

## UNCLASSIFIED BUILDINGS AND SUBSTRUCTURES

1. STRUCTURE F-3, *Linton Satterthwaite*

The general plan of presentation in this publication assigns structures of four functional types to as many Parts of the report. From Part 7 to Part 9 inclusive these types are *Temples, Palaces, Ballcourts* and *Sweat Houses*. There is a residuum of mounds about which we know something, and among these are the ruins of several buildings for which functions cannot be deduced with the criteria at present available. These, together with a platform almost certainly supporting an unexplored building ruin, are gathered together here. Among them is Structure V-1. A temptation to label this as a *Dwelling*, at least in its latest phase, has been resisted. In some ways the unclassified buildings are the most interesting of the lot, simply because we know least about their uses. Their classification on a functional basis may become possible in the future, when the largely unknown house-mound areas of several Maya sites have been systematically sampled.

## Preliminary Remarks

Before our superficial excavations in this mound a considerable expanse of outer rear wall surface showed at the building's left end. Here it stood to full or nearly full wall-height, but no part of the vaulted roof had survived. The mound appeared much higher from the front and from the right end than from the rear or from the left end, due undoubtedly to erosion from the hill rising sharply in those directions. Excavation, by Satterthwaite in 1934, was confined to a center trench and pits, the objective being identification of the roof-type and cross-section dimensions. A little clearing was done at the left rear corner to locate it as a basis for reconstructing the plan without digging it out. Digging was with only intermittent supervision. No points were surveyed or triangulated, so the plan (Fig. 10.1) must be shown as rectified. We neglected to take levels on the structural units, so the sections are based on straight measurements, except mound surface lines, which reflect careful work with the leveling instrument. The chief interest in Structure F-3 lies in the fact that it was a vaulted building of medium vault-span index in a peripheral location. Also interesting are the presence of a portable altar on the floor, its narrow center door, and the possibility that there may have been only one door (Fig. 10.1).

Building and substructure units have been lettered C to A, with no reliable data on whether they are chronologically sequential in more than a mere structural sense, except that they are alike in masonry. The structure faces east, probably close to due east, judging from Parris' location of the mound before excavation.

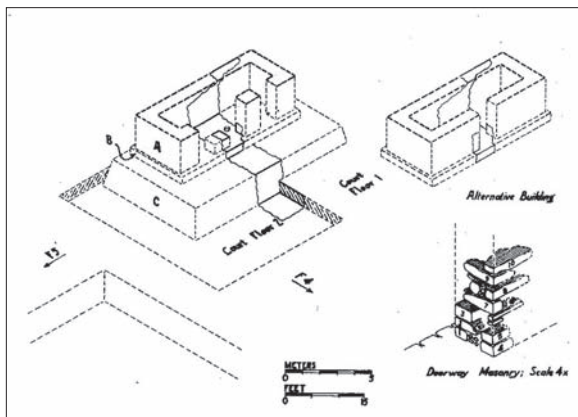


Figure 10.1 Isometric perspective reconstruction of Structure F-3, with part of Court Floor 2 cut through to show original platform height. At right, alternative reconstruction of building; also sketch of corner stones at four times the given scale.

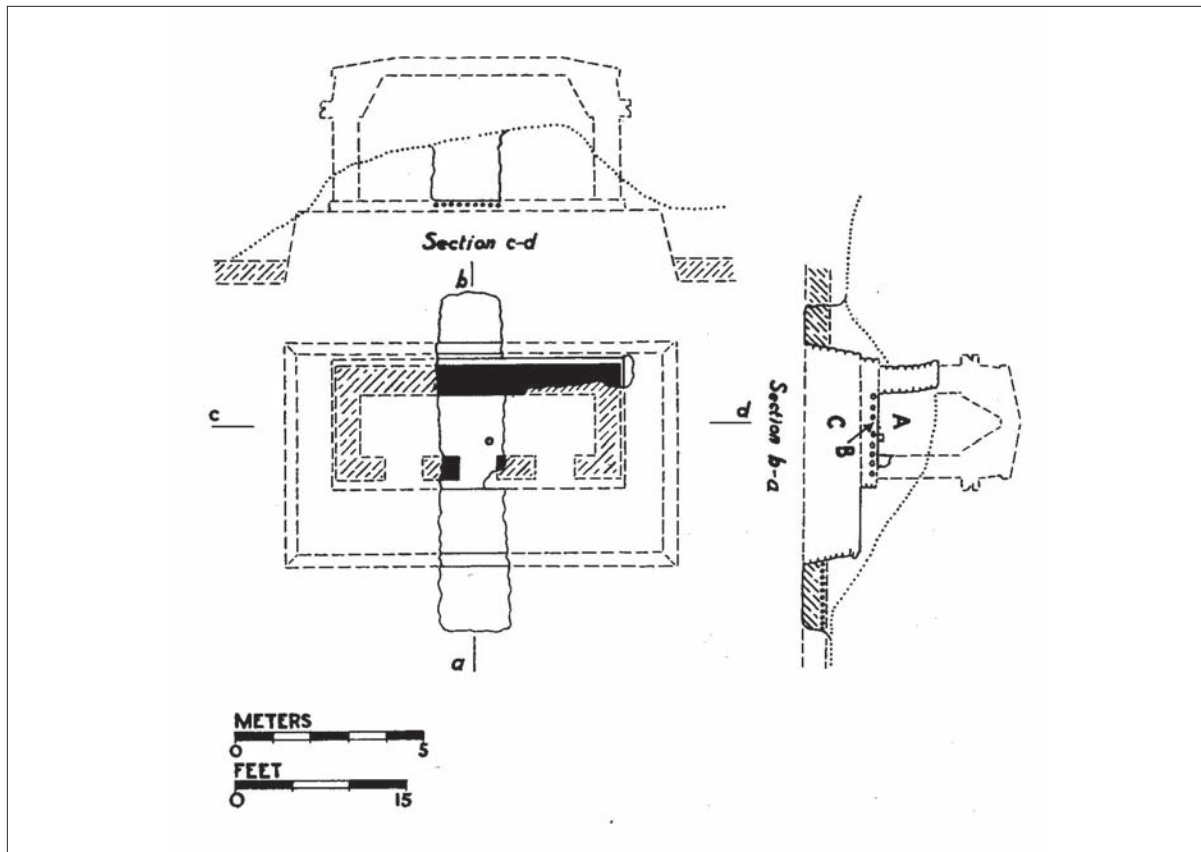


Figure 10.2 Plan and Sections of Structure F-3. Note that center doorway only is certain.

### Court of Structure F-3

Originally the court was behind and about 1.5 m above a broad platform which itself is apparently a leveling of the Northwest Group Plaza, opposite Structure J-29. Both platform and court are probably adaptations to terrain. Our little court, and a higher level to the rear, have the effect of carrying the approximately level plaza area as an enclave a short distance up a small valley, leading to the saddle between two Hill AB peaks (see site map, Figure 1.1). Structure F-3 faces the side of this court.

After erection of Unit C the court floor was raised 60 cm (Figs. 10.1 and 10.2). This upper floor (Court Floor 1) slopes noticeably down toward the plaza (south), while the lower one apparently slopes down somewhat from east to west toward the center of the court. Both slopes may apply to both floors, and would be useful for drainage.

We have no data on the extent of the lower court floor, and remains of other structures on it may be

concealed by the later fill. But there seems to be no sign of structures other than F-3 facing this court as finally raised, except an end of Structure F-4, which is provided with a doorway.



Figure 10.3 Inner building-wall masonry. Rule stands on floor and against rear wall. Portable altar in situ.

Table 10.1 Average Dimension Tables: Platform Units

Unit	Height	Length	Depth	Slope
C	1.5	7.5*	3.4*	81 deg.
B	0.3-0.4	10.0*	5.9*	V

*Note: Starred dimensions are approximations usually based on reconstruction; the letter V means approximately vertical.*

## Substructure Units

### Supplementary Platform (Unit C)

We have precise data only on the cross-section. The length as restored is based on location of one corner and on an accurate debris-section (Fig. 10.2). There seems no doubt that this platform stood entirely free. Whether so much of its surface as we show in the reconstruction was exposed along the ends of Unit B is questionable; the corners may not have been rectangular and may have been inset. A centered stairway from Court Floor 2 (the earlier), if ever present, must have been removed, since the later floor runs out from the Unit C wall. But a stairway from this higher and later level might have been missed.

The slope, measured at front center, is considered reliable. We failed to note whether Court Floor 2 runs under this unit.

### Building Platform (Unit B)

This also is known with certainty only by the cross-section. At left rear, corner stones of this unit and of the building were in semi-position. On the spot we concluded definitely that the sides of both were flush; but on examining photographs and considering the fact that wall stones of the building had unquestionably been moved somewhat by large roots, we have restored a 10 cm plinth-like exposure here. It is possible that this should be about 20 cm wide, as was sure at front and back. No data were recovered on run-under of the floor of Unit C. The height of Unit B is 40 cm at the rear, 30 cm at the front, accounting for a building floor slope which was noted but not measured.

### Building (Unit A)

#### Plan and Section

Piers and doorways of collapsed vaulted buildings are often invisible before excavation, and there was no visible sign of the central doorway here until after excavation. We dug only at center. Hence we have provided alternative restorations with and without piers and extra doorways (Fig. 10.1). The simpler plan was used on the map of the site. The restored wall-height is slightly more than a required 2 m minimum. Stones surviving above this, in semi-position, may or may not pertain to a medial molding (Fig. 10.7).



Figure 10.4 Cut section through debris in room of Structure F-3. Rule extended to 1.4 m, stands on floor. Jamb of centered doorway at observer's left.

A vaulted roof is restored on the most reliable evidence, short of actual survival. The room debris was 1.5 m deep at center and was largely a mass of slabs such as do not occur in the walls, together with masses of mortar (Fig. 10.4). Specialized capstones were present (Fig. 10.5).

### Portable Altar

This small drum-shaped stone was found in the position shown in the figures, its center about 40 cm behind the line of the front wall or piers and about 25 cm left of a line at right angles to it, and passing through center of the central doorway. It appears in Figure 10.4 *in situ* and in this same position in the drawings. Floor finishing plaster was good on this floor only in patches, as if partly destroyed by our digging. However, the altar was carefully removed by Satterthwaite. It was level, its base at floor level, and it was right side up, as indicated by markings as if from use on top, and by the rough-worked bottom. There was no finishing plaster on the floor below it, contrary to the situation in the nearby Structure F-4. Dark red paint was noted on the altar sides from the top to at least 2 cm from the bottom, where it fades out.

We can interpret these facts in several ways. The altar may have been set 2-3 cm into the plaster floor, in the markedly forward and off-center position found, and then painted. This would account for finding no

finishing plaster below it. But the observed disappearance of patches of plaster on the floor generally may have occurred in occupation times, and would also account for this. In such case the altar may have been so set, or may have been merely placed on top of the floor, in either case elsewhere, and have been moved to a damaged floor area at or just before abandonment. Paint near the bottom would tend to disappear with handling, perhaps with sweeping or washing floors. It must be admitted that lack of finishing plaster below the stone, and lack of paint near its base, can be used as arguments against the portable nature of the stone.

Table 10.2 Average Dimension Tables: Stage Elevation

Unit	Stage Elevation	Depth
C	1.0-1.6	1.8

In this connection, a slab of what seemed to be floor material was found in position leaning against the edge of the altar. Two or three sherds and a couple of small bones were noted in the immediate vicinity, above base-of-altar level. Two or three long-bone fragments were found about 15 cm below the altar, in the floor material.

Considering all these facts we have concluded that the floor was probably losing its finishing coat at the time of abandonment, that the stone drum is properly classified as portable, and probably had been pushed from a centered and more rearward position at that time. What was taken as broken floor material leaning against it may easily have been thick plaster fallen later from walls or vault. There was no other evidence suggesting intentional tearing up of the floor.

### Decoration

There was no reported sign of painted or sculptural decoration on any unit. Conditions for preservation of stucco fragments here were better, if anything, than at Structure F-4 where they were found.



Figure 10.5 Capstones from debris of Structure F-3; part of one on right missing; holes in it probably not artificial.

### Narrow Façade Doorway

The doorway width is only 1 m, decidedly narrower than any other outer doorway known at this site, except for stone-linteled steam-room doorways in sweat houses, which in some cases may have been in the façades. The width used in this building is similar to many at Yaxchilan, where heavy stone lintels are common. No fragments of such a lintel were found here. The door was presumably spanned by wooden beams, though a stone one would have been practicable.

### Mound Interpretation

The two debris sections of Figure 10.2 were carefully made with tape and leveling instrument. With floor level known by an exposure of the plinth the room debris depth was known before excavation, and was such as to leave no doubt of a fallen vault. This mound is a good illustration of how fallen vaults can often be distinguished by debris depth alone, without excavation, if there is a clue to the floor level. Notes on the character of the stone visible at surface were not made here.

Table 10.3 Average Dimension Tables: Building (Unit A)

Section	Table		Elevation	Table		
W	R	W'	Length	Depth	Piers	Doors
0.65*	1.7*	0.7	7.5*	3.0*	1.0?	1.0 center

Note: Starred dimensions are approximations usually based on reconstructions.



Table 10.4 Object Table (Operation NE-2)

Position	Sherds	Miscellaneous
1. Surface to floors of Units A, B, C and Court Floor 2, in trench on center axis running from court to inside rear wall of building; field notes suggest objects are from under floor of building, i.e. in Unit B, at least in part.	NE-2-1	Few small bones and fragments.
2. Surface to level of base of Unit C, from pit at outside rear center.	NE-2-2	
3. On building floor, or possibly set in it.		NE-2-3 (portable altar)



Figure 10.6 Masonry of Unit C, front center. At top, stones of unit B and, at upper left, of Unit A, the building. Rear wall of building shows through doorway (Str. F-3).

### Dating

The masonry suggests general contemporaneity with the vaulted palaces of the Acropolis, as does the vaulted roof itself. The vault-span index of 40 percent is not here limited by space considerations. This proportion of wall thickness to span is almost identical with that of Room 1 of Structure J-6-1st, rather well dated at 9.17.15.0.0, but both span and wall thickness here are less. If piers are found to be absent here the index should be weighted, i.e., made somewhat higher, for comparison. A rear wall thickness of 73 cm, reflected in Figure 10.2, as opposed to 65 cm for the front, is probably erroneous. It is deduced from a circuit of linear measurements without triangulation, and is restored as 65 cm in the section table, in agreement with the front wall (or pier?) thickness.

Sherds of Position 1 (Table 10.4) may date from any time. They were so scarce as to suggest they are from within masonry or some floor. Included is a lipped sherd with orange bar decoration such as was found in the Room 1 fill of Structure J-6. So, while proof is lacking, both masonry and ceramic criteria permit placing the building in the middle of the supposed vaulted period, in accordance with its index.

One mottled sherd from Position 2 is probably from an early-type bottle. Court Floor 1 was not here identified, but the sherds were probably from within it, or possibly from Court Floor 2. As at Structure F-4, nearby, there is this indication that this spot was in use from early to late ceramic times.

### Abandonment

As noted, the paucity of sherds suggests they are from within masonry or floors. Apart from the altar and a few bones and bone fragments, nothing was found. The center of the room, at least, seems to have been left clean.

### Function

This building, like the nearby Structure F-4 next described, contained a portable altar. But that building also is unclassified. If there is but one doorway here, we could scarcely feel secure in classifying this structure as a palace of local type. If, however, it turns out that there are three doorways, such classification might be considered. It would then be much shorter than the shortest three-doorway palace or palace room which we have put in that category, and the shortness of those others seems due to lack of available space, a controlling factor absent here. This building seems to be late, rather than early, and agrees with palaces of all periods rather than with late temples in its simple rectangular plan-outline.

If it was a temple, in its simple outline its affinity in this respect is with the early Structure K-5-3rd temple, and, possibly, with Structure O-16. However, the latter building may have had the complex Petén outline. Construed as a temple, Structure F-3 would be the only known vaulted one at this site, which was not on

a pyramid, and if there is one doorway only, the only vaulted temple at the site with this feature.

If it was a dwelling, being vaulted it certainly is not of the type which surface examination leads us to expect in the house-mound areas. It may be considered to lie in such an area since it does not face the nearby plaza and is somewhat retired from it. We lack any positive reason for seeing the dwelling function here.

The portable altar indicates at least intermittent ceremonial use of some sort. The paint on the altar shows that this did not include use of fire.

### ***Future Work***

One or two man-days should suffice to determine whether there is more than a structural sequence between the lettered units, to learn the building-wall height, the corner design of the Supplementary Platform, and whether it had a stairway. There would be a fair chance of finding included sherds, and perhaps a bedrock deposit. Most important, one would like to know whether there are other doorways (Tables 10-1-10.3).

### ***Masonry Notes***

#### ***Fills***

Only that of Court Floor 1 seen: solid earth and stone. Some of the stone looked like poor building stone. No data on fill walls.

#### ***Walls***

Satisfactory exposures of all units indicate no distinction in masonry types, except that thick tablets and blocks were selected for the top of the building platform wall (Figs. 10.6 and 10.7). Stone in the walls of Units C and A, both outside and in, is medium-size tabular, with many short thick blocks and a few irregular stones and with plentiful

tabular chinking (Figs. 10.4, 10.6, and 10.7). Partial reconstruction of the right door jamb from photograph indicates bonding (Figs. 10.1 and 10.4). Mortar grayish yellow.

#### ***Vault***

Debris indicates typical slab type (Fig. 10.4) with typical capstones (Fig. 10.5); remains of much grayish yellow mortar.

#### ***Floors***

Court Floor 1 noted as poor; Floor 2 showed crushed stone remains of concrete. Structure floors undoubtedly concrete (memory, no note made).

#### ***Plaster***

White finishing plaster seen on room floor, in patches; possibly in good condition before excavation, but absent under portable altar. Gray plaster not noted. No wall plaster seen in position.



Figure 10.7 Masonry of all units, at rear. Face of Unit C shows only in pit. Man's foot is near left rear corner of Unit B (Str. F-3).

## **2. STRUCTURE F-4, *Linton Satterthwaite***

### **Preliminary Remarks**

About two-thirds of the interior of this building was cleared by Satterthwaite in 1934. Before this no walls showed. The ruin of the building walls was great, and probably most of the damage dates from the time of collapse. Our original objective was merely the determination of roof-type and cross-section dimensions. This objective was expanded to learn the building plan, which is unusual at

this site. Interest was augmented by finding a portable altar *in situ*. Little attention was paid to substructure components, and none to stratigraphy. The components have been given the Unit designations D, C, B and A (Fig. 10.8). They must have been constructed in this order of time, but whether the sequence was more than a mere structural one was not determined. The structure faces about due south, judging from Parris' location of the mound before excavation.

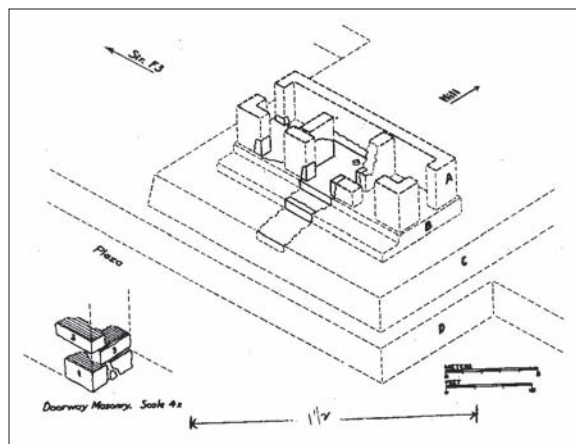


Figure 10.8 Isometric perspective reconstruction of Structure F-4; at lower left, sketch of corner stones in doorway at four times the given scale.

## Substructure Units

### *Probable Basal Platform (Units D and C)*

Unit D is reconstructed as partly a continuation of the wall retaining the fill for the court of Structure F-3, which latter is about 25 m to the southwest, facing toward the end of Structure F-4. But the drawing of Units D and C is founded on debris contours only, taken in the main from Parris' map, confirmed by memory and photographs. The height of D is estimated as 1.5 m from a photograph. That of Unit C, 1.5 m, is deduced from accurate levels running to Structure F-3, the plinth of which is 48 cm below the Structure F-4 floor, near the altar. However, if Unit C

dates from the time of the upper court floor, seen only at Structure F-3, it was only about 90 cm high.

Both Units C and D are probably adaptations to natural terrain. The contours of the hill, which rises steeply close behind them, indicate that bed-rock rises gradually under the court, but more steeply under Units D and C, necessitating a higher level for the latter. Unit D is restored as continuous with the court platform, without real evidence. It is quite possible that a stairway rose from the plaza to give direct access to the stage formed by Unit C, in front of the building, and that another stairway connected Unit C with the court of Structure F-3. Without excavation, stairways of the required small projections cannot be deduced from debris contours.

### *Building Platform (Unit B)*

The cross-section is known (Fig. 10.9). This is similar to that of Structure J-11-1st and we have reconstructed the ends of the platform on that model. The height of lower and upper faces was 35 and 40 cm. We have restored 10 cm for slope of the step-like stage, considering 11 cm of height-difference as due to settling.

### *Building (Unit A)*

#### *Plan and Section*

Figure 10.9 shows, that the reconstructed plan is quite, reliable, the contour of the mound calling for a left room of about the size of the right one. The partitions between rooms are structurally secondary to the main walls and piers, which they abut. We did not have the wit at this time to determine whether base levels and plaster might prove them a non-contemporary modification, nor

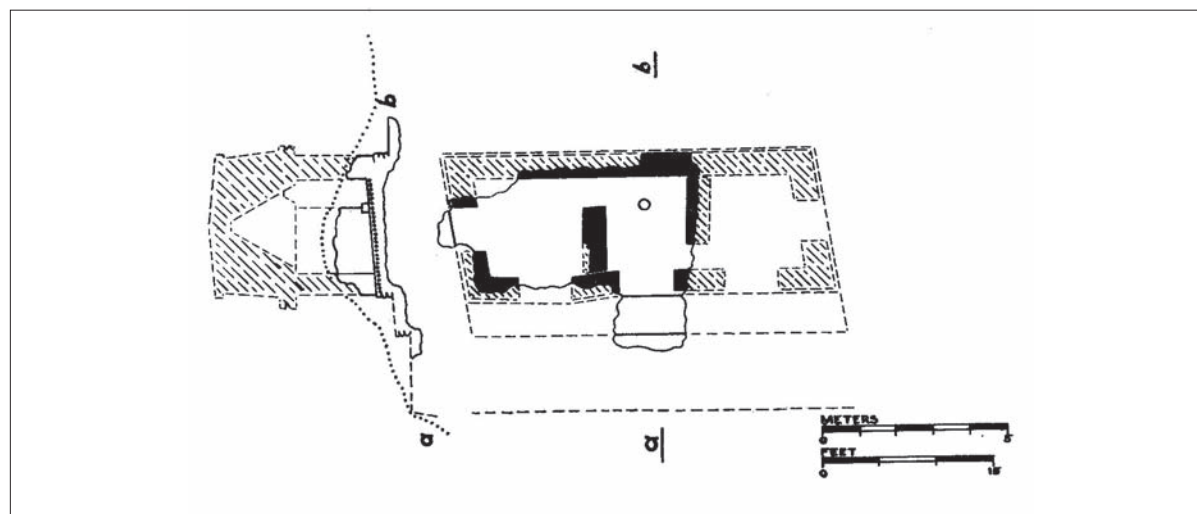


Figure 10.9 Plan and Section of Structure F-4.



whether the main walls represent the first building on this building platform

10.5 Average Dimension Table: Platform Units

Unit	Height	Length	Depth	Slope
D	1.5*			?
C	1.5*			?
B	0.9*	9.7*	4.0	V

*Note: Starred dimensions are approximations usually based on reconstruction; the letter V means approximately vertical.*

The maximum depth of room debris was 1.3 m; there was much disintegrated mortar, and many slabs including capstones, while slabs appear to have played little part in the wall masonry (Figs. 10.10, 10.11 and 10.12). Although maximum surviving wall-height was only 1.3 m there can be no doubt of a vaulted roof. Wooden beams undoubtedly spanned outer doorways, fragments of stone lintels, necessarily thick, being absent.



Figure 10.10 General view of Structure F-4 excavation, looking down and from rear. Portable altar in situ. Men stand before central and end doorways. Part of rear wall stump and plinth in foreground.

In the cross-section we have reconstructed the wall-height, roof and vaulted interior doorways, with vaulting on the partitions on the model of Structure J-11. We actually know nothing directly about roof and ceiling design. The placing of vaulting on secondary partitions certainly occurred on Structure J-9, though there the interior doorways were not vaulted. Primary vaulting on transverse partitions, with vaulted interior doorways as shown here, definitely occurs on Structure J-11. To reconstruct the transverse walls straight up to the main vaults would run counter to a pattern established near both ends of the vault-span index series.

There was a decided slope (16 cm) from the rear of the middle room to the building-platform edge at the front, as in the front room of J-11-1st. Unlike that case, the platform faces did not show a corresponding rise, the height at rear center of Unit B, outside, being only 3 cm more than at the front.



Figure 10.11 Masonry of partition; rule extended to 1.42 m, rests on floor and leans against it. Portable altar in situ in middle room, man in right room (Str. F-4).

The floor of the rooms was in rather good condition, like many of those on the Acropolis, and its white finishing plaster turned up to the walls. The color of the body of the floor was not noted. Gray plaster is too striking to have been missed, and undoubtedly was absent here, despite lack of the proper note.

#### Portable Altar

This altar, to be seen in both drawings, was nicely centered behind the middle door, resting on unbroken white finishing plaster of the floor. Despite its careful placement it was clearly a movable piece of furniture. Drum-shaped, it is 27 cm and 23 cm in diameter at bottom and top respectively, and 17 cm high.

#### Measurement

The parallelogram type of reconstructed plan is based on triangulation of all building-wall and door corners shown in black and of two points on the inside of the rear wall. Solid lines on the substructure are made to conform but were not so located.

It will be noticed that the partitions do not run parallel to the parallelogram axis. Either the entirely hypothetical position of the building's left wall is wrong, or the partitions were not laid out from either end wall. The situation shown assumes that one of the partitions was laid out with the eye, seeking a right angle with the rear wall, with good results in this case, and that the



other was located in the same way or by measurement from the first. The situation is similar to that in Structure J-9, where both end walls are known. If we restored the left end as parallel with the partitions, and at a right angle to the façade, we should have to make the rear about 50 cm longer than the façade. This is improbable in view of the much greater accuracy in over-all linear dimensions noted elsewhere on larger structures.

The altar was placed quite accurately with reference to the partitions. At the short distance involved this could be done quickly with the eye.

10.6 Average Dimension Table: Stage Elevation

Unit	Stage Elevation	Depth
C		2.0*
B	3.5	1.0

Note: Starred dimension is an approximation based on reconstruction.

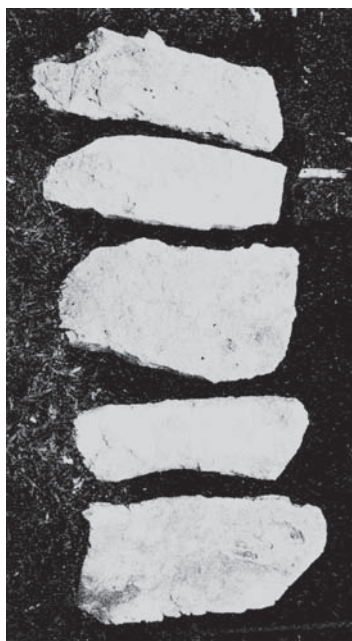


Figure 10.12 Capstones from debris (Str. F-4).

### Decoration

Much mortar was noted in the debris just outside the central doorway, on Unit B. Several fragments of modeled stucco decoration were found in this debris, and in the central and right rooms. Some showed sherd inclusions. Sherds with stucco adhering, undoubtedly all that is left of such fragments, were found in all three locations. There is little doubt of the former presence of stucco decoration both inside and out. The latter is perhaps a confirmation of the vaulted roof reconstruction.

### Mound Interpretation

A preliminary examination of this mound with nothing but a meter stick led to an uncertain estimate of 1.6 m total debris-depth, and of 1.3 m debris on the floor. The latter turned out exactly correct. Several large slabs, thick and some reasonably thin, were noted on the surface at top and side, wall-stone predominating near the base (at rear). On this basis a completely fallen vault was correctly considered possible and highly probable.

A large thick worked stone was taken to be a corner stone, and a rear doorway was postulated as probable. This was wrong, unless in the left room. We correctly deduced that the front was in a long side of the mound, and that this faced the plaza, because of the sharply rising hill close to the other side. The existence of piers and front doorways was completely masked by the debris.

If we had had the sweat-house type of mound in mind at the time, we could have deduced from the length of this one, and the absence of comparatively flat areas at the sides at building platform base level, that we were not dealing with a sweat house.

### Dating

The section table (Table 10.7) reflects measurements to the left of center on the theory that collapse may have moved the front of the right room appreciably forward, and so increased the apparent span there. Nevertheless the vault-span index at center, 24 percent, is the lowest at the site. Although the partitions may be original and may have relieved the piers of considerable stress, and although the wall height may have been less than that restored, this proportion seems to indicate a late date in building activity here.

10.7 Average Dimension Table: Building (Unit A)

Section	Table		Elevation	Table		
	R	W'	Length	Depth	Piers	Doors
0.6	2.6	0.6	9.5	3.8	1.3	1.4

## 10.8 Operation NE-3 Object Table

Position	Sherds	Stucco	Miscellaneous
1. On or in debris on Unit C, center	NE-3-1	NE-3-2	NE-3-1 (stalactite)
2. On or in debris on Unit B, i.e., bldg. Floor, central room	NE-3-5	NE-3-6	
3. Same, right end room	NE-3-3	NE-3-4	NE-3-3(2 stalactites)
4. Specific position unknown (includes above and excavations outside right end and rear center).	NE-3-8	NE-3-9	NE-3-7 (frag. <i>mano</i> stone?) NE-3-8 (pumice polisher) Daub-clay fragment

*Note. Pumice stone worn flat on one side; this and stalactites and mano fragment covered with lime dust, all probably from stucco or masonry hearting, as, probably, were most or all sherds. Stucco remains adhered to some sherds in all positions, and visible sherds were present in some stucco fragments at Position 1.*

This is confirmed by some similarities between the plan here and plans of the low-index group of palaces; and also by what could be seen of masonry style. However, this was confined, unfortunately, largely to the partitions. The masonry similarities are also with that palace group.

Further confirmation of a late dating comes from sherds in the stucco, though of course these sherds might post-date the building itself. Lipped bowls are late in the Acropolis ceramic sequence, as is orange-bar decoration, also seen in fill presumably laid in Structure J-6-1st at about 9.17.15.0.0. This decoration on a lipped bowl, with stucco adhering to the particular sherd, came from the debris in front of the doorway, as did a lipped sherd painted in a bold style similar to that of the monkey bowls. These latter were probably in use at the time of abandonment (The monkey bowls are illustrated in Satterthwaite 1942a).

Two groups of sherds came from general digging in debris, that is, without precise knowledge of provenience. One foot from an orange flanged-bowl is among these, but together with late types. The early type sherd may have come from outside the building, perhaps from fill.

After completing work, a good specimen of daub-clay was noted in our dump at rear center, located outside the building and its platform. This was noted as probably from below pavement level, a level which could not be clearly distinguished without a larger excavation. Original surface of the fragment had not survived. Elements of apparent wattle-work or stockade construction were about 1 cm in diameter, with about 2.5 cm clear space between. A clay-daubed wooden building in this vicinity, destroyed by fire and followed by a vaulted one, perhaps much later, is indicated, the sequence not definitely proved. The time-interval may of course have been of any length. Wattle rather than stockade basic construction can scarcely be claimed as certain.

### Abandonment

The stucco was either on the building or, as fragments from an earlier one, was in its masonry. Sherds in the building were few and most were surely, all probably, from the stucco. No other objects were recovered inside the buildings, except possibly a *mano* stone fragment, a pumice polisher and two stalactites, which could have been used in the masonry; and the altar. We can say that the Maya left the altar nicely in place, the floors probably clean of other imperishable objects.

### Function

We have not classified this building on a functional basis. Its position, opposite the pyramid temple J-29, and facing on a large plaza, well above plaza level, is as imposing as some of the less important temples, such as Structure U-3. Its situation is more imposing than those of some palaces but less so than those of some others, such as Structures J-1 and R-7. The position seems of no value in speculations as to function. Its plan recalls the local palace type in respect to end doorways and in partitions ending at one jamb of narrow doorways. The staggering of these doorways, one to the rear and one to the front of the longitudinal room axis is unique here, but recalls a similar arrangement at Yaxchilan (Maler 1901, Figure 46; Bolles 1938, Structures 20, 33, 42, 44). The arrangement might be for support of the vault, even if secondary and as a repair, and has no obvious present value for us in determining the function of this building.

The simple rectangularity of the building and the known cross-section of the building platform conform to local practice in palaces rather than in temples. The debris section leaves little doubt that the platform was set back on Unit C. If there was a stairway to the plaza there would thus be a stage not unlike those of the temple pyramids. A column altar, if placed here, would probably have been found, despite the obvious collapse of the top of Unit C. But of course a portable altar might have been removed at

any time. The situation of the center room and possible substructure arrangements thus are suitable for ceremonies quite similar to those indicated for a temple, if we eliminate the use of fire of which portable altars never show evidence. However, such reasoning is not convincing.

There were no fires in either of the rooms excavated. The amount of door space in the known end room does not suggest suitability for sleeping. The central room-plan seems just as badly planned for sleeping accommodations, and the altar shows at least occasional ceremonial use, as in the nearby Structure F-3. We must remember that there may have been originally only one large room. In either case this building seems more like a palace than anything else, and while benches are absent, as in some palaces, there is no reason for suspecting an ordinary dwelling function. A possible fragment of a grinding or *mano* stone, from Position 4, was covered with lime dust and does not help us. It probably was used as wall material or in stucco work.

Everything considered, this building hints at a late merging of temple and palace function. But adequate sampling of small mounds might suggest a special classification for it. It is an argument against presuming at present that all “house-mounds” were dwellings.

### ***Future Work***

Because of the unusual plan, the presence in position of the altar and the apparent lateness of this structure, it should have been determined whether there were a front stairway and left end doorway, whether the building platform is correctly restored at the ends, whether there is more than a mere structural sequence between platform and outer walls, and between those and the partitions, and whether inset corners are present on Unit C. These questions could be answered with three or four man-days of digging in untouched parts of the mound (Tables 10.5 to 10.7).

## ***Masonry Notes***

### ***Fills***

Not seen.

### ***Outer Building Walls***

Tabular stone, in very bad condition. At door jambs large well-squared tabular blocks showing bonding. Three of these at right end (southerly) door measured (in cm) 38 x 26 x 21, 47 x 23 x 17 and 55 x 20 x 14. The long dimensions alternated in the face of the wall, jamb, wall. Heights are given last. In the opposite jamb two comparable blocks measured 38 x 20 x 25 and 33 x 26 x 18 cm, respectively. The larger scale drawing of Figure 10.8 is of the first jamb, made to scale from a rough sketch. The inside corner, between the large stones 1 and 3, was formed of several small stones and mortar. No data on chinking. Stump at center of rear wall indicated absence of rubble-masonry wall-heating (Fig. 10.10).

### ***Partition Walls***

Photograph (Fig. 10.11) shows tabular stone with high proportion of short thick blocks and much chinking; irregular blocks and chinks prominent. Corner bonding seems to have been absent on these walls, which are not bonded to main walls.

### ***Concrete***

No notes made. All floors undoubtedly concrete.

### ***Plaster***

Floor in building in good condition, covered with white finishing plaster turning up to walls; no gray or yellow mortar noted below this and undoubtedly absent, unless on earlier floors.

---

## 3. STRUCTURE O-18, *Linton Satterthwaite*

---

### **General Remarks**

Within the main ceremonial groups, mostly made up of buildings known to be temples, palaces, ballcourts and sweat-houses, the map of the site shows a fair number of low rectangular mounds. Their blank tops reflect failure to excavate and, without digging, inability to deduce anything concerning buildings. It is likely that many, perhaps all, are ruins of low platforms supporting buildings at least partly of masonry. Most of these

structures can be approached from a main court or plaza. Only one such, Structure O-18, has been examined with a little excavation. By way of exception, this is the only one in this situation at which the contours of the debris showed what sort of building had fallen to ruin. Of the others we can say only that they are not the ruins of vaulted buildings. So far as masonry is concerned, this one consisted only of a building platform and masonry piers as indicated in Figure 10.13.

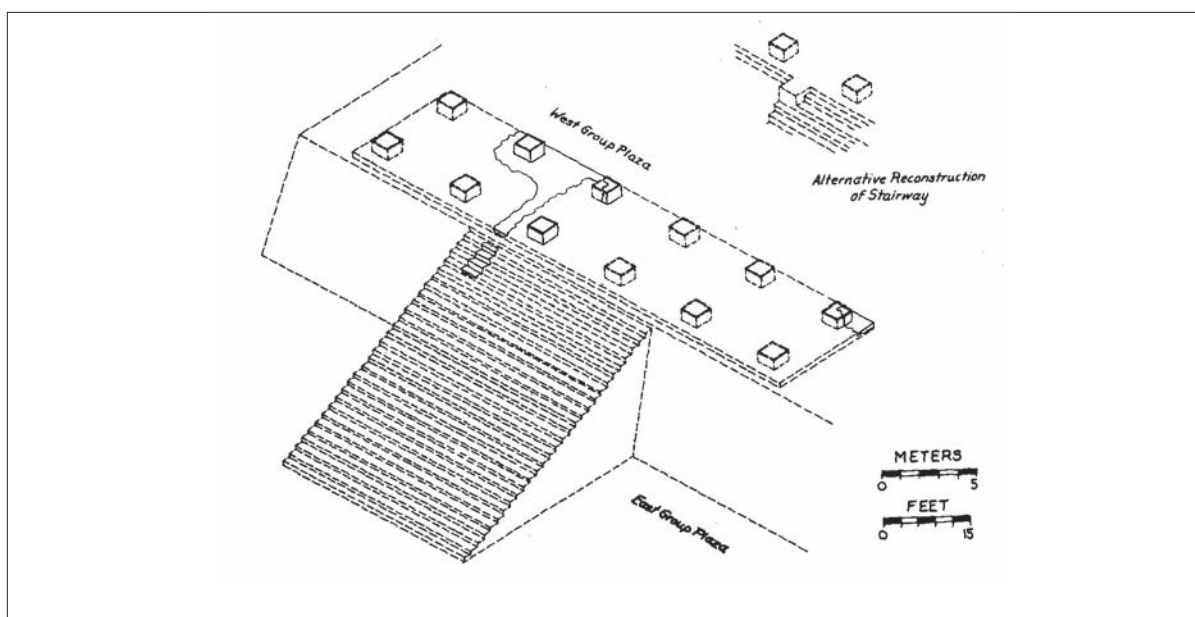


Figure 10.13 Isometric reconstruction of Structure O-18, based on minor excavation and contours of debris; alternative reconstruction at head of stairway based on position of Lintel 8, found as if in semi-position as face of masonry block; roof of structure presumably thatch.

