni-

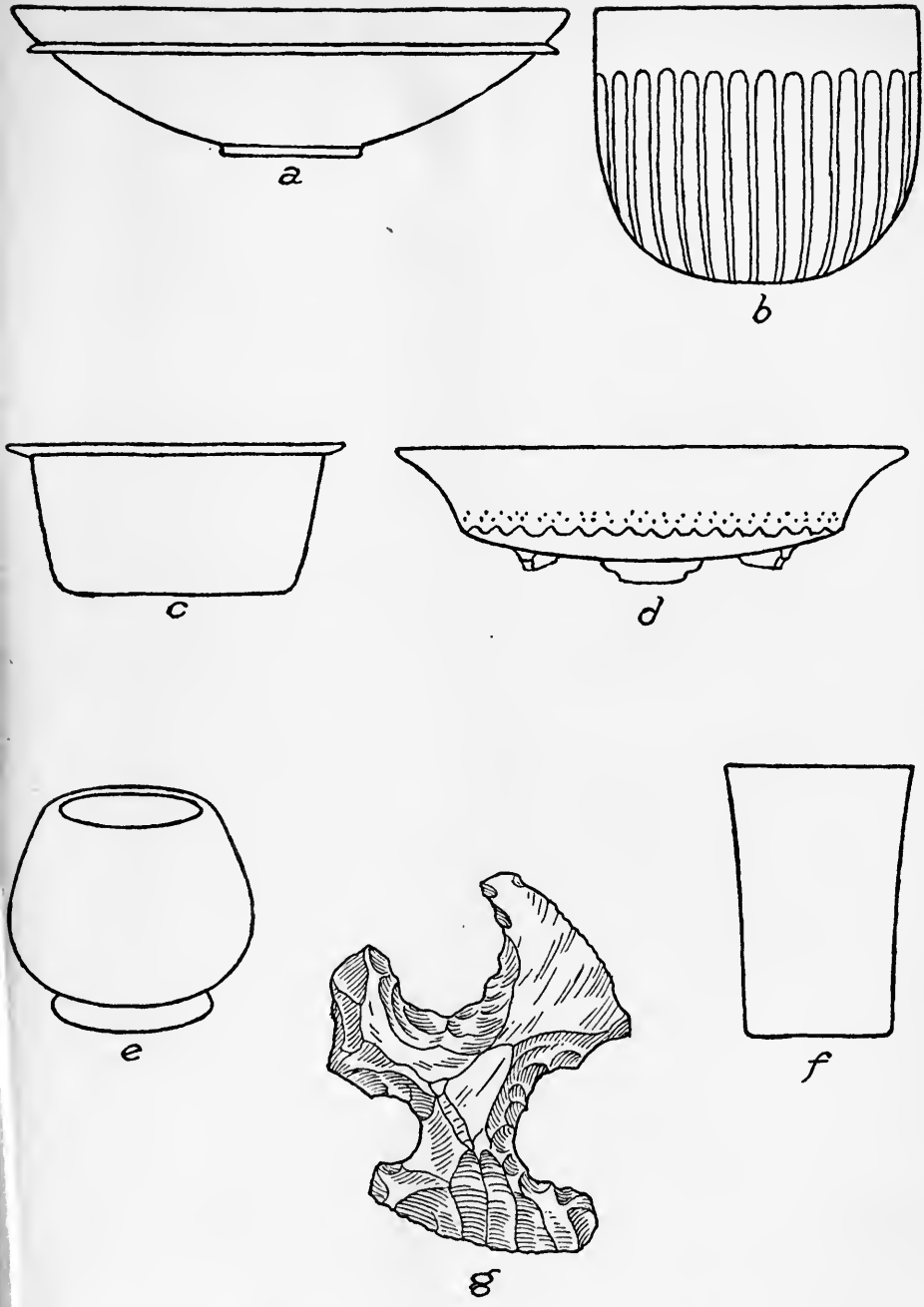


FIG. 15

Pottery Shapes and Flint, Tzimin Kax, Holmul V Period: a–c and f–g, Burial VII; d–e, Vaulted Chamber X

Pottery one-quarter actual size, Flint actual size

ture, but more probably were imbedded in the soil which covered the grave, for, as already explained, there was no regular roof to this burial. These sherds are for the most part recognizable as belonging to the Holmul V horizon, but there are a number belonging to types of unknown period. Most striking of these were two or three small sherds of a fine red lacquer ware with thin walls. On these designs had been engraved in intaglio technique. The workmanship is very fine. Indeed, these sherds would appear to have formed parts of vessels imported from some other region, for this type of ware does not appear to have been manufactured in the Mountain Cow region. Sherds of ware in the same technique, but coarser and not so skillfully executed, have been found at Lubaantun. The ware probably dates from the Holmul V period.

The skeletal material associated with this burial consisted of a few very rotted long bones. No teeth were encountered, so the burial was probably secondary.

BURIAL II, CAHAL CUNIL

In the middle of Mound N and resting on the floor of the mound was found a burial, the skeletal remains of which were very badly rotted. All that one can say is that the burial was extended. This burial is of importance in that it rests immediately above Vaulted Chamber I, Cahal Cunil, and supplies evidence of the sequence of cultures at this site (p. 330). With the burial were found two shallow ring-based bowls (Cat. Nos. 188422 and 188424) of the usual type supplied with flanges a short way below the rim. They are identical in shape and ware with the ring-based bowls from Burial VII, Tzimin Kax (Fig. 15, a). This ware is typical of the Holmul V period, and has already been described from a number of burials of this ceramic horizon. Number 188422 still retained traces of the red paint used for the design. In addition there were three straight sided cylindrical jars. One of these (Cat. No. 188421) was flat-based and had the sides slightly convex, giving a slight barrel appearance to the outline. This vessel was covered with the slip shading from olive brown to black and easily rubbed off which we have found associated frequently with Holmul V burials. The two other cylindrical jars varied somewhat from the usual type. In both cases the ware was of very poor quality, and very much underfired. In addition the sides were unusually thick and joined the flat bases with a slight curve, and the lips flared outwards to a small extent. No other grave furniture was found with this burial.

VAULTED CHAMBER X, TZIMIN KAX

This burial was found under the floor of Plazuela VI at Tzimin Kax, immediately in front of the small mound on the east side of the plazuela. The grave had been excavated in the soft *sascab* below the built up plazuela. On the east side a low wall had been built up, and the almost flat vault rested on this on the east side, and the unexcavated *sascab* on the west side. Apparently the pit had been dug to remove *sascab*, and then had been found too large to roof over, consequently the wall had been erected to carry one side of the vault. Several of the slabs across the top of the vault had caved in, and rain, seeping in, had damaged the skeletal material and the pottery to a large extent. Indeed the bones were so rotted and mixed up, possibly as the result of the action of rodents, that it was impossible to state the original position the skeleton occupied. In the grave were found two small very thin disks of a deep green jade less than 2 cm in diameter, and perforated at the top for suspension (Plate XLIX, Fig. 3), a small jade ear-plug (Plate XLIX, Fig. 1), two stone spindle whorls (Plate XLIX, Figs. 2 and 8), two plain shell buttons with small perforations in the center (Plate XLIX, Figs. 4 and 6), two shell oblong objects, slightly convex with four holes bored from the sides to the back for suspension (Plate XLIX, Figs. 7 and 9), and a shell disk perforated in the center with a band of incised glyphs around the circumference (Plate XLIX, Fig. 5). One or two of the glyphs are recognizable. One is the Kin glyph and another bears a resemblance to the month sign Kayab. In addition to these objects of shells and jade, there were two pottery vessels. The first (Cat. No. 188091) is a globular vessel supported on an expanding foot, an unusual shape hitherto not found in the Mountain Cow area. The vessel is made of a coarse gravelly ware, hard, but overfired on one side. The walls are rather thick, and were originally slipped on the outside with a dull orange red slip, which has almost entirely worn off. Height 12.5 cm, diameter 14 cm (Fig. 15, e). The second vessel (Cat. No. 188113) was incomplete. It is a shallow tripod bowl with an almost flat base. The legs are solid, and squat "Tau" shaped. The clay is of poor quality, highly porous. The vessel had been covered all over except the outside of the base with a bright red slip, which has worn off almost entirely on the outside, and on the inside is in poor condition. This slip is typical of the Holmul V period in this area, and the shape of the vessel was found in sherd deposits mainly of Holmul V period in various mounds at Camp 6. Height 6 cm, diameter 28 cm (Fig. 15, d). The

only other pottery found in this grave was a sherd, the base of a cylindrical jar with a flat base (Cat. No. 188114).

RELATIONSHIPS OF HOLMUL V BURIALS AT MOUNTAIN COW

The six burials discussed above clearly belong to the same general period, although not necessarily contemporaneous in the exact sense of the word. Pottery shapes and slips indicate a close homogeneity. The assumption has been made that these burials can be grouped stylistically with the fifth period from Holmul. Unfortunately this period is but poorly represented at the type locality, but a number of the Holmul V types can be recognized in the Mountain Cow region. These are:

Tall narrow cylindrical jars with designs in red on a cream slip (Vaillant, 1927, Fig. 242, and Gann, 1918, plates 26–28).

Squat cylindrical jars with flat bases (Vaillant, 1927, Fig. 241, and Gann, 1918, plate 25).

Tripod bowls with cylindrical legs and flat or almost flat base (Vaillant, 1927, Figs. 215–216).

The Holmul V pottery of Mountain Cow also has certain affinities with the later of two burials found at Yoxiha, Chiapas, by Blom (1926, Figs. 186–191). The handling of the monkey on the tall cylindrical vase (Plate XLVIII) is very similar indeed to that on tripod bowls from Yoxiha, and the cylindrical jar from this latter site (Blom, 1926, Fig. 188) has many parallels at Tzimin Kax. Similarly the tripod bowl shown by Blom (Fig. 186) bears a fairly close resemblance to bowl 188350 illustrated on Fig. 13, g, although the slip is different.

The Holmul V period seems to have persisted for a long time in the Mountain Cow district. Sherds of the types of ware found in these burials are very abundant everywhere at Tzimin Kax, Cahal Cunil, and in and around the small house site mounds at Camp 6. Pottery of this period has also been found in the ruins of Mucnal Tunich (subsequently named Minan Ha by Joyce and Gann), in caves on the pine ridge in the direction of San Antonio, Cayo District, and has been described by G. Mason from caves on the pine ridge in the vicinity of San Agustin (Mason, 1928, Figs. 2, 9, 10, and 23 are particularly typical of the Mountain Cow area). There are certain of the Holmul V types which also occur at Lubaantun, and sporadically at Pusilha.

TABULATION OF BURIALS OF HOLMUL V PERIOD

Burial	II	I	III	VII	II	X
Locality	T.K.[1]	T.K.	T.K.	T.K.	C.C.[1]	T.K.[1]
Ring-based bowls without flange	x		x		x	
Ring-based bowl with flanges	x	x	x	x	x	
Globular bowls	x		x	x		
Cylindrical flat-based jars	x	x	x	x	x	x
Cylindrical round-based jars	x		x		x	
Shallow tripod bowls	x		x			x
Worked shell objects	x		x			x
Incised decorations on cylindrical jars	x		x			
Paste of poorish quality	x	x	x	x	x	x
Poor non-adhesive slip	x	x	x	x	x	x
Stone implements	x					x[2]
Jade objects	x					x
Incensario			x			
Single burials		x		x	x	x
Secondary burials	x?	x[3]	x	x[3]		
Multiple burials	x		x			
Vaulted chambers	x	x	x			x

[1] T.K. indicates Tzimin Kax, C.C. stands for Cahal Cunil.

[2] Obsidian knife blade only.

[3] The evidence for this is based solely on an entire lack of teeth, admittedly not very conclusive. In the other case the tombs could not have contained the number of corpses represented by teeth and bones.

MISCELLANEOUS BURIALS

In addition to the burials described above, which can be classed by their contents as belonging to definite cultural periods, there are a number of graves, the contents of which can not with our present scant knowledge of Maya pottery be assigned to any definite period. These are dealt with below. Although thus arbitrarily grouped together, they must not be considered, necessarily, to be homogeneous.

CHULTUN D, TZIMIN KAX

Chultun D was found in the middle of Plazuela XIV, situated on the top of a high hill about three-quarters of a mile east of the main group at Tzimin Kax (see plan, Fig. 1). The plazuela presented no features of interest. The two or three low oblong mounds grouped around it were probably sub-structures for houses. Nearly in the center of the plazuela was found Chultun D, a chultun of the usual "chianti flask" type, the sides of which were very irregular owing to the collapse of the *sascab* walls. On the floor was found a small heap of very much rotted human bones, arranged in no particular order.

With the skeletal remains were found three vessels shown on Plate L. The bowl with composite silhouette (Cat. No. 188097), shown on the left, is made of a coarse paste with thick walls, which were originally covered with a deep brown slip, but the vessel has

been very overfired with the consequence that it is black almost all over. Diameter 21 cm, height 10 cm.

The small bowl (Cat. No. 188098), shown in the center, is of a better quality ware, but has also been overfired, though not to the same extent as the preceding vessel. It is covered with a dull red brown slip, now largely worn off. Just below the neck oblique lines have been carelessly slashed in groups of three, forming a crude decoration. The third vessel (Cat. No. 188099) is shown on the right of Plate L. The walls, very thick for so small a vessel, are of poorly kneaded and unevenly fired paste covered with a thick dull brown slip.