The writer made very minor excavations here in 1931, attracted by the presence of Lintel 8 at the surface. No catalogued objects were recovered. In 1935 Cresson cleared a little more around certain piers in order to get measurements sufficient for the reconstruction of the figure, which is largely in broken line, but not for an accurate complete plan.

Before excavation no masonry showed anywhere, but twelve humps of debris were disposed symmetrically along either side of the otherwise flat-topped mound. One of the humps was sketched as having a height of 50 cm and a diameter of about 2.5 m.

Three humps were lower and harder to distinguish, but the others appeared to contain similar quantities of debris. We concluded that the masonry rectangles within investigated humps are the stumps of piers, which rose to roof height, though in the figure they are shown as cut down to surviving height.

No remains of walls or base-walls were found. This circumstance supports our inference that walls (probably base-walls), connecting similar piers at the nearby sweathouse Structure N-1, were absent there in an earlier phase. On the evidence, and unless there were walls of perishable materials, we must imagine the building of Structure O-18 as merely a thatch roof supported on masonry piers.

No plaster survived, but the level of the floor surface could be made out. Scantiness of protective debris is a

sufficient explanation for the absence of surviving plaster, which presumably covered floor and piers, and sure evidence for absence of a vaulted roof.

We did not dig at the center, but there was no special mound of debris there such as should have been evident if this had been a sweathouse, like the nearby Structure N-1.

#### Dimensions

Cresson's measurements of piers are given [in Table 10.9] (those in the first two columns apply to the two completely known stumps shown in solid line in the figure).

Table 10.9 Structure O-18 Masonry Pier Measurements

Façade side	1.0	0.9	1.0
Inner side	1.0	1.2	
Northeast side	0.9	1.2	0.9
Southwest side	0.9	1.2	

The notes fail to distinguish degrees of reliability, and we can guess that a difference as great as 0.3 m in adjacent sides of the pier in column B is partly due to the beginning of disintegration. It is apparent that square piers were intended, though probable that they were very carelessly laid out, and not well standardized as to size. One inter-pier space (between piers in same façade)



was measured as 3.7 m. A check measurement covering four piers and spaces shows that in the façade, 0.9 m for pier spaces and 3.7 m for inter-pier spaces gives a correct average result.

We have only one available measurement of the roof-span, that is, the distance between inner faces of opposite piers, and for which roof beams must have been unsupported. This is 3.2 m. Since this is a simple single-range structure placed where there was no space limitation on its depth, it is probable that the particular dimensions noted above reflect the designer's idea of the degree of massiveness necessary for a stable structure of the desired depth. The wall-span index of this report is, in fact, always figured for the weakest part of the building, that is, one uses the thickness of a pier rather than a long wall, if there are piers. So we may speak of the wall-span index of this structure, though there were no walls properly speaking. It is 30; similarly the inter-pier spaces may be considered as doorways, yielding a pier-door index of 26.

The piers here are somewhat less massive than is usual with vaulted or non-vaulted palaces and temples, but they are not so slender as at Structure N-1. On the other hand the inter-pier spaces are about 70 cm greater than at the latter structure, where these are comparable.

The known corner pier is set 73 cm in from the end and 60 cm in from the northwesterly edge of the platform, while two others are set respectively 55 and 50 cm back from the edge. Again one suspects carelessness in laying out the plan.

#### *Roof-Type*

The above combination of low indices was probably applicable to a thatch rather than a beam-and-mortar roof, since very heavy beams would have been required in order to obtain rigidity. On the other hand, a thatch roof hanging low over the sides would seem appropriate to so narrow and open a building, which otherwise would have afforded little shelter when rain was accompanied by wind. While there is no definite physical proof of thatch rather than beam-and-mortar roof, the thatch variety of non-vaulted roof is surely highly probable.

#### *Stairway*

The building is at the extreme southeasterly edge of the West Group Plaza which, in this region, was built up with pure rock fill. As a result a sharp and presumably terraced rise separates this plaza from that of the East Group. The building can be said to face either plaza, and protruding debris shows that an impressive stairway led down from it to the East Group. The four top steps were located by excavation, their positions indicating an angle of ascent of about 25 degrees, with risers of the usual height of 25 to 30 cm. As reconstructed, the height reached is 6 m,

an approximation based on reading the map. The amount of projection of the stairway debris, in relation to this height, confirms the other evidence that this stairway, like that of the nearby Structure K-2, was not a steep one.

It covered the central inter-pier space of the building, and part, possibly all, of the adjacent inter-pier spaces, but not the whole building. In Figure 10.13, the narrower possibility is assumed, and an alternative reconstruction at the top is suggested. The latter is a possibility, perhaps a probability, discussed under *Sculptured Fragments*.

#### *Contemporaneity of Components*

The steps were encountered while running a trench in toward the platform, the cut being about 1.5 m below the level of the platform-top. The trench was continued to a point 2.5 m within the platform itself, without recognizing any retaining wall behind the steps and, more surprising, without encountering a floor or working surface at plaza level. Therefore the stairway, the platform, and what may be a secondary extension of the plaza may be taken as contemporary. Whether the piers may have been significantly later was not determined. The possibility should be allowed for, since buildings later than their platforms are not uncommon, including the palace Structure J-2 on this same plaza.

### *Sculptured Fragments*

We were led to make the above-mentioned cut by the presence of "Lintel" 8, which protruded above the surface. Another fragment, "Lintel" 9, came from our cut into the platform fill, where it certainly had been re-used as fill material. Both pieces are described and illustrated by Morley (1938:3:208-210; 1938:5, Plates 142c-d). Each is undoubtedly part of a vertically placed panel, not of a lintel. Each shows the turtle-backed form of some panels, and each lacks the required bearing surfaces and adequate thickness for a lintel. The thickness of "Lintel" 9, and of "Lintel" 8 at the bottom, is 13 cm at the top the latter is 9.5 to 10.5 cm thick.

"Lintel" 9 is a small fragment from an upper right corner with glyphs, while "Lintel" 8 is a considerable slab with both left corners intact. It is very badly eroded, but a good deal can be made out. The panel was 71 cm high, and of some uncertain length which cannot have been less than the maximum length of the recovered fragment, 74 cm. If we restore with the proportions of "Lintel" 12 as a model, the length comes to about 1.5 m. This would be reasonable. Our fragment would then be a left half showing one of two nearly square sunken areas around relief carving, as we assumed at first. But it would also be reasonable to use the proportions of "Lintel" 4 as a control, and the length could then be only the minimum sure 74 cm. Other known models would place it between these extremes.

Though one piece cannot be fitted to the other, the two fragments called “Lintel” 8 and “Lintel” 9 might come from a single panel, so far as dimensions and designs are concerned. At each end there would have been double columns of glyphs of about the same size, joined at the top by one (possibly by two) rows of glyphs and (possibly) with a single row of glyphs on the lower border. However, on stylistic grounds, Morley denies that these fragments are from a single slab. Though nothing but traces of the glyphs on the large slab could be made out, this leads us to reconsider our original opinion that both were reused as building material.

When first seen, the “Lintel” 8 fragment stood at a steep angle, right-side up, its top at the level of the platform floor, but about 45 cm outside the line of the southeasterly platform face. Its buried bottom was about 25 cm still further away from that line, at the level of the base of, and in line with, the riser of the second step from the top. The latter step was seen on one side or the other of the slab, but not at the position of the slab itself. (We here count a presumed edge of the plaza terrace, functioning as a step to the platform, as the top step, though it was not found surviving here). The field drawing of the cross-section fails to show the platform intact behind this position, though it may have been missed. Base and top of the carved slab were approximately level, and the carved side faced out, away from the platform. The end and bottom edges showed the turtle-back form, but the top edge was eroded so badly as to produce an irregular cross-section.

At the time of the excavation here both the workman and the writer were inexperienced in following badly disrupted masonry close to the surface. The above facts are not readily explainable on the hypothesis that “Lintel” 8 was a re-used slab set horizontally in the masonry of a step, or of the terrace, or of the face of the platform. Being about opposite the middle of an inter-pier space, it almost surely did not fall from a pier. Sure proof is lacking, but probably it was set into the face of a masonry block such as is suggested alternatively in Figure 10.13. If it was, then a companion block and panel on the other side, perhaps also a central one, are near certainties. There were three panels, probably in similar positions, at Structure O-13, where all three fell face down and were found only by excavation. It is quite possible that two additional panels, in good condition, are yet to be found here.

The writer made a careful drawing of the recovered part of “Lintel” 8, showing details not clear in the photograph (Morley 1938:5, Pl. 142c). A throne with tapering legs and a flat table-like top is a certainty. Something, probably a seated human figure, rests at the (observer’s) left end. A considerably wider mass of badly eroded relief at center and to right of center

shows that something rested on the table-top there, perhaps another human figure or figures. No evidence was recorded indicating that a back-screen had been depicted. As on the famous “Lintel” 3, the legs of the throne do not appear to rest on the lower border, but on a plinth-like element, which is part of the scene. There is some suggestion that figures may have been carved before this element, as if seated on the border itself. However, this analogy to “Lintel” 3 is far from certain.

The sunken area, from which rises the relief of the throne, is 54 cm high and 48 cm wide. If we consider that the original length of the panel was the same as the maximum surviving length, this area was symmetrically placed, with only a minor discrepancy. But I could not satisfy myself that there had been a double column of glyphs on what would then be part of the right border, in fact, this seemed quite doubtful. While the stone may have been nearly square, that hypothesis is correspondingly doubtful.

Traces of a double column of glyphs were quite clear at the bottom of the left border, and reasonably certain traces of glyphs appeared on the upper border, less certain ones on the lower border. The blocks seemed to be about 7 cm high and 6 cm wide. An L-shaped panel of low relief, doubtless remains of completely eroded glyphs, was placed in the upper right-hand corner of the sunken area, its edges 2 or 3 cm from the margins. The vertical column measures about 29 cm in height, and about 6 cm in width. The horizontal part, measuring up to the vertical member, is about 7 cm high and about 22 cm long. Apparently there were glyphs here of the same size as those of the borders. The left border, where fully preserved, is 15 cm wide, the upper one 10 cm wide and the lower one 7 cm wide.

It is practically certain that a double column of glyphs appeared on the right border whether or not we have part of it on our slab. Using 6 x 7 cm per glyph-block, we can make an estimate of forty blocks in pairs of columns on either side and at least eight more on the upper border. Thus there were probably at least forty-eight blocks in the main inscription. In addition, there were probably nine blocks in the L-shaped panel, besides (possibly) others on the lower border. If, as seems most probable, this panel was carved for use here in conjunction with one or two others, the approach to this probably thatched building may have been dignified with a very considerable inscription on its stairway.

### *Dating*

The platform, stairway and piers of Structure O-18 are later than the carving and destruction of the small fragment of “Lintel” 9. The platform and stairway are probably contemporary with “Lintel” 8; if so, the

piers were also contemporary with that carving, or else secondary to the platform, hence later. It appears to be certain that none of the three architectural components can be earlier than either of the carved panels.

The depiction of legged thrones, carved, painted or in stucco relief, is a fairly wide-spread trait at classical sites, but apparently not in contexts suggesting early dating within the classical period. The legged throne on “Lintel” 8 thus has a certain chronological value. At this site actual thrones were certainly being erected during the latest phases of the latest architectural period of the Acropolis, but there are no data on which to base a reliable estimate of when they first appeared, and so were available as models for sculpture. A legged bench without back screen was placed in the non-vaulted palace Structure R-7, and almost certainly a similar one was removed from an early predecessor of the final palace Structure J-12, on the latest level of the Acropolis. The latter also was non-vaulted, even in its latest phase. There is evidence, then, that legged thrones appeared here before masonry vaulting, hence a very considerable time before abandonment. So far as the design on “Lintel” 8 is concerned, our structure may belong in a pre-vault period, yet long after the foundation of the site.

Morley placed both lintel fragments in his Middle Period, between 9.10.0.0.0 and 9.15.0.0.0, but in each case with a question mark. The glyphs on “Lintel” 9 are well preserved. When methods of stylistic analysis of glyphs are fully perfected, a reasonably precise early limit for dating this structure may become available. At present one can only say that there is no evidence for an extremely early local dating of this very simple building, and that apparently it was still in use at the time of abandonment.

### *Function*

At first we were inclined to classify this building as a palace, since those buildings characteristically present more or less open façades, and are placed on building platforms of similar size and proportions. Like our Structure O-18, two palaces are served by imposing stairways on one side. Those two (Structures J-2 and R-7), like many other palaces, may also be said to face in two directions, and non-vaulted, perhaps thatch-roofed palaces occur.

This building surely is closer to the palace type than to anything else, but it is placed in the unclassified category because of the extreme size of the inter-pier spaces, the lack of end walls, and the lack of either a back wall or a medial wall. The entire lack of masonry walls is unique in our series at the site, and presumably indicates a different function. One might guess, considering its openness and ready accessibility, that it was a shelter for commoners or traders, rather than for priests. In speculating on its use, however, the probable presence of inscribed stone panels in the stairway should not be ignored. What is needed is the investigation of several of the similarly placed platforms, and more thorough attention to this one. In it we have a strong hint of a palace-like but distinct type of structure in the total make-up of the main ceremonial groups.

### *Masonry Notes*

#### *Fills*

Pure broken rock, noted only to depth of 1.5 m below building platform floor; large size; fill wall at southwesterly side of trench with slight negative batter as seen from trench.

#### *Walls and Piers*

Tabular stone.

---

## 4. STRUCTURE O-7, *Linton Satterthwaite*

---

### **Preliminary Remarks**

Two factors make this stepped-top low mound an exceedingly interesting one. Structure O-7 is unique in having at least twenty-one associated round altars, and despite its very modest architectural pretensions it faces the largest and most elaborate temple and the greatest collection of sculptured monuments at the site (Fig. 10.14; and site map, Figure 1.1). Almost certainly it lacked a building. In respect to the imposing position,

Structures O-7 and O-13 face each other across the East Group Plaza, and there is no evidence of any structures between them. However, only the great temple rises directly from the level plaza floor. From Structure O-7, the present surface slopes down about 10 m in 65 m before reaching the lowest and level part of the plaza.

Interest in this little mound is heightened by good evidence that ceremonial use was made of it after the general abandonment of the site as an architectural center. On it was constructed a small artificial mound containing

crude cists. At least one of these was not a burial cist since it contained a small erect rectangular stone column (Figs. 10.18, 10.19). There is good evidence that others contained cremated human remains, and that intentional disturbance of ancient round altars played a part in the burial rites of the cist-builders. Presumably these people were Indians, and there was nothing to suggest they were recent Lacandon, though the Lacandon left their typical censers elsewhere at the site.

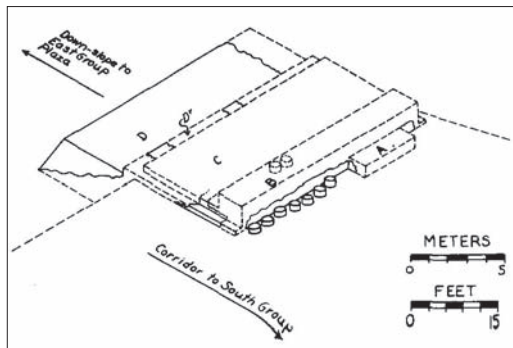


Figure 10.14 Isometric reconstruction of Structure O-7-1st, as seen from left rear corner. Original positions of two of seventeen disturbed altars suggested, others not shown.

*Altars in solid line found where shown.*

Twelve of the drum-shaped stones now classified as altars were visible on the surface of the mound, disposed in two groups of six each so as to suggest that they were elements of two round columns that had fallen. Such columns at a Classical site would have been just as unique as a large collection of altars, and superficial excavations by the writer, in 1932, were intended to determine this point. We think the data summarized [Table 10.11] show that these twelve stones, like additional ones later encountered, were altars.

Retaining walls at and near the front were visible without excavation. Elsewhere excavation was necessary to show parts of features appearing in solid line on the Plan of Figure 10.15. This included digging into a probably artificial special mound of debris in the neighborhood of the features numbered 1, 2 and 3 on the plan. These are the cists believed to be post-abandonment in date. To avoid confusion we shall refer to this special mound as the secondary mound, or as Unit 4.

Before excavation the highest part of the mound (i.e., of the ruin as a whole) appeared as a broad ridge of debris along the rear (southerly) edge. Further still to the rear there was a drop of about 1.4 m to the level surface of the corridor leading to the South Group Court. The ridge was partly obscured by large trees, but it surely ran

nearly, if not entirely, from one side of the mound to the other. On its front side this ridge dropped only about 0.8 m; and did so only on either side of center. For several meters in from either side, flat surfaces led forward from the base of the ridge to a well-defined down-slope of debris running from side to side, after which a broad level area at the lower level ran across the entire front. There was little or no debris on the flat surfaces. It was perfectly apparent that we were dealing with a stepped-top platform, but that if it supported a masonry building, the later had no masonry walls within 5 m or so of the sides of the higher rear portions, and none on the lower front portion. The possibility was considered that the ridge at the rear was the ruin of a masonry building wall which functioned with perishable side and front walls. Excavation showed that such a building wall would have been flush with the rear of the platform, and 1.4 m thick. This hypothesis is rejected as highly improbable and we conclude that the ridge is the ruin of a bench-like third level of the platform, reconstructed as Unit B in Figure 10.14. Its top, not found, could not be expected to survive. No plaster survived anywhere, even where debris afforded some protection.

As may be noted in Figure 10.14, we have labeled the main higher rear level of the platform Unit C. This is what was found exposed at the surface on either side of center only. At the center a deposit of earth and stone lay on it. This, Unit 4, the secondary mound, formed a sort of tongue of debris, which projected forward from the transverse ridge at the back. In the sections of Figure 10.15 the dotted surface lines pass through this deposit in each direction, the longitudinal one on a line about 1.4 m forward of the face of the bench-like Unit B. It was more sharply defined on the left side (right in the figure). Erosion had probably flattened out the front and right sides since, on the latter, the cists had been partly exposed.

The possibility has been considered that this special mound of debris is the ruin of a diminutive masonry building on a platform too large for it. This would be expected in a sweathouse, but in excavating Cists 1 to 3 the bases of its walls should have been encountered. If there were any, we missed them, and such a building is difficult to reconcile with Unit B, whether one accepts the reconstruction as a broad bench-like feature or postulates a very thick high wall instead. We have concluded that this special mound of debris was heaped up purposely to cover the cists, rejecting the alternative hypothesis that the cist-builders found it already present, and dug into it.

On the plan (which is rectified), the three cists are shown in solid black, in relation to architectural features which they must post-date. The cross-sections of this figure were made with care, but without control by the leveling instrument.



*Table 10.10 Structure O-7 Scheme of Temporal Sequences*

Str. O-7-2nd	Stepped-top Platform, single step up	Units D, D'
Str. O-7-1st	Main higher rear level of final platform (combined with earlier Units, double step-up) Narrow, bench-like highest level at rear Bench (or small stairway?) 21 to 24 or more round stone altars	Unit C Unit B Unit A
Str. O-7-2nd or 1st	Probable caches	
Str. O-7-Cist	Cist 1 (with small rectangular column) Cist 2 Cist 3	Unit 1 Unit 2 Unit 3
Latest	Probably artificial secondary mound over cists	Unit 4

### *Unit Designations and Temporal Sequences*

The sides of all of the cists consisted of thin slabs set on edge. They extend down to the level of the top of platform fill, and also upward above the presumed level of the floor material itself. Cist 3 was covered with small irregular slabs and was filled with earth and stone, which supported them (Fig. 10.19, upper left). It is so placed that what we know of it may be part of a longer affair on the front-rear axis, and with an assumption of disintegration of lime mortar one may argue that it is really the ruin of a masonry bench which was faced and covered with slabs. On the map of the site that is suggested in broken line. But it then would become a remarkable coincidence that a slab-covered bench, the only one known at the site, is also provided with a special stone bottom, and that it is within a special deposit of debris containing slab cists which cannot possibly have been benches. We conclude that it belongs with Cists 1 and 2 in time, and that it should not have been suggested on the map of the site as of the time of abandonment.

Believing that the special mound containing cists is non-structural, and knowing that one altar was re-used as part of Cist 1, the cists and the mound are assigned to a post-abandonment period. This is called Structure O-7-Cist Period rather than Structure O-7-1st, to avoid an implication that cists and mound were contemporary with architectural periods labeled -1st at other mounds. To emphasize the lack of continuity, numbers instead of letters have been used to distinguish units of this post-abandonment period.

In the region of Cists 1 and 2 we penetrated the fill of Unit C, the main higher rear level of the platform, which was elsewhere at the surface. Here the floor

material had been removed by the builders of the cists, who reached to the top of a layer of large to medium-sized broken rock forming the fill. Earth, presumably floor material, filled the interstices. Probably this resulted from the secondary cist building, since rubble of such size was not ordinarily used at this site in solid fills. This rock fill was a very shallow one, resting on a thick layer of earth and crushed stone only about 30 cm below its top. No plaster was noted here, but a mere temporary working surface so close to the final desired surface would be unique and inexplicable. Therefore we conclude that at first there was a stepped-top platform with the more usual single step-up, and that the fill of Unit B rests on the higher rear portion of this earlier platform. We rank this as an early period, rather than phase, because, though the front part remained in use to the end, the more important rear portion was almost completely blanked out.

## **Discussion by Periods**

### *Structure O-7-2nd*

We know nothing about this period not already noted in justifying its separation from Structure O-7-1st. A 70 cm exposure of the front edge of its higher rear portion surely forms the step between the two levels in the next period, and (as we reconstruct in Figure 10.14; Table 10.10), an exposure of its left edge forms the step on the left in the next period. The tread of this is 40 cm, so the rear portion of the platform in this earlier period was probably 80 cm longer than in the next. It may be noted that in Figure 10.14 we look from the left and rear.

Table 10.11 Positions and Dimensions of Altars

Position	N in Group	Diameter	Height
Group 1. Flat, in line on Corridor surface, close to left half of rear face of platform (Figs. 10.14-10.16).	7	0.4-0.5 (5)	0.2-0.3 (7)
Group 2. Scattered on surface, flat, at angle, or on edge:			
a. On Unit C of platform or above it on secondary mound, somewhat left of front-rear axis (Figs. 10.15, 10.17).	6	0.4-0.5 (6)	0.2-0.3 (6)
b. On Units C, D I and D, somewhat right of front- rear axis, farther forward as a sub-group (Fig. 10.15).	6	0.4-0.5 (6)	0.3-0.4 (6)
Group 3. Flat, resting directly on fill stones of Unit C, indicating excavation of floor material (Section, Figure 10.15).	1	0.5 (l)	0.3 (l)
Group 4. On edge resting directly on fill, stones of Unit D, reused as back of Cist 1	1	0.5 (l)	0.2 (l)
Sub-total (sure association with platform)	21		
Group 5. On surface to right of platform, approximate positions indicated by x in Figure 10.15.	2	0.5 (l)	0.2-0.4 (2)
Sub-total (probable association)	23		
Group 6. On surface of down-slope, 12 m in front of platform	1	0.5 (l)	0.2 (1)
Total (possible association)	24		

*Note: Many altars in bad condition; apart from Group 1, some original heights may have been greater.*

### Structure O-7-1st

As to this period, the drawings and prior text tell most of what is known, but some further textual remarks are required.

#### *Absence of Stairway*

The form of the platform is such that, as an architectural entity, it must be held to face toward the East Group Plaza, and by analogy with local structures in general, there should have been a stairway at the front. The front retaining wall stood to full height, and a masonry stairway rising the necessary 1.5 m should have left a special mound of debris projecting from the wall. There was none, and therefore there was probably no front stairway. On the right side, ruin was more complete, so that the same negative evidence is less convincing. At the right rear a special little mound of debris projected from the rear. Within it a rather certain remnant of side-wall was made out; this was on the right side, though it is shown in Figure 10.14 as if on the left side, where less certain evidence of a corresponding side-wall was noted. The amount of debris seemed insufficient for that of a stairway rising to the top of the rear of the platform (to Unit B) and we have restored it as a bench (Unit A).

Probably there was no stairway, access being from the surface of the corridor to the main rear level of the platform by way of the broad single step there at the side.

#### *Rear Bench-like Level (Unit B)*

The surface of this element as reconstructed would not have survived, nor was it seen. The reconstruction is a matter of inference from the following facts. Its front face stood in good condition to a height of 60 cm. No rear face could be found forward of the rear of the platform, though the wall of the latter, protected by debris of Unit A, rose 60 cm from the corridor floor. Under these circumstances we have only negative evidence, but good evidence, that the rear wall of Unit B was continuous with, or at least flush with, the rear wall of the platform (cross-section, Figure 10.15). If these two faces were those of a high masonry rear wall of a building, it was 1.4 m thick. This is scarcely believable in the context.

#### *Twenty-Four Round Altars*

These drum-shaped stones are about 50 cm in diameter, much larger than the portable altars found in stela cists and on the floors of unclassified vaulted buildings (Stela 8 and 9, Structures F-3, F-4). They are non-characteristic of the site as a whole, and though in bad condition were examined with some care.

#### *Descriptions, and Positions as Found*

The dimensions, so far as recoverable, are summarized in [Table 10.11], by groups corresponding to positions as found. The numbers in parentheses give the number of each group measurable in the dimension

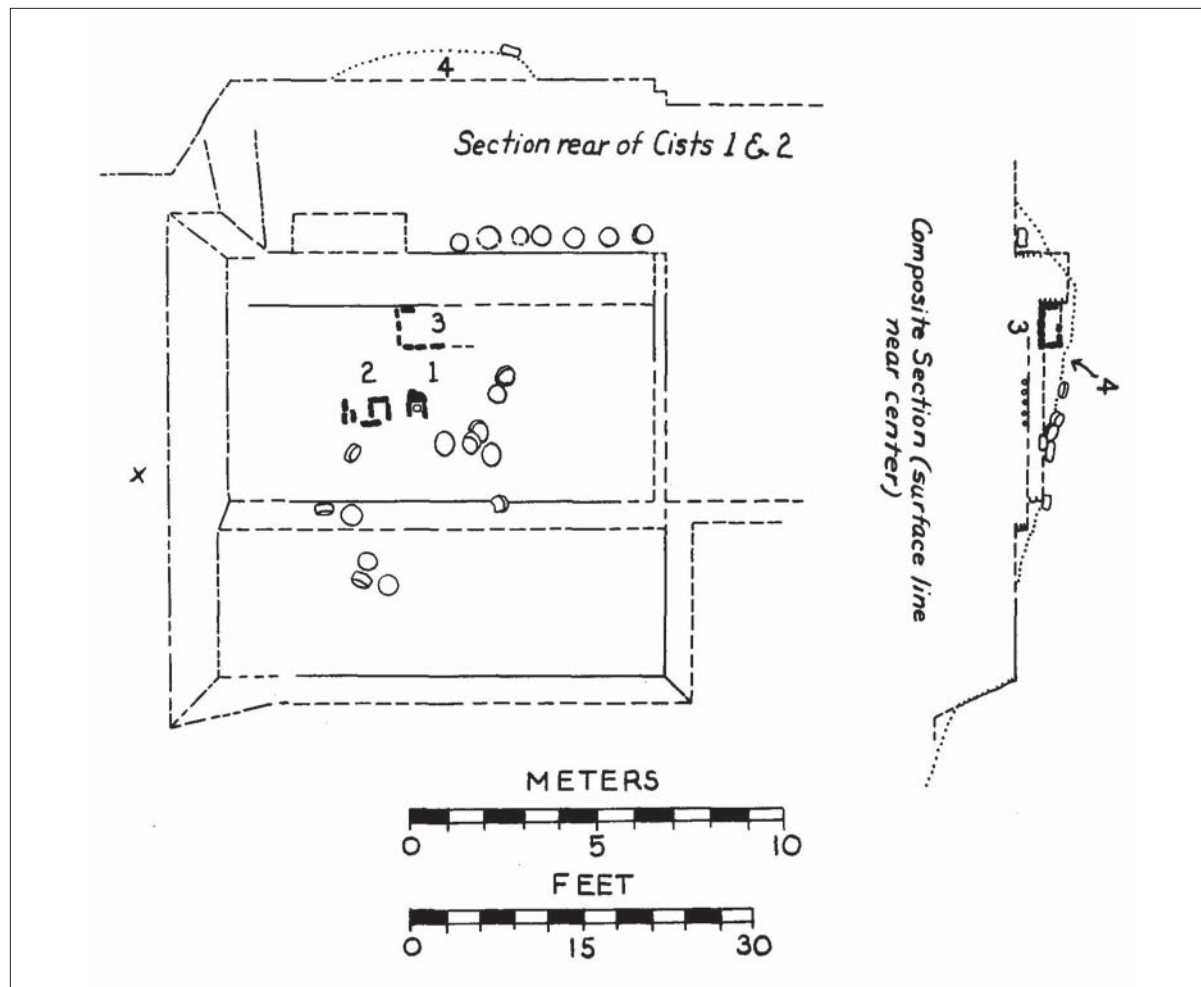


Figure 10.15 Plan of Structure O-7, all period numbers are unit designation of cist period.

in question, usually the total number of altars. The dimensions tabulated are minimum-maximum for the group. In form, these altars are to be thought of as drum-shaped, with equal diameters for upper and lower flat faces, and with straight sides apart from a tendency to bulge very slightly in the middle (Table 10.10).

The range of heights runs from 20 cm to 40 cm, but 20 cm to 30 cm covers most examples. The diameters vary but little from 50 cm, except in Group 2b, where they run from 40 cm to 52 cm. This is one of the two groups which presented the deceptive appearance of a fallen column.

Group 1, revealed by excavation, definitely proves that as of the time of abandonment the Maya had placed seven of these altars together, and that small variations in height are of no significance. Probably the height depended on the thickness of a natural stratum of limestone from which a given altar was cut. This is indicated by six

examples in which one flat face was smooth but not worked. Presumably all these were bottom surfaces left as they came from the quarry. Two of these six came from Group 1, which had not been disturbed, and four from Group 2a. These six account for a range of 10 cm in height, from 23 cm to 33 cm.

So far as dimensions go, it is clear that all twenty-four altars belong to one lot, and since some were not from columns, presumably none were. There is only one type, unless some were carved. Five of the seven in position surely had plain tops. Elsewhere one could not be sure which face was the top. One altar in Group 2a was artificially smoothed on one face, smooth but not worked on the other, so we know that at least one plain altar occurred on the platform itself. In all other cases one side was broken or eroded so that sculpture might have been present, but the evidence lost. In the field the writer



Figure 10.16 Row of seven altars in position on corridor; trees are on ruin of Unit B at rear of platform.

imagined that some eroded faces bore traces of sculpture. In no case was this certain, and all may have been plain.

#### *Original Positions*

It is certain that altars were ranged in a line just behind the platform (Group 1, shown in solid line in Figure 10.14). We have 17 others found in disturbed positions to account for. Of these we first consider the 14, which were on the platform (Groups 2a, 2b, 3 and 4).

Three of the round altars of Group 2b were found on edge, while one in Group 2a was found partly on edge, leaning against another. Within either group there is no patterning in the final arrangement, yet obviously they had been rolled by human agency into the positions in which they were found (Fig. 10.15). The single altar of Group 4 was carefully placed by the cist-builders, but it was used as a mere structural stone at a time when the floor material of the platform had been dug out. The single altar of Group 3 also lay directly on the stones of the platform fill, so presumably it reached its position after cist-building had begun. In horizontal position it belongs with the six altars of Group 2a, and at least two altars of that group definitely rest on Unit 4, the mound of debris, which covered the cists farther to the right (left in Figure 10.15).

The simplest explanation of the disturbance of altars on the platform is that all of it was the work of the cist-builders, who may have wished to destroy some ancient pattern of altar arrangement for supernatural reasons. The bad condition of many may in part be due to a certain amount of intentional breakage, as well as scattering. One face of the altar of Group 4 was entirely split off, and other faces were described in our notes as broken, rather than as eroded. The postulate of intentional scattering and breakage is perfectly consistent with the non-disturbance of the row at the back, since those altars may already have been largely buried by debris. Granting this explanation, we can imagine that one of the two altars of Group 5 was rolled from the platform and down the already ruined slope at the right, thus accounting for our finding it at the surface there. The more forward stone of this group, and the single one of Group 6, presumably also came from the platform, but, if so, these were probably intentionally rolled some distance from it. Being on the surface, they surely had been disturbed.

If the purpose was as supposed, there was no reason for placing any disturbed altar (except the re-used one) at the precise point at which it came to rest. A fair presumption arises that the heavy stones



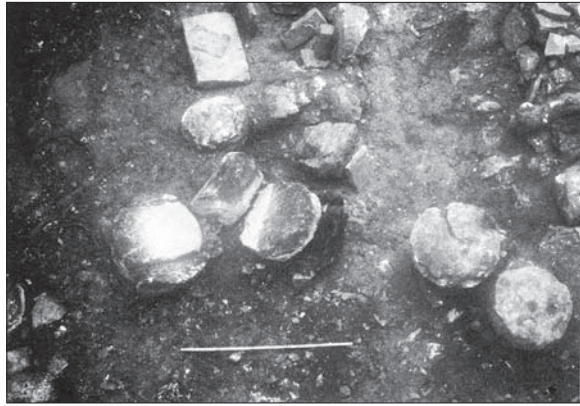


Figure 10.17 Rule on surface of Unit 4, excavated part is beyond nearest altars; looking down and toward right showing eight altars of Groups 2a, 3, and 4 in position; rectangular column replaced in Cist 1.



Figure 10.18 Rectangular column replaced in Cist 1 after removing earth from around it; note round altar at rear of cist; floor slab resting directly on fill stone of platform.

were rolled about on the level or downward, but not upward. Hence at least the two altars of Group 2a on the cist-covering mound, Unit 4, probably came from the bench-like element at the rear, Unit B. These two are restored there in Figure 10.14, in accordance with this strong hint that Unit B served as a bench on which altars were placed. But since there are six stones in Group 2a, and the single one of Group 3 seems to belong with it, there is some probability that there were seven other altars on Unit B, left of the center axis.

We have no clue as to the source of the re-used altar (Group 4) but it was buried before the scattering of some, probably all, of those of Groups 2a and 3. Since it was intentionally placed for a purpose, the fact that it is closer to Group 2a than to Group 2b is meaningless. It may have originally belonged with Group 2a and 3, making eight instead of seven for that combined group; but it may just as well belong with Group 2b. Thus it is quite possible that there were three groups of seven altars each: one at the rear of the platform, one on a rear bench of the platform left of center, and another somewhere else on the platform, probably to the right of the axis and possibly also on the bench-like Unit B. Known positions for the three altars not on the Platform (Groups 5 and 6) might or might not eliminate this hypothesis. A search further down the slope toward the plaza might reveal enough others to make up a fourth group of seven.

It is a curious fact that at least one group of seven is certain, others are possible, and seven was an important number in Classical Maya mythology and, perhaps, in their ritual calendar.

It must be conceded that the foregoing analysis of altar positions is involved and full of unprovable assumptions. The general conclusion is that Structure O-7 was a stepped-top platform specially designed for open-air ceremonies involving many rather small round altars, some or all of them unsculptured. This conclusion is correspondingly not proved. It is offered as a hypothesis to be applied to similar mounds elsewhere, if they are encountered. Certainly this mound, whatever it was, increases the range of differing types of structure to be expected in Classical Maya ceremonial precincts.

#### *Structure O-7-2nd or 1st Caches?*

Below-floor caches of small ceremonial objects, usually in pottery containers, are very common at the site, and the most common objects in them are eccentric flints and obsidians. There is good evidence that such deposits were made here, but in which period is very doubtful.

#### *Caches?*

Three eccentric obsidians were found aside grubbed around the most easterly of the altars on the step formed by Unit D1 (Position 2 of Table 10.13), while another was in debris on this step, only 2 m from the easterly edge, where the risers formed by Units D1 and C were both found to be intact, at least at their bases (Position 3, Table 10.13). The only plausible explanation of the positions of these objects is that they came from disturbed caches. At these positions it is hard to imagine that the disturbance was caused by collapse of masonry. It could be laid to uprooting of

large trees, and such trees might have stood on either Unit C or D. It seems just as likely that we have here further evidence that the cist-builders dug into the floor of the platform and, finding cached objects, scattered them as well as altars.

### *Structure O-7-Cist Period (Post-Abandonment)*

Reasons for assigning the cists and their covering mound to a period of their own have already been given. As post-abandonment features they have a peculiar interest.

#### *Cist-Containing Mound (Unit 4)*

It is simplest to suppose the cists were built first, and that the bulk of the mound was then heaped up over them; if not, there was excavation into the mound in order to place the cists at its base. The material of the mound was not noted in any detail. It was solid earth and stone, including a number of large broken rocks. One of these appears behind Cist 1 in Figure 10.19. There was no depression to indicate excavation into the hearting of the platform to obtain mound material, and such fill-stones as this probably came from the bench-like Unit B to the rear. In the main the material of Unit 4 was presumably floor material and wall stones from the platform.



*Figure 10.19 Excavated part of Unit 4, looking down and to left; at right of photograph note Cists 1 and 2, probable cover slabs removed; altar of Group 3 at upper right; large fill stone, loose, behind Cist 2; Cist 3 at upper left, with cover slabs in place.*

Only one edge of the Unit 4 mound was still well defined. This edge was quite steep, so originally the other side and the front edges need not have been much beyond Cists 1 and 2. Assuming this, Unit 4 was about 4.5 m wide and about 3.3 m deep, and the altar of Group 3 was just in front of it, and not under it. On this assumption, Cist 1 and its column may have been quite close to the axis of the mound. Either Cist 1 (and, on the above assumption,

the secondary mound as a whole), or Cist 3, may have been close to the axis of the main mound formed by the ruin of Structure O-7-1st, but not both. Probably, without careful measurements, the cist-builders followed an ancient tradition of placing important constructions at rear center of a rectangular area, thinking of the ruined platform as part of their own crude but new creation. Because of these hints at intentional symmetry during the cist period it is likely that the unexcavated half of Unit 4 contains a cist or cists in good condition. More careful work there may definitely confirm the scant but important evidence that the compartments of Cist 2 were for burial of cremated human remains. This evidence consists of a human molar and fragments of burned bone from near Cist 1 (Position 4, Table 10.13).