BURIAL IV, TZIMIN KAX

This burial was found in Mound A of Plazuela II under the south end (see Fig. 3). The burial chamber (IV) was poorly constructed with undressed stones piled up to form a small vaulted chamber, and held in position by liberal applications of *mezcla*. With such a construction the walls were naturally uneven, and the vaulting, such as it was, extremely irregular. Resting on the floor were the remains of a seated individual, a youth to judge by the size of the skull, which was not fully developed. There was no grave furniture with the burial, but a hole in the east wall of the crude vault led into another, even cruder chamber (Vault V), of slightly smaller dimensions, in which were found a number of small crude pots with flat bases and everted lips. Altogether sixteen of these were found in good preservation, in addition to a large number of fragments of others, which were not saved. All are of the same type and are made of a coarse red clay unslipped and unpolished, although they vary a little in size, some being a little larger, others somewhat smaller. All those found unbroken were in pairs, one pot being placed mouth downwards on top of the other, as in the illustration (Fig. 10, c). Inside three of the vessels were found bones. In the first were found the first, second and third dactyls of a human hand, which to judge by their size belonged to the little finger of a small woman or an adolescent. In the second case only one bone was found. This proved to be the second dactyl of a small adult's hand.

Dr. Gann (1914, p. 38) reports finding the terminal phalanx in a vase from a burial near Progreso, a small site between Corozal and Payo Obispo in the north of British Honduras. He also reports the find of the terminal phalanx of "a Maya lady's little finger" with the skeleton of a child of perhaps six years of age in a cave on the road from Arenal to Camp 6, not very many miles, as the crow flies,

from Tzimin Kax (Gann, 1928, p. 72). Indeed, the custom of burying either the first or all the dactyls of the little finger with a child must have been a common Maya custom, for children's burials are not common, and, when found, it is very easy to overlook so small an object as this small bone unless it is placed in a vase. In the case under discussion there seems little doubt that these small pots were definitely related to the burial in the adjoining chamber. The third chamber, which was also rudely shaped, was empty, but connected with the middle chamber by a break in the wall similar to that connecting the latter with the chamber of the burial. In view of the fact that the burial was found in the same mound as three burials of Holmul V period, and in two cases under the same floor level, there seems good reason to assign this burial, also, to the Holmul V period.

VAULTED CHAMBER IX, TZIMIN KAX

This vaulted chamber was found at the foot of the west side of a small mound on the east side of Plazuela XII at Tzimin Kax. The chamber, which was complete with the roof slabs in position, was absolutely empty. In the loose earth above were found many sherds of painted ring-based bowls and other ware typical of the Holmul V period. The vault measured 1.93 meters long, 1.19 meters wide, and 1.47 meters high. The tomb, which was built running at an angle of 204° magnetic, was extremely well-made, and larger than most of the others excavated. Possibly it had been prepared for use, but never used.

VAULTED CHAMBER IV, CAHAL CUNIL

Under the middle of Plazuela III at Cahal Cunil, and unassociated with any structure, was a vaulted burial chamber. It ran a few degrees east of north and south and was immediately below the present floor. The measurements were: 1.81 meters long, 90 cm wide, and 90 cm high. The vaulting was very low, the spring of the arch starting 23 cm from the floor. At the north end a skeleton was placed lying crosswise with its head to the east, and both legs close together tucked up with the feet close to the right trochanter. The occipital region is deformed in a very asymmetrical manner. The skull was examined by Doctor G. Elliot Smith, of the Department of Anatomy, London University, and Corresponding Member of Field Museum, who reports it to be that of an adult male of some thirty years, showing marked antero-posterior compression. With the burial were only three or four sherds. Two of these belong to a cylindrical jar pertaining to the Holmul V period. They can not,

however, be used as evidence for the age of the burial for they probably slipped into the burial accidentally after the partial collapse of the roof.

BURIAL VIII, TZIMIN KAX

Immediately in front of the west side of Mound A of Plazuela I at Tzimin Kax, and beneath the present plazuela floor was found another burial. The skeletal material, which was in a very bad state of preservation, lay in the ground with no walls or roof to mark off the grave from the general fill. All the bones were in inextricable confusion, and lay on the natural rock of the hilltop, which at this point is only about 65 cm below plazuela level. Four jawbones were found, and these were at a considerable distance from any fragments of skull. Two loose incisors were found with fillings of iron pyrites. At the south end of the burial were found the carapaces of three turtles, three small jade beads and a number of marine univalve shells, which had been perforated for suspension and undoubtedly once formed a necklace.

V. SEQUENCE OF CULTURES

Plazuela I at Cahal Cunil (see p. 238) presents certain evidence of cultural sequence and stratification, which throws considerable light on the problems of cultural development, and permits a reconstruction of Maya art periods independent of Holmul evidence, and at the same time serves as a strong confirmation of the correctness of the sequence of cultures worked out for that area by Dr. George Vaillant. There would appear to be at least six constructional periods represented in this one plazuela. For clarity the vertical scale in the cross-section of this small group has been drawn five times greater than the horizontal scale. As a consequence there is a natural distortion in the appearance of the mounds (Fig. 16). In the course of excavation four floors were revealed, each representing a separate constructional period.

Floor 1 marks the first occupation of the site. The natural level of the hilltop was built up with two layers, the lower of reddish-yellow chunks of hard clay interspersed with small rocks, and above this was built up an upper layer of "tight fill" made of small stones. On top of this was laid Floor 1. Apparently it never extended across the whole present width of the plazuela, for a little beyond half way across it fades out, its present length probably marking the extension of the first period of construction (Period I).

Floor 2, which was in all probability a repair floor, covers the same area as Floor 1, for it fades out at the same spot as the latter (Period II).

Floor 3 extends across the whole present width of the plazuela. One must suppose that at the time that this floor was constructed the plazuela was enlarged by the addition of more than half as much space again to the east. Such an enlargement would account for the absence of Floors 1 and 2 under this addition. It is true there is no recognizable face or joint marking the line where the new part was added, but its presence may not have been noted in the hurry of the last days' work, for the excavation at Cahal Cunil was commenced during the last week of the season, when plans to stop work were already completed and could not be altered. Consequently the many problems that presented themselves could not in every case be investigated with the thoroughness they deserved, and all the trenching operations that would have been necessary for a complete elucidation of many of the aspects of cultural sequences could not be completed. Alternately

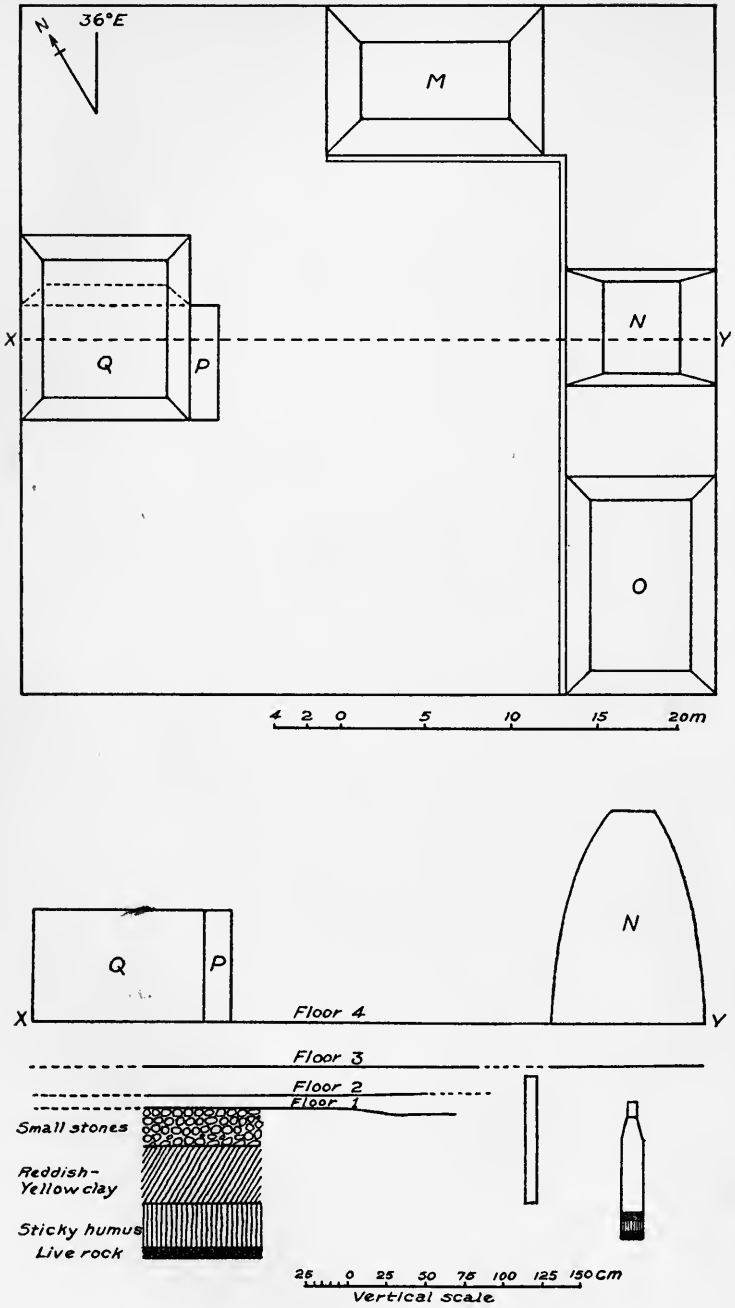


FIG. 16

Ground Plan and Cross-section of Plazuela I, Cahal Cunil

the east face of the original plazuela may not have been clearly defined. This extension would have had to be built up from the natural hill level. As soon as this was completed Floor 3 was laid over the whole, uniting the old construction, also slightly raised, and the addition into a plazuela of the present size (Period III).

Floor 4, which was subsequently added, marks a fresh raising of the plazuela level, and covers the same area as Floor 3. It is the floor in use at the moment the plazuela was abandoned, and being thus on the surface and unprotected, it has been very badly destroyed by roots (Period IV).

Floor 4 passes under Mounds O, M, N, and Q, which are therefore later in date (Period V).

Mound P marks an addition to Mound Q, and accordingly represents a later period of construction (Period VI).

These six periods do not necessarily correspond to separate periods of culture; they merely mark epochs of structural expansion, which might have followed each other at very short intervals. Luckily, however, they serve in some cases to mark off separate cultural horizons.

Resting on Floor 1 and directly in front of Mound P were found some sherds, which from their position must be earlier than Construction Period II. These consist of two types of ware. The first is represented by sherds of a hard well-made and well-fired pottery of better quality than any other pottery described in previous chapters from the Mountain Cow Water Hole area. These (Cat. No. 188414) pertain to a series of wide bowls as much as 40 cm in diameter, which are characterized in most cases by a beveled ridge on the outside immediately below the rim. There are also characteristic horizontal ripple markings, often so faint as to be noticeable only by running a finger along the surface. They are covered by a deep red slip of almost metallic luster, which is well applied and does not easily rub off (Fig. 17, b–d). The second type of ware was represented by sherds from one deep storage vessel with incurved rim (Cat. No. 188415). The ware, which is thick, coarse, and porous in texture, is of a dark brown color and unslipped and unpolished. The decoration consists of a design in low relief representing a cord with ends hanging down (Fig. 17, e). It will be remembered that a similar design was found on a vessel of Holmul I period from Vaulted Chamber I in this same plazuela (p. 289) and it was there suggested that this design had probably been carried over into Holmul I from an earlier period.

To this same period also belongs the fine bowl (Cat. No. 188409) shown on Plate LI. This was found at the same level between Floors 1 and 2, but immediately in front of Mound M. The vessel was found in pieces, and had obviously been placed there after being broken. The ware is a soft semi-porous clay rather lightly baked and of a somewhat gritty texture. The vessel, which is a large flat based bowl with everted lip, is covered inside and out with a rich red slip, highly polished, but not quite so deep a red as the slip of the sherds from the same level described above. The same horizontal ripple marks occur just below the rim, and the vessel, which measures 45 cm in diameter and has a height of 15 cm, clearly belongs to the same period as the sherds described above.

Other sherds were found in the immediate vicinity of Plazuela I, which, while carrying no stratigraphical data, can obviously be related stylistically to the sherds and vessel described above.

The first of these deposits that can be associated thus was found in a chultun (E) lying about one hundred and fifty yards southwest of the plazuela. The chultun may have served as a burial for a few fragments of a human femur were found inside. The pottery consisted of a broken vessel, about two-thirds complete (Cat. No. 188417), in the form of a round-based bowl of simple silhouette made of a hard well-made and well-baked ware covered with a lustrous firm slip shading from dark brown to black. As in the other case ripple marks are faintly discernible below the rim, and there is the same slightly soapy feel when running one's finger over the slip. Together with this vessel were found two sherds of another bowl (Fig. 17, a) of similar ware and slip, but with composite silhouette made by a beveled edge below the rim, much more pronounced than in the case of 188414. The sherd has been unevenly fired and shades from a rich red brown to a full black. Finally there was found, too, in the chultun about two-thirds of a straight sided bowl of coarse porous ware with thick unslipped and unpolished sides, varying from a gray black to black in color (Cat. No. 188418). Unfortunately the rim of this vessel is entirely missing, but the small piece that would have been closest to the top shows a shallow line probably incised with a stick. No other pottery was found in the chultun, and as the ware appears to belong to the same period and was found with a jade bead and bones, the chultun probably served as a burial place for a person of this period. The second lot of sherds stylistically related to this group was found in a big pottery dump in a hollow under Plazuela II at Cahal Cunil. There were no complete vessels,

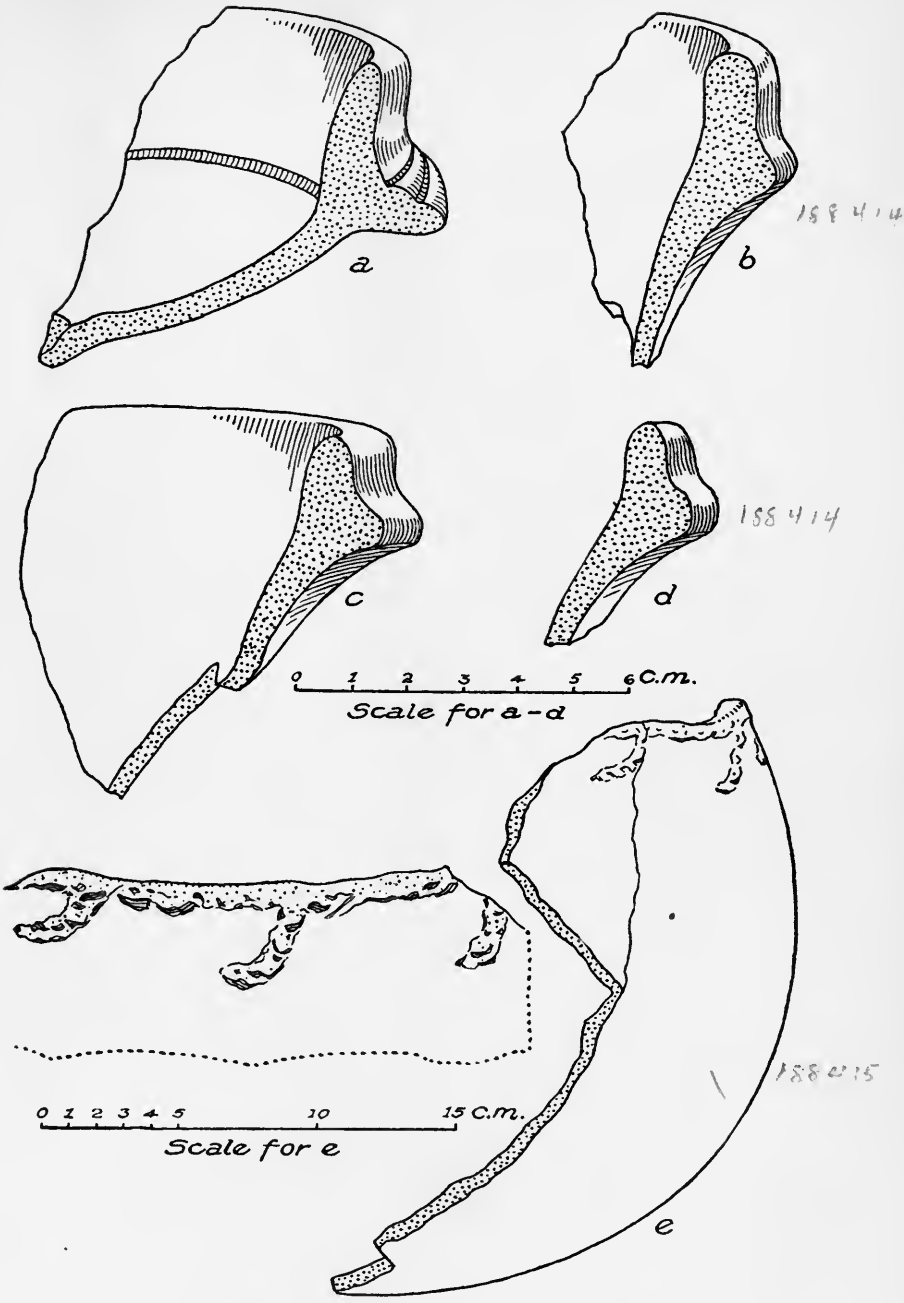


FIG. 17

Pottery from Cahal Cunil, Pre-Holmul I Period: a, Chultun E; b–e, Sherds Resting on Floor 1, Plazuela I

but in many cases pieces could be fitted together, which would suggest that the sherds were deliberately dumped there after breakage, and not gathered from the surface to be dumped in this hollow at some later period. A selection of the sherds is illustrated in Figs. 18 and 19.

They fall into three classes, sherds of ollas, bowls, and incensarios. The ollas form the largest class. They differ in the texture of the ware, shading from a coarse gravelly poorly baked ware, which is a bright red brown color, up to pottery of excellent texture. The fragment of the large olla (Fig. 18, e) is of particular interest, for once more we see on it the cord pattern with dangling ends. The majority of the olla sherds are lightly polished to a rough violet black, and show pit markings arranged in straight lines with semi-lunar curves arranged around small knob-like projections, practically identical with the design of 188169 from Chultun B, Tzimin Kax, which belongs to Holmul I (Plate XLI, right). One of the olla sherds, which differs from the others in having an unpolished red slip (Fig. 19, e), has incised horizontal lines, and many of the sherds show vertical handles, in one case with pit markings on the handle. The olla ware generally may be said to fall into a definite stylistic group, possibly serving as a connecting link between the pottery of our Period I, found between Floors 1 and 2 of Plazuela I at Cahal Cunil, and Holmul I. Sherds from bowls are almost entirely of one type (Fig. 18, a, d and f). The ware is well-made, well-fired and evenly tempered and the sides are as a rule unusually thick. The ware is covered with a rich red slip with a good lustrous polish. Sometimes this color is replaced with a red brown, which, when unevenly fired, takes on a mottled purple appearance. Most of the sherds appear to belong to wide mouthed bowls either straight sided or with recurved sides bearing a similarity to 188409 described on page 326. Practically all have shallow broad incised lines on the inside of the lip, but the ripple marks are not recognizable in the majority of these sherds. Tetrapods are represented by one sherd showing two legs in such close proximity that they must originally have been four in number. This sherd has a deep well polished red slip, and is rather thick. The paste is of very good quality. Two other sherds have legs (Fig. 18, b), but it is impossible to say if the original vessels were tripods or tetrapods. One of the sherds is covered on the outside with a very good black slip well polished, but the inside is covered with a creamy white slip with a rather soapy feel like Yucatecan slate ware.

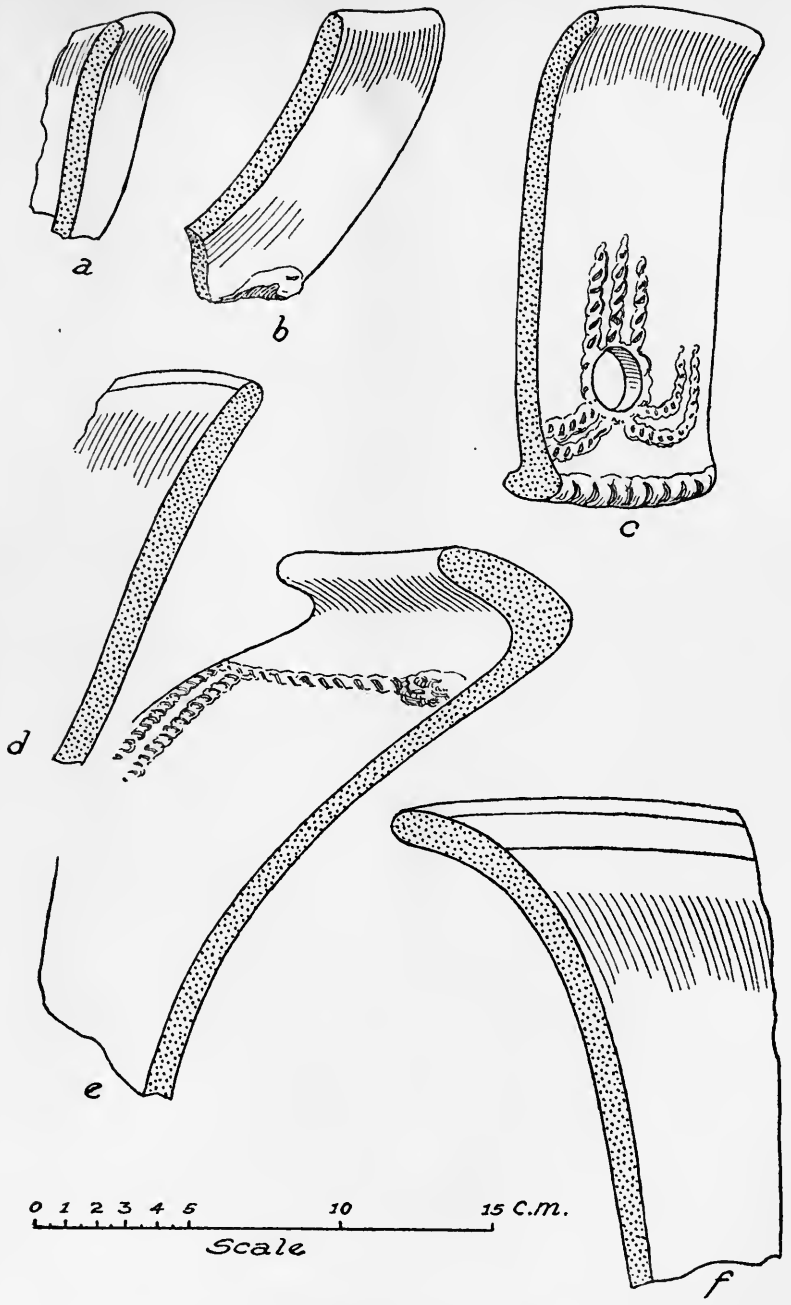


FIG. 18

Sherds from Hollow under Plazuela II, Cahal Cunil
Probably Pre-Holmul I Period

A sherd of coarse gritty ware without any slip or polish is also illustrated on Fig. 18, c. This probably formed part of an incense brazier. Possibly this deposit of sherds contained ware from more than one period, but some, at least, of the sherds undoubtedly belong to the pre-Holmul I period. A certain classification of all of them must depend on the discovery in more satisfactory circumstances of a deposit of this period sealed off from a later period beyond a shadow of doubt. For the present, however, these sherds may be tentatively accepted as representing a homogeneous group that preceded Holmul I.

If our assumption of the extension of the area of the plazuela to the east after the completion of Floor 2 is correct, then Vaulted Chamber I at Cahal Cunil represents a later period. The furniture of this burial we have already seen (p. 290 and Plate XLIV) belongs to Holmul I. After the completion of this vaulted chamber Floor 3 was laid down. Of the same date is another burial in the same plazuela, Burial III at Cahal Cunil. This was found underneath the same floor, and a little to the west of Vaulted Chamber I (see p. 292). The grave was stone lined, but not vaulted, and it will be remembered contained no furniture save a single sherd which can be assigned to Holmul I, or the period that immediately preceded it.

Above Vaulted Chamber I was Floor 3, and above this again, Floor 4, on top of which had been built Mound N. In the center of Mound N was found Burial II at Cahal Cunil, which as already shown (p. 316) belongs to the Holmul V period. Between the building of Vaulted Chamber I and Burial II there lapsed sufficient time to lay down Floors 3 and 4 and build Mound N. In actual years this may not have been a lengthy period, for Floor 3 was almost surely laid down immediately after the construction of the vaulted chamber. Floor 4 was probably a repair floor, and the mound may have been built almost immediately after Floor 4 was completed.

In the space between the original Mound Q and the face of the addition P were found a number of sherds, which appear to be of mixed periods, and were probably collected from the surface and thrown in as construction material. Nevertheless, the majority of them belong to Holmul V period, consisting of sherds of ring-based bowls similar to those already ascribed to Holmul V, of cylindrical straight sided jars, one of which has been covered with painted stucco, and sherds which probably belonged to shallow tripod bowls. Among the finds was the lower part of a hollow figurine whistle, roughly of the same type as those found in the Lubaantun district

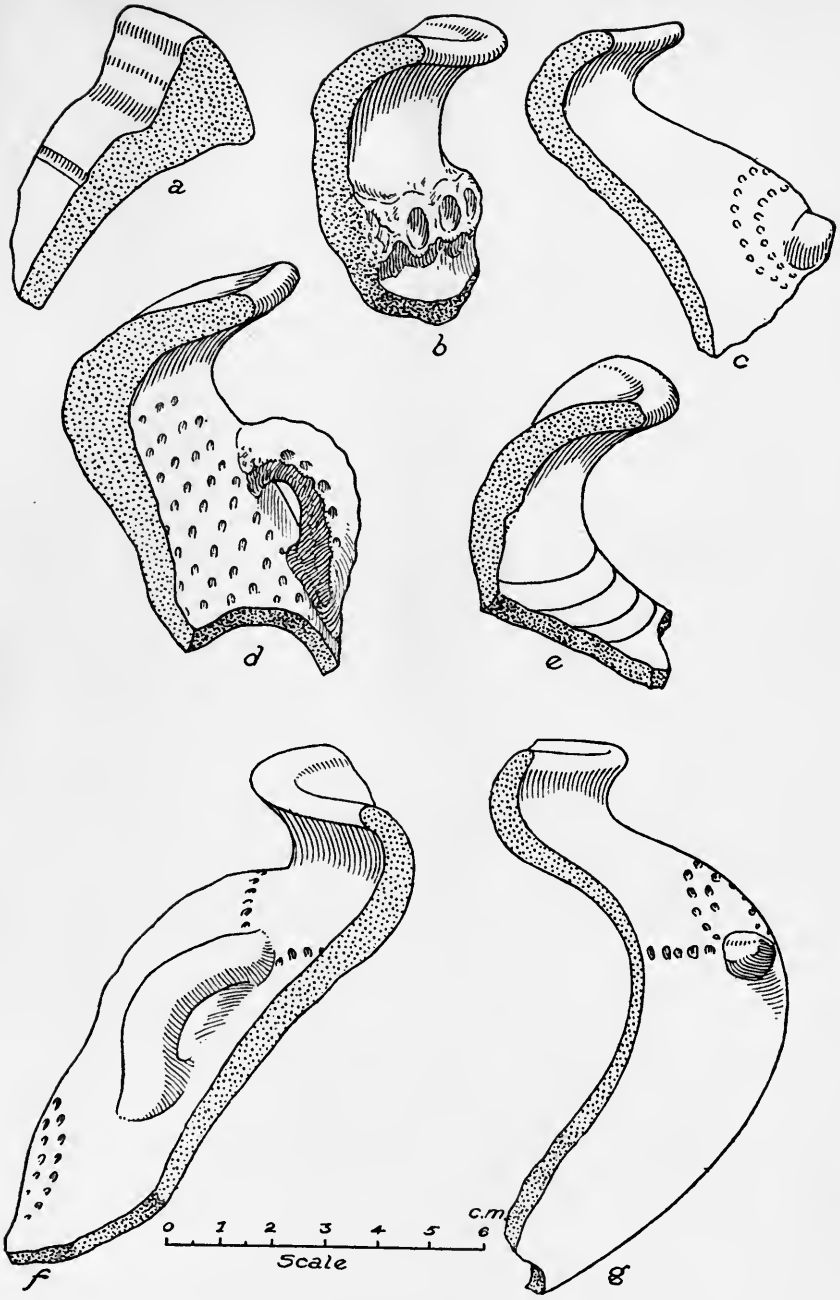


FIG. 19

Sherds from Hollow under Plazuela II, Cahal Cunil
Probably Pre-Holmul I Period

and possibly imported from that general area. At that time I came to the conclusion that this type of figurine dated from the latter part of the "Old Empire" period (Joyce, T. A., Cooper Clark, J., and Thompson, J. E., p. 214). The discovery of this part of a figurine together with Holmul V pottery serves to confirm the original dating, but it must be remembered that there is a possibility that the sherd deposit behind the face of Mound P is not homogeneous.