Cist 3 differs from Cists 1 and 2 in important particulars, to be noted below. It cannot be said that, they do not pertain to different phases of the cist period, since an earlier mound covering Cist 3 may have been extended to provide for those further forward, or vice versa.

#### *Cist 1, 2 and 3*

Cists 1 and 2 had partly collapsed, and not very careful excavation contributed further damage before details were recorded and photographs made. Cist 1 was probably covered with a very large slab, which lay in front of it by the time the photograph of Figure 10.18 was made. The cist contained only the rectangular column of Figure 10.19, plus soft earth, which could have washed around it with the cover intact. On the other hand, Cist 3 was found filled with stone and earth, which lay on its floor of stone blocks and below its slab top. The slabs of the latter seemed to be in position. They are too small, thin and irregular to have formed the top of a large hollow construction.

Cist 3 was therefore a solid affair when completed; but since it was apparently at one stage an open stone floored and stone-sided box, and covering slabs were finally provided, no term other than cist seems appropriate. The postulate that it was immediately filled accounts for its comparatively good condition, while the alternative postulate that it was originally a slab-clad masonry bench fails to account for its special floor. A major difference between Cists 1 and 3 is then that the former but not the latter provided a hollow space within the mound. Nevertheless what may be called a non-functional cover was supplied to Cist 3.

Cist 2 was also found filled with earth and stone (from fist size to double that size), but no cover slabs were recorded about this deposit. Below it, at the base of the cist, two small irregular slabs were recorded. If these were floor-slabs, like those of Cist 1, a dozen or so more should have remained in place. Next to them, also flat

at the base of the cist and at the end next to Cist 1, was a slab measuring 50 by 25 cm, with parallel sides, lying at an angle of about 45 degrees to the rear of the cist. It is probable that this and the other two slabs noted at the base of this cist were cover-slabs let down when the front side collapsed. This cist was probably a hollow affair like Cist 1, but unlike the latter, with a floor consisting only of the tops of fill-stones of the platform.

The large stone, supposedly a slab of Cist 2, and the much wider one of Cist 1, are undoubtedly fallen capstones brought from some ruined vaulted building the nearest of which was Structure O-12. This extra effort confirms the belief that they were cover-slabs for unfilled cists. The larger is wide enough to be used longitudinally to cover both Cist 1 and the space between it and what we have labeled Cist 2. The smaller slab could have fallen from a transverse position next in line. It is possible and even probable that this was the arrangement, and that we missed back and front slabs of a second compartment covered by the larger re-used capstone. Therefore, Cist 1 was probably only one compartment in a single structure formed by what we label Cists 1 and 2, though it was specialized as to its floor and contents.

Considered thus, the over-all interior dimensions of Cists 1 and 2 combined were about 2 m by 0.4 m, with a height of about 0.4 m. There was probably a compartment about 0.2 m by 0.4 m at the right end (left on the plan); next were four more or less square compartments, about 0.4 m to about 0.4 m on a side.

No evidence of compartmentalization was noted in Cist 3. Without it, slabs large enough to bridge the gap of 1 m between front and rear, would have been very hard to come by. This probably accounts for the immediate filling of this cist. Its interior height was about the same as that of Cist 1, 0.4 m.

The two supposed cover-slabs were the only structural stones of considerable size encountered. They were about 10 cm thick, as was the supposed partition slab forming the right side of Cist 1. The floor slabs of Cist 3 were as much as 20 cm thick, doubtless blocks from ruined retaining walls. Apart from the re-used altar forming the back of Cist 1, all other stone entering into cist construction consisted of irregular slabs about 0.5 cm thick. It is probable that all or most of this had to be transported from a ruined vault, and there may have been a conscious selection of thin slabs to save weight.

#### *Rectangular Column*

This object appears in Figure 10.18, where it and the cist-slab on the observer's right have been replaced after excavation. Everything in the photograph was found undisturbed. On brushing out a deposit of soft earth from around the column, we had simply lifted it out. It undoubtedly stood free within a complete and covered box of slabs that to the rear being the re-used round altar.

The cist-builders certainly used the column for some ceremonial purpose, but probably it also is a re-used piece dating from Classical times, the broken-off lower end of a column altar. A digression seems in order, to justify this statement. Column altars were set vertically in the floors of temple buildings, or of niches within them, and also outdoors in floors of pyramids, basal terraces and plazas. The exposed portions tended to have round or oval cross-sections, but the buried parts were sometimes rectangular in cross-section, or rectangular with rounded corners and a tendency to bulge out from this form. The fronts and sides always show evidence of contact with fire, but this was of course absent on the buried portions and probably always for some distance above it. Buried sides were at least rough-tooled, and sometimes the buried end was also. Characteristically, one diameter is somewhat greater than the other, and characteristically the stone tapers toward the base. This is especially noticeable when viewing such stones from the front, at a right angle to the longer diameter, and the tapering, though slight, tends to continue from the exposed top to the buried bottom.

Several column altars have been found *in situ*, broken off near floor level, perhaps by falling trees. The column of Cist 1 meets all requirements of such a stone, as outlined above. If we turn it upside down its top becomes a fractured surface at a noticeable angle to the long axis, and showing no workmanship.

The diameters are much less than expected, but they are almost identical with those of an unusually small column altar found in place in the platform temple Structure O-15, broken off close to floor level. Evidently there were two classes of these altars in respect to size, and we have here a second example of the smaller size. At its base (top in the cist) diameters are 11.9 and 13.9 cm; at the broken end, 12.4 and 15 cm. Lengths of the fragment are 25 and 26.5 cm, depending on where one measures.

As found in the cist this column would have leaned noticeably to one side if the slab on which it stood had not been given a slight slope (as it was). It is possible that we find two slabs as flooring here merely to compensate for the irregular base of the piece as it was used.

It is known that column altars were sometimes left in place so that new constructions covered them, and they have never been found, broken or otherwise, in positions proving re-use as building stones during Classical times. Such small column altars as this one probably do not come from pyramids, and collapse of lesser structures would not throw a column altar to the surface as debris, since they seem always to have been placed well back from the edges of their structures. The weathering on this piece is very slight, suggesting, on the contrary, that it remained in place and was protected by debris. There is a certain presumption, therefore, that the cist-builders saw some

supernatural virtue in it, and dug it out of a floor in which they found it embedded.

### *Dating*

The regular alignment of the seven round altars of Group 1, largely buried by surface debris, is fair evidence that Structure O-7-1st was in use up to the time of abandonment. The buried floor material by which we identify a Structure O-7-2nd shows that it was not the first structure on this spot.

The cist-builders were probably not modern Lacandon, for there was no sign of their characteristic censers, such as were left in the West Group (Structure J-2). The secondary mound labeled Unit 4, with its cists, may have considerable antiquity, but several factors reviewed below indicate a considerable time gap between abandonment of the site by the Classical Maya and the time of this secondary small mound.

The mere disrespectful handling of cult objects does not prove such a gap, since there was intentional breakage and scattering of stone thrones probably at the time of abandonment (Structures J-6, J-11, J-18). But in the case of the round altars here, a similar procedure was accompanied by activity of a constructive nature, since the disturbance of altars began before the secondary mound was completed (the re-used altar), and ended when (or after?) it was finished (the altars on the secondary mound). A time-gap is the most plausible partial explanation of this distinction between altar disturbance and throne destruction.

Such a gap must also be inferred from the placement of the secondary mound, a non-architectural feature on what had been an architectural unit in a very prominent part of the site. Further, almost surely this took place after the neighboring buildings had at least begun to fall into ruin. Otherwise it is extremely unlikely that the specialized capstones could have been obtained without great effort. There is also a certain probability that a broken column altar could not have been found ready to hand before a tree had grown and then had fallen on it. The break is a clean one, not the sort produced by

gradual weathering. Of course, the breakage might have been intentional.

A circumstance confirming existence of a time-gap is the fact that both smooth and eroded faces were found on two of the three round altars, which stood on edge. One of these leaned slightly, but the eroded face was the better-protected one. Two eroded faces were also found on each of two altars which lay flat on the platform. These conditions are best explainable on the theory that erosion of altars occurred before as well as after the disturbance. It probably had not occurred by the time of abandonment, since the protection by post-abandonment debris seems to account for smooth tops on five of the seven altars of Group 1, while a smooth surface was found on only one of the seventeen other altars not afforded that protection. As noted before, ruin of the platform before the time of the cist-builders will also account for their failure to disturb the altars of Group 1.

We may conclude with considerable assurance that the Cist Period was a post-Classical one and, less surely, that it was a pre-Lacandon one. A single small burial mound does not amount to a reoccupation of the site, but it does tend to substantiate the view that the region was not depopulated at the end of the Classical or "Old Empire" period.

### *Function*

Structure O-7-2nd must remain unclassified because so little is known of it. We have considered it to be a stepped-top platform rather than a low platform on a basal platform because of the relatively great depth of the front element, and absence of a stairway.

The same reasoning applies to Structure O-7-1st. If our reconstruction of the narrow bench-like Unit B at the rear is correct, and if altars did rest on it as we suppose, we have in this period a three-level platform which might be called a new local type of temple. We place it in the unclassified category because our adopted definition for the term temple requires evidence for a belief that the structure was designed for public practice of religious rites and ceremonies, while our reconstruction of Structure

*Table 10.12 Average Dimension Table (Str. O-7-1st)*

Unit	Height	Length	Depth	Slope
D	1.5+	12.0*	3.8	21 deg.
D'	0.3	12.0*		V
C	0.3	11.2*	4.9	V
B	0.8*	11.2*	1.4	V
A	?	3.0*	1.0*	V*

*Note: Starred dimensions are approximations based on reconstruction; letter V means approximately vertical.*



Table 10.13 Object Table

Position	Sherd	Figurine	Eccentric Obsidian	Miscellaneous
1. Surface and superficial debris, horizontal positions not specified.	E-7-1	E-7-6 E-7-11		E-7-5 (shell) E-7-9 (pottery rectangle) E-7-10 (nodule, hematite?)
2. Debris on step (Unit D'), 10 m from left side.			E-7-3	
3. Same, 2 m from left side.			E-7-2	E-7-2 (pottery disk, pottery "rosette") E-7-4 (flint knife)
4. Near Cist 1 (probably from earth removed from Cist 1 or 2, or from space between them).				E-7-7 (fragmentary burned bone) E-7-8 (human molar tooth)
5. Upright in Cist 1, surrounded by earth.				E-7-12 well-worked small rectangular column)

O-7-1st cannot be absolutely guaranteed. Before freezing the temple label to it another example should be found in association with altars or other cult objects actually on the third level at the rear.

The position of the platform, and the altars, show that it served the temple function within our broad definition, and there are no positive reasons for doubting that it was designed for this purpose. The bench-like third level, Unit B, is the best reconstruction permitted by the data, and there is good reason, short of proof, that some of the altars stood on it. Unit B, as reconstructed, has its best analogy in known temples—the typical room-length rear sills, and the room-length rear bench of Structure K-5-3rd. These probably were for cult objects other than altars. We have a platform without masonry building on the temple-indicating pyramid of Structure J-3. The form of that platform is different, but it also shows three principal levels, in addition to broad steps (Table 10.12).

### *Masonry Notes*

#### *Fills*

Of Unit D, pure broken rock, medium size, observed at surface only; of Unit C, shallow layer of broken rock, closely packed, large to medium size, earth in interstices probably absent originally (seen below Unit 4); of Unit 4, not noted as differing from usual debris except for few large broken rocks.

#### *Retaining Walls*

Tabular stone.

#### *Concrete*

Crushed stone remains, probably of floor of Unit D I where buried by Unit C; also on Unit C to right-and left of Unit 4.

#### *Plaster*

None surviving; probably on all walls and floors.

## 5. THE PLAZUELA OF STRUCTURE V-1,

*Linton Satterthwaite*

### Preliminary Remarks

The mound of Structure V-1 is the only one in the peripheral areas where the interior has been investigated by more than a single narrow trench. As of the time of writing this fact gives to the findings an interest out of all proportion to their intrinsic value, since for the Maya area as a whole the peripheral house mounds have received scant attention by excavation.

Four periods of construction were found, the latest with three subfloor burials. These are attributable to the occupation by the Classical Maya, and there was probably a post-occupation period when additional burials were made. Something was learned of the buildings of the next to latest and of the latest periods. Each differs significantly from anything found elsewhere at the site, and the latest may well have been the dwelling of a person of rank. We leave it in the unclassified category until such time as more peripheral mounds are excavated and comparisons can be made.

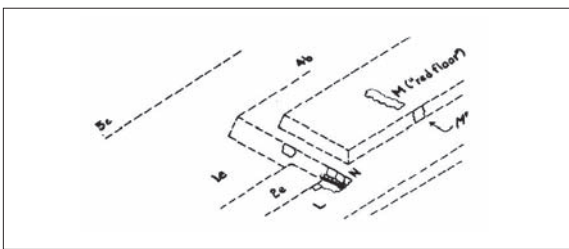


Figure 10.20 Isometric reconstruction: Structures V-1-3rd-A and B.

This final building was placed on what we shall call the rear wing of an L-shaped platform. Structures V-2 and V-3, which were test-pitted only, were placed opposite the right wing of the V-1 platform so as to form a small court, open at the front (Fig. 10.23). We have called this assemblage a *plazuela*, and for the present do not intend the term to imply anything more than a court or plaza which is small by comparison with those of the main ceremonial groups. The term is borrowed from Thompson. It applied to several other groups in the peripheral area of this site, and when these are better known, perhaps it will be possible to substitute a more informative label. As shown in the figure, the three mounds forming the *plazuela* are set on, or partly on, a basal platform. This may be taken as a local adaptation to the terrain, in order to give a level court where the bedrock slopes gradually upward toward the rear.

Except at the front of the basal platform no walls showed before excavation. There was a small depression in the surface of the rear wing of the V-1 mound, with a partly exposed slab at its bottom. This proved to be the rear or northeasterly cover-slab of Burial 1, one end of which had slipped down. Noticing this, the writer was led to investigate. One thing led to another, but it was never considered that we had time to make a proper excavation of the structure as a whole, even in its latest phase. We did however, satisfy ourselves as to the main features of the latest building, and learned something of the plan of the building preceding it.

In general it may be said that excavation was chiefly by trenching and pitting, and that the trench system was sufficient to expose what is shown by solid lines in the plans and sections which we publish. A somewhat peculiar choice of trench-lines results from our initial and primary interest in burials, the architectural findings being by-products. All trenches, and Pits 1 to 5, were dug during the first (1931) season when the writer and workmen were inexperienced; Pit 6 was done by an experienced worker at the end of the last (1939) season, but at a time when he could not be closely watched.

So far as architectural form is concerned, the results are fully summarized in the plans and isometric reconstructions. The reconstructions, especially those of the earlier periods, depend in considerable degree on inferences from the sections. As a general rule, levels were controlled with the instrument. The right angles on the plans are arbitrary rectifications, necessary because of failure to record certain key measurements made with the tape. The parallelogram forms of Figure 10.25a are largely in broken line, hence not to be taken as certain.

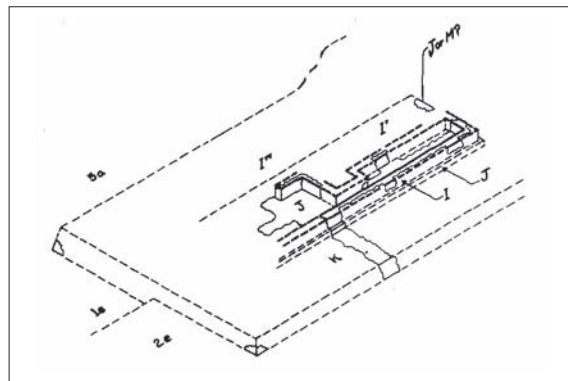


Figure 10.21 Isometric reconstruction: Structure V-1-2nd-B.

### *Unit Designations and Temporal Sequences*

The four periods of Classical occupation are made up of at least seven phases, one in the earliest period and two in each of the later ones, as listed in the Scheme of Temporal Sequences (Table 10.14). During the latest two of these periods there was considerable complexity in the types of fill, and, since we are dealing with a kind of mound new to us, it seemed wise to reflect this fact in the cross-section drawings (Figs. 10.26–10.33). Primary distinctions are indicated by different hatchings: vertical for pure rock fills, and broken-line vertical for semi-solid fills (perhaps originally pure rock), with white for solid fills. Diagonal hatchings indicate deposits of black and red clay, both probably of natural origin.

Within the white areas of solid fill it has been convenient to distinguish separable deposits. This is done with series of lower case letters preceded by numbers, which reflect positional groupings on the drawings. This scheme of deposit identification is in addition to the usual one of capital letters as labels for units of a structure when considered as completed architectural forms. Thus, in Figure 10.26, Units D and E are differentiated for descriptive purposes as supplementary and building platforms; but they are a single structural unit, the hearting of which, where cut by this composite section, consisted of pockets of pure rock fill and of solid materials identified as Deposits 1a, 2a–2c, and 3.

Several units are labeled in this deposit system, but are believed to have been floors, rather than parts of heartings of platforms. These floors are further distinguished by lines of crosses in the section drawings.

Either or both of the hatched (clay) layers may have once functioned as occupation surfaces, but there is no convincing evidence for it. They are pure stiff clay in spots, but contained small stones at others. Where seen, the black clay rests on the red, and a few bone fragments and sherds were found in it; but it underlies a prepared floor in which stone is mixed with the same black clay as the binder, so the few cultural inclusions probably date from the time of the prepared floor. The red clay was sterile where examined, and such clay, as seen at a few other places, appears always to lie directly on bedrock. We are thus inclined to believe that, on any section, which shows red clay, the first structural surface above it probably dates from the time of the first settled occupation at this spot. However, at Pit 4, (Fig. 10.32), the upper part of the clay deposit was dark brown running into red below. This seems like a nonsignificant distinction, but unless it results from use of the red clay as an occupation surface, the right wing of the platform of Structure V-1 dates in part from the very earliest period though the rear wing does not. In the scheme of sequences we have ignored the clay layers and may be missing an earliest period when outdoor base-surfaces were, at least in part, gently sloping natural ground.

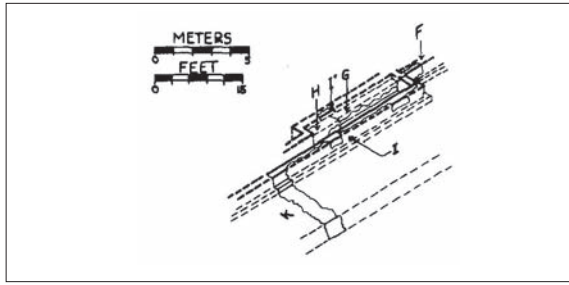


Figure 10.22 Isometric reconstruction: Structure V-1-2nd-A.

The prepared floors, marked with crosses in the sections, were all base-surface floors resulting from leveling operations, including construction of low broad platforms. In Figures 10.26, 10.27, 10.30, and 10.31 it will be seen that Deposits 1e, 2g, 4b and 5a are at about the same level, and hence we might consider them all as different exposures of one contemporary earliest floor. Since the first three of these deposits rest on the red clay, as to these this is the only reasonable inference. But Deposit 5a is at a point where the red clay is appreciably lower, and Deposit 5a overlies a prepared floor represented by Deposit 5c. There is little doubt that Deposit 5c at the lower level, and Deposits 1e, 2g and 4b at the highest level, belong together in time as surfaces of a basal platform system. This was later leveled up, by the floor of Deposit 5a, to produce a single level for the plazuela as in Figure 10.23. For reasons to be given, the floors immediately above the red clay also preceded the earliest building complex at the rear, so we assign them to a period labeled "Pre-Plazuela." Very probably these floors served buildings from the beginning, but this was not established. Parts of these earliest floors, at both levels, continued to serve during the next period (Deposits 5c and 1e, Figure 10.20); so far as we have evidence, part of the higher earliest floor was in use from first to last (Deposit 2e, Figures 10.20, 10.21, and 10.23).

Presumably the second step in the development of this part of the site was an extension of the broad basal terrace system further up the slope. Evidence of this is the floor of Deposit 2e. In Figure 10.26 it overrides the earliest on-clay floor for some undetermined distance, thus establishing a difference in time. Probably the rear of the earlier basal platform ended along an irregular line as determined by varying levels of natural clay and/or bedrock. Possibly this new unit in the stepped base-surface system should be considered as defining a secondary phase of the earliest Pre-Plazuela period, but we have assigned it to Structure V-1-3rd-B, which it certainly served, since it is the only possible such surface for the main platform of that structure (Unit N, Figure 10.27). The available data require us to reconstruct Unit N as in Figure 10.19, so that, from front to rear, it straddles the new basal platform

Table 10.14 Structure V-1 Scheme of Temporal Sequences

		Unit Num.	Figure	Num.
Pre-Plazuela V	Prepared floors (pavements of base surfaces) at lower front and higher rear levels (early basal terrace system)	Deposits 5c; le, 2g, 4b	Iso. 20	26,27, 30,31
Str. V-1-3rd-B	Main platform with crude on-edge masonry	Unit N	20	27
	Prepared floor (pavement of additional basal terrace)	Dep. 2e	20	26,27
	Probable Building Platform	Unit M, M'	20	28
Str. V-1-3rd-A	Probable narrow leftward extension of Main Platform	Unit L	20	26
Str. V-1-2nd-B	Main platform, new	Unit K, K'	21	24
	Building platform, new	Unit J	21	24
	Building walls (thin, possibly base-walls); jamb of front doorway distinguished as I'', front wall of narrow right room distinguished as I'	Unit I, I', I''	21	24
Str. V-1-2nd-A	Composite bench against front wall of narrow right room (secondary narrow extension distinguished as G')	Unit G, G'	22	24
	Extension of building toward right	Unit F	22	24
Str. V-1-1st-B	Supplementary Platform (probable projecting stairway to plazuela level distinguished as E'')	Unit E, E', E''	23	25a
	Probable rearward and forward extensions of Main Platform	Unit X, 3'		26
	Building Platform, structurally continuous with Unit E (low forward projection distinguished as D'; apparent extension of this around right end distinguished as D'')	Unit D, D', D''	23	25a
	Building walls (probably base-walls; those of right room distinguished as C')	Unit C, C'	23	25a
	Masonry block, probably low bench for fireplace	Unit B	23	25a
Str. V-1-1st-A	Probable raising of floor of Supplementary Platform resulting in elimination of Unit D', D''	Unit A, A'		26
Post-Abandonment Occupation ?	Low irregular heaps of debris on floor of latest building, probably over shallow burials			

*Note. Strs. V-2 and V-3, and right wing of Str. V-1 platform, not assigned temporal positions. Str. V-2 probably no earlier than floor of Deposit 5a and probably shows two periods corresponding with Strs. V-1-2nd and V-1-1st.*

of Deposit 2e. This arrangement saved a great deal of labor, since once it was decided to build so far back (and so far up the slope), a great deal of filling would have been required to bring the entire base surface to the necessarily high rear level, and the straddling principle seems to have been acceptable to the end.

In the secondary phase of this period, Structure V-1-3rd-A, a known wall, Unit L, is reconstructed as a retaining rather than as a free-standing wall, though this is not absolutely certain. It rested on the new and highest basal platform unit and ended against Unit N, and so is later than that. Apparently it is the front face of a narrow lateral extension of Unit N, that is, of the main platform of Structure V-1-3rd-B, as suggested in Figure 10.20.

With the foregoing explanations of reasoning respecting base-floors it is felt that a casually interested reader can get a good idea of the rest of the sequence of architectural forms from the Tabulated Scheme, and the

figures referred to in it. For more detail one may turn to the *Discussion by Periods and Phases*.

As always, broken-line portions of reconstructions may not be quite correct, and this is especially true of Structures V-1-3rd and V-1-2nd as shown in Figures 10.20 to 10.22.

Alternative extensions of the little that is surely known are possible, but they could hardly upset the conclusion that each of the four main structural periods distinguished represented substantial changes from what had existed before. The reconstructions, with all their doubts, make it clear that a low peripheral mound may or may not be a house mound, as of a particular period, and that in such mounds lies much of the history of the development of Maya architecture. Among the peripheral mounds there is just as much promise of stratigraphical control as one expects in the large mounds of the main ceremonial courts and plazas.



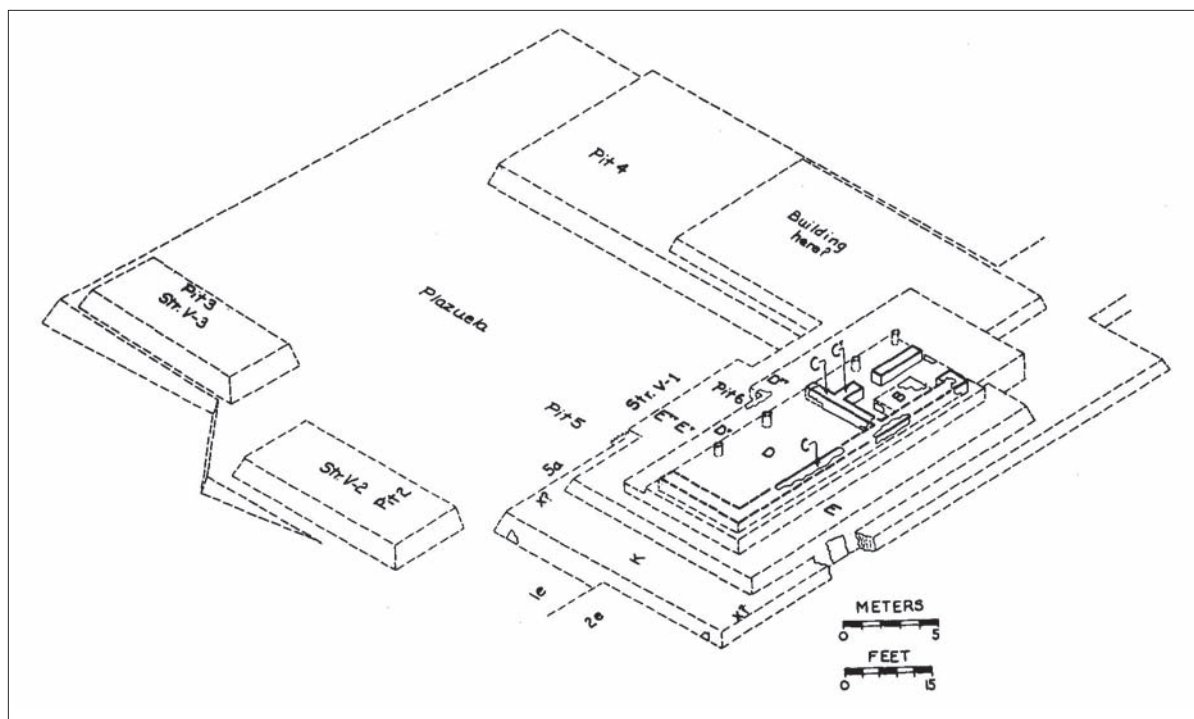


Figure 10.23 Isometric reconstruction: Structure V-1-1st-B (locating Pits 1-6).

## Discussion by Periods and Phases

### *Pre-Plazuela Period*

As noted before, a basal platform system of broad low terraces, forming at least two levels, falls in this period. The lower and forward level is represented by the floor of Deposit 5c, and the higher rear level by the floor of Deposits 1e, 2g and 4b. It was convenient to describe briefly these floors when showing that they require a separate period of their own. Here their label, Pre-Plazuela, is explained, and their composition is discussed more fully.

The miniature court assemblage implied by the term *Plazuela* appears to advantage in Figure 10.23, and it may also be seen in plan on the map of the site. It is clear that if we remove the rear wing of the L-shaped V-1 mound, and also eliminate Structures V-2 and V-3, our *plazuela* as such ceases to exist. The levels of the floors seem convincing enough evidence that Structure V-2 (and therefore probably Structure V-3) post-dates the lowest of the earliest floors, that of Deposit 5c. Figure 10.26 shows clearly that the higher of these earliest floors, as known by Deposits 1e and 2g, were earlier than Unit K, the main platform forming the rear wing of the L-shaped

complex of Figure 10.23. So there can be no doubt that our earliest floors pre-date the *plazuela*, at least in its known form.

We cannot be so sure that the *plazuela* assemblage idea was absent in the Pre-Plazuela period; Pre-Plazuela for our period means merely earlier than the known *plazuela*. The latter probably had not appeared even in the succeeding period of Structure V-1-3rd, since the left end of this structure is not far from the front-rear axis of the final small court. So, in the sense in which we use the term, we probably have two Pre-Plazuela periods, the later of which can be more particularly designated as that of Structure V-1-3rd.

It is a matter of interest that the floors of the Pre-Plazuela period appear not to have been of lime concrete. This is perfectly certain for that portion of the higher level represented by Deposit 1e, where the binder used is stiff black clay. Elsewhere the base-surface floors of this and later periods consisted of broken stone and earth. Ordinarily, horizontally disposed deposits of crushed stone and earth have been found only in exposed positions, and we have usually taken them to be the remains of lime concrete floors, the lime having disappeared after centuries of leaching by the rains. We know that some out-of-door floors were finished with lime plaster, since

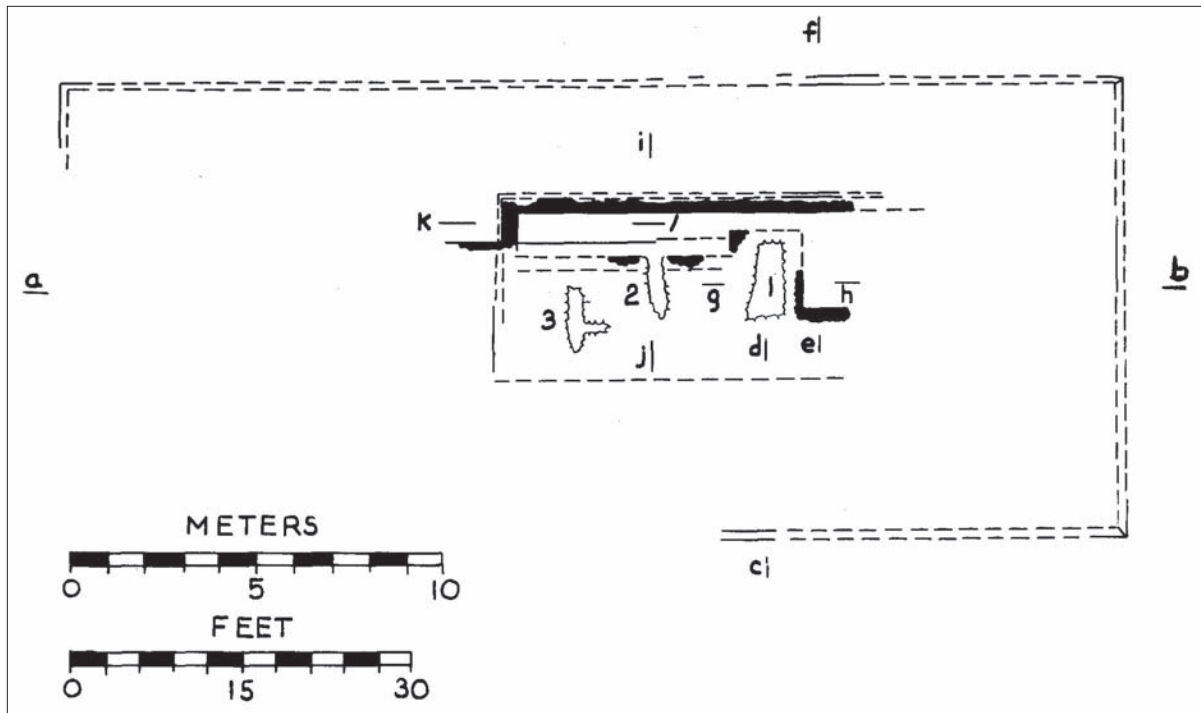


Figure 10.24 Plan: Structure V-1-2nd-B and -A (locating Sections A-B to K-L and Burials 1-3).

this survived at protected spots. But here at Structure V-1 parts of our early floors were very well protected. This is true for Deposits 2g and 4b of the Pre-Plazuela period, and for Deposit 2e of the Structure V-1-3rd-B period. Deposits 2g and 2e were not only buried deeply, they were actually under the well-preserved lime-concrete floor of Structure V-1-2nd-B. Lack of finishing plaster and of recognizable lime in the body seems convincing evidence that the earth forming the binder of these floors never contained burned lime of the usual amount, while the fact that part of one of them surely contained only clay makes it practically certain that no lime was used. It may be that what we described as earth was of a clayey nature, specially selected for the purpose, but clay as the binder was noted only for the black clay portion of a Pre-Plazuela floor.

Field sketches suggest that in these clay-and-stone or earth-and-stone floors there was a greater amount of sizable angular stone fragments than is usual in the crushed stone of local lime-concrete. They also indicate that the stone was more closely packed, so that the binder was quantitatively of less importance. It is possible that, with sufficient attention to protected deposits, it may become feasible to distinguish exposed remains of this type of floor from exposed remains of lime-concrete floors.

So far as the evidence of this *plazuela* goes, in the earliest and next earliest periods outdoor prepared base-surface floors did not contain burned lime, and this may be true for such floors in all periods at this locus. Properly recorded evidence of the type of floor used for buildings is available only in the case of the latest two of the four structural periods, where lime-concrete was surely used (Structure V-1-2nd) or probably used (Structure V-1-1st). Those floors were at indoor positions.

It would be unsound to conclude that the Pre-Plazuela and Structure V-1-3rd periods predate knowledge of or use of lime-concrete in floors generally. The building platform of Structure V-1-2nd, with its concrete floor, rested on a main platform, Unit K, which seems to have been surfaced with a mere dirt floor, without even a special layer of crushed stone; while the probable building floor of Structure V-1-3rd was finished with lime plaster, and the walls of the main platform of that period almost surely were so finished. A problem for future operations is indicated. In the meantime this mound indicates that differences in floor material may reflect differences in the position of the floor, the differences may be functional rather than temporal. At any one locus we have to consider outdoor base surfaces, outdoor platform surfaces, and indoor platform or building surfaces. For

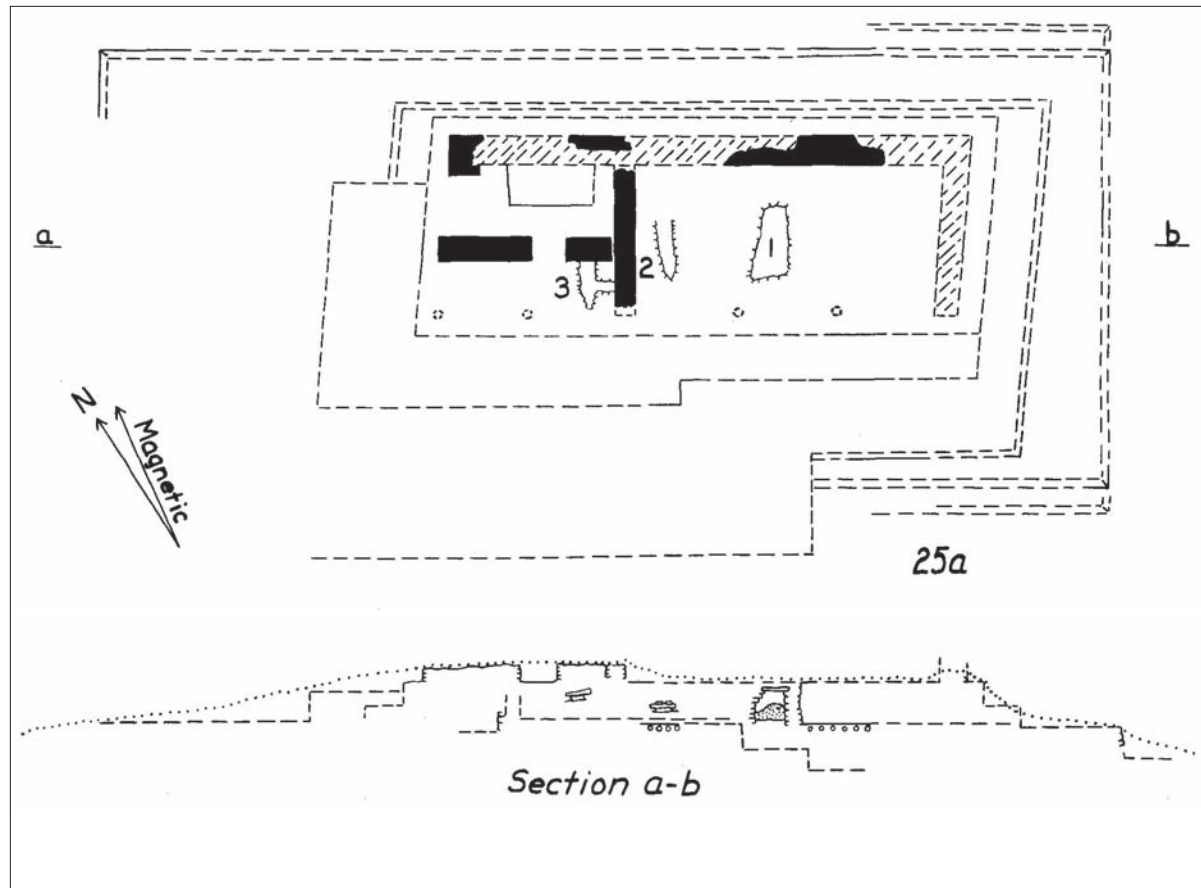


Figure 10.25 a. Plan: Structure V-1-1st-B (locating Sections A-B and Burials 1-3); b. longitudinal Section A-B through Strs. V-1-3rd, -2nd, and -1st and Burials 1-3.

the site as a whole, in any one of these situations there may have been contemporary differences as between the main ceremonial groups and peripheral assemblages such as the one here considered.

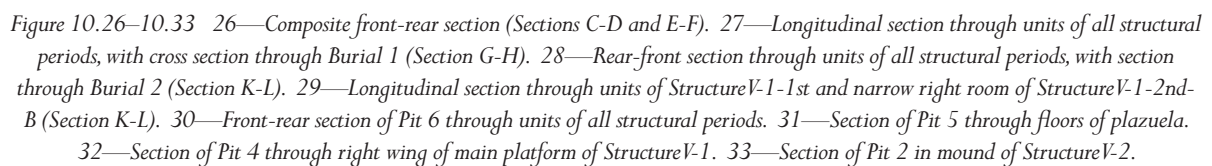
#### **Structure V-1-3rd-B and -A**

All that we know of architectural form during this period is shown in Figure 10.20, supported by the cross-sections of Figures 10.26-10.28. The higher base-surface toward the rear, the floor of Deposit 2e, is taken to be a rearward extension of the basal platform system of the prior period. It may really belong with that period, as a secondary phase. We assign it to this period on the theory that need for it was first felt when it was determined to place Structure V-1-3rd so far to the rear that it would have rested in part on unprepared sloping ground unless the area of level base surfaces was extended. As may be seen in Figure 10.26, the higher of the two earlier surfaces must have ended against the natural slope not far to the rear of the point where we exposed it on Section E-F, probably about under Unit L. Turning to Figure 10.20, it

will be clear that the main platform of Structure V-1-3rd-B, Unit N, certainly extended some distance, and probably a considerable distance, further toward the rear.

Possibly when this third and higher base-level was established at the rear, a two-level base surface arrangement was maintained by raising that at the front, thus blanking out the floor of Deposit 5c. Instead, the burial of Deposit 5c by deposit 5a is first shown in Figure 10.21 on the theory that this was more probably connected with the earliest definite *plazuela* grouping of mounds.

The evidence for a secondary phase of the period under discussion, Structure V-1-3rd-A, consists only of the wall labeled Unit L. In Figure 10.20 this is assumed to be a retaining wall for an extension of the rear part of the main platform, Unit N. It is barely possible that we saw only one face of a free-standing wall of a building. If our reconstruction is correct, in cutting Section E-F of Figure 10.26 we should have noted the top of the platform extension, and did not; but this top may have been missed because, like the later Unit K, it lacked special surfacing



The relation of Unit M to Unit N leaves little doubt that Unit M was a building platform. We saw too little of it to expect to encounter positive evidence of the building, even if such remains. The presumed building platform floor appears in our notes repeatedly as the red floor, in contrast to the gray floor of the next later period, that is of Structure V-1-2nd-B. Both red and gray floors were surfaced with lime finishing plaster. The notes are not specific as to whether the color notations

refer to the plaster or to the body of the floor, and since stone-and-clay floors appear as base-surfaces in this V-1-3rd period, and since the soil immediately over bedrock is red clay, the red color note may possibly refer to the body of the building floor. A clay-and-earth building floor is something to look for in the future, but it is improbable here. Having specifically identified a black clay-and-earth floor as such it is unlikely that we should have described a red clay-and-earth floor merely as red. The color was probably that of paint applied to the finishing plaster, since fragments of thick red-painted gray plaster were found in



Table 10.15 Objects Recovered with Burial 2

Tooth, cuspid, inlaid with jadeite disk, and apparently filed	With 6 other teeth, among skull fragments
Tooth, cuspid?, inlaid with iron pyrite disk	Region of the knees
17 jadeite beads, diameters 5.5-7.5 mm	Just below jaw fragment
15 shell discoidal beads, diameters 3.5-6 mm	Just below jaw fragment
1 shell labret	Just below jaw fragment
1 bone or shell rosette	Near the beads
1 bone or shell labret	Between lower leg bones
1 sting-ray spine	Near hand bones on right(northwesterly) side
1 shark's tooth (?)	Near hand bones, right side

the fill of Structure V-1-2nd close to where this rested against the main platform of the V-1-3rd structure. They were above black clay, probably in Deposit 1c or 1d of Figure 10.26, and they probably came from the V-1-3rd structure when it was being buried.

The floor of the building was therefore not only plastered but almost certainly it was painted red. The recovered loose fragments must have come from this floor, or else from an outdoor retaining wall of the main or the building platform, since the surface of the main platform appears to have been of mere earth (Fig. 10.28, where a surface at the base of the building platform must have been penetrated, yet was not recognized). But since no plaster was found in position on well-protected portions of the retaining walls it is probable that only the indoor floor was plastered and painted.

One is tempted to speculate on the nature of the presumed building. Charcoal and burned daub-clay were found in Deposit 2d" of Figure 10.28, that is, close to the building platform. Burned daub-clay with stick impressions, but without the charcoal, was found in Deposits 2d and 2d' of Figure 10.26, which lay against the main platform. This showing is insufficient for postulating the burning of the V-1-3rd building. The daub clay and a little charcoal probably went to a dump after some other building burned, and were brought here as inclusions in the partly solid fill of the next period. They show only that daubed palisade buildings were known at the site during or before the V-1-3rd period. The building here may have been of this type, with or without base-walls, but there is no positive evidence.

In Figure 10.21 we have labeled the top of a retaining wall equivocally, suggesting that it may belong to the end of the building platform of this period (Unit M). At Burial 2, and in a trench approaching it from Burial 1, we did not find the gray floor of Structure V-1-2nd, which is expectable a few centimeters above the red floor. This suggests that the later building platform was built so as

to incorporate that of Structure V-1-3rd, but not so as to bury its surface; and it maybe that the old building platform was extended to the rear and to the left (at a higher base-level but at about the same top-level), but not to the right nor to the front. In that case the wall in question functioned first as the end wall of the building platform of Structure V-1-3rd, and later as part only of the end wall of the Structure V-1-2nd building platform. Accepting this as a possibility, by no means proved, we have a hint that the building platform of our earlier period was about 7 m or 8 m long. The depth suggested for it in Figure 10.20 is entirely hypothetical.

### *Structures V-1-2nd-B and -A*

Knowledge of the platform units of this period depends largely on the published section drawings, and more information might require changes in Figure 10.21. The limits of the building platform are especially important, since these control the size and proportions of the building. While we know the positions of the rear of both the building and its platform, there is doubt concerning the precise position of the front of the platform (Unit J). This arises through failure to find the front wall itself on Section C-D of Figure 10.26, and failure to distinguish the top of the main platform on this section, as was done on the rear Section E-F of the same figure. The main platform is so deep that without this information one may doubt whether it can be said positively that the larger left room of Structure V-1-2nd-B opened onto the main platform rather than into an additional room in front of it. We can be sure there was no such front room unless it had a mere earth floor instead of a plastered lime concrete one like that of the rear portion, and this is improbable in the highest degree. In the figure the front of the building platform is probably placed a meter or so too far forward, if anything.

There results an extraordinarily deep main platform in relation to the depth of the building platform, with

Table 10.16 Average Dimension Table: Platform Units

Str. V-1 Phases	Unit	Height	Length	Depth	Slope
V-1-3rdB	N	0.9*/0.6	?	?	12 deg.*
V-1-3rdB	M	0.60	?	?	?
V-1-2nd-B	K	1.2*/0.9	?	11.3	12 deg.*
V-1-2nd-B	J	0.25	?	?	V
V-1-1st-B	K, X	1.2*/0.9*	28.0*	13.0*	?
V-1-1st-B	E	0.7	?	11.0*	?
V-1-1st-B	D	0.8	15.0*	6.0	?
V-1-1st-B	D'	0.4*	15.0*	11.2*	?

*Note: Starred dimensions are approximations based on reconstructions; the letter V means approximately vertical.*

very extensive exposures to rear and front. This seeming disproportion was planned, since building platform and main platform are structural units, built at the same time (Units J and K, Figures 10.26-10.29). The large exposed areas of the main platform were nothing more elegant than leveled-off tops of solid fill, so far as our records indicate. At the rear the line of this dirt floor was indicated by a change in color, but we failed to note a similar line at the front (Fig. 10.26). However, at Pit 6, dug partly for this purpose, a change in color was noted at just about the expected level (Fig. 10.30, Deposits 4a and 4ax).

The building was evidently quite long in relation to its depth, the proportions probably being not unlike those expectable in palaces. The plan is only imperfectly known, but it was certainly so peculiar that at present it belongs in the unclassified category. At the left of the known portion, as indicated in Figure 10.21, there was a room 2.7 m deep. We here refer to this as the left room. It may have been 6-7 m long, and certainly was more than 3.5 m long. If it was approximately square, then there may have been two such rooms, each with a doorway. For descriptive purposes we will ignore this possibility, considering it the only left room, either nearly square with one doorway or longer, with two doorways.

At the right rear corner of this room much was destroyed when the chamber for Burial 1 was built, but it is certain that a passage only 50 cm wide led to the end of a chamber, 5.5 m long, the "right" room. This was only 1.2 m deep. Secondary features of the next phase make it reasonably certain that there were no other openings into this chamber, at least at floor level.

The secondary activity constituting Structure V-1-2nd-A is illustrated in Figure 10.22. It included two episodes in this right room. First, Unit H, apparently a bench, reduced the depth-at-floor-level to about 80 cm, but this was only for about 1.8 m at the left end;

later, a narrower extension of this bench along the front wall reduced the depth of the rest of the chamber to 90 cm. Units H and G both rest on the plaster floor of the room, and plaster on the end of Unit H showed that the narrower secondary feature was the later of the two. Though we have restored these as benches, we cannot be absolutely sure of their character, since no part of the top of either had survived.

As may be seen in Figure 10.28, the plastered floor of the original narrow right room curved up noticeably to the front wall. At this point the wall itself was missing, doubtless as a result of Maya excavation for Burial 2; but a fragment of wall plaster, facing rear, had adhered to the fill of the bench placed against it, so there is no question of the correctness of our broken line reconstruction of the wall, Unit 11 at this point. The fact that the floor curved up to it, with only one layer of finishing plaster, is good evidence that the peculiarly narrow right rear room, without the benches, was part of the original plan.

There was some sort of extension to the right of the building, as evidenced by the wall labeled Unit F in Figure 10.22. This has been assigned to the phase of the supposed benches, but it might be earlier or later. In the drawing this wall is considered to be the rear wall of an additional room on the right, but we failed to record positive evidence that this wall was not part of the original plan. If the platform wall further front does not mark the original end of the front portion of the building platform in this period, then we may be incorrect in placing Unit F in the secondary phase of the benches. At the rear the original building platform surely did end as shown in Figure 10.21, as is proved by the section of Figure 10.29. The latter section shows also that the rear part of the ends of the original building platform and building remained exposed until buried by the fill of Structure V-1-1st, so there is no doubt that Unit F was the rear wall and not an interior wall of the extension, whether this

was a secondary one or not. Yet it is well forward of the rear wall labeled Unit 1. Possibly in the beginning, but probably only in the final phase, the outline of building platform and building was that of a modified rectangle, not of a simple one.

Unfortunately we failed to expose the front face of Unit F, the supposedly secondary rear wall to the right, and do not know its thickness. The building walls assigned to the original phase are of great interest because they were only 35 cm thick. It is not possible to decide positively whether they once rose to roof height, or were base walls. They were plastered, but where tops were seen these were uneven, without surviving original surfaces. Nevertheless the best guess would seem to be that they were base walls. If they once rose to roof height it would have been necessary to cut them down to make way for the floor of Structure V-1-1st, which was only 1.15 m above their bases, but it would not have been necessary to cut them down to a maximum surviving height of about 50 cm. However, the possibility of stone-robbing weakens the inference.

The fill of Structure V-1-1st, which obliterated this structure, contained evidence of clay-daubed construction somewhere in the neighborhood; but just as in the case of the fill of this V-1-2nd period, there was no evidence of burning perishable-material walls at this particular spot. Whether the walls were partly perishable or all-masonry, considering the thinness of the known masonry at the base, and the considerable depth of the left room, it seems probable that the roof was of thatch, rather than beam and mortar. Certainly it was not vaulted.

There was no hint of color on the plastered floors or walls of this period.

### *Structures V-1-1st-B and -A*

During this period we have to consider not only a structure and a modification of it, but also three sure numbered burials and a fourth doubtful one, not given a number. The burials are described under their own heading, and the assignment of Burials 1-3 to this period is justified under Dating.

Structure V-1-2nd-B completely blanked out known parts of the prior Structure V-1-3rd-B and -A. The structure of this still later V-1-1st period is also new in the main,

but apparently at the left end it made continued use of a small part of the old main platform Unit K (Fig. 10.23). Most of that old main platform and presumably all of the old building platform and building were buried under Units E and D, which we call respectively a supplementary and a building platform. As shown in Figure 10.26, the front and rear walls of the supplementary platform were set flush with those of the old main platform. Artificial fill against the rear of that main platform is best explained as part of a rearward extension of the old main platform to maintain the separate identity of the supplementary platform at the rear. In the reconstruction this fill (Deposit 3) is thus interpreted and also labeled "Unit X?" and a similar forward extension at the front is assumed on either side of the stairway. Here Deposit 1c is taken to be part of the architectural Unit X. The projecting stairway, Unit E" (over-riding Unit X) is based on a corresponding projection of debris and on the partial cut through it, shown in Figure 10.26.

The main platform, thus reconstructed, is analogous in a vague way to the pyramid of a temple, but it is the supplementary platform, which now provides stage-like surfaces before and behind the building platform, and it is the front one of these stages which is connected with the court by the stairway. The amount of exposure of this platform (as compared with the main platform in the preceding period) is reduced by setting the building platform further to the rear, and by the much greater depth of the platform, which includes a broad step-like element at the front, labeled D'. As reconstructed in Figure 10.23, at the level of this front projection the building platform takes on a modified rather than a simple rectangular outline. The portion which causes this complication in the design is labeled D" in the figure, and much of it is purely hypothetical.

So far as known, the latest phase, Structure V-1-1st-A, consisted in raising the top of the supplementary platform to the level of the lower portions of the building platform. This is known only on the section of Figure 10.26, where it is clear that there was such a secondary raising (Unit A) and that it probably extended forward to the head of the stairway. If this raising was general, it reduced the visual height of the building platform, which then appeared as a simple rectangle. But this is uncertain, and this phase is not illustrated.

*Table 10.17 Structure V-1 Building Units: Section Table*

Str. V-1-Phases	Unit	W	R	W'	Length	Depth
V-1-2nd-B (left)	I	0.4	2.7	0.4 (base)		
V-1-2nd-B (right)	I'	0.4	1.2	0.4 (base)		
V-1-1st-B	C		4.2*	0.8 (base)	14.5	15.0*

*Note: Starred dimensions are approximations based on reconstruction.*

*Table 10.18 Operation SE-1 Object Table: Time of Abandonment?*

Position	Sherd	Figurine	Miscellaneous
1a On floor of Unit D of Str. V-1-1st	-21;-27		-27(whorl)
1b Near surface, probably on or above floor			-7 (fragments of stone vessel)
1c Probable debris at NW corner of Unit K		-42	

So far as is definitely known, the building itself remained the same during both phases, but it is possible that the small right room is a secondary addition. The rear wall may not be structurally continuous throughout, and the front wall of the right room is known to be structurally discontinuous with respect to the wall of the main or left room, which it abuts. Thus it is perhaps not unlikely that there were some changes in the right room. However, there is a high degree of probability that a right room existed from the first, since in digging for the section of Figure 10.29, we did not encounter an old and buried end of the building platform near the right wall of the larger room (Unit C in the figure). There is really no reason to suspect that Figure 10.23 misrepresents the original plan except that at the right a division into a porch-like front and a room-like rear portion may have been delayed until a secondary phase.

A left main wall is reconstructed on the basis of a not very marked rise in debris level along this line; there was certainly no right main wall, and no continuous front wall along the front of the building platform. The wooden posts suggested there seem the only reasonable solution. Postholes were not searched for. At the front of the left room there were very dubious hints that there may have been low blocks of masonry, but if so, they could have been no more than bases for posts.

The walls survived to a maximum height of about 50 cm. The rear wall of the left or larger room was about 75 cm thick, the transverse wall at its right side was about 50 cm thick, and the front wall of the small right room was about 60 cm. Nevertheless it is practically certain that these were all base walls only, and therefore that the building as a whole was mainly of perishable materials.

This is indicated by the paucity of debris, well illustrated in the sections of Figures 10.25a and 10.26, and by the character of the thickest of the walls themselves. This also is illustrated in Figure 10.26. The front and rear faces are of tabular stone, presumably laid in lime mortar. But they retained a hearting of small broken rock, apparently without mortar, and certainly without the scattering of irregular tabular stone expected in such heartings. The latter, with mortar, tend to bind facings and hearting together. These facings seem to have acted as retaining walls for pure rock fill in the tradition

of platform building, rather than in that of free-standing walls. Carried to roof heights, despite the considerable thickness, they would have been very weak unless the hearting was in fact concrete. If these were concrete walls, it is unlikely that the mortar would have completely leached out even at the base; or that they would have fallen to pieces down to a nearly uniform height as in the section of Figure 10.25a.

A single fragment of daub-clay was found in such a position that it probably lay on the building floor, but at a point where this had disintegrated. Since this might have been from within the floor material itself, and such remains were not plentiful, it had best be taken to mean merely that the perishable parts of the walls of this building may have been daubed with clay and, of course, may then have been lime-plastered. The base walls and floor were finished with lime-plaster, as proved by a survival in a protected region near the locus to Burial 2, and we considered the floor material itself to have been lime concrete.

The right room shows a very interesting feature, the bench labeled Unit B in Figure 10.23. Trees had completely disrupted its surface, but the height of about 50 cm was determinable by positions of specially selected large slabs, which capped the walls. The hearting consisted of broken rock and earth, which may have worked into it since abandonment. Parts of this solid material consisted of pockets of soft gray powdery material such as had been encountered nowhere else at the site, and which presumably was wood ash. While the bench may have been an altar, the burning of copal incense in pottery censers, as in the temples, will not account for this ash. Either full-scale fires were built in the hearting at the time of construction, or they were built on the surface of the finished bench.

### ***Post-Abandonment Period?***

The notes describe the surface of the mound as a bit hollow in the region, which later was defined as that of the left and larger room of the latest building. A lack of this impression of concavity in the surface at the right doubtless resulted from the close proximity of walls and the bench there. The hollowness of the surface over the left room (to the right in Figure 10.25a) was occasioned



Table 10.19 Operation SE-1 Object Table: Time of Burials 1-3

Position	Sherd	Figurine	Miscellaneous
2a In Chamber of Burial 1	-2		-1 (human bone fragments)
2b In cist of Burial 2			-10a (human bone fragments, teeth, jade and shell ornaments)
2c In or above cist of Burial 2	-18	-11	
2d In cist of Burial 3			-30;-31 (bone fragments, adult and child)
2e Above cist of Burial 3	-28*		

by the absence of debris except close to the walls. The presence of such debris near the walls accounts for a minor mound which was noted before excavation, and which turned out to contain the front wall of the right room.

The subsequently known plan does not account for a spur of this latter mound, running off at an angle from it to a point beyond Burial 2. Certain humps had been noted about 2.5 m to the right of Burial 1 (left in Figure 10.25a). These were about where the spur seems to have terminated, and certainly well out from any wall of Structure V-1-1st. These notes on original contours are not very definite but they show clearly that if the longitudinal section of Figure 10.25a had been taken about 1.5 m further forward a greater depth of debris would appear above Burial 2.

The spur and humps were very likely a single feature. Notes during actual digging refer to humps only. They consisted of stone and earth debris resting on gray remains of the floor of Structure V-1-1st. Since natural disintegration of the walls of that structure does not account for them, they were probably man-made, or else were caused by the uprooting of a long-vanished large tree. A single human tooth was found under one of the humps, about at floor level. This tooth suggests a burial at a level, which would have required the heaping up of debris on the floor, and since we have a similar post-abandonment situation at Structure O-7, that is the preferable hypothesis here. It receives some confirmation from the presence of human remains, which may be from a shallow burial above the chamber of Burial 1, though there the teeth and bones were below floor level, and there were no humps. The situation there is described in more detail under Doubtful Burial. In both cases green workmen may have missed crude burial cists. Had these been missed at Structure O-7 the evidence for post-abandonment burial there would be little better than here.

### Burials 1, 2, and 3; Doubtful Burial

The evidence discussed under Dating leaves little doubt that Burials 1, 2, and 3 were made from the floor of the

building of Structure V-1-1st, some time after Structure V-1-1st-B was built, and before abandonment. We thus have three sub-floor burials in a presumably late Classical Maya period. The term sub-floor is used in the sense that the floor was in use up to the time of the burials, and presumably thereafter. Bones and artifacts receive only preliminary attention here.

Each had its burial structure, distinguished here as *covered burial cists* (Burials 2 and 3) and a *covered burial chamber* (Burial 1). The implied distinction between *cist* and *chamber* lies in a greater vertical distance between the floor of the chamber and its cover. The term *burial vault* is reserved for structures, which employ the corbel idea or Maya vault in a more definite manner than was the case with the Burial 1 chamber. The two cists here considered may be called body-sized, to distinguish them from the small cists of Structure O-7.

#### Burial 1

The chamber was somewhat irregular in plan and also in cross-section (Figs. 10.25a, 10.25b). The left side and both end walls were vertical, but the right side wall (observer's left in the figure) sloped inward somewhat in the manner of corbelling, especially where the chamber was widest. The two side walls supported capstones in the manner of sloping vaults on buildings, and the overhang of the right wall was such as to maintain a constant cap exposure of about 60 cm from one end of the vault to the other. At the bottom the chamber varied between 70 and 85 cm in width. Those cover slabs, which were sketched in place had bearings of only a few centimeters on either end, and could not have been used unless at least one of the walls sloped inward. Therefore the crude corbelling on one side only was probably intentional and necessary to get a slightly wider floor than the available cover slabs would otherwise have permitted. This is interesting, since in the cist burials no such width was required. The length, about 2 m, was also somewhat more than an extended burial of an adult Maya would have required.

No definitely prepared floor could be identified, but the bones lay about 50 cm below the cover slabs and presumably had been placed on leveled-off earth and

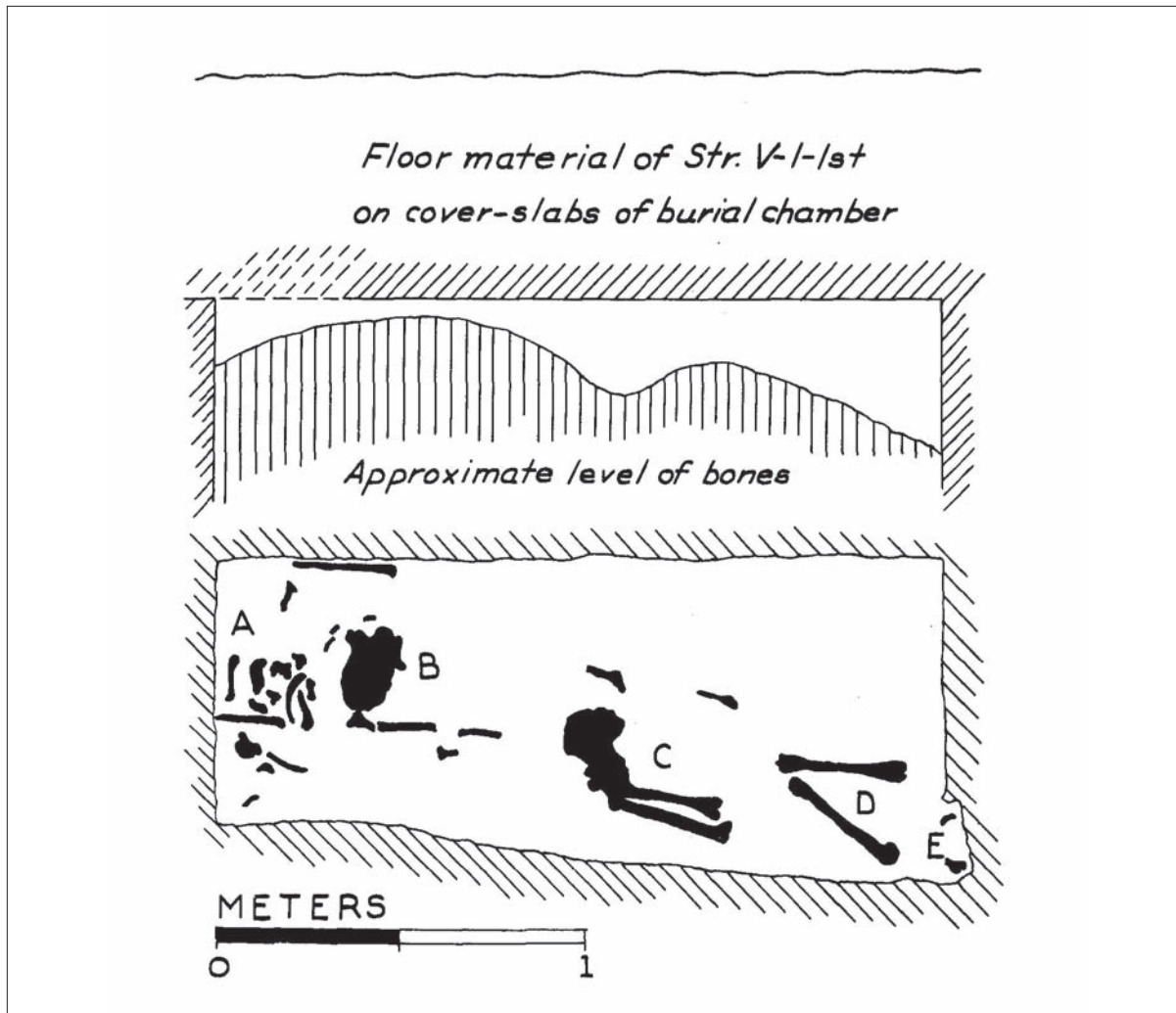


Figure 10.34 Plan and section of Burial 1, showing locations of certain bones after removal of many fragments.

stone fill at this level. The walls extended an additional 20 cm or more downward so that structurally the chamber may be taken as about 70 cm high, though as used it was only about 50 cm high.

#### *Position of the Body*

There were fragments of bone nearly everywhere at the burial level. The more important ones were sketched in position as in Figure 10.34. The letters in this plan are for descriptive reference here only. The skull and a humerus were near B, the pelvis with apparently articulated femora were near C, the tibiae near D. At C the indication was of burial in the flesh, lying on the side. Under this hypothesis, skull and lower leg bones appear more or less where expected, but if this was an articulated and

undisturbed burial, why are the upper ends of the tibiae about 15 cm from the knee position as indicated by the femora? It soon becomes evident that we are not dealing with an undisturbed burial in the flesh. At E, in the far corner beyond the leg bones, was a vertebra and a rib fragment, while other vertebrae and rib fragments appear near A, at the other end beyond the skull, along with a variety of other bones, including a scapula.

However one accounts for these scattered positions, it is certain that they date from ancient times. All cover slabs were in place except the rear one, and only one end of this had dropped down. Below them was a mound of stiff clayey soil and some stone. This lay on the bones, and partly filled the chamber. This covering resulted in rather good preservation of bone material, so that decay does

Table 10.20 Operation SE-1 Object Table: Time of Burials 1-3 or of B-1-1st-B

Position	Sherd	Figurine	Miscellaneous
3 In fill of Units D-E, possibly moved for burials	-10	17;-37; -29	-29 (obsidian fragment)

not account for the observed amount of fragmentation. The surface of this mound formed two humps, as if thrown in from above before the cover slabs were placed (Fig. 10.34). This form, as well as the quantity and nature of the soil itself, proves that it was not washed in around the partly fallen cover slab at one end. After that slab had slipped from one bearing, rodents could enter and burrow into this mound, but there was no recorded evidence that they had done so, and they would scarcely have carried rib fragments and vertebrae to opposite ends of the chamber, nor would they have deposited all transported fragments at a single level, leaving the upper part of the mound and its surface sterile.

The simplest explanation of the facts would seem to be that the body was first buried in the flesh, with the head to the rear; that later, before decay of bones was far advanced, the chamber was opened and many of the bones were scattered; they were then covered with clayey earth brought for the purpose, and the cover-slabs were replaced. This would account for the semi-correct positions of some bones only, including the articulated femur and pelvis. It might account for absence of offerings and ornaments with a body for which a fairly elaborate burial structure had been provided. That is, they may have been provided but removed later. If there was no reopening of the chamber we have a very unusual burial indeed.

#### *Other Data*

It was possible to observe in the field that the skull showed artificial frontal flattening. Seven teeth were recovered. Several of these were filed, one (not an incisor but an upper cuspid) in notched Sun God style. The remains, which are fragmentary, are in the University Museum.

No offerings of imperishable materials were found. Bones of a small rodent were encountered in the soil at the rear end, below the partly fallen cover slab. They were in a small area at one level somewhat above the burial level. Presumably this animal died a natural death here, though just possibly it was an offering of some sort made during the partial filling of the chamber.

#### *Doubtful Burial*

Another burial may have been made after the cover slabs of the Burial 1 chamber were last put in place. Conceivably the apparent disturbance of the bones of Burial 1 might

have been connected with such a later interment. The evidence suggesting another burial in the same region consists of a few human skeletal fragments which were not observed in place, but which seemed to come from positions in part at least above the cover slabs of Burial 1, and about at their level. Since the tops of these slabs were about 50 cm below the V-1-1st floor level, a second sub-floor burial was feasible here.

When the partly fallen cover slab of Burial 1 was first lifted out a human jaw fragment appeared. It was from an individual heavier than the subject of Burial 1, as we determined later. More fragments of human bone fell out as undisturbed cover slabs and the upper stones of the left (southeasterly) wall of Burial 1 were removed. Included were fragments of long bones and skull.

In the field as we proceeded we could not find additional bones in place by probing in the sides of our cut, and concluded that these human fragments were merely scattered in the fill of Structure V-1-1st. It may be, however, that failure to take off the fill above the Burial 1 chamber in horizontal layers resulted in loss of evidence of a shallow burial here. If there was such, since the surface of the mound was flat and level in this region and well above the bones, it probably dates from the time of Structure V-1-1st, rather than the post-abandonment period.

#### *Burial 2*

The body-size cist of this burial is illustrated by the plan and section of Figures 10.24 and 10.25, and the section of Figure 10.28, which latter is longitudinal with respect to the cist. The cover slabs were broken to irregular forms and piled two or three deep, except at the front (the foot end of the burial). Here the cover was a single specially worked slab measuring 60 by 55 cm. That end of this slab, which lay at the end of the cist had been carefully chipped to a semi-circular form, as if to give a neat symmetrical appearance to the covered cist. Elsewhere this impression of a neat job was totally lacking.

The cover slabs were supported by a single course of rough stone which outlined the cist except at the rear or head end, where supporting stones were missing. The cist was about 1.8 m long. At the head end the outlining stones or walls of the sides were parallel and about 45 cm apart, but from about the middle to the foot end the enclosed space tapered somewhat irregularly to a minimum width of about 20 cm. There seems little doubt that the cist was

planned to contain the body of an extended burial, head to the rear of the building within which it was placed, and with no useless space at the sides. The tapering was not required by the size of the specialized cover slab at the narrow end.

The latter, and the lowest cover slabs, elsewhere, were about 20 cm above a poor quality plaster floor. Probably the intention was to provide an air space between floor and cover, so that fill would not come in contact with the body. However, this space was found filled with fine sterile soil except at the foot end, where this deposit was not deep enough to reach the underside of the large cover slab there. Presumably, elsewhere percolation around the irregular cover slabs was sufficient to make the filling of the cist complete, and there is no reason to suspect that the deposit of soil on the bones dates from Maya times, as was the case at Burial 1.

The white plaster floor was very rough and uneven, apparently nothing more than a thin layer of lime mortar spread over the carelessly leveled soil of solid fill into which excavation for the burial had penetrated. The plaster had disappeared at many places, but was perfectly definite at others. This floor, lacking a lime concrete body, was only a few centimeters above the red floor of Unit M, the supposed building platform of Structure V-1-3rd. One imagines that the builders of the cist were ignorant of this fact. Desiring a plastered floor they could have had one ready made with just a little more digging.

In Figure 10.28 it is apparent that at the depth to which they did reach they very likely would have found the later and also excellent gray floor of Unit J of Structure V-1-2nd, if that floor extended over the area of the earlier red floor of Unit M. Since they did not use the gray floor it is probable that they did not find it. This confirms our own failure to find the gray over the red floor in approaching Burial 2 from Burial 1, and strengthens our suspicion that the earlier floor continued to be used as part of the floor of the later and larger building, the slight differences in levels of known parts being non-significant.

Whatever the reason for it, the floor of this cist was plastered when it was built, and the quality was such that, without disturbance of the cover slabs, the evidence of anything more than a dirt floor had begun to disappear. Therefore it would be unsafe to reason that what seemed to have been mere earth floors in other burial structures were unplastered, if the conditions for preservation were similar.

#### *Position of the Body*

Disintegration was so far advanced that nothing but teeth and bone fragments could be salvaged. In some cases it was clear that bones lay directly on the plastered floor. Considerable sections of long bones and various other fragments of the skeleton could be observed in the soil,

and were drawn and photographed before being largely destroyed in the process of removal.

Bones of hands lay close to the walls on either side, between 80 and 90 cm from the head end of the cist. Fragments of lower and upper arm bones led straight from hand bones along the left (southeasterly) wall of the cist to the region of skull and jaw fragments. Lower ends of a radius and ulna indicate a corresponding extended position for the other arm (the right arm if the body lay on its back). However, the humerus of the supposed right arm was displaced toward the center, perhaps in agreement with the fact that the skull and jaw fragments were somewhat to left of center. The skull and jaw fragments, with seven teeth, lay within an area about 25 cm in diameter, the nearest being about 10 cm from the head end of the cist, and about 5 cm from the left wall. Femora, pelvis, vertebrae and ribs had completely disappeared, but fragments of the tibiae were found in expected position for an extended burial.

An eighth tooth was found near the indicated knee position, so some minor disturbance by rodents, or possibly by washing, is a possibility. But there is little doubt that the body was laid out in the flesh, extended, head to the rear, hands at the sides; perhaps the torso was twisted somewhat.

Some few data indicate convincingly that the subject was an adult. The lower end of one tibia had survived and was 1.5 m from the head end of the cist. Since skull fragments reached to within 10 cm of that end of the cist, and one must allow for feet, a stature not less than 1.4 m seems indicated. A check on this is the fact that one arm was something more than 40 cm in length, not counting wrist and hand bones.

#### *Ornaments and Offerings*

The subject was probably a man of some consequence, or, perhaps more probably, the wife of such. This is indicated by the list of recovered objects given (Table 10.15). The positions of the jadeite and shell beads suggest that they belonged to a necklace or necklaces. The presence of two supposed labrets of shell, and of the shell rosette which probably belonged with them, also indicates the burial of a costumed body. Though one of the labrets was far from its expected position, so was one tooth. These are both small light objects, which rodents could have moved.

The sting-ray spine was in the same position as a group of them in Burial 5, so it is probable that this and what we took to be a shark's tooth were intentionally placed near a hand, probably the right hand.

The list (Table 10.15), and especially its inclusion of jadeite and inlaying of teeth, is good evidence that the subject was no commoner. The inventory is, however, very modest as compared with that of Burial 5 in the central region of palaces on the Acropolis.



### *Burial 3*

Since this was a burial of an adult and child one imagines it was of a mother and child. As with Burial 2, we are here dealing with a body-sized cist, but there was a small extension to one side to accommodate most of the child's body (Figs. 10.24 and 10.25a). We will refer to this extension as the small cist. It was not independent, since it opened into the main or large cist. The small cist was destroyed at its foot end by our excavations. The large one tapered irregularly toward the foot end, perhaps more than is indicated on the plan. At this end the supporting single-course wall consisted of thin slabs set on edge. These had collapsed, making precise delineation of the original cist floor difficult.

The main cist was about 2 m long and had a maximum width of 37 cm, a minimum width of 26 cm or less, and an interior height, which we took to be about 10 cm at the rear or head end. The small cist, opening from the larger one, was probably about 80 cm long and about 25 cm wide. If the floor was plastered, this must have been a mere coating on earth, as at Burial 2, since there was no evidence of it.

As at Burial 2 there was here a puzzling lack of uniformity in the selection of cover slabs. A single heavy slab, which had been cut to a nicely rectangular form, covered the main cist from the head end (toward the rear of the building) to the region below the juncture with the small cist. A large corner piece of this slab was missing, or it would have covered the child's head, which projected into the main cist. This slab measured 1.6 m in length and 0.7 m in width. A photograph indicates a thickness of between 10 and 15 cm. One suspects this stone came from some torn-down building, but cut stones of these dimensions have not been found in place. Small slabs of irregular shape, disposed with little care, covered the small cist and that part of the main one not covered by the large slab. Although these smaller cover slabs did not fit nicely side by side, there was only one layer of them.

The slipshod nature of the covering over the small cist should be considered together with the fact that the bones of the child found in it were fragile but almost perfectly preserved, probably because they were buried in a deposit, composed of earth and an occasional small stone, which filled the cist. Possibly this had percolated in, but we did not think so, and there is at least a suspicion that the body (but not the head) of the child was purposely covered with fill, and that consequently the slabs over this did not need to provide complete coverage.

On the other hand there is good evidence that most if not all of the large cist, especially the part covered by the single large heavy slab, was intended to keep earth from coming in contact with the body. This large slab had cracked in two, apparently after being placed in position. This, and the partial collapse of supporting slabs

at the foot end, may have been due to the weight of an ancient large tree. When the slab was lifted, some bone fragments were at once visible and others adhered to the under-side of the slab, showing that nothing had filled the space between body and cover. Other fragments in the main cist were covered to a slight depth with soil, which presumably had percolated in.

#### *Positions of the Bodies*

The skeleton in the main cist was in even worse condition than that of Burial 2. Recorded skull fragments lay in an area about 20 cm in diameter, in this case on the long axis, and reaching to within about 10 cm of the head end of the cist. Our notes fail to state the number of recovered teeth. A jaw fragment lay about 40 cm from that end, being somewhat isolated from the rest of the head bones, but still about on the long axis. A humerus, lacking its upper end only, lay parallel to the left (southeasterly) side of the cist, about 7 cm from it and so disposed that the elbow was about 70 cm from the head end of the cist. Remnants of hand bones lay about 37 cm below this elbow, indicating that the arm was fully extended at the side. But there were also finger bones a little below the elbow. Assuming that the body was on its back, the right arm was probably flexed to bring the right hand over the left forearm. Interpreting thus, the left hand may have reached to and actually touched the head of the child. However, there were apparently two finger bones 1.1 and 1.2 m from the head end of the cist, and close to the opposite or right side of the cist. Unless these had been carried by rodents both arms would seem to have been extended at the sides, but then the apparent presence of finger bones at an elbow is unexplained.

Fragments of upper and lower leg bones were noted more or less continuously along the right tapering side of the cist between points 1.2 m and 1.7 m from the head end and a point about 1.3 m below the probable position of the shoulder; while two or three toe bones could be made out about 10 cm further down. Since these bones were crowded together on the right side they gave the impression of a body laid out on its side. This probably was the case, unless the child's head lay actually in the lap of the adult. Otherwise room was lacking for both head and pelvis. It is probable that in this region the clearance between floor and cover slabs was more than the 10 cm we estimated at the head end, and sufficient for either of the suggested positions.