Three stylistic periods of occupation, then, are distinguishable at Cahal Cunil. Two of these, Holmul I and Holmul V, were found in perfect stratigraphical conditions that confirm Dr. Vaillant's interpretation of the cultural sequences at Holmul. Another stylistic period, which is given the temporary classification of "Pre-Holmul," was found under circumstances which point to its being earlier than Holmul I, but are not conclusive. This period is similar, stylistically, to that found under Floor 2 at Uaxactun (Ricketson, 1929, p. 322). The three periods show a progressive degeneration in pottery, there being a marked falling off from the well-tempered, well-fired pottery of the pre-Holmul period, covered with good adhesive slips, to the poorly baked vessels of Holmul V period, of poor ware with slips that rub off very easily. Conversely there is a development of color. In pre-Holmul all pottery is monochrome, during Holmul I period at Mountain Cow polychrome vessels are rare, in Holmul V they form the vast majority of the non-olla ware. Stucco slips are common to both periods.

At Tzimin Kax both Holmul I and Holmul V are found. At the other sites of Cahal Pichik and Hatzcap Ceel only Holmul V has been found. In passing, mention should be made of the fact that a piece of what is definitely porcelain was found close to the surface of the summit of Pyramid A at Hatzcap Ceel. This was found underneath the rubbish from the collapse of the building on the summit. The small fragment, which measures only 3 cm in each direction, was examined by Mr. H. W. Nichols, who pronounces it to be porcelain of rather poor quality, such as was used in Europe by persons of lower class. Presumably it passed into Maya hands some time toward the close of the seventeenth or early in the eighteenth century, and may have been carried to its present position by some Mopan Indian visiting the ruins to make an offering. It is well known that the modern Mayas still make occasional offerings at the temples of their ancestors.

Alternately Hatzcap Ceel may have continued to be occupied up into Spanish times. This seems hardly likely, for in that case the

incensarios on the floor of Temple M at this site must be post-conquest—provided, of course, the temple had not previously collapsed—and as they have been dated as belonging to Holmul V period this would lead to the conclusion that Holmul V was also contemporaneous with the conquest. Furthermore, had these sites been occupied until the seventeenth century objects of copper or even gold would have been in fairly common use, and would have been found in the course of the excavations.

Negative evidence, then, suggests that none of the Mountain Cow sites were occupied after the introduction of metal among the Mayas, and probably we shall not err in suggesting that these sites ceased to be occupied by a permanent population some time during Cycle 10. The votive caches can be linked up with the Holmul V horizon (p. 283). Holmul V therefore represents the greatest, possibly the only, period of building activity at the two ceremonial centers. Is it too great assumption that the period of greatest activity in building coincided with the erection of the carved monuments? At a Maya city where ceramic remains show several periods of development, such an assumption would be hazardous, but as at Cahal Pichik no recognizable period other than Holmul V is, so far as we know, ceramically represented, and at Hatzcap Ceel the overwhelming majority of recognizable sherd types belongs to Holmul V period, we can assume with considerable expectancy of being correct that building activity and the erection of carved monuments were contemporaneous at these two sites. On this assumption Holmul V can be dated as occurring around the close of Cycle 9 in the Mountain Cow region. Our known dates in this region are 9.19.0-0-0 and 10.0.5-0-0. Holmul V, then, might have developed somewhere around 9.15.0-0-0, and continued until well into Cycle 10 times. It does not necessarily follow that the Holmul V horizon around Mountain Cow coincided with the same period in other Maya cities.

VI. GENERAL SUMMARY AND CONCLUSIONS

The sites grouped around Mountain Cow Water Hole have a greater elevation than any other site in the "Old Empire" region. Within a radius of two miles there are two ceremonial centers and two residential centers.

The ceremonial centers, Hatzcap Ceel and Cahal Pichik, are Class 4 sites, which flourished at the close of Cycle 9. This is attested to by two dated monuments and sherds of Holmul V period. The architecture is poor. Most of the buildings were either of pure *jacal* construction, or a mixture of stone masonry and *jacal*. The masonry is of poor quality, the stones being poorly faced and not squared. Vaulted chambers with the Maya false arch were known, but were largely reserved for burial chambers. Superimposition of buildings and floors points to a large number of constructional periods, but one must not infer that they necessarily mark the lapse of long periods of time. Pyramids are for the most part in a collapsed condition. The highest have a height of some 12 to 13 meters. At each site there are parallel mounds which may have formed ball courts of "Old Empire" type without rings. Most of the pyramids of the temple type yielded votive caches consisting of jade and shell objects contained in pottery urns. In one of the caches at Hatzcap Ceel were found the remains of an iron pyrite mirror, and another cache probably also contained a mirror of this type, but the iron pyrite squares had been converted into accretions of oxidized iron. These caches can be related with a fair degree of certainty to the Holmul V period. No evidence was found for the occupation of these two sites at an earlier period, but such evidence is merely negative.

The evidence of the pottery shows that these sites belonged to the same general cultural area as Holmul, Yalloch, and Uaxactun. More intensive investigation of other important sites of this north central Peten region will probably reveal that they all shared in a fairly homogeneous culture distinct as far as domestic arts are concerned from the cities of Yucatan on the one hand and Copan and Quirigua on the other, with the Usumacintla valley group probably forming yet another separate area. All these cultural areas were united by a common religion and a common calendar. The Mopan Valley, in which the two sites of Hatzcap Ceel and Cahal Pichik are situated, contains a number of fourth class sites, such as Ucanal, Ixkun, and Benque Viejo, all of which are shown by their dates to have been flourishing around the close of Cycle 9. Few of these

cities reveal any high standard of architecture, but their art, as exemplified by the carving on stelae and altars, does not fall far short of that of the larger cities of the north Peten region. Nevertheless the Mopan Valley must be considered to be a peripheral region, where a simple Maya culture flourished over a long period, but to which the knowledge or ability to erect carved monuments only penetrated in late times at the close of the "Old Empire." The inhabitants of Benque Viejo, living in closer proximity to the great centers of the Peten region such as Tikal, Uaxactun, Naranjo, and Nakum, mastered the art of erecting well constructed buildings containing multiple vaulted chambers, but such knowledge appears never to have reached the Mountain Cow region, the Camp 6 site, or the ruins of Mucnal Tunich (Minan Ha).

The two residential sites of Tzimin Kax and Cahal Cunil consist in each case of a series of scattered plazas of small size, on which were erected small mounds. Many of these contain burials. Chultuns, which were not found at either Cahal Pichik or Hatzcap Ceel, were found in, or close to, these plazuelas, and in a number of cases contained burials. These residential sites appear to have been occupied over a much longer period than the ceremonial centers. The last period of occupation of Tzimin Kax and Cahal Cunil is Holmul V, and accordingly at this time all four sites were occupied. An earlier period, the pottery of which is of the type known as Holmul I, is represented by a number of burials at both residential sites, and in the case of Cahal Cunil the priority of Holmul I is proved by superimposition. At Cahal Cunil there is certain evidence which points to a yet earlier period, referred to as pre-Holmul, but absolute proof of its priority is not present. Pottery of this same type has been found at Uaxactun under conditions which indicate that it is earlier than Holmul I.

Although the terms Holmul I and Holmul V, applied by Dr. Vaillant to denominate stylistic periods stratigraphically placed at Holmul, are used for related ware in the Mountain Cow area, there is no certainty that, for example, Holmul I pottery at Mountain Cow was contemporaneous with the original Holmul I type pottery from Holmul. The Mountain Cow district, as already pointed out, was a peripheral region, and Holmul I may have reached this area at a much later date, or, reaching it at an early date, have continued to flourish long after it had ceased to exist in the type site. The Holmul V period in the Mountain Cow district probably coincided with the last quarter of Cycle 9 and the early part of Cycle 10.

At Camp 6, some twelve miles northwest of Mountain Cow Water Hole, there is another Class 4 site. Here no stelae, either plain or carved, were found, but the site is proved to have been contemporaneous with the ceremonial centers of the Mountain Cow area by the presence of Holmul V sherds, and votive caches similar to those of Hatzcap Ceel and Cahal Pichik. Close to the ceremonial center at Camp 6 were a number of small scattered mounds, which were, presumably, residential in character. In these mounds were found large deposits of sherds largely of Holmul V type.

In conclusion it might be stated that the small residential mounds offer much greater possibilities of a reconstruction of Maya history than do the ceremonial centers. In the former are found larger numbers of burials, and it is on the funeral furniture that we must depend to a very large extent for our knowledge of the Mayas. In the Mountain Cow area the burials seem to have been very frequently associated with the mounds on the east side of a plazuela, either being in the mound itself, or at its base. Possibly this association of burials with the east is merely fortuitous, but it is a line other investigators might find worth following.

Votive caches seem to have been placed in almost every mound of the temple type. As a rule they are either in the center of the mound, or immediately beneath the center of the back wall of the structure crowning the pyramid.

Caches, while their contents are frequently spectacular—witness the find of the mosaic shield by the Carnegie Institution at Chichen Itza—can not be relied on to such an extent for dating purposes at the present moment. Undoubtedly with the discovery of many more caches in different cities, their contents will be able to be classified into stylistic periods of known date, and in this work caches from beneath dated stelae which have not been moved should prove of assistance. These two lines of approach, pottery types and votive caches, should lead to more dependable knowledge of the history of Maya cities than is supplied at present by the monuments.

It is almost a tragedy that the ability to decipher dates should have preceded any application of the ordinary rules of dirt archaeology to the Maya field. For, as a result, the evidence supplied by pottery types and their sequences, art styles, and the development of architecture is ignored, or refashioned to fit into the very uncertain structure of dated monuments. Such a scheme is on a level with the efforts of the archaeologists of a few decades ago, who attempted to relate pre-history to biblical dates.

Many Maya cities undoubtedly reached a high cultural level without embracing the stela complex. Lubaantun is a case in point. The ability of its inhabitants to work stone can not be questioned, for the masonry there is surpassed by very few Maya cities, yet only three small altars have ever been found at this city, and these were undoubtedly erected after the city had been occupied over a long period. The numerous figurines found there confirm the evidence of the masonry that the inhabitants shared in the common Maya cultural heritage, although they did not practice the custom of erecting dated monuments, save during a very short period.

The presence of dated monuments does not indicate that the city where they occur was only occupied by the period spanned by their opening and closing dates. Failure to erect monuments may have been due to causes other than the abandonment of the site. A lack of trained sculptors, little interest in the calendarial aspects of Maya religion, or the absence of a mathematically minded priesthood may have been contributing factors.

In view of this uncertainty dated stelae are clearly unreliable criteria in arriving at any conclusion as to the length of time any given city was occupied. This will only be achieved when the pottery types and sequences have been thoroughly worked out as a result of intensive excavation at a large number of Maya sites.

Doubtless with this work accomplished, the rough divisions into stylistic and time periods followed in this publication will undergo much revision and refinement. The past three or four decades have been largely devoted to general explorations of the Maya field. The time has now come for attaining less general objectives.

With the work now being undertaken at Uaxactun by the Carnegie Institution and with the investigations projected by Field Museum in northern central British Honduras it should soon be possible to define clearly the limits of the Holmul cultural area, and obtain a clearer idea of the ceramic types and their sequences over a fairly wide zone. Once the attack has been driven home and the position consolidated, we shall possess a good jumping off point for attacks on the neighboring cultural areas.

The Maya area is emerging as a unit divided into some half a dozen major zones each with many minor subdivisions, but the whole united by a common religion and script, as Islam is united by Mohammedanism and Arabic.

APPENDIX I

THE SO-CALLED "IN-AND-OUT" STYLE OF MASONRY AT LUBAANTUN, BRITISH HONDURAS

T. A. Joyce, in his report on the investigations at Lubaantun in 1926 (Joyce, 1926, p. 210), writes of a "style of masonry .... which appears to be peculiar to this particular region of the Maya area. While each tier is built with a definite 'batter,' every second course projects slightly beyond the course immediately below it." This style he names "In-and-out." The courses in ascending order alternately project slightly and recess considerably, giving an appearance similar to that of the lower part of the cross-section A-A″ in Fig. 20.

Mr. Joyce's observations, which were based on surface finds, led him to believe that this style of masonry was associated with rounded corners, was not covered with stucco, and was later than the masonry of the period he termed "Recessed Perpendicular." In "Recessed Perpendicular" alternate courses were considerably recessed, the effect being like that shown in the lower half of the cross-section B-B″ in Fig. 20.

Indeed, the exposed walls seen by Mr. Joyce in 1926 would certainly lead one to believe that the "In-and-out" was artificial, and it was not until later in the 1927 season, when excavation had revealed buried sections, that I came to the conclusion that this was not the case. Had I seen only the masonry exposed before excavation, I should have been of exactly the same opinion as Mr. Joyce.

As a result of excavations during the 1927 field season, I reached the conclusion that the "In-and-out" was not artificial, but was due to natural causes such as roots forcing the stones out of position (Thompson, 1927, pp. 301 and 308). Such a conclusion was based on the fact that in several places where débris had accumulated, or an addition had been made to the original structure, the masonry behind was found to be in "Recessed Perpendicular" style, whereas the same wall at the same level on each side of the débris or addition was in the so-called "In-and-out" style. I concluded from this that the sheltered section showed the original appearance of the masonry, but where it had been exposed to the inclemencies of the weather and the ruthless onslaughts of tropical rain forest, "Recessed Perpen-

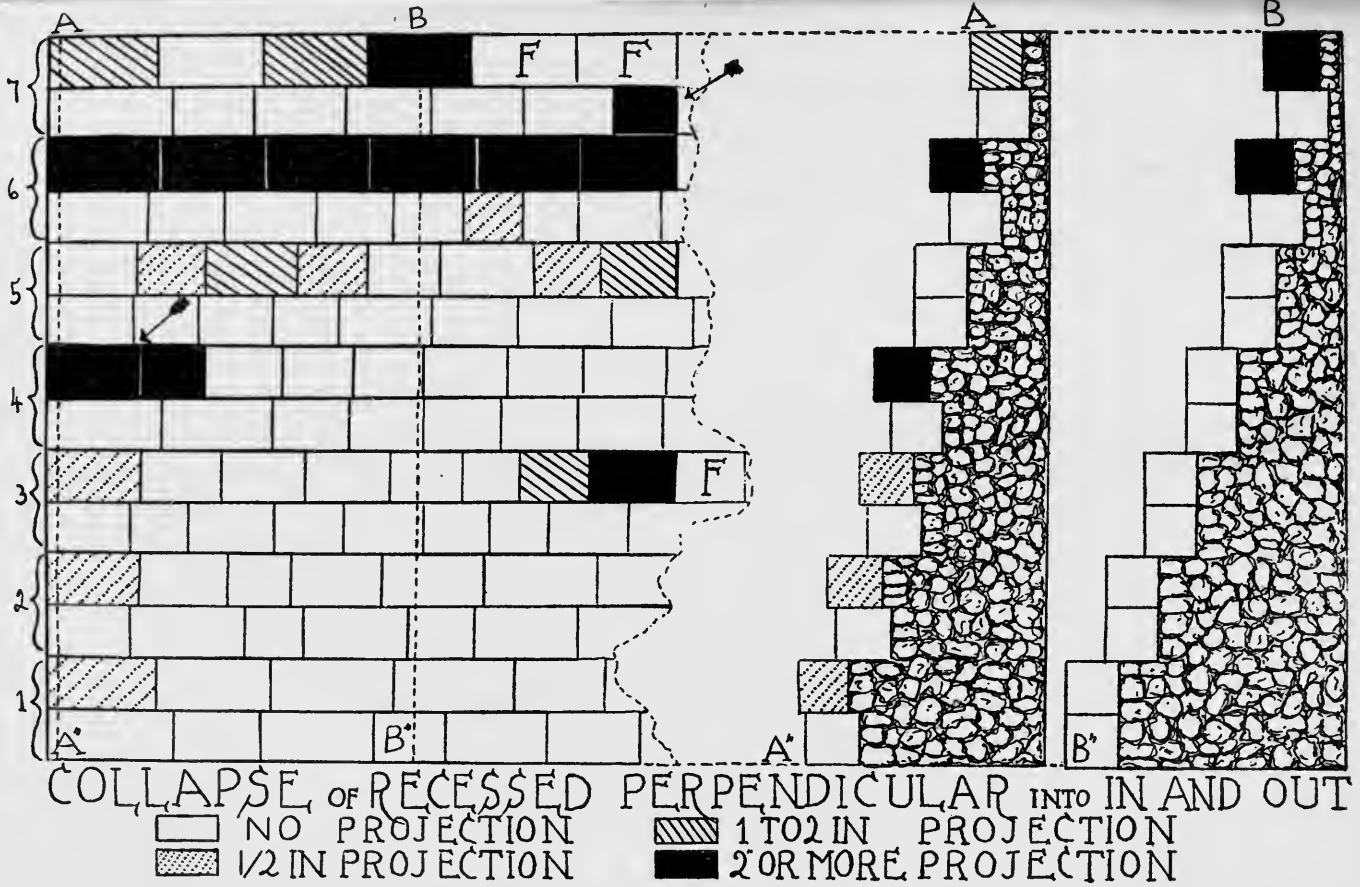


FIG. 20

Front and Cross-section Drawing of Part of Face of Pyramid E, Lubaantun

dicular" had been transformed into "In-and-out" through roots pushing the stones out of place.

Mr. Joyce failed to agree with my conclusions, writing, "The photographs suggest to me no more than that the buildings in the 'In-and-out' style were sometimes provided with a base in the 'Perpendicular' style." (*Ibid*, p. 302.) Such an argument clearly will not stand, for, as my report shows, the same tier is in "Recessed Perpendicular" style behind the débris, but where exposed on either side is in "In-and-out," and there is no break or join to suggest a sudden change from one style to the other.

As a second argument Mr. Joyce cites the masonry in Court IV, where, after clearing the débris, one wall was found to be in "In-and-out" style, whereas the other wall was in "Recessed Perpendicular" style. Surely this is not a strong argument for one wall might easily have disintegrated into "In-and-out" before the débris accumulated. Furthermore, in the angle between the two walls the "out" tiers only project to an infinitesimal extent, and this is the very point, at a corner, where one would expect débris to first accumulate, and stop further disintegration.

As a third argument Mr. Joyce calls attention to the extreme regularity of the "out" tiers, and to the fact that this style occurs only in the Lubaantun area, being unknown in other sites. At a first glance the tiers do seem to project fairly regularly, but a closer examination reveals that such regularity is an illusion. Some stones are found to project more than two inches, whereas the stone next to it may project only half an inch or not at all. "In-and-out" is found only at Lubaantun, because here only is "Recessed Perpendicular" found above the surface.

Since the matter was still unsettled, I took advantage of my stay at San Pedro Colombia in December 1928 to revisit the ruins of Lubaantun, and re-examine the architecture in the light of further experience. The further evidence for the conclusion that the "In-and-out" is, indeed, merely collapsed "Recessed Perpendicular" is presented on Figs. 20 and 21. The drawings were made by Mr. Jorge Acosta from my rough drawings made on the spot, and are not made to scale, although each stone is indicated.

Figure 20 shows a section of the west side of Pyramid E. On the left the section of the wall is shown full face, and on the right are shown cross-sections made through A-A″ and B-B″. Fallen stones are marked with the letter F; the shading marks the amount of projection according to the letter press below. The process of disin-

tegration at its start is here shown. Most of the wall, which is covered with stucco, is in regular "Recessed Perpendicular" style. These stones are shown in outline. It will be noticed that in the section B-B″ the first five tiers (ten courses) are in perfectly normal "Recessed Perpendicular," but above that the tiers start to project. Through A-A″, on the other hand, the first three "out" courses project about half an inch, the fourth projects considerably, more than two inches, the fifth does not project at all, the sixth again shows considerable projection, and so does the seventh. In the drawing an arrow points to the left hand stone of the upper course of the fourth tier, the stone that we saw projected more than two inches. This arrow indicates a root of a small tree that is growing at this spot, and has forced out this stone and that adjacent to it. All the other stones in the course show no projection, and it is clear that here we have "In-and-out" in process of development. A second arrow on the right of the seventh tier indicates another tree root. This root has done more damage. It has caused the two stones immediately above it to fall out (F on the figure), and the stone to the left of them to project two inches; the next stone to the left is also projecting to a certain extent probably owing to the root thrusting out behind it. In all probability if one were to revisit this pyramid today one would find that this stone had been thrust even farther out, and instead of projecting an inch or so, would be found to be projecting over two inches. The joints between the inner edge of the top of one course, and the outer edge of the base of the recessed stones above supply an excellent sheltered bed for seed to take root.

Figure 21 shows a similar drawing from the west side of Pyramid D near the central inset. Here the variation in projection of the "out" tier is very apparent. On the left Tiers 2, 3, and 4 show no projection, and the style is regular "Recessed Perpendicular," but to the right the upper tiers project. One course (No. 2) has an even projection from left to right of more than two inches, but the projection of the "out" course above varies from half an inch to just short of two inches.

Stones can readily be pushed out by the pressure of roots, but they can hardly be pushed in, for behind them is the massive rubble core of the pyramid, which will resist any inward pressure. As the courses were obviously not laid in the irregular fashion in which they are now, the projecting stones must have been forced out, probably in the same manner as we observed in process on the face of Pyramid E.

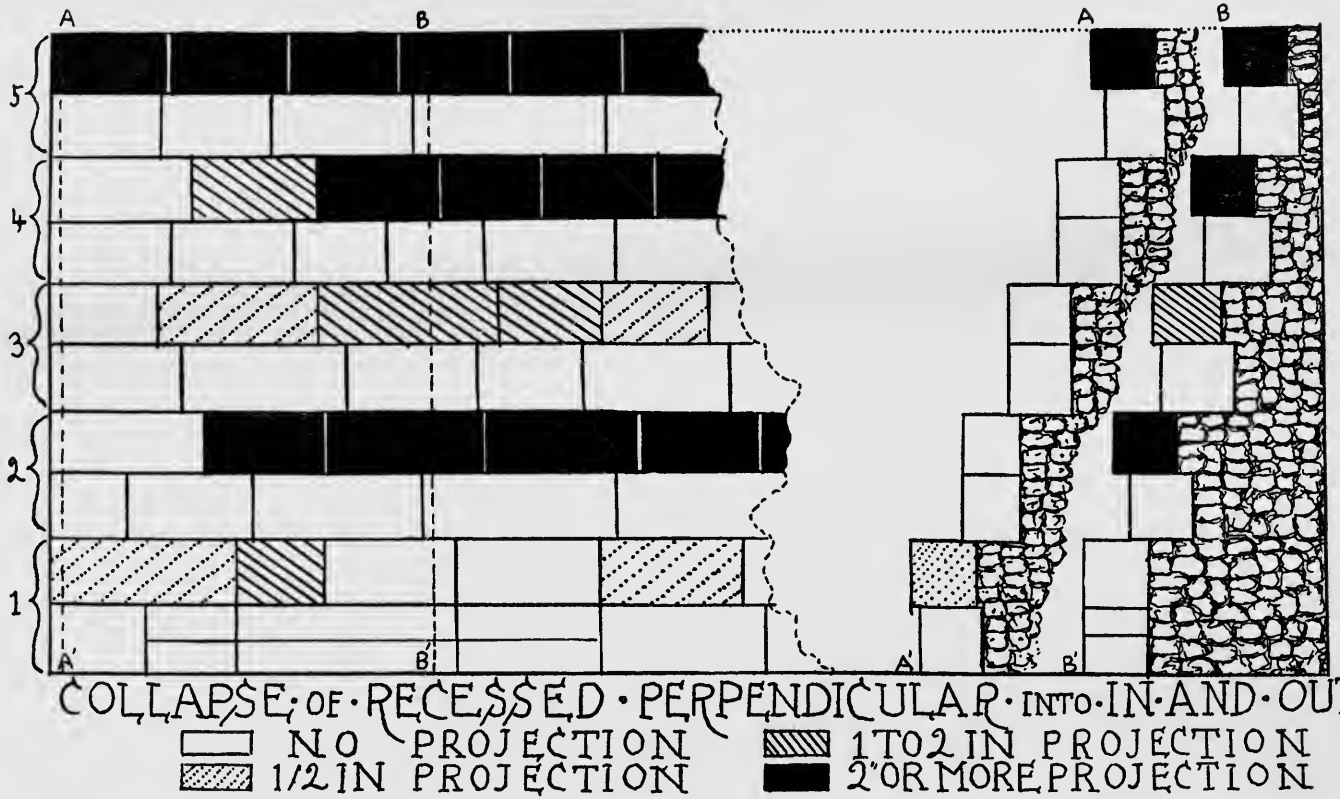


FIG. 21

Front and Cross-section Drawing of Part of Face of Pyramid D, Lubaantun

This conclusion is reinforced by evidence supplied by the stucco. The face of the pyramid was originally covered with a stucco coating, but with the passage of time this has largely disintegrated. A large piece of stucco still adheres to the surface of the left hand stone of the upper course of Tier 1 and this piece of stucco overlaps the bottom edge of the stone, continuing downwards in a straight line about an inch below the base of the stone. Had the stones been originally laid in "In-and-out" style, the stucco would have curved under at the bottom of the stone, adhering to the under face, which would have been exposed, until it came in contact with the recessed stone below. As, however, the stucco continues straight down, it is clear that the stucco on breaking carried with it a piece of the stucco on the stone beneath it, the surface of which must have been flush with it.

A similar case of a stucco face continuing in a straight line below the stone to which it was attached was observed on the east face of G′, and obviously must have originally covered in part the stone below, which was flush with it.

These finds seem to supply incontrovertible proof that such a style of architecture as "In-and-out" never existed, and is merely the result of the action of roots on the "Recessed Perpendicular" style.

APPENDIX II

STELA 26, COPAN

In June of 1929 I paid a short visit to Copan in the company of Dr. and Mrs. H. J. Spinden. While wandering through the great plaza, my attention was caught by what appeared to be faint numerical bars on the side of one of the treads of the stairway leading up to the mound that flanks the north end of the great plaza. The stone was close to the northwest corner of the terrace, and almost at the top. With the aid of Dr. and Mrs. Spinden the stone was turned, revealing on the under side six glyph blocks. As the last stela discovered at Copan had been numbered Stela 25 by Dr. Morley (Morley, 1920, p. 69), the new fragment has been named Stela 26, for part of a stela it proved to be. Its discovery was reported in the "Annual Report of the Director to the Board of Trustees for the Year 1929," Field Museum Publication 271, page 48. The fragment would appear to have been the top right hand part of the back of a stela which had originally been carved on all four sides. Apparently the stela had been cut into blocks to be reused in building. The stela was probably first cut in half horizontally, and then vertically in both directions, the fragment recovered being an eighth of the original stone. As the recovered portion shows glyphs on the two unsawn sides, one can safely presume that all four sides were originally carved, for no case is known of a monument carved on three sides only. Stela 26 can also be classed as belonging to the fourth group in all probability, that is to say, stelae with an inscription on three sides and a representation of a human or divine figure on the fourth side. Such a classification depends on the date of erection of this monument, but it will be shown that Stela 26 can be fairly surely dated as belonging to a period when monuments belonging to this group were being erected.