While there is considerable doubt as to precisely how the adult body was disposed, we can be fairly sure that the legs were extended, and the head was to the rear.

The child was certainly buried in the flesh, extended on the back, arms at the sides. The cist was evidently too short for it, so that the entire head and a little of

Table 10.21 Operation SE-1 Object Table: Time of V-1-1st Construction

Position	Sherd	Figurine	Miscellaneous
4a In fill of Units D-E, no disturbance suspected	-13; -14 -15; -16 -33; -36 -40; -50	-23; -24 -25; 40	-22 (fragments of "Lintel" 10; -32 (whorl, sherd disk, incised bone awl?); -34 (flint point and fragment); -35 (bone bead?; broken flint blade, pumice); -40 (bone and obsidian fragments); -44 (burned daub-clay with impressions); -51 (sample of plaster)
4b Same, possibility of surface mixture	-5; -6		
4c Same, possibility of mixture from V- 1-2nd	-8		
4d Same, possibility of mixture from V- 1-2nd or V-1-3rd	-19		
4e In fill of Unit X (Deposit 3)	-4; -54	-3; -4	

the shoulders lay within the main cist. All trace of the skull had disappeared, but the lower jaw occupied its expected place between the ends of the humeri and at the end of the vertebral column. Lower leg and foot bones were missing, but this was doubtless due to destruction in digging. Most other bones were successfully cleared with small tools, though they were badly damaged in the course of removal. The complete decay of the skull, in contrast to other bones, supports our inference that the small cist only was filled with earth at the time of burial.

The field sketch shows the top of a femur about 40 cm below the top of the left humerus, with the vertebral column rising 25 cm from the pelvis to the jaw. As sketched, the pelvis measured 19 cm from side to side. The skeletal material from this burial was sent directly to the National Museum in Guatemala.

#### *Ornaments and Offerings*

One of the adult's teeth was inlaid with a jadeite disk, so the subject, whether female or male, was presumably a person of some consequence. But there were no personal ornaments and no offerings of imperishable materials.

#### *Other Data*

The head end of the main cist, with its large cover slab, extended 32 cm under the front wall of the right room of Structure V-1-1st. A cover slab of the small cist extended 30 cm under the wall separating the left and right rooms of that building. Therefore, if the burial post dates those walls, about 30 cm of cutting into the fill below them was necessary.

### *Dating*

At this mound we have the double problem of considering probabilities as to dates of a series of architectural structures, and also as to the dates of burial structures. The datings of the two sorts of structure are not unrelated in theory, since the burial structures and their contents are pertinent to speculations as to the function of the architectural unit in which they were made. However, it is convenient to consider them separately.

### *Architecture*

Lacking any indication to the contrary, we assume that Structure V-1-1st-A was still in use as of the time of abandonment of the site as a whole, and presumably this was when the main ceremonial groups were abandoned, or at least not before then. So far as we can tell, the building itself was then in the form illustrated in Figure 10.23 for Structure V-1-1st-B. Since the building was probably mainly of perishable materials, it may have been repaired or rebuilt many times, without detectable evidence in the surviving original base-walls. The plan, then, seems late, but it might have appeared a considerable time before abandonment, and may even have become old-fashioned by that time. However, this type of plan first appeared at this spot late enough to allow for the use and destruction of a carved stone panel, "Lintel" 10. In preparing the platform units for Structure V-1-1st-B the builders had almost certainly thrown this fragment in the fill of Unit E, from which it was pulled by the pick of a workman who showed us the supposed spot immediately afterward. This was at level 0.9 m, in Deposit 3 of Figure 10.26. If he was mistaken as to the precise spot, then the piece may have been in the retaining wall of the fill from which he

Table 10.22 Operation SE-1 Object Table: Time of V-1-2nd Construction

Position	Sherd	Figurine	Miscellaneous
5a In fill of Unit K	-20;-41		-41 (Obsidian fragment)
5b Same, surface or earlier mixture possible	-26;		
5c Same, mixture from V-1-1st possible	-52		
5d Same, mixture from earlier deposit possible	-54		

thought it came, but not at a lower level. It was surely part of the Supplementary Platform Unit E, which was structurally continuous with the building platform, Unit D.

Building and platform of the latest structural period (V-1-1st) were therefore later, perhaps much later, than the carving of “Lintel” 10, which preserves for us only a few glyphs. Eventually further development in dating by glyph styles may give a reliable approximate datum point in the Long Count after which Structure V-1-1st-B must have been built. Morley’s choice for this point is 9.10.0.0.0, with two question-marks.

A cursory examination of sherds, from this excavation shows a single item, which suggests a date for Structure V-1-1st-B long after the middle of the baktun. This is a small spheroidal foot, probably from the distinctive composite silhouette form of bowl illustrated in Cresson (1937, Figure 1). There are reasons for thinking this was a type traded in very late in the local time-scale, but of course a single example of the foot only is an unsatisfactory basis for reasoning. Its number indicates that it was included in the fill of Units D-E (SE-1-36 at Position 49 of the Object Table).

The complexity of the fills of Structure V-1-1st and V-1-2nd suggests the bringing of earth as well as broken rock to the spot during each of these periods. This would be likely to cause a mixture of sherds of different periods in a single deposit, so the presence of probably early sherds of flanged bowls in the latest fill does not argue against a late dating for the fill. Assuming such mixture of sherds we can conclude that both Structure V-1-2nd and V-1-1st post-date the introduction of negative painting on pottery, which is represented in both fills. But this style of decoration had appeared by the time of Structure K-5-3rd, an atypically large temple, which must have preceded 9.12.5.0.0 by some unknown but probably considerable time. So far as this ceramic control is concerned, Structure V-1-2nd may be as early as, or earlier than, that temple.

It is a fair guess that Structure V-1-3rd is considerably earlier than Structure V-1-2nd, since the latter seems to mark a decided shift in the position of the front-rear axis and probably the first appearance of the plazuela assemblage at this spot.

The floors of the Pre-Plazuela period comprise the first signs of structural improvement at this spot. They are so near the South Group Court that it is unlikely that they are any younger than the time of beginning the use of that court for stela erection. Otherwise we should have to postulate a ceremonial court of considerable size, with stela, with an exceedingly small number of structures in peripheral areas.

It appears probable that this mound results from structural activity and use spanning the entire time of local Classical Maya occupation. A fair guess would be, I think, that this lasted through the first eighteen katuns of baktun 9. With reference to this local period of occupation the four structural periods were probably very early, early, middle and late. If such terms are unsatisfactorily vague, at least they show that peripheral areas of low mounds present the same opportunities for working out significant change in architectural design, as do the ceremonial groups at the center.

### Burials 1, 2 and 3

These three burials of the Classical Maya period can all be dated as certainly after Structure V-1-2nd-A, as a glance at the section of Figure 10.25a will show. The burial structures were placed in the later fill of Structure V-1-1st. The only questions are whether some or all of them may belong to an unrecognized period before this filling was completed as a platform for the late building; and, if not, whether some or all of them were made after completion of Structure V-1-1st-B (or A) by excavating through the floor. There is little doubt that all were made in the latter manner, dating from after the completion of Structure V-1-1st-B, and before the time of abandonment. Two or three factors have a bearing on this conclusion.

Theoretically, there might have been a period when fill was heaped up over the ruins of Structure V-1-2nd for the purpose of providing a burial mound, more or less formless. This might explain the stratified nature of some of the V-1-1st fill, as illustrated by Deposits 1a, 2b, and 2c in Figure 10.26. But neither there nor elsewhere was anything recorded which suggests long exposure of any surface between the floors of Structures V-1-2nd and -1st. Further, if there was a period of burial-mound use, it seems unlikely that all burial structures would be oriented

Table 10.23 Operation SE-1 Object Table: Before V-1-2nd

Position	Sherd	Figurine	Miscellaneous
6 In Deposit 4b, mixture from V-1-2nd possible	-55	-56	

with their long axes running parallel to the front-rear axes of the structural periods. In the case of Burial 1, this might result accidentally through encountering a buried wall of Structure V-1-2nd, but the correspondence in the other two cases cannot be thus explained. In all cases the head was to the rear, rear with respect to the architectural features, and this is not to a cardinal point, even approximately, but about 33 degrees east of true north. The common orientation of the burial structures, and of the bodies within them, is best explainable by supposing they were chosen with reference to that of the V-1-1st building.

There is a hint that Burial 3 was made before the walls of that building were in place, since it partly underlies two of its walls. However, it is perfectly possible that this burial was crowded in the angle between the two V-1-1st walls so that the excavation for it need not cut the front wall of the building platform, nor extend in front of the doorway to the small right room with its bench. To get it where found, a little undercutting of the walls was all that was required.

On the other hand, the fact that Burial 3 does partly underlie the walls of the V-1-1st building indicates that it pre-dates the abandonment. In providing for Burial 2, a buried wall of Structure V-1-2nd was cut through. In providing for Burial 3, if the building walls of Structure V-1-1st had fallen to ruin, presumably they would also have been cut through, or else avoided by shifting the selected position a little.

We conclude that these burials are sub-floor ones, made from the floor of Structure V-1-1st while that was in use, hence late in the total period of occupation at the site.

### Function

A glance at Figures 10.21 and 10.22 shows why the building of Structure V-1-2nd, in each of its phases, is left in the unclassified category. It was not cleared sufficiently to eliminate a wide variety of possible reconstructions. However we can reason in a negative manner from what little is known. It does not fit into what is known of local types of temples and sweat-houses, and we have information on a fairly large sample of those functional types. The same cannot be said for local dwellings, but it is difficult to imagine the peculiar long dead-end passage or room of Structure V-1-2nd, in either of its phases,

as an adjunct of a dwelling. Probably this building, if completely known, would call for setting up an additional functional type, or for defining palace loosely enough to include it.

The building of Structure V-1-1st, which followed is entirely different from what preceded it here, and also from anything known thus far in the main ceremonial areas, which are well sampled. It is also different from anything thus far known in peripheral areas, but these have not been properly investigated. From what little is known, however, it appears that areas peripheral to the main ceremonial courts and plazas may nevertheless also contain ceremonial buildings, at least of the palace and large sweat-house class, while the size and form of some mounds suggest the presence of platform temples.

Structure V-1-1st dominated its little court or plazuela, and a ceremonial function should not be ruled out *a priori*. However it seems more likely that we have here the first excavated example of an upper-class dwelling in this part of the Classical Maya area. Unlike the known types of late temples and palaces, it provides one large room of a depth reasonable for dwelling purposes. This room measured about 8 m in length, and was at least half this in depth. An overhanging thatch roof probably gave some shelter above the forward-projecting element of the building platform, and in front of the small right room it probably provided a covered porch-like space. While so far as real proof is concerned, the bench in this room may have been an altar, the evidence of known local temples is against this interpretation. Fires in them were probably confined to copal-burning in pottery censers, typically about column altars. While benches of similar proportions are common enough in palaces and sweat-houses, they were probably thrones, and fires were not burned on them. Here such a bench may have raised a cooking fire to more convenient height, just as did an earth-filled wooden box-like construction on legs in our camp kitchen.

There may have been an additional building hard by on the right wing of the substructure there were surface indications that excavation might show base walls there. Structures V-2 and V-3 probably also were platforms with small buildings, largely or entirely of perishable materials. The entire assemblage, if not Structure V-1-1st alone, could surely have accommodated a sizable family, even with retainers.



Table 10.24 Operation SE-1 Object Table: Miscellaneous Positions

Position	Sherd	Figurine	Miscellaneous
7 Test Pit 1	-9		-9 (Obsidian fragment)
8 Test Pit 2, Dep. 7a, probably fill of latest Str. V-2		-39	-39 (Obsidian fragment)
9 Test Pit 4, Dep. 6b, fill of right wing of V-1-1st platform complex	-38	-38	
10 Test Pit 5	-43	-43	-43 (Obsidian fragment)
11 Test Pit 6, clearing surface	-46	-47; -48	-49 (Modeled clay fragment)
12 Position not recorded	-12		

Finally, the sub-floor burials were of persons of some rank, and high rank of the occupants would explain the expenditure of labor in platform-building at a dwelling site. Among these burials was that of an adult and child, presumably a mother and child, and this would not be expectable in a ceremonial building, since women seem to have been more or less excluded from important ceremonial functions.

We conclude that Structure V-1-1st probably was a dwelling, though not that of a commoner. But it seems safest not to label it formally as such on the basis of a single known example (Tables 10.16 and 10.17).

### *Masonry Notes*

During the digging of this mound little attention was paid to types of masonry. So far as known, the faces of all walls were of tabular stone, laid horizontally, except the upper part of the face of Unit N, the main platform of the V-1-3rd period. As noted elsewhere the upper course of this was of stones laid on edge. The stones were unusually large, about 40 cm high. Sketches indicate they may have been crudely shaped to approximately rectangular outlines.

In considering free-standing masonry walls here, it should be remembered that possibly all of them were base walls only. This seems to explain the fact that the hearting of the walls of the Structure V-1-1st building was pure rubble of small size. There is no proper record of a cross-section of the building walls of the earlier V-1-2nd period, but they were too thin to permit this platform style of construction.

The probable use of earth-and-stone and clay-and-stone floors has been discussed. This is clearest

in the earliest periods, and, so far as we know, this sort of floor may have been confined to out-door base surfaces. The evidence is good that in the V-1-2nd period at least, the tops of platforms where exposed out of doors might be described as mere dirt floors. But the floors of building platforms of this period were plastered. The body of these V-1-2nd building floors was lime-concrete, and that of the later V-1-1st floors was considered to be disintegrated lime-concrete. Use of lime-concrete for building floors very likely extends back to the V-1-3rd period, but notes on this are unsatisfactory. Perhaps we should not merely assume that a finishing coat of lime-plaster would be applied only to a lime-concrete floor.

The burial structures have been described. They were crude affairs, but in constructing the chamber of Burial 1, apparently there was conscious use of the corbel idea. Burial 2 shows that the floor of a mere body-size cist might be plastered, though apparently without the care necessary for a good smooth surface.

The complex nature of the fills during the V-1-2nd and -1st periods is sufficiently indicated in the cross-section drawings. Where pure broken rock was used it was not of large size. Such stone was probably merely dumped in place. In theory this might have been within fill walls of large broken rock, or of tabular stone, but we encountered none.

The repeated use of sherd-containing solid earth as well as broken rock for fill material here suggests that ceramic controls may be more plentiful in excavations in peripheral areas than they have been in main ceremonial groups (Tables 10.18-10.24).

## — 6. SUB-ACROPOLIS STRUCTURES 1, 3 AND 4, *Linton Satterthwaite* —

### General Remarks

In 1933 trenches were dug into Structure J-7, the open platform on the northeast side of Court 1 of the Acropolis. A connecting tunnel was driven under and behind Room 3 of Structure J-6 where Structure J-7 forms its base surface. A deep pit, here known as Pit 1, was sunk in the court floor next to the rear edge of Structure J-2, on the southwest side of the court. In 1937 the trench-and-tunnel system was deepened somewhat and, connecting with it, a large deep pit (Pit 2) was sunk in the court. These excavations, with others, served to establish six main architectural periods for Courts 1 and 2 of the Acropolis, which we call Acropolis Periods I to VI, Acropolis I being the earliest.

In the region where Structures J-6 and J-7 are at the surface, a considerable number of buried structures were encountered, including remnants of three buildings. In this section of the report these buildings are singled out for description. The system of excavations, as such, the platforms not proved to be building platforms, and recovered objects, will be covered elsewhere.

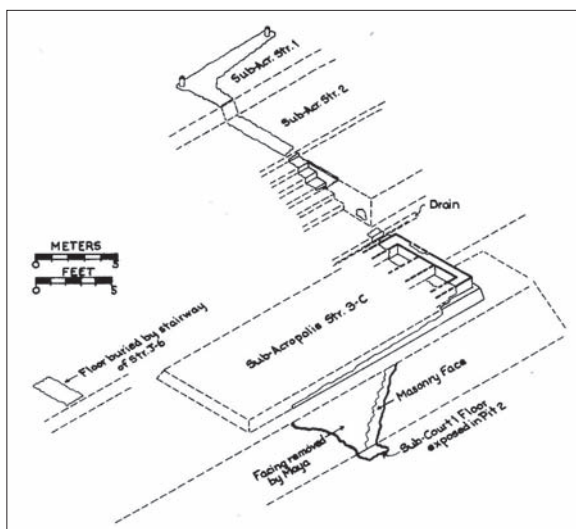


Figure 10.35 Isometric reconstructions: Sub-Acropolis Structures 1, 2 and 3.

Figure 10.35 shows what is known of two of the buildings, Sub-Acropolis Structures 1 and 3, and their relation to one of the platforms and a stairway (Sub-Acropolis Structure 2). The third building is known only

by a remnant of thick wall (Sub-Acropolis 4, shown in the cross-section of Figure 10.36).

### Structure and Period Designations

The labels used for these and nearby buried structures are in a system differing from that generally used in this report. Also, the Roman-numbered Acropolis periods into which various separate structures are fitted run forward in time. This is a departure from our usual plan of numbering and lettering in reverse time direction, when dealing with periods and phases of particular single mounds. We hope and believe these six periods will accommodate future discoveries of ceremonial buildings here, and though they do not apply to the site as a whole, they do refer to a substantial part of it. It should be noted that Acropolis in these period designations refers to a complex of ceremonial architecture. There may well have been a Pre-Acropolis period when this hill was devoted to other uses.

As time went on, destructions and fillings radically changed the Acropolis plan, so that horizontal relationships between buried and surface structures are meaningless. For instance, one platform lies partly below Structure J-6 and partly below Structure J-7. So we have simply numbered the units buried by later Acropolis fills in a special series of Sub-Acropolis structures, the particular number having no special significance, spatial or chronological. Having thus identified a particular buried structure, if it shows sequential periods or phases of its own, these are labeled in the manner adopted as standard for the report, so that here as elsewhere a Phase B precedes a Phase A in time.

In field notes various labels were applied to these buried structures, and the Sub-Acropolis designations are here adopted for the first time, to eliminate confusion. Sub-Acropolis Structure 3 has been referred to in print as Structure 3 of the Sub-Court I Level (Satterthwaite 1937a). In the notes it was called House A, while Sub-Acropolis Structure 4 was called House B, and both were sometimes referred to as features of a J-7-Sub-2 stratum or level. When confusion is not likely, in the text the short term Structure 1 will be used for the fuller Sub-Acropolis Structure 1, and so with the others. The mere absence of one of the square-letters of the map is sufficient indication that the designation is in a special series. Similarly "Period" with a Roman numeral always refers to an "Acropolis Period."

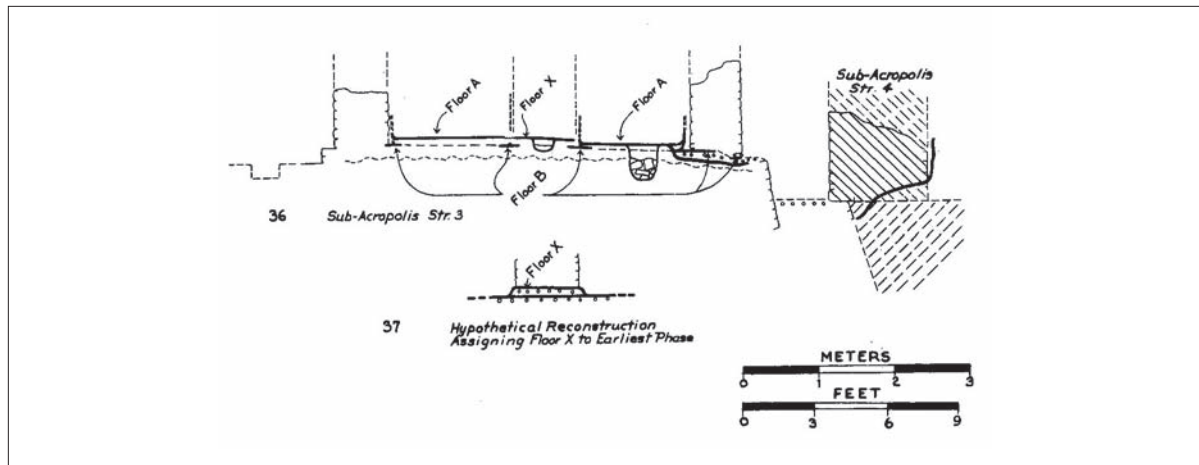


Figure 10.36 Cross section of Sub-Acropolis Structure 3 and remnant of Structure 4.

### *Assemblage and Speculations on Function*

As may be seen in Figure 10.35, all we know about Structure 1 is that it was a low masonry platform, which supported a building or buildings with wooden posts, apparently without walls, and presumably with a roof of thatch. It may or may not have been a long shelter analogous to Structure O-18, with posts instead of masonry piers for support of the roof. It is interesting to note that here as there a broad-tread stairway (part of a platform complex labeled Structure 2) leads down to a lower level. These two units were reached only by tunneling. The floor of our tunnel was too high to show positively that the stairway of Structure 2 reached down to the base level of Structure 3, but there is no reasonable doubt of this, nor of the fact that the three structures, two buildings and a stairway were in simultaneous use during Period I. There is no available evidence as to which building is the earlier within the period.

The lower building, Structure 3, was revealed by open trenching and by Pit 2. During Acropolis Period I, it was at the edge of a high terrace as shown, from which at some point a stairway presumably led down to the lowest floor shown in the figure. This floor was seen at the base of the terrace in Pit 2, where a secondary floor, with finishing plaster, had raised the base-level about 13 cm. This latter may indicate only localized re-surfacing. Both floors turned up to the terrace facing. In Pit 1, outside the area depicted in Figure 10.35, a single floor, at the same approximate level, establishes the fact that this Sub-Court I floor extended forward at least 14 m. It could not have extended in that direction more than about twice this distance before connecting with terracing and a presumed stairway dropping about 6 m to the West Group Plaza. Yet bedrock was encountered

just below the base of the high terrace revealed in Pit 2, and shown in the figure. From these facts we can infer that the structures shown in the figure formed units in an Acropolis-type of assemblage, and that already in Period I this had begun to obliterate a substantial portion of a natural hill.

In view of the very great emphasis on palaces in the final Acropolis assemblage it seems extremely likely that any buried buildings of sizes and proportions similar to the palaces of the final period were of the same functional type, so long as what is known of them does not indicate a radically different plan. Reasoning thus, the partial reconstruction of the earliest phase of Structure 3 (Structure 3-C) in the figure may be taken as that of a probable early palace. However, the presence of the medial wall, so characteristic in palaces at the surface, is a matter of inference, and it is deemed wisest to keep Structure 3 in the unclassified group. At the known end the medial wall is thought to have been removed to give a modification of plan in a final Phase A.

Sub-Acropolis Structure 4 is known only by a small portion of a heavy vertical wall, which like the walls of Structure 3, had been cut off by the Maya. Its base overlapped and rested on the edge of the high terrace, opposite the corner of that structure, as shown toward the right in Figure 10.36. It could not have been built until, in this neighborhood at least, the early base-level revealed at Pit 2 had been raised to the level of the top of the terrace. Our evidence is that the whole of the terrace face and of the Sub-Court I floor was buried at one time, and not first at this side only. Therefore it is possible that in Acropolis Period II Court I appeared at this approximate final level but in an early form with the old Sub-Acropolis Structure 3 at its rear, and with the new early palace-type

Table 10.25 Average Dimension Tables: Platform Units

	Height	Length	Depth	Slope
High Terrace	3.3	?	?	70 deg.
Bldg. Platform, Str. 1	0.6	?	?	?
Bldg. Platform, Str. 3	0.8	13.5+	5.9	84 deg.

building at the front, on the platform of Structure J-2 in its known narrower original form. The known wall of Sub-Acropolis Structure 4 may well be a remnant of the end wall of a long palace type structure facing on this same court, from the side, though we certainly cannot be sure of this. A suspicious circumstance is that what must be the outer face of this wall seemed to run straight down to the base surface, and not to the expected plinth formed by the projection of a building platform. Another point to consider is its thickness of 1.3 m, which might be for support of a roof-comb on the rear wall of a temple.

Doubts as to the nature and position of Structure 4 do not militate against the impression that Acropolis Period II saw the further development of an Acropolis type of assemblage of buildings which included palaces, and that by this time, if not from the first, these long buildings were being grouped to face on courts at the level of the bases of their low building platforms. There can be no doubt that the two buildings, Structures 1 and 3, continued in use through Period II, after which, together with Structure 4, they were partly razed and their remnants were buried by a continuous deposit of fill. The original narrower building platform of Structure J-2, like Structure 4, seems to belong in Period II. While that platform was never completely abandoned, the original building on it was razed. In speculating on a complete plan for Sub-Acropolis Structure 3, one may reasonably consider what little is known of the original J-2 building (Structure J-2-2nd) since there was probably a period of contemporaneous use. There is good evidence that the design of Structure J-2 in original form included a medial wall meeting a transverse wall, as in our reconstruction of Structure 3-C. However, the early J-2 transverse wall may have served a transverse end room, rather than being the end wall of the building as a whole, as in Structure 3-C.

### *Stone Robbing*

Evidence that structures about to be buried were used as quarries for contemplated new construction is provided by the exposure of the high terrace wall in Pit 2 (Figs. 10.35 and 10.39). As we worked down in this pit it was found that the facing broke off irregularly on the line clearly visible in the photograph, until the surviving

facing was only two courses high, at the bottom of the pit. The terrace was a comparatively high one (3.3 m) but it sloped back 20 degrees from the vertical. At the irregular edge of what survived the stones were firm and undisturbed and lay in approximately one plane and there is no reason to suppose there had been a collapse here. Stone-robbing on a considerable scale is indicated.

One imagines there was a stairway built against this terrace, to connect the floor at its base with the base-surface of Structure 3. Exposures of the wall on either side of such a stairway would be more attractive sources of building stone than the part buried from the first by fill of the stairway. Hence there is a certain probability that the stairway was at one side of the position of Pit 2. The existence of stone robbing during Period II, when this terrace was buried, confirms an inference that it occurred again when Structure 3 was abandoned, and raises the question whether complete disappearance of the medial wall of that structure requires any other explanation. Reasons for not attributing that disappearance to stone-robbing are given in the detailed discussion of the structure.

## **Discussion by Particular Structures**

### *Sub-Acropolis Structure 1*

Our tunnel uncovered only an L-shaped portion of the surface of this structure, which lay well behind (northwest of) the eventual position of Room 3 of Structure J-6. The early platform was coated with good white finishing-plaster, on which lay a deposit of stone, earth, and burned daub-clay, 20 cm or a little more in thickness. This deposit was more or less flat and level on top, the upper surface being at first followed in from the top of the retaining wall of Sub-Acropolis Structure 5, a Period III platform about 50 cm high, not illustrated. Following this surface merely required lifting off the stones of the pure rock fill of Sub-Acropolis Structure 8 of Period IV, also not illustrated. Though no plaster finish was anywhere found on this surface, there is little doubt that the deposit in question was the body of the floor of Structure 5, which buried Structure 1. The presence of burned daub-clay

indicates the burning somewhere of daubed wooden structures before the beginning of Period III, but there was no evidence that either Structure 1 or Structure 5 had been burned.

Digging down through the presumed floor material of Structure 5 revealed the plastered floor of Structure 1. Digging down from the base of the retaining wall of Structure 5 revealed what must be the base-surface of Structure 1, that is, the surface of Structure 2, which was plastered; undercutting the Structure 5 wall enabled us to follow this plastered floor in to a point nearly if not actually below the nearest exposure of the floor on Structure 1, but without encountering the Structure 1 retaining wall, which should have connected the two. Thus Structure 1 is probably at least structurally later than the base-surface to which it is assigned. Stone-robbing may account for our failure to find the Structure 1 retaining wall where expected, and where we place it in Figure 10.35. Conceivably, it may have been further forward.

Allowing 25 cm for the thickness of this wall, in the position of Figure 10.35, a post-hole was found with its center about 2.8 m back from the edge of the platform. The post-hole was 1 m deep. Below the upper portion, passing through the Structure 1 floor, its sides consisted of pure rock fill. Failure to note a second, lower piercing of a floor by the post-hole indicates that the floor of Structure 2 did not extend this far under Structure 1. It is possible, therefore, that the higher and the lower plastered floors, those of Structures 1 and 2, respectively, belong in a single phase of Period I, the lower unit being first floored and plastered a little beyond the planned position of the missing wall of Structure 1.

Having reached a post-hole we turned our tunnel at a right angle, hoping to pick up another posthole, which was found, at a distance of 5.8 m from the first. As it happened, for much of its length a straight line between the centers of the two known holes ran within 25 cm or so of the somewhat irregular forward (SE) side of our tunnel, which could not safely be widened after we realized that its direction was wrong by a slight amount. Hence it is possible that there was a third post, between the two known ones, especially if their alignment was poor. If not, considering the wide spacing, it may be suspected that we happened to chance on holes of two posts pertaining to two buildings on the same Structure 1 platform.

Table 10.26 Structure 3-C,  
Average Dimension Tables: Section Table

W	R	M	R'	W'
0.7	1.6	0.9*	1.6	0.7

Note: Starred dimension is approximation based on reconstruction, existence of wall inferred.

The indicated thickness of the posts is about 25 cm, similar to that of main-posts selected by local bush-house builders for our largest camp structure. The evidence is clear that the posts were set up before pure rock fill was piled around them. Presumably, they were propped upright in the proper places while pure rock fill of the planned platform was rising about them, so that they were fixed before the floor was laid. An alternative possibility is that the platform was significantly earlier than the building, its fill being of the pure rock variety. In that case excavations of considerable size were required to reach the required depth, after which rock was packed around the posts and the floor, body as well as surface, was patched. Failure to note patching of the finishing plaster argues against this interpretation, and implies that the building as well as the platform of Structure 1 was part of a single plan, which included the broad tread stairway of Structure 2.

### Sub-Acropolis Structure 3

As may be seen in the reconstruction drawing of the Acropolis, or on the plan of the site, eventually Court 1 was flanked by two high platforms, Structures J-5 and J-7. The latter concerns us here. It appears in final form in Period IV, its open top reached by a stairway from the court. The court itself reached its final level in Period II, without the higher level in the area at the side, which was finally occupied by Structure J-7. But in Period III this latter area was raised to about half the final height by a platform designated as Structure J-7-2nd, its retaining wall rising from the court a little behind the position of the later and higher wall of Structure J-7-1st.

Apparently the plan for Period III required that this elevated surface at the side of the court, together with a rearward extension of the court floor at its base, should run well to the rear of the position of Structure 3. To get the face of Structure J-7-2nd where we found it, and a clear court surface before it, it was necessary to remove all but the extreme left end of the building of Structure 3 (observer's right in Figure 10.35). Except at this end it was also necessary to cut down the height of the building platform, which otherwise would have projected above the Court 1 floor, though that was itself raised somewhat. The left end of the platform and building were behind the line of the new platform, Structure J-7-2nd, and so a substantial part of the building could be merely buried by its fill. The early building platform begins to survive to full height just behind this line.

Evidently a part only of Structure 4 was behind this line, so that though it also was cut off, remnants of both Structures 3 and 4 were preserved for us.

The height of the new platform (Structure J-7-2nd) was such that the remnant of the building of Structure 3 had to be cut down, or it would have projected above the



top of the new platform. It cannot be said that destruction of this building was everywhere just enough to make way for the new design, but this was the case at the left front corner, where the building had been cut down just enough to make way for the floor of the new platform.

From the foregoing it may be said that the idea of flanking Court I with a raised platform on the northeast side dates from Period III, and destruction in this period accounts for the large amount of broken line in our partial reconstruction of Structure 3 in Figure 10.35. The building platform was over 13.5 m long, but we do not know how much longer. Figure 10.39 shows that along the front much of its wall was cut down to the base course only. At the left, this remnant breaks off entirely.

The destruction was more than seems to have been required by the new plan for the court, the floor of which was about to be raised. In part the destruction was doubtless a matter of stone-robbing for new construction, unworked stone and fill materials being exchanged for building stone. Similar evidence of stone-robbing at the end of Period I has been noted. The existence of this motive for tearing out masonry, which might have simply been buried should be borne in mind whenever (as below) one suspects partial destruction in order to change the plan of a building which was to continue in use. Also to be borne in mind is the fact that we have convincing evidence that the latter sort of destruction could occur, notably at Structure J-9, where burial was never contemplated.

#### *Phases 3-C, 3-B, 3-A*

The existence of more than two phases for the Structure 3 building is somewhat dubious, and so are the preferred interpretations for the three we have allowed for. Because of the special interest in so early a building, and of changes suspected in it, facts and reasoning are presented in some detail. What we think the sequence probably was is as follows:

##### *Phase 3-C*

A long double-range palace with medial wall reaching the end walls (i.e., without wall-jamb doorways as in most palaces at the surface, but, in this respect, like Structure J-9 in an early phase). Floor B is its floor.

##### *Phase 2-C*

A new floor (Floor A), 5 cm to 10 cm above the other. (Such a thickness probably means more than mere re-surfacing, but in the surviving portion of the building there were no constructional additions or changes.)

##### *Phase 1-C*

Continued use of building, with removal of medial wall, or of part of it at one or both ends. Removal at ends only

might have been to introduce wall-jamb doorways, or transverse end rooms, as in known plans of later date. The probability is that destruction of the medial wall extended at least 1.7 m from the left end wall, suggesting more than mere introduction of a doorway.

A reconstruction of what we now call Phase A has been published (Satterthwaite 1937a). That reconstruction was definitely invalidated by the 1937 digging which proved that we are dealing with the surviving end of a long building, and not with the surviving rear portion of a short one. The new interpretations, correct or not, are based on an augmented store of data respecting plastered floors, and a realization that floor-plaster may run under walls which belong in the same phase.

Figure 10.36 gives a cross-section where, it may be noted, we have to deal with a plastered surface labeled Floor X, as well as Floors A and B. Drawings of test-pits of a prior year, inserted in the figure, show that we then mistook the surface of the lower Floor B for a mere working surface. Heavy lines represent plaster; wavy extra heavy ones indicate limits of the later digging. We still have to deal with two parallel narrow strips of rough or broken plaster separating rear and front portions of Floor A from Floor X, which lies between them.

In justifying the three phase sequence as probable, the phrase outer walls includes front, end and rear walls, as opposed to the medial wall, which we believe was removed in the final phase. Some stones of the outer walls were seen in direct contact with Floor B, and others were seen on thin beds of mortar which were in contact with Floor B. Turn-ups from Floor B to all outer walls were found. We can thus be sure that the building platform was plastered, and thereafter the outer walls were erected on it. Plastering the walls would then produce what we call turn-ups from the floor to those walls.

The lower courses of the end wall ran continuously from corner to corner. Therefore the supposed medial wall was inserted after the end wall was built, or at least after it had been begun. Failure to tie the two together must be inferred, but this is not outside the local masonry tradition of later times.

The turn-up from Floor B, with wall-plaster to a considerable height, was found forward of the supposed medial-wall position, but neither could be found where such a wall would have abutted it. This is fair evidence that the medial wall existed, and that it was built during the earliest phase, though structurally secondary to the end wall.

Presence of the medial wall in Phase 3-C requires turn-ups from Floor B to its faces, vestiges of which should have survived. As shown in the figure, these are present on our section, in positions indicating a wall thickness of about 85 cm. Of these two turn-ups, the forward one was better preserved and shows the correct direction, and it

merges with a turn-up from Floor A, immediately above it, good evidence that Floor A pre-dates removal of the medial wall. But no turn-up from Floor A at the rear had survived.

This last is readily explainable if the medial wall was based directly on Floor A in the first place, as one would expect. In that case when floor A was laid, failure to keep it perfectly level resulted in the secondary floor of the rear gallery being about 10 cm above the earlier floor, but only about 5 cm above it in the front room. On tearing up the base course of the wall, one would expect the disappearance of the rear turn-up of Floor A, 10 cm above the base. On the front side, where the turn-up was closer to the original base, it would be more likely to survive. The noticeably different levels of the two portions of Floor A are in themselves good evidence of a medial wall surviving into Phase 3-B.

If it were not for Floor X, and the strips of broken plaster, which define it, there would be no reason to doubt presence of a medial wall in two phases, followed by destruction of the building. Since we do have Floor X, Phase C-1 is provided for it. It makes sense as a plaster patch over the former area of the medial wall. The alternatives are to consider it actually a part of Floor A, or to consider it the top of a 10 cm high construction originally placed on Floor B. The later possibility is illustrated in Figure 10.37. While literally possible, it is hard to believe, either as an independent feature, or as a special plastered base for a medial wall (as suggested in the figure).

Neither of these alternatives for Floor X explains the strips of broken plaster separating it from the front and rear portions of Floor A. These strips were very clear, and continuous from the end wall to the points where the building had been cut off. The rear one was about 10 cm wide, with irregular edges; that to the front was about half that width. Our original interpretation accounted for these zones of irregularity as being at the base of thin walls of perishable materials. This does not agree very well with absence of turn-ups on the Floor X side of both the strips, and on the other side of the rear strip. If such turn-ups existed, they had been carefully chipped off. The strips represent some non-understood feature.

Summarizing, I think it may be said that an original medial wall, at least part of it later removed, is a possibility if one allows the dubious reconstruction of Figure 10.37, and a practical certainty if one does not. If one does not, and since Floor X survived to a length of 1.7 m, destruction of the medial wall extended at least 1.7 m from the end wall.

#### *Roof Type*

No direct evidence on the nature of the roof of Structure 3 is available. Speculations following assume the presence

of the medial wall. The dimensions and proportions of what survived seem sufficient for claiming that it was probably not thatched or vaulted, hence that it probably was of the beam-and-mortar type.

The surviving remnants of front, rear and end walls were all quite close to 70 cm thick; therefore the indicated medial wall thickness of 85 cm, even after allowing for thick wall plaster, was probably intentional. The distance from front to rear wall was 4 m, perhaps not too much for a thatch roof with or without a medial wall; but it is hard to imagine a reason for making the medial wall thicker than the outer ones if the roof was thatched, whether the central wall helped to carry the load or not.