The inscription on the back (Plate LII, Fig. 1) opens with an Initial Series Introductory glyph as shown in the presentation below.

B1-B2. This double glyph block is occupied by the right half of an Initial Series Introductory glyph. The left half is on the missing left fragment. Note the double vertical bar on the right. Most of the variable central element, which might have yielded the month of the Initial Series is on the missing fragment.

B3 is almost entirely eroded.

B4 reveals a very clear presentation of a jaguar's head, very well executed.

B5 has on the left a sign, which during the "New Empire" served as an introductory glyph to the month sign. It is not uncommon at Copan, but is not used in the same sense, and its meaning at that time must have been very general. On the right is a glyph, which may be the Tun sign. Note the three dots above the eye, and the fleshless nose. Although the bared jawbone can not be recognized, the lips of the mouth are drawn back in a manner occasionally used to denote death. The three dots are one of the most constant signs of the head form of the Tun glyph.

B6 is very clearly the Uinal glyph, the presentation being highly ornate. There are two bars to the left and two above. This would suggest a secondary series, but it is possible that the bars to the left are not numerical, but form part of A6. The bottom of the bars is rather weathered, and it is possible that they curve round to the left, possibly forming the right wing of a cartouche of a glyph similar to that on the left of B5. At the top the supposed bars end in two squat horizontal bars, which are a further argument against reading the bars as numerical coefficients.

B7. Only the top part of this glyph remains, and this is not sufficient to supply any information.

There is a possibility that here we are dealing with an Initial Series. B5 is probably the Tun sign and B6 the Uinal glyph with a coefficient of 10. In that case B4 must be read as the Katun glyph. The Katun sign is, so far as I know, not formed from a jaguar head in any other inscription, but this does not necessarily mean the rejection of this glyph as the Katun sign, for at the time that this monument was probably erected, the glyphs were drawn with an ornateness and freedom from conventionality unequaled at any other period. If this is, indeed, an Initial Series, then glyphs A3-A7 would be devoted to the coefficients expressed in head form. This also was a common practice at the time this monument was, in all probability, carved. However, the reading of the inscription as an Initial Series must be taken as little more than a suggestion.

Attention has already been called to the bars which flank the Initial Series Introducing glyph. Such bars are also found on three other stelae at Copan—Stelae P, 2, and 12, the dates of which are 9.9.10-0-0, and 9.10.15-0-0 or 9.11.0-0-0. It will be seen, too, that in the lower half of the Tun element of the Initial Series Introducing glyph there are three oblong dots. The latest monument with this

arrangement at Copan is Stela P. This would suggest that Stela 26 can not have been erected much later than 9.9.10-0-0. Furthermore, if it was of later date, it does not seem likely that it would have been preserved for less than a hundred years, being broken up at the time the great plaza was built, for this occurred before 9.15.0-0-0 (Morley, 1920, p. 220). Finally it is improbable that the monument was erected before 9.9.10-0-0, for the two monuments erected before this date, Stela 7, dated 9.9.0-0-0, and Stela E, probably erected at 9.5.0-0-0, have neither the three dots nor the vertical flanking bars as part of the Initial Series Introducing glyph. One might hazard that Stela 26 was erected to commemorate one of the following four Hotun endings: 9.9.15-0-0, 8 Ahau 13 Cumhu, 9.10.0-0-0, 1 Ahau 8 Kayab, 9.10.5-0-0, 7 Ahau 3 Pax, or 9.10.10-0-0, 13 Ahau 18 Kankin.

Of these four dates, the first two are preferable, for the ornate style in which the glyphs are carved is found on Stela P, erected at 9.9.10-0-0, but not so markedly on Stelae 2 and 12.

APPENDIX III

DATES 25 AND 26 OF THE HIEROGLYPHIC STAIRWAY, COPAN

Date 25 of the Hieroglyphic Stairway at Copan consists of four complete glyph blocks and a fraction of a fifth. The date has been read by Morley, who was also responsible for the piecing together of the stones that compose it, as an Initial Series: 9.14.10-10-12 or -17. No more of the inscription has been located (Morley, 1920, p. 261). Date 27 consists of one stone that reads 5 Kins 7 Caban, the first variant of the group of nine of Glyph G of the Lunar Series. As the day sign Caban can only follow a Kin coefficient of 17, it is clear that the adjacent glyph block to the left must terminate with a coefficient of 12 to bring the total coefficient up to 17. Moreover, as the Glyph G is the first variant, it is equally clear that the Uinal coefficient must be either 1 or 10, for only these two coefficients added to 17 Kins will leave the required remainder of one when divided by nine. The latter is precisely the reading with which Date 25 probably terminates. However, the Initial Series 9.14.10-10-17 requires a day Caban with a coefficient of 1, not 7 as Date 27 gives, but emending the Tun coefficient to read as 15, allowing either for a mistake on the part of the sculptor or an erased bar on the weathered extreme of the second block, one gets the Initial Series 9.14.15-10-17, 7 Caban (10 Zotz), and Glyph G is in agreement.

In support of this new reading might be cited the fact that the glyphs of the new block added to the former date appear to be of the same stylistic period, and have their coefficients to the left instead of above the glyphs, which in turn each occupy a single glyph block. Finally the glyphs appear to be of practically the same width and height.

Date 26 (Morley, 1920, plate 26, fig. e) consists of three glyphs reading: ? Tuns, 16 Uinals, and 5 Kins. Morley suggests that part of two consecutive glyph blocks recording 6 Chicchan 3 ? should possibly be added to this giving an Initial Series that reads 9.15.6-16-5, 6 Chicchan 3 Yaxkin. Morley also calls attention to another glyph block recording 3 Yaxkin, which he suggests may be a repetition of the Initial Series terminal date, or vice versa. There seem to be grounds for believing that the 3 Yaxkin is the terminal date of the Initial Series as Morley suggests, for on the block (Gordon, plate 12, E) to the right of 3 Yaxkin is shown the same first variant of Glyph G

of the Lunar Series, already noted above. The Initial Series requires this first variant for 16 Uinals and 5 Kins leave a remainder of one when divided by nine. The three dots following 6 Chicchan probably are not the coefficient of the month sign but of Glyph E of the Lunar Series for this date is about twenty-three days after a new moon, and possibly the Glyph E on the right of Row O (Gordon, plate 12) should follow on here. Teeple (1930) has already called attention to the emphasis on dates falling twenty-three days after new moon, as this was the position of the moon according to Copan calculations at 13.0.0-0-0, 4 Ahau 8 Cumhu. Date 28 can also now be brought into the group. This date (Gordon, plate 12, E, and Morley, 1920, p. 264) consists solely of an Initial Series Introductory glyph. The central element is the sun glyph, which requires a month Yaxkin in the terminal date of the inscription. This requirement is filled by the date given above, and furthermore the stylistic treatment of the glyph is in agreement with the date of the rest of the inscription; indeed Doctor H. Beyer some years ago in a review of "The Inscriptions at Copan," suggested that this Introductory glyph belonged to date 26.

APPENDIX IV

ON THE ORIGIN OF THE 260-DAY ALMANAC

Of the origin of the 260-day sacred almanac of the Mayas and other Central American and Mexican peoples, we have no knowledge, and are, perforce, driven back upon conjecture. Many suggestions have been made, but none of them has been generally accepted. Below is offered yet one more explanation of the evolution of this peculiar structure.

For numeration nearly all Central American peoples employed a vigesimal system. That this was based on fingers and toes is shown by the fact that a number of Maya tribes still use the expression "man" or "one man" to indicate the number twenty. Among these may be cited the Mam, Ixil, Quiche, Cakchiquel, Pokoman, and Huaxtec tribes.

It does not seem unreasonable to assume that the Mayas grouped their days in twenties from the very first. Indeed, the twenty-day period in the Yucatecan calendar is called Uinal, a word that probably contains the root of the word for man—Uinik or Uinak—in practically every Maya dialect. The problem seems to be to decide why the twenty-day period should be associated with the numbers one to thirteen.

It seems possible that from the very inception of the twenty-day count, each day was under the patronage of a god, and that these gods were thirteen in number. Although we have no information of such an arrangement among the Mayas, yet in Mexico there were thirteen gods of the days, each of whom apparently ruled over a day in turn. Seler believed that these thirteen gods ruled over the thirteen hours of the day, and the nine gods of the nights similarly ruled over the nine hours of the night. This theory has been proved incorrect in the case of the lords of the nights, and presumably it is also untrue of the lords of the days.

In the former case we know that the nine gods ruled consecutively over a single day, and the same probably applies to the lords of the days.

If we can imagine such a system being in vogue from the very beginning of the calendar, a 260-day period would automatically evolve, for at the end of 260 days each of the thirteen gods would have ruled over each of the twenty days in this period of the calendar.

We do not know the names of the twenty days in the archaic calendar, but if we substitute Yucatecan names, we should have a calendar, a section of which would look like this.

Ahau . . . . . The patron is the sky god.
Imix. . . . . The patron is the old god—Mam.
Ik. . . . . The patron is the god with the ax in his eye.
Akbal . . . . The patron is the god with a curl under his eyes and over his nose.
Kan . . . . . The patron is the maize god.
Chicchan . . The patron with a beard or spots on his face.
Cimi. . . . . The patron is the death god.

At the next occurrence of the day Cimi, the god who ruled over that day would be the sky god, since this day is twenty-six days after the first occurrence of Ahau, and the series of thirteen patron gods has had time to repeat itself twice.

We know a considerable number of Maya gods were associated with numbers. The sky god was associated with the number four, as there are four world directions. Number five is represented by an old man, and the maize god is associated with eight, in the same way that death is connected with the number ten.

In the course of time we can picture the gods' names being replaced by the numbers with which they were associated, and the table given above would become:

The patron is associated with number	The day is
4	Ahau
5	Imix
6	Ik
7	Akbal
8	Kan
9	Chicchan
10	Cimi

and twenty days later the day Cimi will be ruled over by the god associated with the number four.

In time we might imagine this count being syncopated to its current form, and it would then read:

4 Ahau
5 Imix
6 Ik
7 Akbal
8 Kan
9 Chicchan
10 Cimi

This reconstruction, naturally, is mainly theoretical, but there is a little evidence to support it. That the forms of gods' heads were originally only thirteen in number is shown by the fact that above thirteen the heads are formed by adding a jawbone, or signs

of death, to represent the first digit, to the head for the second digit in a decimal system. If the heads had been evolved merely as an elaboration of numbers in the ordinary vigesimal system, there would originally have been twenty of them of distinctive forms. Actually the form for zero is of distinctive form, and would appear to vitiate the argument, but apparently this form was a later invention. Three stelae at Copan show zero or twenty represented by the death head form for ten, and it would appear that an attempt was originally made to show this number by the same method as was used for the numbers from fourteen to nineteen. Just as fourteen was formed by the heads for four and ten, so at one time the Mayas appear to have tried to show zero or twenty by the heads for ten and ten. The death forms on the Copan stelae are probably survivals of this practice. Naturally confusion arose with the head form for ten, and a new head was invented.

That this association of death with zero or completion is not due to the influence of a single sculptor or the idiosyncracy of one priest, as Morley (1920, p. 137) suggests, is shown by its occurrence at Quirigua. Every one of the full figure glyphs for zero at Quirigua carry death symbols, either on their faces or on their bodies. Furthermore at Palenque the normal form of the zero sign is shown on the panel of the Temple of the Inscriptions with death marks, and the form for twenty in the codices is a conventionalized death head.

In later times the association of the gods with the days was never forgotten, and occasionally we find the heads of the gods employed in place of the usual bar and dots, and more frequently with the day sign than with any other part of the inscription.

The Chilam Balaam of Chumayel in the account of the creation (Martinez, 1912) speaks of a group of thirteen gods who were opposed to another group of nine gods. Possibly the former are the thirteen gods of the days, as opposed to the nine gods of the nights, and the fight is symbolical of the darkness that covered the world before the dawn. The Maya heavens, too, were thirteen in number, and this number is of very frequent occurrence in Maya mythology and ritual.

Unfortunately we are back at the question as to which came first, the hen or the egg. Was the number thirteen employed because the primary gods were thirteen in number, or were the primary gods considered to be thirteen in number at a later date because thirteen had taken on a sacred significance because of its association with the sacred almanac?

It seems more reasonable to believe, in view of the evidence presented by the head forms, that the former was the case. In that case the 260-day period was evolved in all probability through the association of these thirteen gods with the original twenty days. This would account for its divinatory and sacred use. Possibly a long period elapsed between the initiation of the twenty-day period and the acceptance of the 260-day count, and, in all probability, a much longer period between the institution of the 260-day sacred almanac and the establishment of the long count. It seems incredible that the Mayas should have been able to construct a table of eclipse syzygies at such an early date before the 260-day period was evolved, as Dr. Ludendorff believes. Such a theory entirely ignores Dr. Teeple's work on the evolution of the different lunar systems. It seems even more incredible that this 260-day period should have been invented as a result of a discovery that eclipses coincided with groups of days in a double 260-day calendar. If that were conceivably the case one would expect the sacred calendar to have consisted of 520 days.

The name of this 260-day sacred almanac is not definitely known. Until a few years ago the Mexican name Tonalamatl has been generally employed, but this is not entirely satisfactory. Recently the name Tzolkin has crept into use.

This term seems even less satisfactory. The root *tzol* is used in Yucatecan Maya to denote placing things in order. In the account of the Uinal (Roys, 1920) we find U tzolan Kin, "The putting in order of the days," but this apparently refers to their creation. Similarly the expression is used in connection with the Katun, apparently in the sense of recapitulation.

The term employed by the Yucatecan Mayas may have been Xockin, "The count of the days." This term has survived into the present time to describe the divination of the weather during the coming year (P. Cruz and J. E. Thompson, 1930, pp. 75–77). This was undoubtedly one of the functions of the 260-day almanac, although now sadly altered. However, it is probably best to use some English term, such as sacred almanac, until the true Maya term is definitely known. At least we know from Roys' translation of the creation story that the thirteen divisions of this period were known as Uinal. Probably this term should not be employed for the twenty-day month, Perez to the contrary. Landa, at least, uses the term, Uinal-hun-ekeh. However, the word Uinal has now such a strong standing in the sense of month that it would be confusing to change

it, especially in view of the cumbersome name used by Landa. Furthermore, Landa himself may have obtained the wrong name. Asking his informant for the Maya name for the twenty-day period, meaning the month, the informant, misunderstanding him, may have supplied the name or alternative name for the twenty-day period in the 260-day almanac.

There is considerable doubt as to when the Maya day began. In this connection Herrera (Dec. IV, Bk. VIII, chap. 6) has a passage on the calendar of Honduras, which has, apparently, been missed by all writers on the subject. He writes:

"They [the people of the coast of Honduras] counted their year [which is] divided into eighteen months, and they call it Joalar, which means a thing which goes passing. They had twenty days in a month, although they counted only by nights, and thus they put the night before the day, and counted twenty nights or twenty dawns. They adjusted the day by the sun, taking note of its height, or when it was on its downward course. Thus they arranged things. They began their year forty days before ours, for they took two months of theirs before ours began (atrás). At the beginning of each month they had a feast."

The interesting feature of this account is the statement that they counted by nights. This is unfortunately confused by the mention of dawns. Apparently these peoples counted their days from dawn, and naturally the day was not completed until just before the following dawn, and in that sense it is correct to say that they counted by nights.

La Farge, on the other hand, in his account of the ceremonial year among the Jacalteca, definitely states that the day begins at sunset. Possibly the reckoning from 4 Ahau 8 Cumhu was counted from dawn to dawn, and the days of the sacred almanac from sunset to sunset. The former was, at any rate, reckoned by elapsed time, the latter by current time. Possibly, too, shortly before the conquest one of these counts was shifted to coincide with the other, and this might be the explanation of the one-day shift that took place in Yucatan shortly before the arrival of the Spaniards. Such a change does not necessarily imply any alterations in the Maya concepts of elapsed and current time.

APPENDIX V

THE INITIAL SERIES AT HOLACTUN, YUCATAN

The Initial Series inscribed on a panel of a temple at Holactun (Xcalumkin) was first illustrated by Maler (1902, Fig. 4). The Initial Series, owing to the fact that it was carved with rather peculiar head numerals, proved very difficult to translate.

Morley (1918, p. 274) suggests as the date of the Initial Series 11.2.8-4-9, 7 Muluc 17 Tzec or, possibly, 10.9.8-4-9, 7 Muluc 2 Pax (Morley, 1920, p. 278). Spinden (1924, p. 279) considers the former the more likely date.

In 1929 I wrote that the presence of the beetle glyph, the style of the glyphs, and the recent discovery of Cycle 9 dates in Yucatan and Campeche clearly invalidated this very late reading. I proposed that the date of the erection of the monument was 9.16.13-0-0, 2 Ahau 13 Yax, but through a clumsy error in calculation failed to reach the apparently logical Initial Series with the aid of the Lunar Series, and what I judged to be the first variant of the Glyph G of the Lunar Series group (J. E. Thompson, 1929, p. 226).

Doctor Teeple (1930, p. 52) working along these same lines, subsequently suggested the Initial Series 9.16.14-0-9, 7 Muluc 2 Uo. This was in full agreement with the apparent data of the Lunar Series, and in agreement with the terminal date 9.16.13-0-0 I had already suggested.

During a recent visit to the Peabody Museum of Archaeology at Cambridge, Massachusetts, I had an opportunity to inspect a cast of this debatable inscription. My eye was at once caught by the variable element in the Initial Series Introductory Glyph. This was the normal form required for the month Kankin, resembling very closely, indeed, the variable element in the introducing glyphs of the Initial Series (9.10.10-0-0, 13 Ahau 18 Kankin) of the hieroglyphic stairway at Naranjo (Maler, 1908, plate XXVI), and that of Stela 5 at Piedras Negras (9.14.5-0-0, 12 Ahau 8 Kankin).

It was clear then that the readings proposed by both Teeple and myself were invalidated, and the search had to begin again.

Let us summarize the conditions to be fulfilled.

1. The terminal date of the inscription is 9.16.13-0-0, 2 Ahau 8 Uo. This is based on the fact that the closing date of the inscription reads "2 Ahau, end of Tun 13." Thirteen Katuns earlier, where this condition also occurs, is clearly too early,

and 13 or even 26 Katuns later, as Morley suggests, would in the former case bring the date to 10.9.13-0-0, over one hundred years after the last known Initial Series and the last known Lunar Series, and about two centuries after the most recent occurrence of the beetle glyph. It is hardly credible that this method of recording dates should have been revived such a long time after it had fallen into disuse, and even more unlikely that such a localized glyph as the beetle glyph should crop up again after about two centuries of desuetude. One is forced to the conclusion that the date must be 9.16.13-0-0, and the style of the glyphs and the use of head numerals in the Initial Series supports this choice. The carving of the principal personage also agrees with this date although the work is below the usual high level of art reached in most Maya cities of this period.

2. The day sign is clearly 7 Muluc.
3. The month must be Kankin, as explained above.
4. The moon is recorded as being two days old.
5. Glyph C of the Lunar Series has a coefficient of 2, and, in view of condition 1, must conform to the Uniform System in use at that time.

The only date to fulfill these conditions is 9.15.12-6-9, 7 Muluc 2 Kankin, and this is therefore the date of the Initial Series. Examining the Uinal coefficient carefully, one can see what appears to be the hafted ax in the eye, which is the distinguishing characteristic of the head form for 6.

At first I had considered that the Initial Series must be a date that would lead to the ninth variant of the Glyph G of the Lunar Series group. Subsequently I came to doubt this, as the glyph I had taken to be the ninth of the group of nine might well be the ordinary Kin sign found so frequently in Yucatecan dates following the day sign. The fact that the three shells or the maize leaf which usually serves as a suffix for this variant of Glyph G were absent added to my suspicion that this was not the Glyph G variant.

Furthermore the glyph following this (Morley, 1916, plate I) is the form of Glyph G corresponding to the third variant of the group, where the sum of the Kins and Uinals divided by 9 leaves a remainder of 3 (J. E. Thompson, 1929, Fig. 4). In the date finally chosen—9.15.12-6-9, 7 Muluc 2 Kankin—6 Uinals and 9 Kins are 129 Kins, which divided by 9 gives the required remainder of 3, supplying a final check to the decipherment.

This Initial Series date is, perhaps, the most important in the whole Maya area, for on it depends the whole history of northwest Yucatan.

As it is built into a temple with square columns and lattice work, and has not been re-used, as the cornice stone shows, these two features of northwest Yucatecan "renaissance" architecture are clearly datable as being in use by the beginning of the third quarter of Cycle 9. Indeed, as I elsewhere (Thompson and Pollock, final chapter) indicate, the stylistic treatment of the personage portrayed on one of these columns, while showing affinities to northwest Yucatecan art, is much closer to the "Old Empire" art of Cycle 9, confirming the fact that the columns and the Initial Series form a unit and are contemporaneous.

Furthermore the Toltecs can no longer be credited with the introduction of the square column, unless we are to believe that this elusive people, which, like a will-o'-the-wisp, has lured so many Mayologists into the swamps, entered Yucatan in Cycle 9. Elsewhere (Thompson and Pollock, final chapter) I show that the Holactun date is an important link in a chain of evidence pointing to an invasion, cultural or otherwise, up the west coast of Yucatan, and originating in all probability in the Chiapas-Usumacintla basin area.

In view of the early dating of the lattice work and square inscribed column it is clear that the "renaissance" period in northwest Yucatan is much earlier than we had supposed, and the periods into which the history of this area has been divided must be recast.

The date of the Temple of the Two Lintels at Chichen Itza, given as 1 Ahau, end of Tun 10, is, for example, surely earlier than 11-2-10.0.0 as Morley (1927 a, p. 236) suggests. One would scarcely expect lattice work to endure as a popular art motive for over 500 years, as such a date taken in conjunction with the lattice work at Holactun implies. This is quite apart from any problem of correlation, although it would lend support to the scheme of excision of 13 Katuns so berated by Spinden. This date of the Temple of the Two Lintels is probably 10.9.10-0-0, although 13 Katuns earlier is not impossible.

It is not the purpose of this appendix to discuss time sequences at Chichen Itza, but merely to point out some of the very important consequences that result from the certain reading of the Initial Series at Holactun as 9.15.12-6-9, 7 Muluc 2 Kankin.

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2. CEREMONIAL PLAZA, HATZCAP CEEL BEFORE EXCAVATION

1. TEMPLE F, HATZCAP CEEL AFTER EXCAVATION

2. STAIRWAY OF PYRAMID D, HATZCAP CEEL

INCENSARIOS, STRUCTURE M, HATZCAP CEEL

ALTAR 1, HATZCAP CEEL. DATE: 13 Ahau 13 Uo (10.0.5-0-0)

ALTAR 2, HATZCAP CEEL. DATE: 9.19.0-0-0, 9 AHAU 18 MOL

Courtesy of British Museum

1. STELAE A1, A2, AND A3, CAHAL PICHIK

from neg# 59842, alt #68m, 8x5

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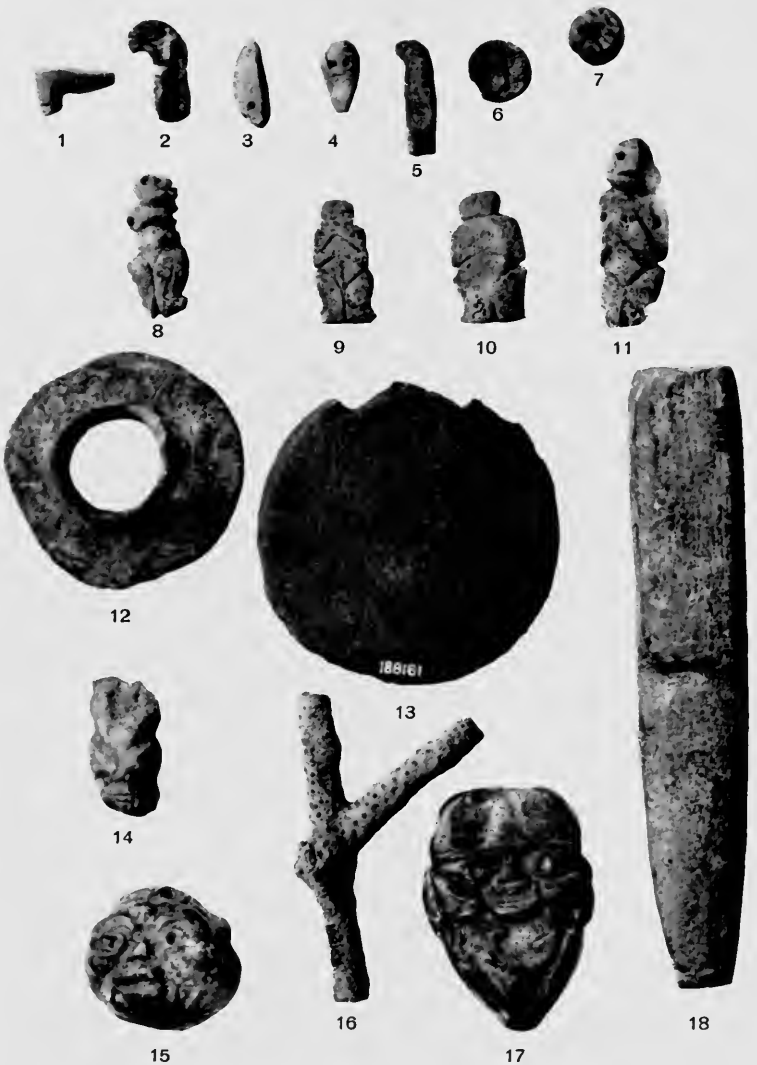
188134

2. PART OF CONTENTS OF VOTIVE CACHE 1, HATZCAP CEEL



PART OF CONTENTS OF VOTIVE CACHE I, HATZCAP CEEL

Neg # 73925 #68a (5X7)