There is reason to suspect that in some surface temples roof-combs placed to the rear were associated with beam-and-mortar roofs, and there is no valid presumption that in early times they may not have been placed in the center of beam-and-mortar roofed buildings of the palace type. Evidence of suitable stucco decoration during Period II is noted. There is practically no doubt that double half-vaults as well as a comb were placed on the medial wall of Structure J-18, which was somewhat thicker than the outer walls and piers. The extra thickness of the medial wall of Structure 3 is not very great, but comparable, and it is sufficient for an imaginable local type of roof comb. The extra medial wall thickness may be considered as intentional, for a comb, without also assuming a vaulted roof.

If we conclude that the roof was beam-and-mortar, this structure can be fitted into a logical pattern of masonry roof development at the site, in which the beam-and-mortar type appears first. It may well be that quite narrow rooms seemed necessary at first, but that later they were widened somewhat, with heavier walls and heavier roof-beams to maintain the necessary rigidity. Thus one may explain approximately equal wall-span indices for a non-vaulted Sub-Acropolis Structure 3 and for the heavier but more spacious non-vaulted palace Structure J-12 of Period VI. With the introduction of vaulting the problem of thrusts, and the greater weight, may have dictated a return to a small room-width, such as the indicated 1.6 m in this early Structure 3, but not to such thin walls until after a period of experiment seemed to make them safe. Structure 3 is stratigraphically earlier than the heaviest as well as the lightest of the vaulted palaces at the surface, and doubtless actually earlier than the whole vaulted series of the site. If it also was vaulted we have no explanation for variations in spans and wall thicknesses of the later buildings, which seem to require the postulate of steady technological progress. We should have in Period I a vaulted double-range long building with wall-span index of 45 percent followed in Period VI by others with indices ranging from 69 to 28 percent.

*Summary*

We reach the conclusion that the roof of Structure 3 was probably of beam-and-mortar, with a centrally placed roof-comb. This is by a process of elimination. The roof probably was not thatched because the medial wall was probably intentionally a bit thicker than the outer ones, in order to give equal stability when carried higher to form a roof-comb. It probably was not intended for vault support because the wall-span index (which is figured for the thrust-resisting outer walls) is so much lower than those of certain probably similar and much later buildings. If our conclusion is correct, the dimensions and early position of Structure 3 suggest that, as in the case of vaulted buildings, other things being equal, the earliest beam-and-mortar roofs were held down to lesser spans than later ones. It tends to substantiate the hypothesis that the comparatively thick walls and narrow rooms of most known lowland Maya ceremonial buildings were not desired for their own sakes but are functions of the desire for masonry roofs of one type or the other.

If it is considered that the evidence for the medial wall is insufficient, of course there was no roof comb, and the roof may well have been of thatch, but possibly could have been beam-and-mortar. Certainly the required span on that assumption was never vaulted at this site.

*Measurement*

The face of the end wall lies in a line, which fails to make a right angle with the front face of the building platform by about five degrees. The latter bulges slightly, but presumably the front of the building itself was approximately parallel to the line joining its extreme points. Parallelogram distortion of about five degrees seems indicated, but cannot be proved with only one end known. The fact that front, rear and end walls were measured as very close to the same thickness indicates careful linear measurement in this early period, though one could wish for more data.

*Red Paint*

Traces of red paint were noted on interior wall plaster and on plaster of the latest floor (Floor A) near the base of the walls. On the walls at least the color was on the original finishing coat, of the earliest Phase C, but the painting might have been later. It had later been covered by a secondary plaster layer which showed no sign of color, and which presumably dates from Phase B.

*Sub-Acropolis Structure 4*

A remnant of this unit, together with the front corner of Sub-Acropolis Structure 3, was first revealed by trenching into Structures J-7-1st and -2nd, at the level of Court I. On its right side this trench, which was being

cut through pure rock fills, reached what proved to be the cut-off end of an exceptionally firm solid masonry wall 1.3 m thick. On the left the trench passed around it, exposing one vertical face looking toward Structure 3. It rose from the same base-surface to a surviving height of 1.4 m. This face failed to be vertical by about 5 cm at the top, surely within tolerated limits for walls intended to be vertical. The opposite face was not exposed, but its line could be seen at the edge of the ancient cut through it, as indicated in Figure 10.36. There it seemed to have been reduced to a lesser remaining height, and our excavation did not reach to the bottom of this other face, which must have been an inner one. What could be seen indicated verticality also.

Despite the extreme thickness when compared with the walls of the earlier Structure 3, there is no reason to doubt this was a free-standing wall, and no reason to doubt that it pertained to a building, but it did not rest on the usual plinth formed by a projecting building platform.

Notes indicate that hearting as well as facing consisted of tabular stone laid in mortar. We have every reason to believe that platforms were never constructed in this manner and it would be very surprising if further investigation failed to show that this is a remnant of a building. In later buildings the amount of projecting plinth is sometimes very little and careless construction may at some points reduce it to nearly nothing, and the walls of low building platforms may be vertical, like those of the probably contemporary Structure J-2-2nd. It is possible, if not probable, that careless construction for a very narrow plinth on a low building platform caused us to fail to note the platform.

*Decoration**Painted Walls (and Floors?)*

Interior red painting of walls and probably the floor of Structure 3 has been noted. Though in deeply buried positions, the fact that only traces survived there gives fair warning that absence of surviving color is no sure guarantee that plaster was originally left white. It was not found elsewhere on the Period I level except on the wall of the platform Structure 2, against which the broad-tread stairway ends. Here again the color was red, though the steps themselves were white. The shades of red were not noted in either case, but they probably were not the maroon color noted on stucco.

*Painted Stucco*

The evidence for presence of painted stucco relief decoration in Period I or II is unequivocal, consisting of two fragments in the fill of Period III, where it lay above Structure 3. Inclusions such as these, not occurring

in quantity, might come from anywhere in the general vicinity, as part of a lowest deposit of fill, which was solid. However, since at this time there was a tearing down of parts of Structures 3 and 4 here, and they were masonry buildings, it is possible and perhaps probable that one or the other was the source of these fragments. Because of their early position they merit description.

There were two pieces of thick fine rather light gray plaster, obviously from the same source. The gray color of this material is presumably due to charcoal, since in the fractured surfaces of the smaller piece (Cat. no. L-70-196) specks of black can be made out. The larger fragment (Cat. no. L-70-197) was obviously from the same source. It is part of a border or of some other raised flat element, which was 8.5 cm wide. One edge, at a right angle to the face, projected 3.5 cm from a background of the same material. The other edge makes an obtuse angle with the face, and the projection here may have been less, but was at least 1.5 cm. The fragment as a whole is slab-like, and 4 cm thick. The face includes part of a curvilinear design, incised while soft.

The approximately flat and unfinished back surface preserves a negative impression of the surface against which the stucco had been placed. It had peeled off from a fairly smooth flat base in which there were some small irregular depressions, and some puzzling striations. One gets an impression that our fragment may have been laid on another layer of rough-smoothed plaster, rather than directly on stone. It may be that a design, with greater total relief than the 3.5 cm maximum indicated by this fragment, was built up one layer at a time. Nevertheless the evidence, so far as it goes, suggests the stuccoed treatment of a broad flat surface such as a wall or roof-comb.

Parenthetically it may be noted that the smaller fragment, found first, could have been interpreted as evidence of painted but otherwise plain plaster from the corner of a doorway, or from the outside corner of a building. The larger piece shows that decorative stucco can break so that a small fragment can give a false impression that it is merely from wall plaster.

We may also emphasize the doubt as to the particular structure which was decorated with this stucco by noting that a white-plastered fragment of daub-clay, with stick-impression, came from the same fill deposit (Cat. no. L-70-195). Since we have convinced ourselves that walls of this type did not occur in Structure 3, and since there was no evidence of burning on the spot, this specimen probably came from some little distance. This and the fragments of stucco may have first come together in some dump, which was later utilized as a source for fill material. Still later use of the same dump might then account for a third fragment of the same type of ornamental stucco material also found above Structure 3, but in the later fill of Period IV (Cat. no. L-70-194). This particular piece

shows the same speckled maroon paint, but the general form of the design may have been different from that of flat planes suggested by the other two. However we account for the presence of the latter, stucco decoration must have been used in the vicinity of Structures 3 and 4 before they were abandoned, that is, during Period II if not in Period I. There is no positive reason for doubting it was in use in Period I, and on Structure 3.

The boldness of the stucco design as indicated by our remnant suggests exterior rather than interior use, that is, it could have been seen to advantage from a considerable distance.

### *Dating*

Sub-Acropolis Structures 3 and 4 cannot be precisely dated, in terms of the Maya Long Count, but there are certain controls, which justify considering that they probably belong early in Cycle 9.

It is reasonably certain that Acropolis Period VI began before 9.17.15.0.0, the contemporary date of Throne 1. If we confine ourselves to the stratifications establishing the main periods, much major architectural change must be allowed for in working back to Periods II and I, that is, to the buildings of Structures 4 and 3 and 1. Stela marking dates running back from 9.15.15.0.0 to 9.12.15.0.0 were placed on terraces of the Acropolis. They have not been connected with the period-defining trenches and tunnels. But since each of these terraces buried at least one earlier one, we must go behind 9.12.15.0.0 by some unknown amount for a reasonable date for Period I.

The situation at Structure K-5, at the end of the same plaza on which the Acropolis fronts, suggests that this amount of time is considerable. Markers for 9.12.10.0.0 and 9.12.5.0.0 appear on secondary construction of Structure K-5-1st; we must proceed backward in time from 9.12.10.0.0, through an early phase or phases of Structure K-5-1st and through the period of Structure K-5-2nd to that of K-5-3rd, before reaching the earliest sure temple of the West Group; while Structure K-5-4th shows still earlier important architectural activity on the plaza. Since Sub-Acropolis Structure 3, of Period I, was in all probability a palace, and since in later times palace and temple types seem linked, it is likely that Structure 3 functioned at the time of Structure K-5-3rd or before.

If, from these considerations, we emerge with a guess-date of early in Cycle 9, we have not definitely ruled out late in Cycle 8. However, there is no requirement that Acropolis Period I must start with the foundation of the city, or that it begin as early as the earliest stela, plain or dated. Those are in another section of the city, the South Group, and it is possible that at first the West Group was a peripheral area of minor buildings. In such case the hill in question may have been occupied in a Pre-

Acropolis Period, before the beginning of its modification to provide the acropolis type of assemblage in Period I, a period defined on the basis of major architectural construction. Such a period could be (though it need not have been) contemporary with the earliest dated stela, 9.5.0.0.0.

We have a strong hint that there was a Pre-Acropolis period on the hill in question in the shape of stiff clay deposits on the bedrock in Pits 1 and 2. In Pit 1, the top of this clay follows more or less closely the irregular and far-from-level bedrock, and surely had not been placed there intentionally. Presumably here as at Structure V-1, this clay (black at Pit 1, red at Pit 2) is a natural deposit. Yet that at Pit 1 contained definite inclusions of sherds and figurines, as if they had been dropped or had washed there while the clay was accumulating, or, perhaps, had been trodden into a pre-existing deposit while it was exposed and soft. The objects were quite plentiful, 237 items being counted as definitely coming from the clay or the underlying disintegrated limestone itself, the exposed area being only about one square meter. Twenty-two items had previously been catalogued as from about the same level, hence probably also from the same matrix, and no others were found in this pit, indicating that a solid fill deposit above the clay was sterile, or nearly so. This higher deposit was fairly thick and very likely was dumped here during the construction operations of Period I, but it probably was not the source of these objects. On the other hand they can easily be refuse from nearby dwellings or other buildings. Such may have been perched on the hill before it was decided to bury it completely under artificial floors, and turn it into an Acropolis.

Whether we are correct in this interpretation of a Pre-Acropolis Period or not, the sherds in question show presence of flanged bowls before or at the beginning of Acropolis Period I. The on-bedrock deposit here agrees with others elsewhere in placing the earliest occupation in a ceramic period corresponding to the Tzakol at Uaxactún (Tables 10.25 and 10.26).

### *Masonry Notes*

#### *Fills*

These were not extensively investigated. As noted previously, the fill immediately behind the facing of the high terrace supporting Structure 3 appears to have been medium-sized broken rock and earth which had been dumped, not laid up. Where a small section was penetrated (see Figure 10.36) the fill of the building platform of Structure 3 was of tabular stone, without earth or mortar. The stones lay at various angles, providing air-space as in pure broken rock fills.



Figure 10.37 Hypothetical reconstructed section, medial wall of Structure 3-C.

#### *Walls*

Facings of the high terrace and of the Structure 3 building platform wall were for the most part of medium to fairly large tabular stone, usually thick enough to be called tabular blocks. They were laid in dark brown mortar, with little or no chinking. So far as one can judge from slight exposures, stones were selected with an eye toward more or less regular coursing (Fig. 10.39). Figure 10.38 shows the front and end walls of Structure 3. Along the front, so far as it survived, and along the rear for about 1 m from the corner, exposed faces of slabs and tabular blocks were roughly-worked, and laid in regular courses with thin slab chinking stones, as well as dark brown mortar, between the courses. The courses seem to have been maintained by careful selection for thickness of the stones, and this varies from course to course. The central part of the end wall, which does not show clearly in the photograph, is of smaller tabular stone, the coursing less regular. At the corner in-and-out bounding appears, due to placement of corner stones of the second, fifth, and sixth stones, but the amount of their projections into adjacent masonry is not great. The hearting of these rather thin walls contained smaller tabular stone and less than the usual amount of yellow mortar. The inner (and presumably outer) faces were covered with very thick dark brown mortar containing fine crushed stone, and then received a final coat of finishing plaster.

No plaster survived on observed portions of the wall-remnant of Structure 4, which did not include a corner. Stones of the outer face were irregular blocks and heavy tablets, faces of the stone being rough-worked. The mortar between facing stones, observed at the same time as that of Structure 3, was light yellow rather than dark brown; it was not so thick, and there were few chinking stones. Here also there seemed to have been some intentional coursing by selection of stones of similar thickness for a given course, though the thicknesses varied from course to course. The hearting was of heavy blocks, laid in not much mortar, like that of Structure 1. Here the mortar was brown rather than



yellow. This wall appears to have been very similar to the earlier one, apart from being nearly twice as thick.

#### *Floors*

The bodies of both Sub-Court 1 floors, at the base of the high terrace, as well as those of the Structure 3 building and of Structure 1, were of lime concrete, coated with finishing plaster. In the case of the Sub-Court 1 floors, the color of the body of each was noted as gray, presumably from charcoal mixed with the lime at the time of burning. For the Structure 3 building the binding mortar, like that forming the body of the exceptionally thick wall plaster, was described as dark brown, almost black, with inclusions of recognizable charcoal. At the time of these notations it was wet. We failed to take detailed notes on the floor material of Structure 1, which was also found in excellent condition.

#### *General Remarks*

Except perhaps for the implication of a less-than-perfect method of burning lime, and probable absence of vaulting, our impression is that the local masonry art was fully developed in

Period I. We have in Structure 3 as good examples of wall-stone shaping as have been found at the site, and the most consistent selection for size and coursing. This operation also provides good evidence that plastered concrete floors were used early in the local period of occupation, in outdoor as well as indoor locations (Tables 25 and 26).



*Figure 10.38 Masonry at left front corner of Structure 3.*



*Figure 10.39 Remains of building platform of Structure 3 and of facing of high terrace in Pit 2*



*Figure 10.40 General view of excavation showing Structure 3 below floor of Structure J-7-1st and -2nd; remnant of Structure 4.*

## 7. STRUCTURE P-6, *Linton Satterthwaite*

### Preliminary Remarks

Structure P-6 is very imperfectly known, yet for several reasons it has considerable interest. It faces on a relatively narrow extension or arm of the important East Group Plaza, and Parris' survey suggested the ruins of a single building about 35 m long (see site map). It was served by a megalithic stairway, more or less accurately centered with respect to the arm of the plaza, but not centered with respect to the building mound. This situation is essentially similar to that at Structure J-6 on Court I of the Acropolis, where the building was a single-range vaulted palace of the built-on type, and similar to that at Structure R-7, where a free-standing double-range palace design is involved, with non-vaulted roofing. Here the building mound, as depicted by Parris, suggested a long free-standing building with a

depth of about 5 m, classified as non-vaulted because of paucity of debris. It was not clear whether the building walls rose to roof height, as at the not-far-distant palace-type Structures S-17 and S-18. The approximately known depth of the platform suggested a single-range building, or else a comparatively narrow double range one covering most of its platform.

On the basis of the foregoing resemblances we originally thought of Structure P-6 as very probably a palace. Further study leads to a strong suspicion that at least two single-range buildings are involved and it now seems wisest not to attempt formal functional classification without excavation, though it may well be that we have here a short palace (or some unknown type of building) flanked by a sweathouse.

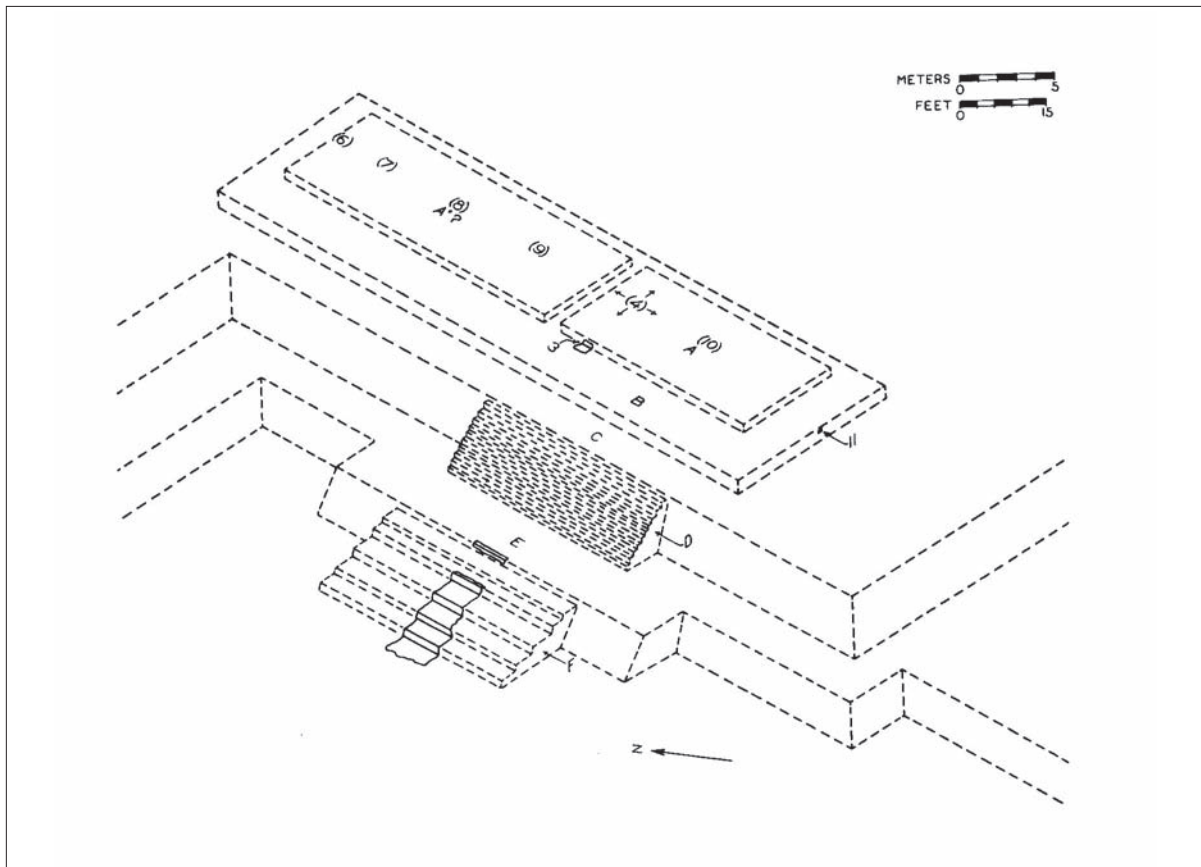


Figure 10.41 Isometric reconstruction of Structure P-6.

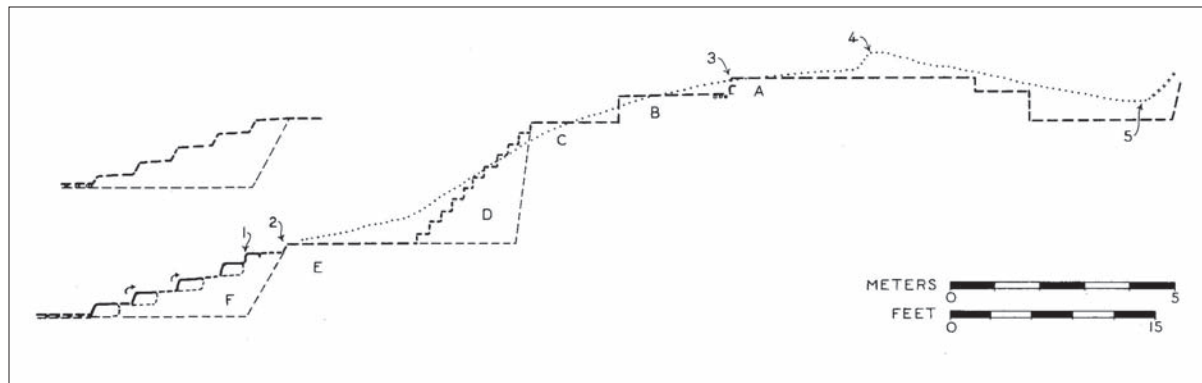


Figure 10.42 a. Cross section of Structure P-6; b. Hypothetical reconstruction of cross section of megalithic flight of stairway.

The steps of the megalithic lower flight of the stairway were cleared of superficial earth and debris by Mason in 1932 (Fig. 10.44). There has been no further excavation. The only other masonry which showed and which has been recorded was at Points 3 and 11 of the drawings. In 1934, when excavations were not permitted, the writer supplemented Mason's notes by measuring for a cross-section and a longitudinal section, which intersected at Point 4 (Figs. 10.42a and 10.43). These sections were carefully controlled with tape and leveling instrument. Interpreted in connection with the Parris plan, they are thought to justify the isometric partial reconstruction of Figure 10.41. But this is necessarily almost entirely in broken line and is intended only as an aid in visualizing what may have been fact. Various units are lettered for reference, and comment on these that follows explains the basis for a great deal which is purely inferential. The resulting picture affords some additional control in considering the make-up of the site as a whole, and would be useful in planning further excavation.

The cross-section of Figure 10.42a is controlled by 19 located points, and the longitudinal section of Figure 10.43a by 48 such points. Some eleven of the total of 62 points have been selected and numbered in series for reference and, of these eleven points, several are placed on the isometric drawing also, to show their horizontal positions. In that drawing (Fig. 123), the vertical relationship is true only for Points 3, 7 and 11. For example, Point 8 in Figure 10.41 lies 1.3 m below its true position as shown by Figure 10.43; on the isometric drawing it serves to locate the center of a special mound of debris, much higher than any other and not shown by Parris. It is the presence of this special mound, and its off-center position with reference to the stairway, which leads to the postulate that there were two buildings here, that on the right (left in the figure) being a possible sweathouse.

## Discussion by Units

### *Stairways and Lower Terrace (Units F, E, D)*

The width of the megalithic steps is restored as 11 m, certainly close to correct. The lowest step was partly buried by about 10 cm of plaza floor material, very likely a secondary floor. Disregarding this, the stairway carried one to the edge of a shoulder platform (Unit E), the total rise being 1.7 m in a horizontal distance of 4.3 m. On the line of the cross-section of Figure 10.42a, the lowest two steps were each 30 cm high at the front, the risers sloping back 10 and 7.5 cm respectively. In each of these cases it was clear that the tread sloped up slightly. The third step was only 25 cm high at the front, and a sketch shows that the riser was battered also. Further careful measurements of particular stones were not made. The photograph (Fig. 10.44) shows clearly that battered risers and sloping treads obtained at least for four steps, all being megalithic (i.e., having risers formed of single stones). The photograph also shows rather clearly that what seems to be a fifth step had its tread flush with the floor of the platform, and that it may not have been quite as high as the others. This step was not allowed for in the partially restored plan on the map of the site. The stones are smaller, and it is less certain that single stones everywhere formed the risers. The photograph also shows that some stones of all steps have crept forward.

Figure 10.42b shows a hypothetical restored cross-section of the lower flight. In this the risers and treads are equalized. This is probably what was aimed at, except, perhaps, for a narrower fourth tread and a wider and lower fifth and final step. The actual measured section is followed in the three-dimensional drawing of Figure 10.41. Even here it appears necessary to postulate five deep-tread steps, rather than the four suggested on the map. As the reconstructed section of Figure 10.42b stands, the front of each step rises 30 cm and slopes

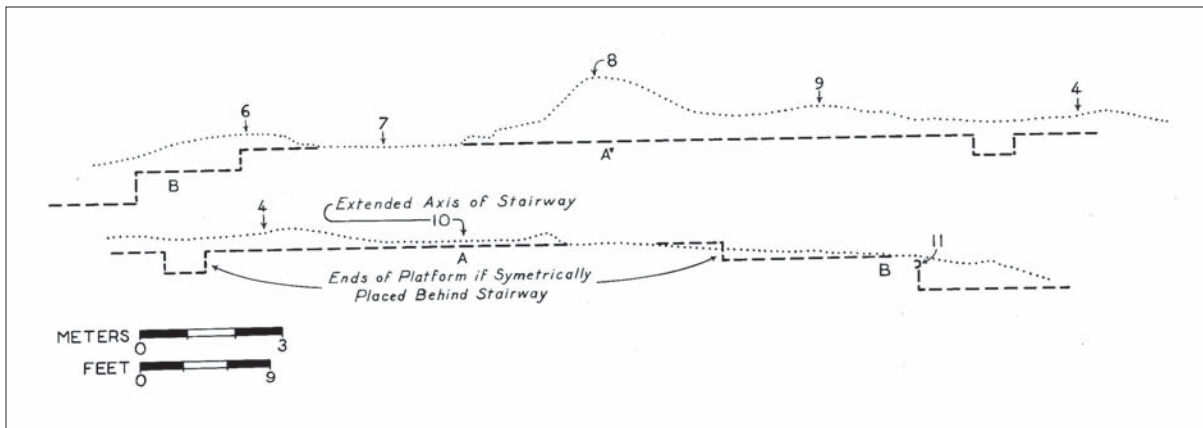


Figure 10.43 Longitudinal section (in overlapping segments).

back 10 cm; the treads slope up about 3 cm in 86 cm; the general angle of ascent is about 23 degrees from horizontal. This is surely not far from correct for the two lower steps. On the measured section these treads were measured as 70 and 90 cm, respectively, in each case the front 50 cm being accounted for by the megalithic stone also forming the riser. Crushed stone indicated that the rear parts of the treads were of concrete, presumably plastered.

The debris contours showed the presence of the projecting terrace (Unit E), forming shoulders on either side. The width of this element is restored in Figure 10.41 as 18.5 m, a figure obtained by scaling the original Parris map. Later notes of the writer suggest it may be too great by about 2 m. The indicated combination of vertical ends and less than normally steep battered front is conjectural, the shoulder at Structure O-2 being used as a guide here. Normally steep slopes are postulated elsewhere, without actual evidence.

The presence of a fabricated stairway rising to the principal terrace (Unit C) is quite certain, though no surviving steps were actually seen. Parris' depiction of its mound is the basis for restoring its width as equal to that of the megalithic flight.

#### ***Upper Terrace and Supplementary Platform (Units C and B)***

The floor material of Unit B, the supplementary platform, was exposed at Point 3 (Figs. 10.41 and 10.42a), and was there 3.3 m above the front edge of Unit E, the shoulder platform. The precise height of the terrace labeled Unit C is unknown, but a fair interpretation of the cross-section makes this height about 2.8 m; this, used in the reconstruction, gives 54 cm as the height of Unit B, the Supplementary Platform. The stone of a

wall, seen in position at an appropriate level, locates a probable original left end of this platform (Point 11 in Figures 10.41 and 10.43). The surface line in the latter figure suggests, however, that this unit was subsequently extended 2 m or so further to the left (right in the figure). Considered in connection with the level of the floor and wall stone seen at Point 3, mentioned below, it is fairly clear that the ends of the long flat mound of Parris' plan mark the ends of the supplementary platform, which may not have been close to the ends of building platforms. The positions of front and rear walls of Unit B as suggested in Figure 10.41 are conjectural, with a certain amount of loose control from the cross-section of Figure 10.42a. The depression at Point 5 of that figure became deeper as one moved toward the left (southwest) from the line of the section.

#### ***Building Platforms (Units A and A')***

The position of the front wall of Unit A is known by a wall stone seen in semi-position at Point 3. The restored height is 20 cm, probably close to the truth, as indicated by considerable flat portions of the debris line of Figure 10.43 (in the vicinity of Points 7 and 10). In the figures it is assumed that there were two building platforms, (Units A and A'), Unit A being centered behind the stairway. This is by analogy with a somewhat similar situation at Structure R-7. It is then possible to postulate a length for Unit A' such that the high mound at Point 8 is centered on it. Even if we are correct in postulating the second platform A', instead of a single very long one, the precise proportions indicated in the drawings remain mere guesses.

#### ***Buildings***

In examining the top of the mound we noted four separable areas of irregular relief, higher than elsewhere. Two of





*Figure 10.44 Megalithic lower flight of stairway.*

these are clearly represented in the longitudinal section of Figure 10.43, centering at Points 6 and 8, and a third less clearly, at Point 9. There was another hump just to the observer's right of Point 4, of much less longitudinal extent. These points are indicated in Figure 10.41 to emphasize their non-symmetrical positions with respect to Point 10, on the projected axis-line of the stairway. No understandable pattern could be discerned in these irregularities, but there is no question but that masonry constructions, presumably masonry walls, are involved.

Especially puzzling is the distinct mound of Point 8, measuring about 3 m in either direction, which was observed to contain slabs and good building blocks. Here the depth of debris (above our approximately determined floor level) is 1.3 m, sufficient for vaulted or semi-vaulted construction. But elsewhere this debris depth varies from zero to only about 60 cm, a situation showing absence of vaults and even compatible with ruins of mere base-walls.

### ***Function***

The detailed sections and close examination on the spot make the assumption of a single long building a very

dubious one. It is likely that more than one building is involved; one cannot be sure there were not more than two. If there was any vaulted construction it must have applied to a single small chamber, well to the right of the stairway (Point 8). This construction, vaulted or not, may possibly have been centered on one of two building platforms; if so, it probably was a sweat-room. If not, we have no functional clue at present. A comparatively short building on another platform centered behind the stairway appears to be a possibility, and it may have been of the palace type, but excavation is required to determine both points. Providing two building platforms, as in the drawings, does not yield complete symmetry of debris profile in respect to either of them.

It is clear that the building or buildings associated with the megalithic stairway must be placed in the unclassified category. But it is interesting to note that possibly we may here have a non-vaulted palace immediately next to a sweathouse, as in the Southeast Section. If a sweathouse is present it was only indirectly associated with the megalithic stairway.



## 8. STRUCTURE O-2, *Linton Satterthwaite*

In making his survey Parris noted megalithic stones in the stairway of Structure O-2, and his carefully controlled depiction of the principal masses of debris showed the shoulders, which seem always to belong with such steps. He shows a flat mound at a higher level, measuring about 5 m by 18 m. As at Structure P-6, the building was probably single-range, or a relatively narrow double-range one, covering most of its building platform. The mound appeared to Parris and to the writer to be what is left of a non-vaulted building with masonry or at least partly masonry walls, though no masonry showed here, and minor irregularities of the surface were not studied carefully. Hence we can say little about the functional type of the building, but from its size and proportions it may have been a palace, and very probably was not a temple.

During the closing days of the last season the writer was able to do a very little digging and to make a few hasty notes while working on the neighboring temple, Structure R-16, and these data yield the reconstructed cross-section of Figure 10.45. This is shown almost entirely in broken line because both levels and horizontal distances were controlled with nothing more accurate than a two-meter rule and sighting with the eye, and much depends on inference. However, so far as it goes, it is probably correct within narrow limits, as the measurements were made at short distances.

The left (northerly) side of the lowest flight of the stairway was followed by excavation back to its junction with the shoulder terrace, from which it projected 3.1 m. Unfortunately, on this side the terrace itself survived for only two courses of stone. Even so small a remnant at the base indicated a battered front face for the shoulder terrace. On the right side the top of this terrace was found, about 1.7 m higher than the bottom of the first step on that side (Point 3 in the figure). It was followed down about half way, establishing the slope of the front face as about 58 degrees. Point 2 of the figure is located by projecting downward on this slope; Point 1 is located 3.1 m forward, though that measurement was obtained for the other side. The result is surely not far wrong, and calls for a rise of about 1.7 m in a horizontal distance of about 4.1 m, closely approximating the situation at Structure P-6. The idealized reconstruction of the profile of the steps of the lower flight is therefore about the same as that for Structure P-6. We have assumed equal steps with risers of 30 cm, which slope back 10 cm; the treads come out as sloping up about 4 cm in a depth of about 82 cm. The upper one reaches the level of the shoulder terrace. Possibly more accurate controlling measurements would indicate four steps only, the fifth riser being the edge of the terrace itself.

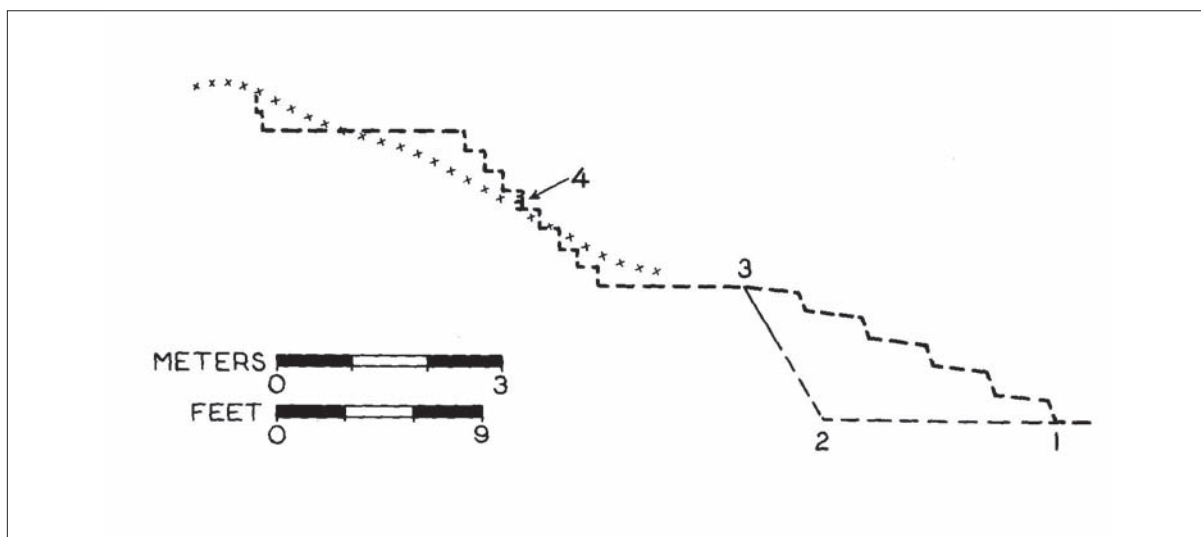


Figure 10.45 Composite cross section of Structure O-2.

Megalithic stones were seen at, and near, each end of the lowest step, which was about 10 m in length. We neglected to note battered riser and sloping tread on these stones, but since they were expected, this failure means they were almost certainly present. One stone was measured as 70 cm from side to side, and 85 cm in depth, and another was noted as 80 cm in depth, thus confirming the assumption of deep treads. Seen in plan some of these stones were tapering or irregular behind the face forming the riser, and the treads were undoubtedly partly formed of concrete.

At higher levels no distinct lines formed by the risers could be made out without excavation. While stones larger than expected in the ruin of an ordinary fabricated stairway were noted, the impression was gained that above the first step there had been no rigid requirement that all risers should everywhere be formed of single stones. For the first step, however, there was no reason to doubt a truly megalithic step in the sense used here, risers about 30 cm high, formed by the faces of single stones.

Parris found no distinct mound for the expected fabricated stairway rising from the shoulder terrace, judging by our cross-section, such a stairway rose about 2 m to the base-surface of the building platform, and what we reconstruct as the fifth step of this second flight was seen in position (Point 4 in Figure 10.45). The failure to note a distinct projection of debris from these steps was probably due to presence of a large tree on the right side and to collapse of the shoulder terrace on the left side. We are free, therefore, to suppose that the megalithic lower and the fabricated upper flights were of equal width, but lack actual evidence.

While the slope of the face of the shoulder terrace is somewhat steeper than the better-known example of Structure J-6 on the Acropolis, it is much less steep than most known terraces at the site, and one may suspect a design similar to that at Structure J-6, that is, a cut-off batter, with vertical sides of the shoulders. However, we have no real knowledge as to this either at this mound or at Structure P-6, and in neither case do we really know that the terrace behind the second flight was normally steep.

Subject to these doubts as to slopes, and a suspicion that all steps of the lower flight should be equalized, Figure 10.41, which applies to Structure P-6, probably also gives a fairly correct idea of the appearance of the stairway of Structure O-2. Here as there, the shoulders probably extended somewhere between 2 m and 3 m on either side of the megalithic flight. This is indicated by the debris, not by excavation and actual measurement.

A number of sherds were encountered while following the left end of the megalithic steps (Field Cat. no. S-27-1). These included apparently untempered parts of a shallow tripod, fine orange bowl with a cross-hatched petal-like area on the upper surface of the bottom; and sherds of an apparently simple silhouette bowl with glyph band, of the same ware. The position was characterized as surface to bedrock, since no floor could be made out and bedrock was very close to the surface. In fact, the base of the shoulder terrace appeared to rest directly on bedrock. There is no reason to suppose the late terrace is as late as undoubtedly late sherds. On the other hand, there is some reason to suppose that the stairway was the first masonry structure to be placed at this spot.

---

## 9. STRUCTURE J-19, *Linton Satterthwaite*

---

This is the only building on the Acropolis of which the plan is not completely or largely known. No walls showed, the plan was not dug for, and irregularities on the surface gave no clue. Therefore, it must be given attention here, among the unclassified buildings. The top of the mound was relatively flat, without (according to the memory of the writer) the prominent central hump of ruined sweathouses. Parris drew up his surveyed corner-points of the mound on a scale of one to a hundred. Scaling from this, the mound top measured 7.5 m and 8.1 m at the northeast and southwest ends respectively, while front and rear lengths were 16.5 m and 16.4 m respectively. His drawing appears at reduced scale. The mound is at the outer edge of Court 3, where there is no room

for a much longer structure. From its proportions and position, with the likelihood of a sweathouse ruled out, there is really little doubt that it is the ruin of a palace-type building.

Near the center a cross-trench was dug by an inexperienced workman in 1932. The writer was responsible, but gave the operation little supervision. At this time the planned objective was limited to determining whether the roof had been vaulted, and a negative answer was secured. A hasty sketch of the cut was made with tape and rule only. On this, desirable measurements are missing and must be approximated, since the sketch was not to scale. In particular it has been necessary to assume that all floors were precisely level, and to estimate the

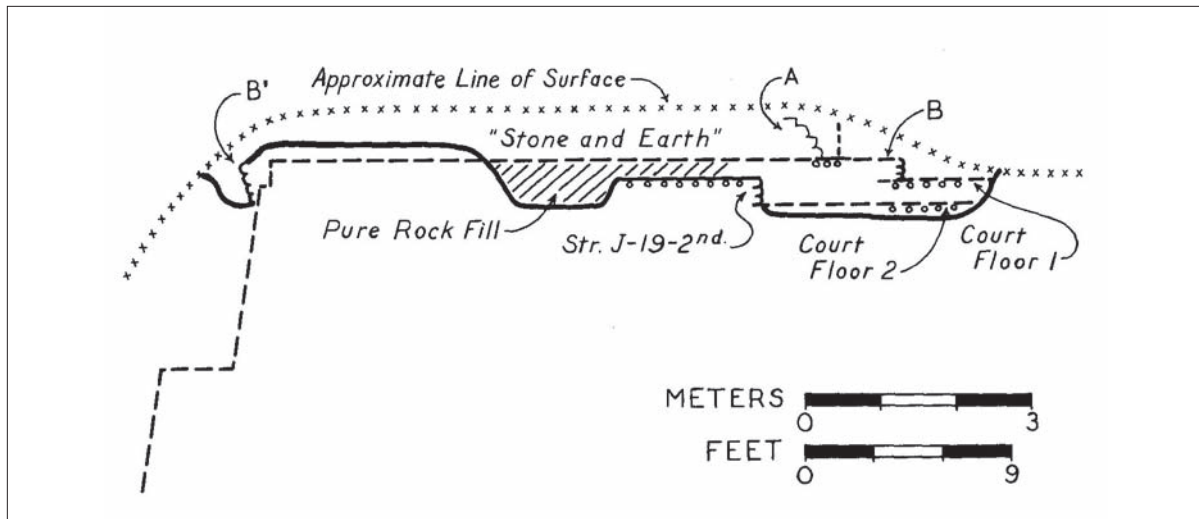


Figure 10.46 Cross section of Structure J-19.

height of the platform labeled Unit B in Figure 10.46. However, the resulting errors in this partial cross-section are surely small in amount.

At the front edge of the mound two court floors were found, which we have numbered, Court Floor 2, the earlier, being 30 cm below Court Floor 1. The earlier floor was surely the base-surface for a platform which we designate Structure J-19-2nd. This was evidently entirely obliterated by the time of the final structure, Structure J-19-1st. Two components of the latter were distinguishable, and are labeled Unit A and Unit B-B'.

The earlier platform (Structure J-19-2nd) was 35 cm high, its front face being found buried 1.9 m behind the corresponding face of the final platform, that is, of Unit B. The floor forming its top was plastered, and this floor was followed back for a like distance of 1.9 m. According to the field sketch, it there failed to continue, giving way to pure rock fill rising from below and reaching a noticeably higher level. Had this situation been due to our inadvertently cutting through the face of the higher rear portion of a stepped-top platform, the masonry of the step should have been identifiable in the cut. Instead, the deep part of the rock fill appeared to be continuous with a shallow deposit of it on the J-19-2nd platform itself, as indicated by hatching in the figure. This was puzzling and unexplained at the time, but it now seems reasonable to consider that what was found is a mere remnant of the early platform. At or before the building of Structure J-19-1st collapse of a probably high system of terracing to the rear could have permitted the rear part of the early platform to slide down the steep slope toward the river. Major repairs

in that quarter, accompanied by the raising of the floor of the court and construction of a new building, would explain what is recorded. Whether this is the true explanation or not, the early platform certainly existed. We do not know its depth but, because of the space limitations, this depth must have been substantially less than that of the corresponding later platform, Unit B-B', and it may have been very much less. However, within the indicated space limitation of about 6.5 m, there was ample room for either a narrow double-range building such as the buried Sub-Acropolis Structure 3 or, of course, a single-range one such as Structure S-17 or Structure S-18.

On the field sketch the face of the platform of Structure J-19-1st, that is, of Unit B, was sketched as of about the same height as that of the buried platform. If we take the Unit B height as 30 cm and assume a precisely level Court Floor 2, we shall not be far wrong. On this basis the late platform floor was 25 cm above the earlier platform floor, and 60 cm below the flat top of the mound as it was sketched. The latter was 1.2 m above the base of the early platform face, therefore definitely only 0.9 m above the latest court floor.

As indicated in Figure 10.46, a small area of white-plastered surface was recognized on the floor of Unit B, just in front of a mass of masonry labeled Unit A, and this plaster was seen to run under the masonry. Probably the floor was generally in bad condition, since neither the plaster nor body material of the floor was recorded elsewhere. However, to the rear of Unit A our sketch shows a definite line at this level, separating the rock fill from the stone and earth above. There is no reasonable

doubt that the floor of the final platform ran at one level from front to rear, reaching a rear face, the upper part of the wall labeled Unit B' being a part of this face. As found, this wall leaned toward the rear, its top at about the level of that of Unit B and about 8.7 m to the rear of it. Since the wall apparently descended beyond the base-level of the earlier J-19-2nd, it is suggested in the figure that the rear face of the final platform was set very close to a terrace wall, and that we failed to distinguish between the two units, a mistake very easy to make with walls, which have begun to fall. Allowing an estimated 40 cm for the rearward displacement of Unit B', the depth of the late platform is estimated at about 8.3 m.

Unit A, already referred to, is a partially known mass of masonry, consisting of irregular blocks resting directly on the plastered floor of Unit B and reaching to within a few centimeters of the surface. This is shown by a photograph as well as by the field sketch. This masonry is structurally later than the platform, and by analogy with situations elsewhere may or may not belong in a later phase. The mass appeared in the side of the trench, and a lateral extension followed the front of it for about a meter in the longitudinal direction. It is presumably part of a pier or building wall, in such bad condition that our workmen inadvertently removed a base-course along the front, which should have survived and been seen. As found, the irregular front of this mass begins 1.1 m behind the edge of the platform, and we suggest a front face for it 0.9 m from the edge. On this basis the depth of the building can be estimated as about 7 m, perhaps a little more, since one may safely assume that the rear wall was close to the rear edge of the platform. Failure to note a medial and rear wall in the trench may be due to unskillful digging, but may just as well be due to an accidental location of the trench so that it passed through doorways. A double-range

building is thus indicated, even though very little of it was encountered.

To the rear of Unit A (the supposed masonry of a front pier or wall) the deposit reaching down to its base-surface (the floor of Unit B-B') was surely very different from Unit A itself. It was labeled earth and stone, and doubt was expressed whether it was fallen debris or fill. Considering this suspicion that it might be fill, as well as its slight depth, it certainly was not debris of fallen vaulting, though absence of slabs in quantity was not specifically noted. Considering the position of the masonry Unit A, which is too thick for a retaining wall, the earth and stone must be debris from a non-vaulted building.

In conclusion it may be said that what little was learned from the trench established the presence of two court floors and of two building periods in the highest of the Acropolis courts. The later building platform was substantially deeper than the earlier one, and almost certainly served a non-vaulted double range building with masonry walls. Nothing was encountered to refute the natural speculation that its walls were fairly massive and that the plan was of the palace type, that is, that the building here was similar to Structure J-20 on the same court, and, apart from less length, similar to Structure J-12 on Court 2. Differences in the cross-section dimensions of all three non-vaulted buildings at the surface of the Acropolis may have been very small.

Evidence is lacking, but the earlier platform may have served a similar building of lesser depth in this respect more like the buried Sub-Acropolis Structure 3. Though the latter is unclassified, it was probably a palace. Reasoning from such analogies, one suspects that thorough excavation of this mound might yield stratigraphical evidence for the hypothesis that there was an early period during which room-width of non-vaulted buildings increased.

---

## 10. STRUCTURE J-24, *Linton Satterthwaite*

---

This is the largest of three mounds perched on the steep northwest side of Hill J, about 68 m above the Northwest Group Plaza, and about 20 m below its top (see site map). The three mounds are disposed at slightly different levels on a system of broad terracing suggesting that a comparatively flat natural shelf was improved for their reception. Apparently Structure J-24 faced southwest on a tiny court. Though less than 30 m of horizontal distance separates it from the pyramid temple Structure J-29 to the northeast, or from the palace Structure J-23 to the

southeast (at the top of the Acropolis), this structure and its group were effectively isolated from them by the differences in level. The area may have been reachable from the Acropolis group by terracing, or by a mere path around either or both sides of the hill. There was no convincing sign of a stairway leading down to it from the higher palaces immediately to the southeast. On the other hand there probably was a stairway connection with the lower Structure J-27, and thence, via Structure J-28, a probable stairway connection with the Northwest

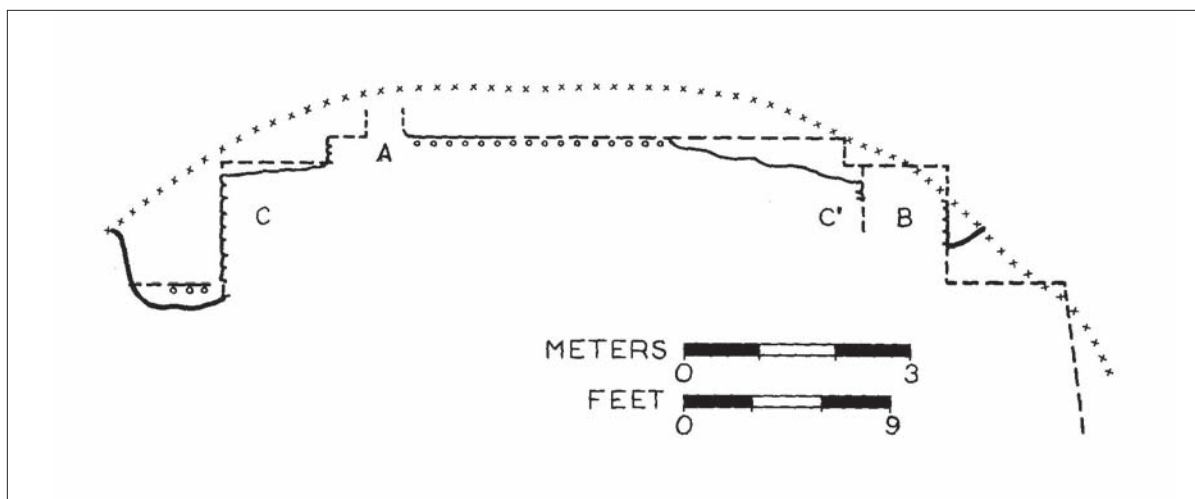


Figure 10.47 Cross section of Structure J-24.

Group Plaza. One receives an impression, nevertheless, that the group was not planned as part of an important ceremonial assemblage.

In 1931 a trench was cut through the superficial debris of Structure J-24, near the center, to determine if a vaulted building had been present. Figure 10.47 reproduces a field sketch of the cross-section, with interpretive additions in broken line. The original sketch was drawn to scale, but without accurate control of levels.

The slight depth of debris, about 60 cm, and absence of slabs in quantity, proves there was no vault. An upper platform, Unit A, was undoubtedly a building platform since, toward the front, its plastered top ended in a turn-up as if to a wall. This turn-up was about 1 m behind the front face of the building platform, but the position

of the front face of the missing wall was not made out. The original sketch and notes show that we thought this wall was similar to the walls of the building of Structure V-1-1st, believed to have been mere base-walls, about 50 cm thick.

There had evidently been considerable destruction of the building platform toward the rear. The reconstructed depth of about 7 m is a mere guess; this may have been much greater or less. It was about 0.3 m high and stood on a main platform about 1.6 m high. The depth of the latter was about 9.6 m if we are correct in considering that Unit B is a secondary addition to Unit C-C'. Parris' depiction of the mound shows that the length of the main platform was probably in the neighborhood of 20 m, and presumably that of the building was something less than this.

## 11. STRUCTURE S-5, *Linton Satterthwaite*

Before excavation, the mound of Structure S-5 was quite similar to that of Structure U-3 in size, height and form, as may be seen by comparing Parris' schematic delineations (Morley 1938:5, Pl. 202 for Structure U-3, and see site map for Structure S-5). Since on excavation Structure U-3, which is in the South Group, turned out to be a platform temple with modified rectangular plan, the debris along the right end of Structure S-5, here reported on, was

removed to see if the same temple-indicating, Petén-style platform was not also present in the Southeast Section. The answer was negative, and solid-line portions of Figure 10.48 show what was found in place.

The lowest platform element (Unit B) was evidently a simple rectangular, not a modified rectangular, structure. It had slightly rounded corners, obtained in part by rough-dressing certain stones



to achieve curved edges. These were identifiable in the wall proper, and also in the molding, which projects about 8 cm from it, forming the upper 23 cm of the face. No plaster was found, but originally this was probably also relied on to obtain a smooth rounded effect. The height of this platform, including the molding, is only about 80 cm. The wall proper is battered, the slope being about 82 degrees from horizontal, and the face of the molding is battered to correspond.

Considering Unit B as a complete component or main platform, it is clear that another rectangular element, Unit A-A', occupied nearly its entire surface, since the end wall of Unit A-A' could be followed for almost the entire depth of Unit B, on which it rested. The front right corner of this higher component was recorded as sharply rectangular, not as rounded. Fill, rather than fallen debris, was identified behind the face of this unit, showing that it was the face of a platform, not that of a building. It is reconstructed in broken line as a stepped-top building platform. This accords with surviving heights of 40 and 55 cm, at A' and A respectively, in the figure. Since at neither of these points was it clear that the original top of the wall had been reached, the reconstructed heights of about 45 and 70 cm for front and rear portions may be somewhat too little; and it is not impossible that there was only one level, in which case one would raise the front portion, and consider that Unit A was probably a supplementary platform supporting a building platform which was not reached by the excavation. If one does raise the front portion to the level of the rear, as an alternative reconstruction, the way at first seems open to give the resulting one-level upper element the same height as the lower, and to provide it also with a molding. Unit B would then be merely the lower terrace of a two-terrace platform. The debris profile mentioned below, and the sharply rectangular corner of the upper unit seem to argue against this.

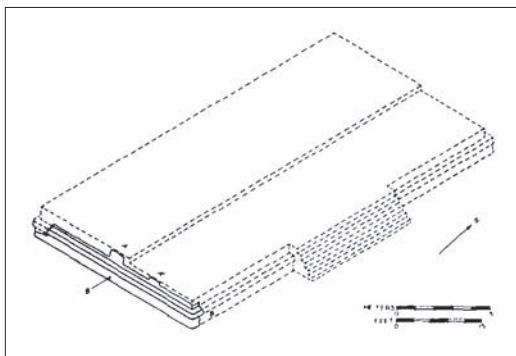


Figure 10.48 Partial isometric reconstruction of Structure S-5.

Time was lacking for further digging, but in 1939 the writer made a very hasty examination of this and neighboring mounds, sketching profiles with tape and rule, controlled at extreme points only by readings with the leveling instrument. Figure 10.49 shows the resulting surface-line for Structure S-5, in approximate relation to a broken-line reconstruction of the cross-section of the structure, the latter being based on Figure 10.48. It is assumed that Point 1 of the profile was 40 cm higher than the top of Unit B. Though not determined by an actual reading of level, this cannot be very far out.

It is clear that the maximum depth of the debris is well to the rear of the mound as a whole, though Parriss indicated this for the left end only. This maximum depth is about 1 m on the basis of our reconstructed levels; it may easily have been somewhat less, considerably less if we have failed to allow for a building platform distinct from Unit A-A'. In the field we considered that there was no reason for suspecting a fallen vault here, but since the debris depth may be as great as 1 m, the possibility of a vaulted roof is not absolutely ruled out. The digging should have ascertained the floor level at the rear.

The top of an "undoubted pier" was noted at Point 2 of the profile of Figure 10.49, estimated as being 50 cm lower than Point 3. Since this stump of a pier is at the forward edge of the higher portion of the mound, it evidently was in the front face of the building. Whether Unit A-A' is the building platform or not, it probably presented a wide stage-like uncovered area in front of the building, and we have every reason to suppose that the building occupied most of the area which we show in Figure 10.48 as the raised rear portion of a stepped-top platform. Thus, indications are that on the exterior the building measured about 18 m by 5 m.

In Figure 10.49 a one-range building with roof-span of 3.2 m is suggested. This span is greater than that of any non-vaulted building known at the surface of the site, but much less than that of the buried pyramid-temple Structure K-5-3rd. Space is lacking for a double-range building unless it was about as narrow as the buried Sub-Acropolis Structure 3, which probably was an early non-vaulted palace. In respect to length there is room for a five-doorway building in the tradition of the nearby non-vaulted palace structures J-17 and in J-18; or, of course, for a three-doorway building, in which case the openings may have been very wide, as in the temple Structure K-5-3rd. One suspects that either a non-vaulted palace or a non-vaulted comparatively large simple-rectangular temple stood here, but some unknown type remains a possibility.

In view of the probable depth of building debris there is no reason for doubting that the walls rose to roof height.

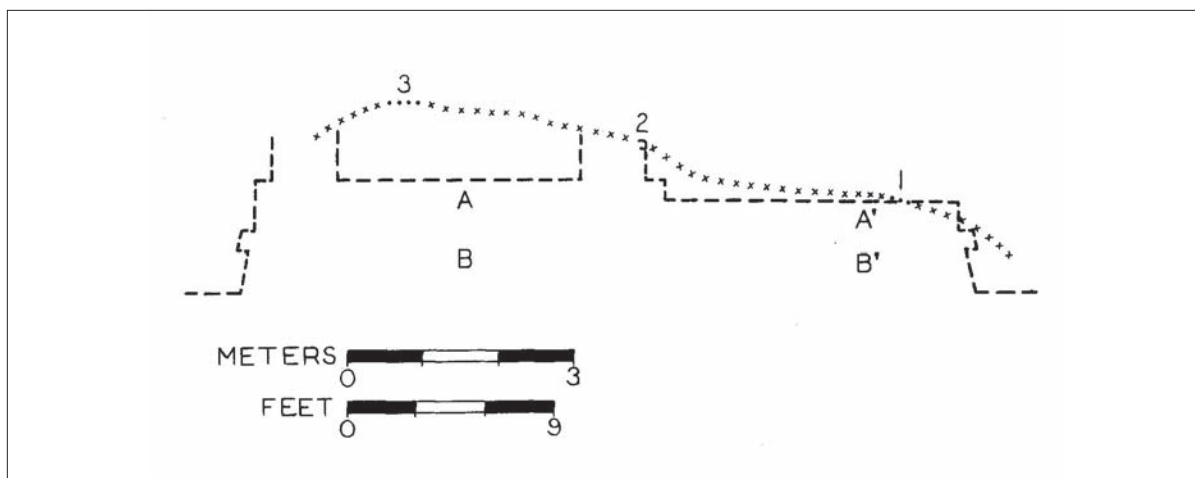


Figure 10.49 Composite cross section of Structure S-5.

Figure 10.48 suggests an ordinary stairway reaching the supposedly lower front level of Unit A'. Nothing is actually known about the design of this stairway, apart from the fact that protruding debris indicated its central position and that it covered about one-third of the total length of the platform.

### Objects

Sherds, a figurine head and a figurine fragment were recovered in the digging along the right wall of Unit B. In the field these were catalogued as from Operation SE-13; later, due to a subsequent double use of this number, those at the museum were assigned the field number SE-13X. Two positions were distinguished. SE-13X-1 and SE-13X-2 are from the forward end of the cut, which reached below apparent base-surface level; SE-13X-3 to SE-13X-5 are from a middle portion of the cut, from debris well above the supposed base surface level; sherds from the

first position include heavy utility ware fragments, two or three with apparent remains of white stucco adhering, suggesting possible stucco decoration on Unit B. A small flat-bottomed bowl with slightly flaring sides was almost completely restored from sherds found at the second position. Since these were almost certainly in debris, it seems likely that the bowl was left intact on the structure near its right edge when the site was abandoned, the bowl falling with the partial collapse of Unit A-A'. Late use of similar bowls is well established elsewhere and, though the structure may have been quite old and obsolete at the time of abandonment, there is no reason to suppose it was not in use up to that time.

The yield of sherds was not large in quantity and, since the heavy sherds may here (as certainly at some other mounds) be remains of stucco decoration, the finds suggest some ceremonial rather than domestic use of the building.

## 12. STRUCTURE O-3, *Linton Satterthwaite*

No masonry showed at this mound and there was no excavation, yet a small one-room building is shown in hatched plan on the map of the site. The approximate positions of the walls were clearly indicated by ridges of debris, as at Structure J-12, and Structures S-17 and S-18, where subsequent excavation proved the plan was what such evidence indicated. Here as there, such clear indication of the plan probably signifies a non-vaulted building with masonry walls reaching to roof-height.

Parris' field sketch shows that he located the corners of the broad platform on which this building (or its building platform) rested, but the record available at the time of writing lacks additional measurements locating the approximate positions of the corners of the building. As drawn, the estimated length is about 7 m, the depth about 3 m. One should allow for considerable deviation from these dimensions, which are estimates.

## APPENDICES

---

# APPENDIX 1

## PERSONNEL OF THE PIEDRAS NEGRAS EXPEDITION, 1931–39

**DAVID W. AMRAM** (1901–90; bookkeeper, 1932). As a young man, Amram worked as a radio operator on merchant ships, and during the 1930s, he explored the Chiapas jungle in Guatemala and Mexico for the Academy of Natural Sciences in Philadelphia and the American Geographical Society of New York. Amram was a self-trained archaeologist and cartographer, and spoke fluent Spanish. After he returned from Central America, he prepared maps of the region for the National Geographic Society. He also donated a grasshopper he had discovered, *Lethus Amrami*, which he named after himself, to the Academy of Natural Sciences in Philadelphia. During World War II, Amram again lived in Mexico, where he worked for the Board of Economic Warfare, purchasing mahogany that was used for the hulls of torpedo boats. He subsequently worked in communications for the Army Signal Corps. In the 1960s, Mr. Amram began a wholesale book business in which he dealt in rare and out-of-print books. During the 1970s, Mr. Amram often played bongo and conga drums in coffeehouses at Bryn Mawr, Pennsylvania (Amram 1942; Cipriani 1990).

**MARY BUTLER LEWIS** (1903–70; excavation, 1932) was born in Media, Pennsylvania, the daughter of the famous World War I Major General Smedley Darlington Butler. She received her B.A. degree in 1925 from Vassar College, her M.A. from Radcliffe College in 1930, and her Ph.D. in anthropology from the University of Pennsylvania in 1936. Between 1930 and 1935 she worked as an Assistant, and in 1935 as a Research Associate in the American Section, University of Pennsylvania Museum. In 1936 she served as Assistant Archaeologist for the Pennsylvania Historical Commission, and between 1939 and 1940 was Director of the Hudson Valley Archaeological Survey for Vassar College. She held teaching positions at Hunter College (1937–38) and Bryn Mawr College (1942–43). She conducted archaeological field research in West Virginia (1930), Piedras Negras and the western highlands of Guatemala (1932, 1939–41), western Pennsylvania (1935), the middle Mississippi River valley at Brockport, IL (1937), and the Hudson Valley of New York State (1939–41). The University Museum and the

Works Progress Administration (WPA) co-sponsored two Ceramic Technology Projects at the Museum between 1935 and 1943 as part of the Statewide Museum Assistance Program. The first Ceramic Technology Project, developed in 1935 by Mary Butler, analyzed artifacts using chemical, petrographic, and optical methods. Experimental investigations of the composition of various clays, pigments, and other factors important in ceramic technology were conducted, and methods of conserving and restoring metal, stone, ivory, and bone objects were also studied (Keur 1971; Mary Butler Lewis 1970).

**FRANK CRESSON** (excavation, 1935–37) received his M.A. from the University of Pennsylvania in 1937. His thesis on Maya and Mexican sweatshops was based on his fieldwork at Piedras Negras. He later attended Harvard University where he wrote a series of manuscripts on Piedras Negras pottery and published his M.A. thesis in *American Anthropologist* in 1938. In the early 1940s he excavated village sites in southwestern Pennsylvania for the Pennsylvania Historical Commission (PHC). Cresson prepared an important monograph summarizing the results of these WPA excavations which remains a valuable resource for interpreting the WPA excavations, since he had access to field data that is apparently no longer extant.

**WILLIAM S. GODFREY, JR** (1916–80; surveying, drafting, photography, 1939) worked at Piedras Negras during the 1936–37 and 1939 seasons, while an undergraduate at Harvard College. Godfrey was the son of Marian Angell Godfrey Boyer, who was at Piedras Negras during the 1935 season. His senior honors thesis was on the stela of Piedras Negras (1940). After graduation he joined the family business of William Simpson and Sons, cotton merchants of Philadelphia and New York, and later returned to Harvard for his doctorate (1951). His doctoral dissertation was titled “Digging a Tower and Laying a Ghost: The Archaeology and Controversial History of the Newport Tower.” He accepted at teaching position at Beloit College in Wisconsin and maintained research

interests in the Vikings in America and the archaeology of Mesoamerica (William S. Godfrey 1980).

**MARIAN ANGELL GODFREY BOYER** (1892–1989; Monument casts, 1935). Her devotion to art, music, archaeology, and nursing made her a leader in Philadelphia's cultural and civic affairs for nearly 40 years. She was married to William Simpson Godfrey, president of William Simpson and Sons, cotton merchants, until his death in 1947, and later to Francis Boyer, former chairman of Smith Kline & French, now Glaxo Smith Kline. She established her own identity as a volunteer and contributor to such Philadelphia institutions as the Hospital and the University Museum of the University of Pennsylvania, the Philadelphia Museum of Art, the Philadelphia Orchestra, and the Academy of Music. She served on various boards of directors in the Philadelphia area. In the 1940s, after studying anthropology and archaeology at the University of Pennsylvania, she served as secretary (1943–44) and acting director (1945–47) of the University Museum after the death of George C. Vaillant (1901–45). Mrs. Boyer had a keen interest in nursing and worked to upgrade both the standards and pay for the profession. She was a longtime trustee for the National Foundation for Graduate Nursing Education, and she received a doctorate in humane letters in 1964 from Beaver College, where she also was a trustee. Mrs. Boyer also was active with the Franklin Institute, the YM-YWCA, the World Affairs Council, the America-Italy Society, the Franklin Day Nursery, New York's Metropolitan Opera, and the Philadelphia Lyric Opera Company. The University of Pennsylvania Museum's Marian Angell Godfrey Boyer Medal, first given in 1987 at the museum's centennial, was established to honor distinguished service to the museum (Marian Angell Godfrey Boyer 1989).

**T. EGAN-WYER** (Road and camp construction, 1931).

**MRS. T. EGAN WYER** (Housekeeping, 1931).

**J. ALDEN MASON** (1885–1967; arrangements, field director, general oversight, 1930–36) was born in Philadelphia and educated at the University of Pennsylvania (B.A., 1907) and the University of California (Ph.D., 1911). He was Assistant Curator of Mexican and South American archaeology at Field Museum of Natural History in Chicago (1917–24), Assistant Curator at the American Museum of Natural History in New York (1924–25), and Curator of the American Section at the University of Pennsylvania Museum (1926–55). The subject of his dissertation was the Salinan Indians of California, but his diverse interests in later years extended throughout the Americas, including fieldwork among the Ute (1909), Tepecano (1911–13), Salinan (1911, 1916), and Papago (1919) Indians, and at Great Slave Lake, Canada (1913),

Puerto Rico (1914–15), Santa Marta, Colombia (1923), Northern Mexico (1929), Piedras Negras (1930–31); Durango (1935–36, 1948), and Cocle, Panama (1940). His interests considered Puerto Rican folklore and archaeology, Piman linguistics and ethnography, Maya, Aztec, and Inca archaeology and prehistory, and the linguistics of South American Indians. In 1911–13 he was chosen to represent the University of Pennsylvania for two seasons in Mexico at the International School of Archaeology and Ethnology in Mexico. In 1930 he was a member of the University of Pennsylvania expedition that used an airplane to explore 10,000 square miles of territory in Central America, making photographs of many parts of the Maya region. He retired from the University Museum in 1958 but served until his death as editor and field adviser of the New World Archaeological Foundation (Butler 1969; Cross 1969; Kidder and Satterthwaite 1968; Reynolds 1968; Satterthwaite 1969). The Mason Papers including correspondence, linguistic material, field notes, and photographs, are at the American Philosophical Society in Philadelphia.

**SANTIAGO MENDOZA** (Representative of the Guatemalan government, 1931–32).

**FRED P. PARRIS** (surveying and drafting, 1932–33). Little is known of Fred P. Parris. After his season at Piedras Negras as a surveyor and draftsman, he joined the Carnegie Institution archaeologists Karl Ruppert and John H. Denison in the exploration of Campeche, in southeastern Mexico. They were in the field from January 31 to May 8, traversed some 1,150 miles, 500 on muleback, and located four major and six minor archaeological sites, including Balakbal, Becan, Chana, La Muralla, Oxpemul, Pared de los Reyes, Río Bec, San Francisco, Uaachal, and Uxul.

**VICTOR M. PINELO** (Representative of the Guatemalan government, 1933, 1935–1937, 1939).

**TATIANA PROSKOURIAKOFF** (1909–85; surveying and drafting, 1936, 1937) was born in Tomsk, Siberia, Russia, to a chemist father and a physician mother. Proskouriakoff was brought to the United States in 1916, where she was raised and educated in Pennsylvania. In 1930 she received her Bachelor of Science from Pennsylvania State University in architecture. She found it difficult to obtain work as an architect during the Depression, and she answered an advertisement for an architecture student to work for Linton Satterthwaite at the University Museum. She joined the Museum's 1936 expedition to Piedras Negras, where her work included drawings of archaeological reconstructions of sites at Chichén-Itzá, Tikal, Yaxchilán, and others. Years later Proskouriakoff observed in the hieroglyphic text of Piedras Negras a pattern of dates and hieroglyphic signs. Through her analysis of these patterns she was able to identify a sequence



of seven rulers for a span of almost 200 years. She also showed that these texts indicated rites of passage and major feats of these rulers. She opened the way for a new approach to the Maya. Today, archaeological projects incorporate glyphic data to help formulate interpretive results, influenced by her studies of the stela of Piedras Negras. For her discovery that ancient Mayans were recording their history, Proskouriakoff was awarded the Alfred V. Kidder Medal in 1962, and in 1971 she was named Penn State's Woman of the Year. She was given honorary degrees from Tulane University and Pennsylvania State University, and in 1984 she received the Order of the Quetzal, the highest honor awarded to a foreigner by Guatemala (Berlin 1985; Graham 1990; Rivera 1987; Rosas 1988; Tatiana Proskouriakoff 1985).

**JOHN H. ROSS** (camp manager, 1932–33).

**LINTON SATTERTHWAITE** (Excavation, 1931–32; Field Director, 1933–37, 1939). Satterthwaite (1897–

1978) was educated at Yale University (B.A., 1920), and after a brief period during which he practiced law, he returned to the University of Pennsylvania Museum. In 1929–30 he was an assistant on various archaeological projects in Texas and West Virginia. He worked on Early Man sites in 1940 in Wyoming and in 1944 near Tranquility, California. Between 1950 and 1953 he worked at Caracol in southern Belize. He received his doctorate in anthropology from the University of Pennsylvania in 1943. From 1934 to 1955 he was Assistant Curator, and from 1955 to 1965 Curator of the American Section. In 1956 he served as epigrapher for the Tikal Project. He was interested in mathematics and astronomy of the prehistoric and modern Maya (*Anthropology Newsletter* 19,7:3, 1978).

**MARGARET CONWAY SATTERTHWAITE** (Laboratory, book-keeping, 1932–39)

## APPENDIX 2

# PIEDRAS NEGRAS: AN OPPORTUNITY AND AN EMERGENCY IN AMERICAN ARCHAEOLOGY

*Linton Satterthwaite*

### Reconstructing America's Earliest Civilization

More than a thousand years ago, presumably between 250 and 810 A.D., there flourished in what is now Central America a people well advanced in arts and sciences, a people proficient in architecture and astronomy; government and agriculture; sculpture and ceramics. Such was the culture of what is called the Old Maya Empire.

The Maya recorded time more accurately than any other ancient people. Many of their stone carvings (executed on limestone with implements of flint, obsidian and jade, for they had no metals at the time) merit comparison with any of the great schools of art of antiquity. The composition of some is astonishing and compares favorably with the best products of other civilizations. In every way, the Maya were the most highly cultured people of ancient America.

Yet, although some of their carving is strongly reminiscent of Greek art, popular theories of Old World origins for the Maya are universally discounted by the best authorities. They are believed to be pure American Indians who developed all phases of their high civilization in America, without influence from outside.

### Piedras Negras

One of the earliest of the Mayan cities, and apparently one of the richest in its store of Maya art, was Piedras Negras, situated on the Usumacinta River in what is now Guatemala.

Buried for centuries beneath the jungle, which spread over its temples and broad plazas following its sudden abandonment (for reasons not yet determined, and probably not later than A.D. 810), the existence of Piedras Negras was unknown until 1895, when its ruins were discovered by Teobert Maler.

Up to the time the University Museum of the University of Pennsylvania decided to begin excavations in the Maya region, which comprises Guatemala, southern Mexico, Yucatan, British Honduras, and northern

Honduras, no monumental pieces of Maya sculpture had been removed far from their original sites, for most of the Maya cities are buried deep in the tropical forests, distant from routes of travel and from navigable streams.

Piedras Negras, however, lies only a few miles above the head of navigation on the Usumacinta, a large river that drains much of Guatemala, and forms, in its middle course, the boundary between Mexico and Guatemala. It was for this reason and the fortunate additional circumstance that the monuments of Piedras Negras were recognized as probably the finest sculptures of pre-Columbian America, that the University Museum selected this as a site for its work.

### Accomplishments to Date

Since 1930, the University Museum has conducted seven expeditions to Piedras Negras. In the course of the first two regular seasons in 1931 and 1932, the expedition headed by Dr. J. Alden Mason, Curator of the American Section of the Museum, succeeded in removing eight of the best monuments on the site. Under an agreement with the Guatemalan government, which retains title to all articles removed from the ruin, the Museum was permitted to bring four of these monuments to Philadelphia, where they are now displayed in the Mayan hall of the Museum. The other four were shipped to Guatemala City.

Because torrential rains deluge the region through nearly three-fourths of the year, active fieldwork in the field is possible only between March and July. Impassable falls and rapids in the river make it necessary to haul materials by wagon road for about thirty miles. Since the heavy rains wash away both road surfaces and bridges between one season and the next, the removal of large pieces of sculpture requires the clearing of the road and the crating of the sculpture during one season, and the surfacing of the roads, erection of bridges, and actual movement of the monuments during the dry months of the following year.

The expeditions since 1932, headed by Linton Satterthwaite, Jr., Assistant Curator of the American

Section of the Museum, have resulted in the accumulation of much new knowledge of the Maya civilization, and the acquisition for the University Museum of many smaller pieces of the Maya's artistic product.

This year, the expedition force is remaining in Philadelphia, engaged in the publication of its first official report. Many of its accomplishments, however, have been described from time to time in preliminary papers, published at intervals, and in various scientific journals.

The work at Piedras Negras, to date, has cost a total of \$90,000. The funds with which this work has been supported are exhausted. A smaller additional fund must be raised before the work can be resumed, the task completed, and its full benefits obtained.

### The Challenge To Carry On

If the treasure remaining at Piedras Negras is to be preserved, and if the possibilities developed through the seven expeditions already made are to be fulfilled, it is imperative that the University Museum resume its work in the field in the spring of 1939. The urgency of the situation may be seen in these four major objectives:

1. About thirty stela, or monuments, remain at the ruins. Each year, the heavy rains, the falling of great trees, and the careless depredations of native muleteers and chicle hunters, passing through the area, take their toll of the beautiful carvings and valuable data which were cut into the soft limestone centuries ago, and which remain our most revealing record of this nearly forgotten civilization. The University Museum hopes that it may be enabled to rescue from the jungle the best of these remaining stela.

2. The ten-year term during which the Museum is permitted to continue the loan of the four stela which it has, under the agreement with the Guatemalan government, has nearly expired. It is likely that if more stela can be brought out of the ruin, the Guatemalan authorities may be persuaded to extend the loan of the monuments now in Philadelphia, perhaps indefinitely, in consideration of its share in the additional monuments removed.

3. Aside from the removal of stela, the Museum believes that, providing its present advantage is not lost through any extended absence from the site, it has the opportunity in one or two more seasons of excavation to uncover the solutions to several vexing problems in the study of the Maya people and their times. The Maya, for instance, often built their pyramids and temples one

upon another. In the third level below a typical Maya temple, the expedition has discovered a much larger temple, in many ways suggestive of Aztec origin. Since this is obviously the earlier of the two structures, further evidence of its having been built by the Aztecs might help to substantiate the growing belief that both the Aztecs and the Toltecs were contemporaries of the Maya, rather than representing a later stage in the decline of these people, as was long supposed. Still another subject on which continued excavations at Piedras Negras may throw light is the question as to whether a revolt or some other sudden catastrophe precipitated the abrupt and apparently violent abandonment of the city.

4. Finally, the fact that heretofore no Maya ruin ever has been completely excavated, level by level, down to the bottom, gives the University Museum the challenging opportunity to establish the first chronological record of the stratification of Maya communities.

The personnel of the Museum's expedition in the field, now in Philadelphia awaiting funds to continue the work in which they have accomplished so much, includes Mr. Satterthwaite, as field director; his wife, Mrs. Margaret Satterthwaite, as his assistant in the field; Miss Tatiana Proskouriakoff, architect; and Frank Cresson, Jr., assistant archaeologist. The expedition is always accompanied by a representative of the Guatemalan government.

### The Present Need

The project briefly outlined in this memorandum is one that calls for immediate action. The cost of maintaining an expedition in the field and conducting excavations is about \$10,000 for one season, and at least two seasons will be required to accomplish the immediate objectives at Piedras Negras. The task of bringing out the best of the fine stela remaining in the ruin will involve an additional expense of about \$7,500. A fund of about \$27,500, therefore, will be sufficient to bring out these priceless relics of the ancient Maya and continue excavations through 1939 and 1940.