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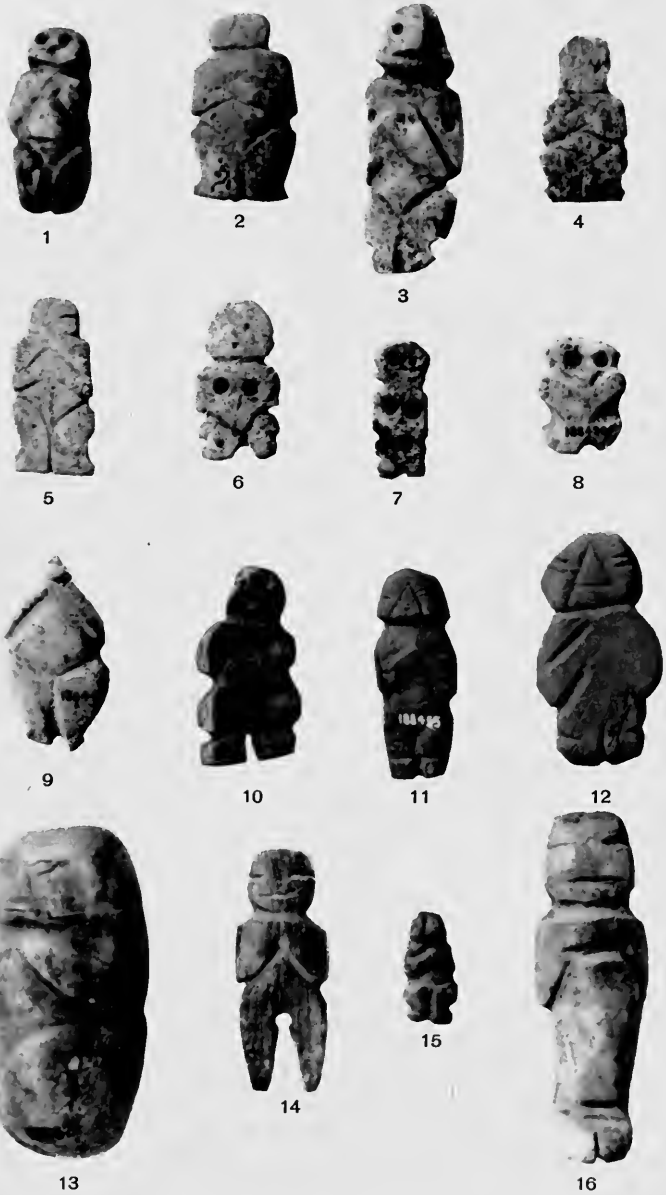
JADE OBJECTS FROM VOTIVE CACHES I AND 8

CELT WITH INSCRIPTION FROM VOTIVE CACHE 1

VOTIVE CACHE URNS, VOTIVE CACHES 2, 3 AND 8



FIGURINES FROM VARIOUS VOTIVE CACHES

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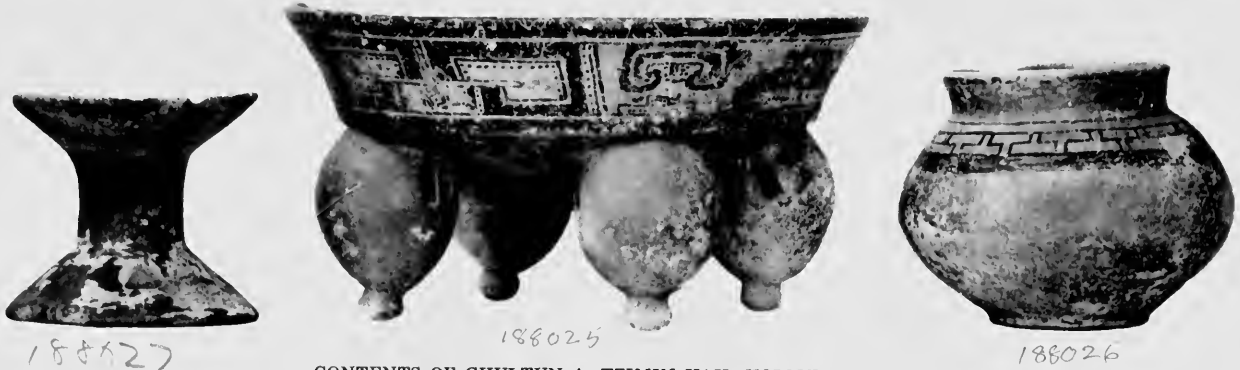
PART OF CONTENTS OF VOTIVE CACHE 5, CAHAL PICHIK

CONTENTS OF VOTIVE CACHE 8, CAMP 6

1. PYRAMID A, CAMP 6

2. CONTENTS OF VOTIVE CACHE 9, CAMP 6



188027 188025 188026

CONTENTS OF CHULTUN A, TZIMIN KAX, HOLMUL I PERIOD

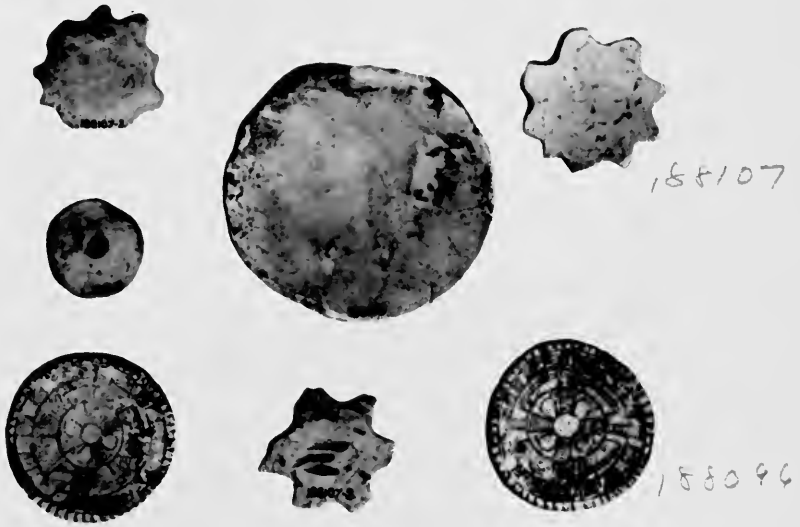
188168

188170

188169

CONTENTS OF CHULTUN B, TZIMIN KAX, HOLMUL I PERIOD

CONTENTS OF CHULTUN C, TZIMIN KAX, HOLMUL I PERIOD



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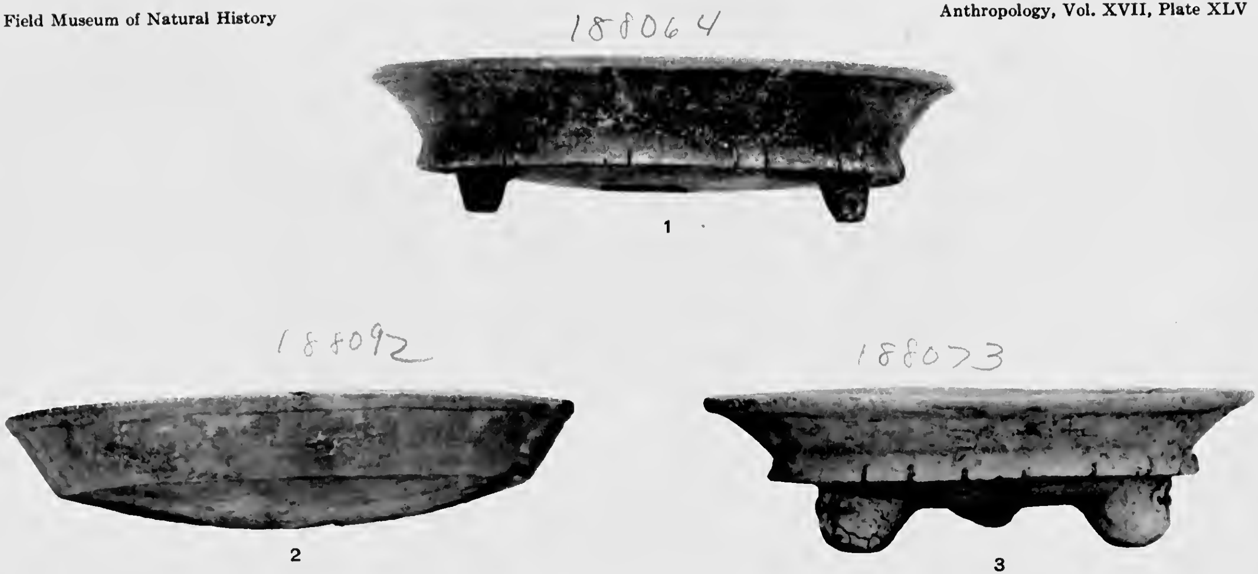
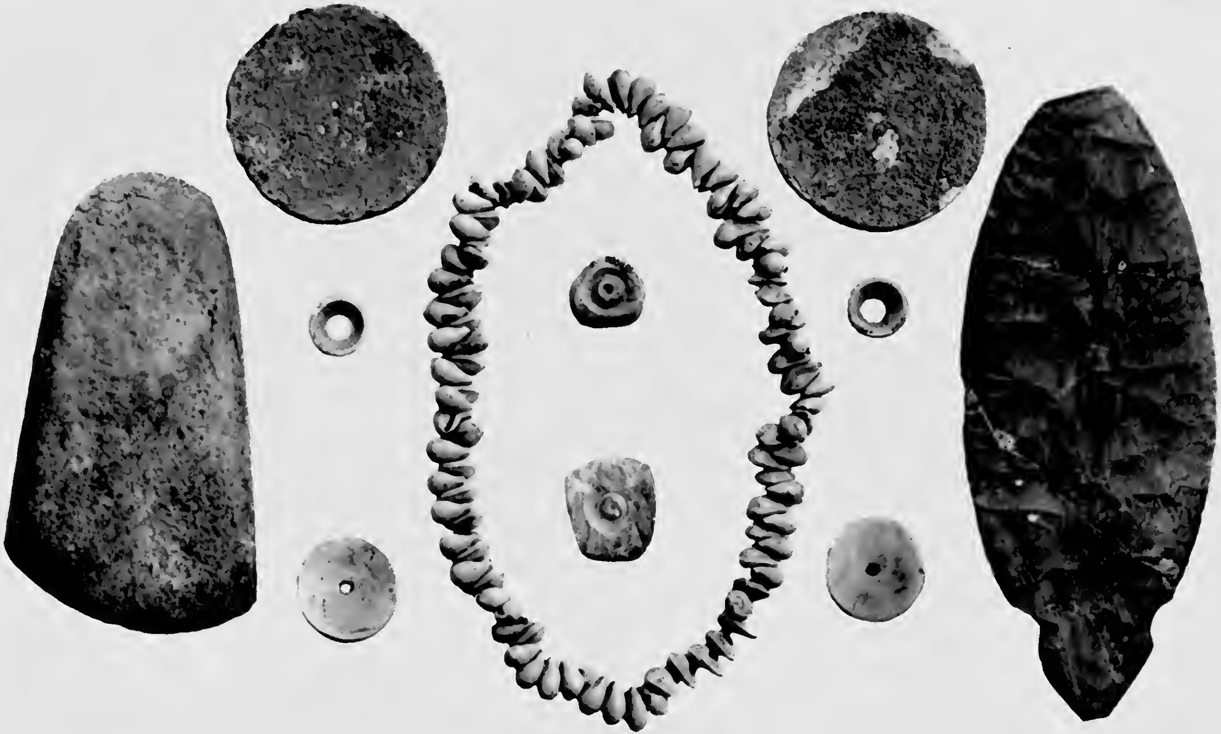


POTTERY VESSELS FROM VAULTED CHAMBER II, TZIMIN KAX, HOLMUL V PERIOD



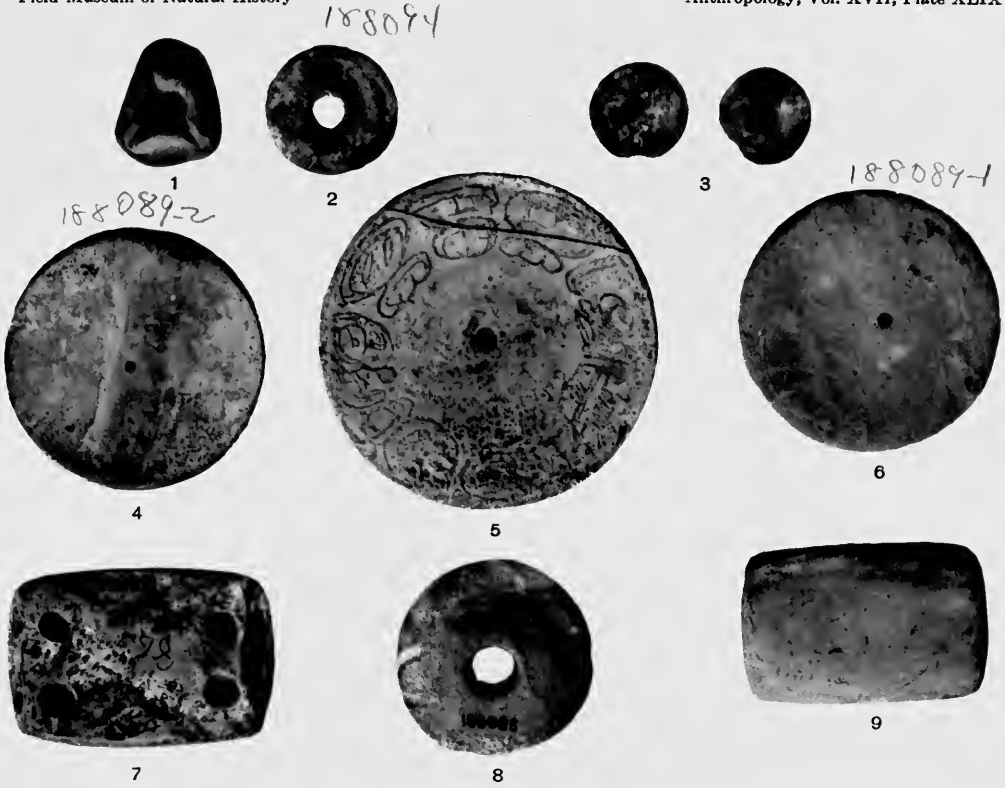
STONE AND SHELL OBJECTS FROM VAULTED CHAMBER II, TZIMIN KAX,
HOLMUL V PERIOD

ng #59833, al #68a
5×7

SHELL OBJECTS AND TEETH FROM VAULTED CHAMBER III,
TZIMIN KAX, HOLMUL V PERIOD

CYLINDRICAL JAR FROM VAULTED CHAMBER III, TZIMIN KAX, HOLMUL V PERIOD

Courtesy of British Museum



SHELL AND STONE OBJECTS FROM VAULTED CHAMBER X, TZIMIN KAX, HOLMUL V PERIOD

POTTERY VESSELS FROM CHULTUN D, TZIMIN KAX

188409

BOWL RESTING ON FLOOR 1, PLAZUELA I, CAHAL CUNIL, PRE-HOLMUL I PERIOD

ng#73923, al# 68a
7x5

1. STELA 26, COPAN

2. LOWER PART OF STELA 26, COPAN