The University Museum is hopeful that patrons of culture and learning may be found at once who will regard this project as an unusual opportunity to accomplish great ends at a relatively modest cost. Its accomplishment means saving for America the results of many years of arduous endeavor in which the groundwork has been laid, and saving for the world the artistic treasure and historic record of this earliest civilization in the Americas.

# APPENDIX 3

## MAYA THRONES AND BENCHES<sup>1</sup>

*Frank M. Cresson, Jr.*

### Thrones and Benches at Piedras Negras

Little is known about the interior furnishings of the ancient Maya buildings because so few articles of household equipment have been preserved to the present day. In fact, the use of one of the most numerous types of Maya buildings, the so-called palaces, is still in doubt, largely because they contain almost no remnants of their original furniture. Whether these buildings were primarily for religious, civil, or domiciliary purposes has not been definitely established.

The most frequently preserved interior furnishings consist of stone altars of various kinds and stone structures which from their probable use as seats may be called thrones or benches. The two terms throne and bench as here used merely distinguish the type of construction. A "throne" has a seat consisting of a large rectangular stone slab supported by legs, while a solid masonry construction of more or less similar size and shape is called a "bench." The thrones at Piedras Negras are further characterized by a "back screen" at the rear of the seat, which may be of masonry or a single stone slab. That the benches served the same purpose as the thrones is suggested by the fact that half the benches have a back screen, usually of masonry, like those with the thrones.

The excavations at Piedras Negras up to the present have revealed four thrones and sixteen benches. These are listed in Tables A.3.1 and A.3.2 in order to summarize certain features of construction and the position of the throne or bench in the building. The number of the building in which each stands is also given. The numbers of the benches and thrones, except in the case of Throne 1, are not official, but have been assigned merely for the present discussion. It should also be stated that the tables have been compiled partly from masonry and may contain a few inaccuracies.

All of the thrones at Piedras Negras have two legs, the back of the seat resting on a very narrow masonry bench. The legs are usually of a single stone slab, tapering downward or straight, but in one case were built of masonry. The back screen is in one case a sculptured stone

slab; in the other two known examples a masonry wall like those on the benches. The back screen of Throne 2 has a distinctive nick in each end, forming a small ledge.

Throne 1, with its carved back screen and hieroglyphs on the seat and legs, is the only sculptured example (Satterthwaite 1935:23-55). However, Thrones 2 and 3, which were intentionally destroyed in aboriginal times, may also have had glyphs on the edge of the seat. The front of the seat of Throne 2 is missing and all of the seat of Throne 3. The seat of Throne 4 is an uncarved stone slab. There are indications that two other sculptured thrones once existed at Piedras Negras. One is represented by a reused stone slab bearing glyphs (Miscellaneous Sculptured Stone no. 9), probably from the seat of a throne. The other is suggested by the carved stone leg now at the Peabody Museum (Maler 1901, Plate XI).

The existing thrones are all in palaces. Three are in positions of prominence, opposite the central doorway; the fourth is at one side of an end room.

The sixteen benches at Piedras Negras vary considerably in size and proportions, depending partly on their position in the room. However, they may all be grouped together as "large" except for four small, narrow ones, which are only about half the depth of the others. Three of these are in the Palace J-12, the fourth in a sweat house.

Eight of the benches have back screens, seven of masonry, one an uncarved stone slab. The latter was broken and fallen and may possibly have been a seat resting on the bench. Two of the masonry back screens have a ledge on each side, exactly like those of Throne 2.

The benches are found in palaces, in the two sweat-houses that have been excavated, and in one temple. They are not given the prominent positions which the thrones occupy, for they appear in many old corners, several of the largest benches with back screens being in rooms not easily accessible. Few benches are opposite a doorway, none opposite a central doorway, and many against the end wall. In these cases they cross the full width of the room. Bench 9 is the only one which turns along the adjacent wall, giving it the shape of an L.

Table A.3.1 *Thrones at Piedras Negras*

	T1, J-6	T2, J-11	T3, J-18	T4, R-7	Total
1. Legs					
A. Slab					
a. Tapering	x				1
b. Straight		x		x	2
B. Masonry (nearly square)			x		1
2. Back Screen					
A. Present	x	x	x		3
B. Unknown				x	
3. Screen Type					
A. Slab	x				1
B. Masonry					
a. Straight Side			x		1
b. Ledge on Side		x			1
4. Location					
A. In Palace	x	x	x	x	4
5. Position in Building					
A. In front Room	x		x	x	3
B. In End Room		x			1
6. Position in Room					
A. Opposite Central Doorway	x		x	x	3
B. Against End Wall		x			1

Bench 10 stands beside an interior doorway which has been partly filled up, leaving a small window with plastered sill. Similar interior windows may have existed beside Bench 4 and Throne 2, but the walls in the doorways near which they stand were not preserved high enough to show whether or not there was a window.

## Thrones at Palenque

Thrones and benches occur in other parts of the Maya area, thrones being especially common at Palenque, where seven examples are still to be seen. These are all found in the palace group and are mostly of a table-like variety, having a large thick seat slab supported by four legs, which are nearly square columns of stone, not tapering. There are no back screens.

One of these four-legged thrones stands just outside of House F, another in House E, and two in House H (Maudslay 1896-99:4, Plate 3). In the subterranean chambers are three more thrones, the one across one of the corridors having four legs. The smaller throne against the wall of the middle corridor has only two legs and a narrow masonry bench at the back to support the seat. In this case the seat is not a single stone slab but is made up of six narrow slabs reaching from the bench at the rear to a meter long stone slab extending from one leg to the

other. Finally, the throne in the inner corridor also has only two legs and a narrow bench at the rear. The seat is a single slab with much eroded glyphs along its edge at front and sides. There are also traces of carving on the leg fronts. This, the most inaccessible of all the thrones, is the only one decorated with sculpture.

An additional throne probably once existed in House E below the sculptured wall plaque. Del Río illustrates this as a large slab on four-straight-sided legs (Del Río 1822: Plate 12). The front edge of the seat is decorated with glyph (?) and human figures are shown on the front legs. A low back screen extends across the rear, just below the sculptured wall panel, but the panel itself forms the principal back screen for the throne.

## Benches in the Petén and Yucatan

Time is not available to trace the distribution of thrones and benches throughout the Maya area, but a few scattered references to occurrences of masonry benches without back screens will suffice to show that at least this form is widespread. In the Petén region of Guatemala benches appear to be extremely common. They are found in palaces at Tikal, sometimes as rectangular units against the back wall, sometimes also turning along the end walls and covering most of the room (Tozzer 1911:99, Plate



Table A.3.2 Benches at Piedras Negras

	B-1 J-9	B-2 J-9	B-3 J-11	B-4 J-11	B-5 J-12	B-6 J-12	B-7 J-12	B-8 J-12	B-9 J-12	B-10 J-21	B-11 N-1	B-12 N-1	B-13 P-7	B-14 P-7	B-15 P-7	B-16 O-15	Total
1. Size																	
A. large	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12
B. Narrow, front to back																	4
2. Back Screen																	
A. Present	X	X		X	X	X		X	X	X				X	X		8
B. Absent			X				X	X	X		X	X	X			X	8
3. Screen Type																	
A. Slab					X												1
B. Masonry																	
a. Straight Side	X	X				X								X	X		5
b. Ledge on Side				X						X					X		2
4. Location																	
A. In palace	X	X	X	X	X	X	X	X	X	X							10
B. In Sweat House											X	X	X	X	X		5
C. In Temple																X	1
5. Position in Building																	
A. In front room or room opening to court	X				X		X	X	X		X	X	X				8
B. In rear room or room not opening to court.		X	X	X						X				X	X	X	7
C. In end room.						X											1
6. Position in Room																	
A. Opposite doorway					X			X		X		X	X				5
B. Against rear wall but not opposite doorway.				X										X	X	X	4
C. Against end wall.	X	X	X			X	X	X	X		X						7

10). At Nakum is a large bench along the back wall with side benches at each end, a form typical in the whole region (Tozzer 1913, Fig. 77). At Holmul benches in the palaces are numerous (Merwin and Vaillant 1932, Figs. 2, 5, 6, 22). At Uaxactún benches are common (Edwin M. Shook, personal communication) and in Temples E-I, E-II, and E-III occur bench-like altars with high “wing walls” (Ricketson and Ricketson 1937: Figs. 9-12, 15-17, 19, 20; Plates 17a, 20b, c, 21c, and 22b, c). At what point a bench changes from a seat to an altar is often difficult to determine on its form alone.

Turning to Yucatan, we find benches without back screens common in the Puuc region (Harry ED. Pollock, personal communication). At Chichén Itzá also benches occur, several in the Temple of the Phalli and several in the Sweet House near the Mercado. In the Mercado is an unusually elaborate bench with battered sides and the front covered with sculptured figures.

### Sculptured Representations of Thrones

The occurrence of thrones and benches may be treated not only in actuality but also through representations of them in stone sculpture, stucco, and figurines. This method, moreover, has the advantage that they are seen in use as seats. Lintel 3 at Piedras Negras portrays a dignitary seated on a throne exactly like Throne 1, with tapering legs and sculptured back screen (Baker 1936). Stela 3 at the same site shows a figure on a throne, having glyphs along the front of the seat and on the slightly tapering legs (Maler 1901, Plate XIII). On Stela 6 and 12 also the principal figure sits on a throne or bench (Maler 1901, Plates XV and XXI).

That thrones were used at Yaxchilan may be inferred from the representation of one on a lintel. At Cankuen [Cancun] on the upper Usumacinta a throne of a slightly different type appears on Stela 1 (Maler 1908, Plate 13). Seen from the front, it has three legs, with pairs of cross struts between them, indicating perhaps that the throne was made of wood. Two similar thrones with legs supported by struts are represented in the hieroglyphic stairway at Copan (Gordon 1902, Plates VI and XIV).

Figures seated on thrones are portrayed in stucco work on the piers of the palace at Palenque. House C provides three examples, both straight legs and tapering legs being represented (Maudslay 1896-99, Plate 38).

Finally, thrones may be depicted in clay figurines. An excellent example was purchased by a University Museum Expedition at Jonuta, which showed a figure seated on a throne having tapering legs and glyphs across the front of the seat.

### Uses of Thrones and Benches

All these representations of thrones show them as the seat for some dignitary, which effectively eliminates their possible use as altars, since altars would hardly be employed as seats. The benches, at least at Piedras Negras, may also be considered seats rather than altars because many of them have the back screen of thrones and all but one are in buildings other than temples. The one temple containing a bench also contains a small “column altar,” the typical; temple altar at Piedras Negras.

The benches found in sweathouses undoubtedly were used in some part of the procedure of the steam bath, probably for resting afterwards. At Piedras Negras, of the 15 thrones and benches not in sweathouses, 14 are in palaces and only one in a temple, which indicates that their use was unconnected with temple ceremonies and suggests a secular rather than a religious function. Vaillant suggests the use of benches as beds (Merwin and Vaillant 1932:11). Some may have served this purpose but at Piedras Negras many are too small and those with back screens are more reasonably included with thrones as seats.

Satterthwaite believes the throne rooms were audience chambers and that the palaces containing thrones were public buildings like courthouses (Satterthwaite 1937:20). This is substantiated by practices at the time of the conquest described by Landa, although in his day “holding court” took place in the homes of the lesser leaders: “The chiefs govern the town, settling suits, ordering and adjusting the affairs of the communities, doing all through the hands of the leading men. These latter are much honored and obeyed, especially the wealthy, the chiefs visiting them and holding court<sup>7</sup> at their houses for the settlement of affairs and business, this being done particularly at night” (Landa 1937:32).

The best confirmation for the use of thrones and benches in civil matters comes from sculptured representations of them showing more than the single feature on the throne, such as Lintel 3 at Piedras Negras. This scene represents no religious gathering but a chief on his throne discussing matters with this council, a distant predecessor of Landa’s chief “holding court” with his leading men. Another example at Piedras Negras is Stela 12. The chief decides the fate of the captives huddled below. These sculptures lend weight to the belief that thrones and benches played a part in administrative and judicial matters. And this in turn leads to the belief that the palaces themselves were constructed primarily for these public purposes.

## Notes

1. The essays comprising Appendices 3 through 5 were originally submitted by Cresson between February 24 and April 14, while enrolled in Anthropology 9 as a graduate student at Harvard University in 1939. The two pottery essays (Appendices 4 and 5) by Cresson were

accompanied by pencil line drawings. The rendering of these was extremely crude and they have therefore been deleted from the present text [ed.].

2. Note by author reads: “In Bowditch’s translation (Ms. at Peabody Museum) there is the following footnote at this point (p. 38, n. 3): The Spanish reads *y tenían palacio*, which Brasseur de Bourbourg translates *on leur faisait la cour*.”

# APPENDIX 4

## CARVED ORANGE AND CARVED GRAY WARES AT PIEDRAS NEGRAS

*Frank M. Cresson, Jr.*

### What is “Fine Orange”?

In the classification and naming of pottery wares difficulties often arise in determining the range of variation which may be included under a single term, and the point at which divergence from the typical features of a certain ware is so great that a new ware must be recognized. For example, there is considerable confusion, at least in the writer's mind, as to exactly what is meant by the term “Fine Orange Ware.” What shape and types of decoration does it include?, to what geographical areas does it extend?, and to what period of time does it apply?

Fine Orange is fully described by Vaillant (1927; Merwin and Vaillant 1932) and the most typical examples seem to be those from Yucatan and the Isla de Sacrificios, Vera Cruz, although it also appears in some localities in the southern part of the Maya area. Decoration is by painting, incising, stamping, or engraving in *champ-leve*. Fine Orange is found with Plumbate at Isla de Sacrificios and at Chichén Itzá, and these two wares are the characteristic pottery of the Mexican Domination Period, dated 1200 to 1458 (Vaillant 1935:120). “Fine Orange, then, appears to be not a general descriptive term for any orange pottery with fine-textured paste, but a definite ware with certain geographical centers and temporal limitations.

At Piedras Negras Butler describes an orange ware under the name “Orange 3,” and states that “This ware corresponds to that sometimes described as ‘Fine Orange’” (Butler 1935:10-11). It includes three types of decoration: sherds carved with human figures, bowls supported on three hollow spherical feet with incised lines on the bottom (grater bowls), and a few sherds with a *champ-leve* design cut through a white slip to the orange paste (Butler 1935, Plate 4.3, 4.8, this volume). Excavations since Butler's report was published have provided some additional specimens of carved bowls and grater bowls. The best examples of carving are shown on parts of two hemispherical bowls with flattened bottoms and a reclining human figure carved on the exterior. They were found in the South Group in debris around the base of one of the pyramids. “Orange 3” is rare at Piedras

Negras and has been found only in “surface debris, although often well below the actual ground surface. It thus appears to be late, probably in use at the time of abandonment of the ruins. The latest dated monument is 10.0.0.0.0, according to Morley, so that “Orange 3” may be considered as about that date or somewhat later if occupancy continued after the erection of monuments.

At Uaxactún Smith also uses the term “Fine Orange Ware,” applied to ovoid vessels with annular base having carved decoration. This ware occurs in the latter part of the Tepeu phase, which may be considered as ending with the dated monuments at 10.3.0.0.0. If Fine Orange Ware as used at Piedras Negras and Uaxactún means the same as that of Yucatan and Isla de Sacrificios or a close relationship to it, then this ware has been extended back in time two major pottery periods, from the Mexican Domination Period to the end of the Old Empire Stela Period, having skipped over the intervening Mexican Conquest Period, characterized by Carved Slate and Carved Gray wares (Vaillant 1935:100).

The relationship of the orange grater bowls and the orange *champ-leve* sherds at Piedras Negras are beyond the scope of the present discussion. What this paper attempts to show is that the third type under “Orange 3,” which will be called simply “Carved Orange,” does not correspond to the Fine Orange in Yucatan but is entirely distinct from it and finds its closest relationship with the Carved Gray of the Guatemala highlands. Carving at Piedras Negras has so far been found only in low, round-sided bowls. There is a complete absence of cylinder vases on annular bases and ovoid vessels on annular bases, shapes which are especially common with Fine Orange in Yucatan and Vera Cruz. The carving of the Piedras Negras examples, moreover, is a well-rounded bas-relief, more like the technique of Carved Gray or Carved Slate than that of Fine Orange, which is quite flat. This observation apparently applies also to the so-called “Fine Orange” ware at Uaxactún, which is described as “deeply carved.” [Pottery from Piedras Negras] shows a “ceremonial assemblage” similar in style to the arrangement on Carved Gray vessels.

The probable connection of the Carved Orange at Piedras Negras with Carved Gray Ware is most strongly

indicated, however, by the fact that Gray Slate sherds have recently been found carved in exactly the same style as the orange bowls. They come from bowls of the same shape, have the same fine-textured paste, but are a clear gray from one side to the other. This difference in color is obviously due to a variation in the conditions of firing, as was shown through experimentation by Mr. Donald Horton at the University Museum. A piece of Carved Gray sherd was placed in a furnace, heated, and given proper air conditions to allow oxidation. When taken out the sherd was a bright orange, the same color as the Carved Orange sherds. Oxidizing firing was evidently the usual practice of Piedras Negras potters, for just as carved pottery is far more often orange than gray, so also the Fine Slate ware bowls at Piedras Negras are generally yellow but sometimes gray.

### Reclining Figures

The Carved Gray sherds at Piedras Negras might be called a variety of the Carved Gray ware of the Guatemala highlands merely on the basis of color and general style of carving. But the Piedras Negras Carved Orange and Carved Gray is more firmly linked to the highland region through several occurrences of the reclining human figure. In the Uaxactún vase also one of the figures of the group appears in a semi-reclining position but not so extraordinarily like the Piedras Negras examples as are others from Yaxchilan and Kixpek.

The partially complete bowl from Yaxchilan, now at the Peabody Museum, is approximately the same size and shape as the Piedras Negras Carved Orange bowls and of similar paste. In the Yaxchilan specimen the outer half of the bowl wall is orange while the inner half is gray, indicating exterior oxidation only. On the exterior is carved a scene almost duplicating those on the two Piedras Negras bowls; a reclining figure looking away from his legs, scrolls and other designs on each side, and an ornamental glyph band a short distance below the rim. There is another reclining figure on the opposite side of the bowl, which was probably also the case at Piedras Negras, although both these examples are too incomplete to show it. Vaillant has considered the Yaxchilan bowl as an example of Fine Orange Ware (Vaillant 1927:118) and partly on this account places Yaxchilan contemporary with the Mexican Domination Period in his correlation tables (Vaillant 1935). With the material now available from Piedras Negras, it seems clear that the Yaxchilan bowl is not Yucatan Fine Orange but the same as Piedras Negras Carved Orange.

In the Burkitt Collection at the University Museum is another Carved Orange bowl of exactly the same type, excavated from the uppermost of several tombs

at Kixpek, near Chamá, Guatemala (Burkitt n.d.). This bowl has the same shape and paste as the Piedras Negras and Yaxchilan examples and an exactly similar design, with two reclining figures on opposite sides of the bowl and a decorative glyph band below the rim. It connects this style of carving with the region where Carved Gray Ware is most common; and as Carved Orange and carved Gray are so rare at Piedras Negras, the origin of these wares probably lies in the highland region.

Another example of reclining figures in a different style of carving comes from San Agustín Acasaguastlán, in the Motagua Valley (Lothrop 1936:146). Here the figures encircle the body of a jar, and there are no other decorations such as glyph band or scrolls. The bodies are far less well proportioned than in the previous examples and only one leg is visible. One figure holds a round-ended spear thrower, possibly indicating contact with Mexican peoples.

Finally, mention should be made of certain carved sherds from Teotihuacán, Mexico (Linné 1934:98). None of these has a reclining figure but one depicts a person on one knee with the head turned backwards as in the cases already discussed. Linné mentions that the figure probably carries a spear thrower, but the sherd is broken too near the hand to be sure, or to state any definite resemblance on that account with the figure from San Agustín Acasaguastlán.

Tracing the characteristic features of Carved Gray and Carved Orange from Piedras Negras to the Guatemala highlands indicates that these two wares are closely related to the Carved Gray of the latter region. This conclusion raises the question of the major periods of Maya pottery and their bearing on the correlation problem. The occurrence of carved Gray at Piedras Negras, together with the presence of Fine Slate, unites the Mexican Contact Period to the closing years of dated monuments. But the Mexican Contact Period, characterized by Carved Gray, Carved Slate, and Fine Slate, lasts till the Mexican Domination Period, beginning in 1200 A.D. The Piedras Negras material may be considered as demanding a shortening of the Mexican Contact Period and thus favoring Vaillant's "11.3 Correlation." On the other hand, it may mean that Carved Gray dates back earlier than was formerly supposed. Without more definite fixed points, it is difficult to state how long a certain pottery ware "ought" to last.

It would greatly aid a solution of the Maya dating problem, if the carved sherds at Teotihuacán could be assigned to their proper position in the series of Teotihuacán periods, to which Vaillant has now given approximate dates through a study of the historical sources (Vaillant 1938:561). Unfortunately, Linné's "grave and building sequences are not readily comparable



to stratigraphical periods" (Vaillant 1938:543). Linné's material may date from "Teotihuacan II and III, if not later" (Vaillant 1938:542), which covers too long a time to allow a choice between two consecutive correlations.

It is to be hoped that other cross finds of this nature, which can be satisfactorily placed in some known chronology, will eventually settle the position of the Maya Long Count in the Christian calendar.

# APPENDIX 5

## POTTERY TYPES OF YUCATAN IN THE USUMACINTA AREA

*Frank M. Cresson, Jr.*

### **Yucatan Wares Having Chronological Significance**

In his latest presentation of Maya history from a ceramic point of view, Vaillant distinguishes six main pottery periods for the Maya area as a whole (Vaillant 1935:120). The three earliest apply to the southern regions, the first before the earliest known dated stela and the next two covering the span of the Long Count dates recorded on the monuments. The three latest periods are represented especially in Yucatan; they are not connected with the Maya Long Count, the Maya Re-Occupation Period is characterized by incensarios and porous wares, which can be referred to the time following Mexican control of Chichén Itzá, or from 1458 to the Spanish conquest. The preceding period, the Mexican Domination Period, can be dated by historical sources as from 1200 to 1458. It is distinguished by the occurrence of Plumbate and Fine Orange wares (Vaillant 1927; Merwin and Vaillant 1932). Engraved Red is also represented with Fine Orange in the Mexican Domination Period at Chichén Itzá.

The next earlier period in Yucatan is called the Mexican Contact period and is based mainly on Carved Slate Ware. However, the time limits of this ware are not clearly defined and it is stated that this period "rests on very weak foundations" (Vaillant 1935:133). It seems definitely earlier than 1200, since carved Slate does not appear in the Mexican Dominican Period at Chichén; but it apparently immediately precedes that date because Engraved Red, which does not survive into the Mexican Domination Period, has been found with Carved Slate at Labná, Ticul, and Jaina. Closely associated with Carved Slate, both typologically and geographically, is Fine Slate. The paste is fine-grained and the tempering particles minute. "The slip color range varies extraordinarily, extending even to pink and blue shades. The tone centers however, around a clear gray" (Vaillant 1927:83). Decoration, if present at all, is usually incised rather than carved. Fine Slate occurs at a number of sites in Yucatan and Campeche and at Yoxihá, Chiapas. One other variety in this period is Carved Gray, which is found in the south, especially in the Alta Verapaz region of Guatemala<sup>1</sup>.

Carved Gray is closely related to the carved Slate of Yucatan, both in shapes and in the scenes carved; and at the same time, from the arrangement and characteristics of the figures, it seems to be a direct development from the figure painting of the last period associated with the Long Count (Vaillant 1935:135). However, the examples of Carved Gray from the Alta Vera Paz and other southern regions are not from sites with dated monuments. Thus, the so-called Mexican Contact Period, characterized by Carved Slate, Fine Slate, and Carved Gray, is a period which ends with the Mexican occupation in Yucatan about 1200, but which has its beginnings in the southern part of the Maya area, apparently under a strong stylistic influence from the closing period of dated monuments.

Under these circumstances, it would not be so very surprising to encounter examples of slate or gray wares at the sites with monuments. This, in fact, has occurred at Piedras Negras, where excavations have produced a type of pottery with closer resemblances to the Fine Slate Ware of Yucatan.

### **Fine Slate Ware at Piedras Negras**

A study of sherds from several overlapping architectural units on the Acropolis of the West Group at Piedras Negras has shown that the pottery may be divided into two main periods (Cresson 1938). The earlier, Period I, including shallow, tripod flanged bowls, and cylinder vases with slab feet, may correlate with the Tzakol Phase at Uaxactún (Vaillant's Petén Maya Period) or with an early part of the succeeding Tepeu Phase at Uaxactún. Period II includes a number of shapes connecting it with the Tepeu Phase and with Holmul V (Vaillant's Maya Great Period or Figure Painting Period). Associated with these Period II types, especially in one of the surface palaces, occurred a large number of sherds of a ware which, I believe, can be shown to be Fine Slate.

The paste is very fine with little or no tempering material. The sherds are thin and the paste hard. Its color is sometimes clear gray but more often pale yellow, in fact only about one-tenth of the sherds are gray. However, this

has been shown by experiment to be due to variations in the conditions of firing. Mr. Donald Horton of the University Museum, who is making a technological analysis of the Piedras Negras pottery, has placed gray sherds in a furnace and by proper heating and air conditions has changed them to the exact color of the yellow sherds. The slip also is variable in color, sometimes clear gray and sometimes light brown, due again to firing conditions. In view of the wide range of color for Fine Slate noted above, the variation in the Piedras Negras sherds does not exclude them from identification with this ware.

Only one type of bowl form has been recovered. One or two other rim forms and bottom forms are represented by a few sherds each but the great majority obviously come from bowls of the type illustrated. It is characterized by slightly flaring sides, a "basal angle" noticeable on the inside as well as the outside, and three small spherical rattle feet. The bottom is rounded above the lower edge of the feet but flat in the center. These bowls have no painted designs but all are decorated by incising. At the rim there may be a slightly projecting band, but far more often there are two or sometimes three incised lines a little below the rim. The main exterior surface is usually divided into a few wide panels by vertical lines and these spaces are filled with linear designs or animal forms. A pattern of a few curved lines may be the only design or there may be a fish or a monkey, naturalistically outlined by a few well-placed lines<sup>2</sup>. Finally, designs are occasionally executed in lines consisting of a series of short dashes, and on a few sherds the background is stippled.

Most of the sherds of this ware were found in one of the non-vaulted palaces (Str. JK-12 on Court 2), much broken and scattered, and lying directly on the floor plaster and on the surface of a solid masonry bench or throne. The number of feet present indicated that about 40 bowls were represented. They were evidently left when the building was abandoned; no evidence suggested a reoccupation. Moreover, a few sherds of the same ware and the same shape have been found below the latest floor of another palace, so that the ware was in use while building activity was still going on. The latest dated monument at Piedras Negras is 10.0.0.0.0, according to Morley. Unless building operations continued after stone carving, this type of pottery can be dated to 10.0.0.0.0, and possibly earlier.

At Yoxihá, Chiapas, south of Palenque, Blom found a number of pottery vessels in the upper vault of a tomb, including two bowls. They "are both of gray clay" (Blom and LaFarge 1926:229). Here we have a duplication of the bowls under consideration at Piedras Negras. The shape is the same with the projecting basal element, the rounded bottom, and small spherical feet. There is a band at the rim, an incised monkey or lemur incised on the background. Nothing could be more like the Piedras Negras specimens. These Yoxihá bowls are described by

Vaillant as examples of Fine Slate Ware (Vaillant 1927:86), and he compares the monkey to that incised on a Fine Slate rattle bowl from Sotutá, Yucatan. He considers them a local variation corresponding to the replacement of polychrome by incising in the Chamá region and in Yucatan (Vaillant 1927:371).

Turning to Yucatan, we find that one of the characteristic shapes of Fine Slate Ware is the "rattle bowl." The paste of the example in the Peabody Museum is fine-textured and clear gray, very like the gray specimens at Piedras Negras, and about the same thickness. In shape, the rattle bowls consist of very slightly flaring sides and rounded bottom, with a false bottom inside, the space between it and the real bottom containing pellets. There is no "basal angle" as in the Piedras Negras bowls and there are no feet, but in some cases at least the bottom is flat in the center and rounded only near the sides, as at Piedras Negras. In size and general proportion, moreover, the Yucatan and Piedras Negras vessels are about the same. It would be an easy transition from the Piedras Negras type to the rattle bowl, merely the dropping of the feet and the placing of a new bottom across the point of the "basal angle," since the hollow space for pellets is conveniently provided by the rounded form of the real bottom. A new but really very similar type of vessel is produced with the rattles simply transferred from the feet to the base of the bowl itself.

It is the incised designs, however, that most closely link the Piedras Negras vessels to the Fine Slate rattle bowls. One example shows a monkey not quite so accurately drawn as those at Piedras Negras but in exactly the same style. Furthermore, the figure is in a panel bounded by vertical lines, and the background is stippled. Three incised lines circle the bowl a short distance below the rim. In the other rattle bowls illustrated by Vaillant (1927, Figs. 324 and 329) there are no figures but there are three lines below the rim, like the two or three lines on the Piedras Negras vessels. Thus, the similarity in paste, the probable relationship in bowl forms, and the close resemblance in elements of incised design strongly indicate that the Piedras Negras ware should be classed with the Fine Slate of Yucatan. Besides the one from Itzincab or Sotutá, rattle bowls of Fine Slate are reported from Aké, Labná, and Jaina. A small rattle bowl, probably of Fine Slate, was purchased by one of the University Museum Expeditions at Jonuta, on the lower Usumacinta.

The occurrence of Fine Slate (and probably also Carved Gray<sup>3</sup>) at Piedras Negras by the date 10.0.0.0.0 has an important bearing on the main periods of Maya pottery. It means that the "Mexican Contact Period" or "Carved Slate Period" is linked to the Long Count dates and overlaps the closing years of the dated monuments. It is not proposed to delve into the ramifications of the Correlation Problem here; but it should be stated that the Piedras Negras material definitely favors a shortening of

the “Carved Slate Period,” which would be accomplished by Vaillant’s “11.3 Correlation.” Whereas 10.0.0.0.0. would fall in 830 A.D. by the Thompson-Martínez-Goodman Correlation, this date would be advanced to 1086 A.D. by the “11.3 Correlation.” This would still allow over a hundred years for the decline of Carved Slate before the Mexican Domination Period begins at 1200.

### Engraved Red and Fine Orange in the Usumacinta Area

In Vaillant’s “Chronology and stratigraphy in the Maya area,” (1935), it is surprising to find Palenque and Yaxchilan placed so high in the Usumacinta column of the different correlation tables. In each case, they are put in the Mexican Domination Period, dated from 1200 to 1458. However, the architecture, sculpture, and even Long Count dates attest to the contemporaneity of Palenque and Yaxchilan with Piedras Negras and other typical “Old Empire” sites. Unless further pottery evidence has appeared since Vaillant’s *Chronological Significance of Maya Ceramics* in 1927, it would seem that the only reason for placing these two sites at such a late date is the supposed occurrence there of certain vessels of Engraved Red and Fine Orange, the type wares for the Mexican Domination period in Yucatan. Nevertheless, a hasty perusal of the material suggests doubts as to the validity of the evidence. The matter needs further expansion but a few remarks may be made.

Both Engraved Red and Fine Orange are said to occur at both Palenque and Yaxchilan. It is stated that its occurrence at Palenque may be due to a late reoccupation and the observation is made that “this Engraved Red Ware vessel has a glyph band and other examples considered by us have not” (Vaillant 1927:372). With material now available from Uaxactún the glyph band gains importance. A carved bowl of exactly the same form, occurs at the end of the Tepeu Phase at Uaxactún. The Palenque bowl resembles the Uaxactún type more closely than the Yucatan examples, in bearing the glyph band and in the type of carving. We can therefore call this vessel contemporary with the buildings and still keep Palenque within the stela period. Incidentally, the ovoid form within annular base at Uaxactún provides another link between the sites with monuments and Yucatan.

An example of Fine Orange ascribed to Palenque is similar to a vessel attributed to Maxcanú in Yucatan, from Carter’s collection of photographs (1932). The vessels illustrated by Vaillant and Carter are exactly the same size and the markings are so nearly identical that it is quite possible they are one and the same vessel. Moreover, at least half a dozen other cases occur where Carter and Vaillant five different proveniences in Yucatan

and Campeche to vessels that are obviously identical. Hence, the attribution of this Fine Orange bowl to Palenque is decidedly dubious.

From Yaxchilan is reported an Engraved Red cylinder vase on an annular base. It is certainly similar in form and decoration to various cylinder vases of Yucatan. However, when data are lacking on the exact location of finds, there is always the possibility of a reoccupation, and especially in the case of Yaxchilan, which in the past may have been a shrine for pilgrimages after its abandonment, even as it is today. Every year at a certain time the neighboring Lacandonés still come to the ruins and spend a few days burning copal to the gods, leaving their crude incense bowls in the ancient temples.

The Fine Orange from Yaxchilan consists of a few sherds now at the Peabody Museum. They are carved or stamped in the same manner and with precisely the same complex designs as the so-called Fine Orange Ware at Piedras Negras. As stated above there is reason to believe that this ware is quite different from the Fine Orange of the Mexican Domination Period in Yucatan and related to the Carved Gray of the highlands. Thus, in each of the four cases there is some factor which makes the assignment of Palenque and Yaxchilan to the Mexican Domination Period open to doubt. This conclusion and the fact that no sherds from the excavations at Piedras Negras seem related to the wares and shapes of the Mexican Domination Period in Yucatan argues against Vaillant’s proposed “10.10 Correlation.” Such a correlation would place the Long Count date 10.0.0.0.0 at 1342 A.D. and in this case Plumbate and other late wares would certainly be expected at a site so closely situated to both Yucatan and Mexico as Piedras Negras.<sup>4</sup>

### Notes

1. Footnote by Cresson reads: “In surface deposits at Piedras Negras occur small amounts of a ware which has been called “Fine Orange” (Butler 1935:11). Recently, gray sherds with similar carved or stamped designs have been found, and it is my belief that the “Fine Orange” is actually a variation of the Carved Gray of the highland region. This subject will have to be reserved for a later paper.”

2. Footnote by Cresson reads “This ware is described separately in Vaillant (1927), but is included under the term “Carved Slate” Ware in Vaillant (1935).

3. Footnote by Cresson reads: “I have no design samples here but the style is similar to that of the Yoxihá bowl.”

4. Handwritten marginal note by Satterthwaite reads “Plumbate sherd was found there by Led[yard] Smith.”

APPENDIX 6  
PIEDRAS NEGRAS SITE PLAN

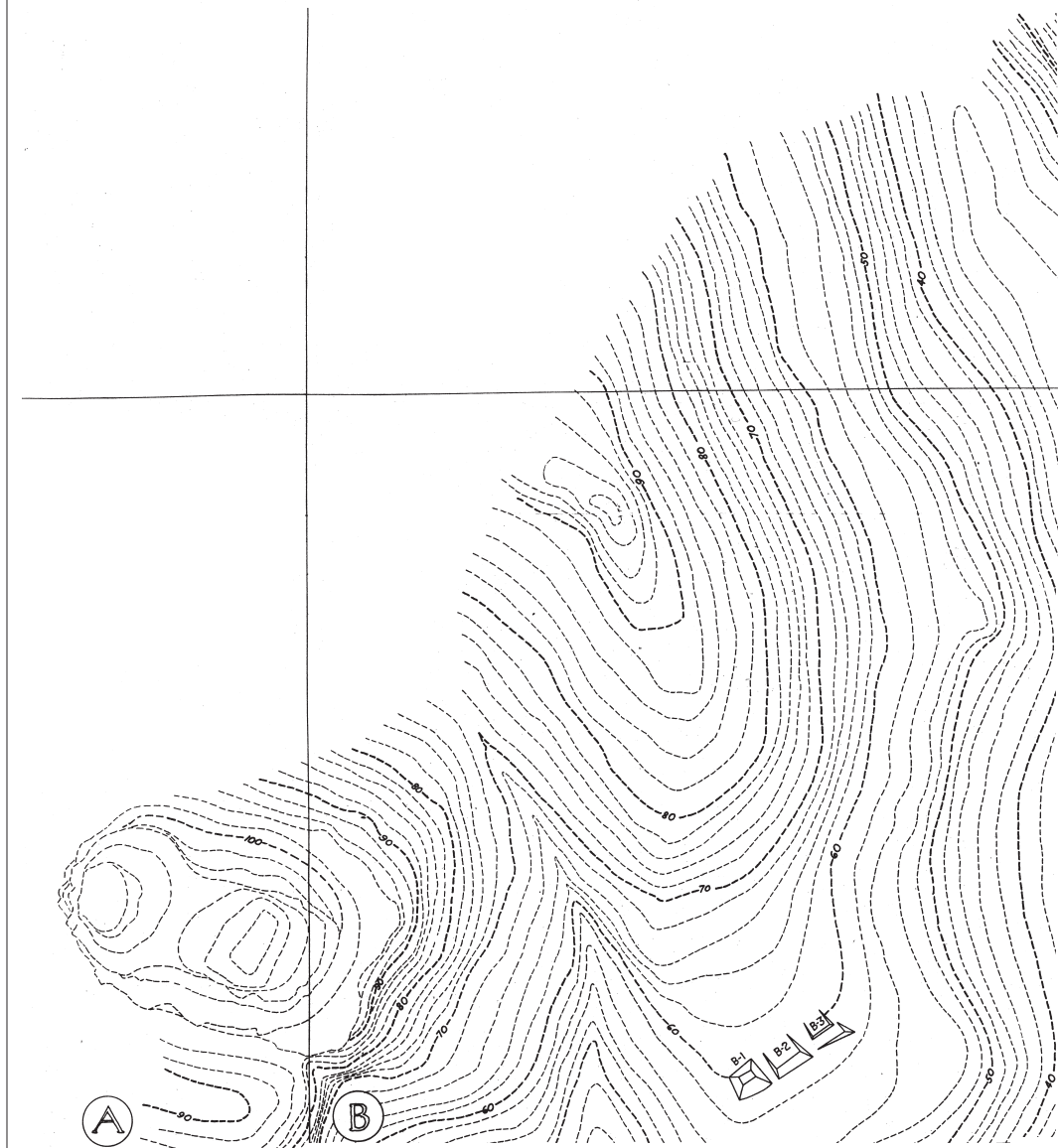


# RUINS OF PIEDRAS NEGRAS

## DEPARTMENT OF PETEN GUATEMALA

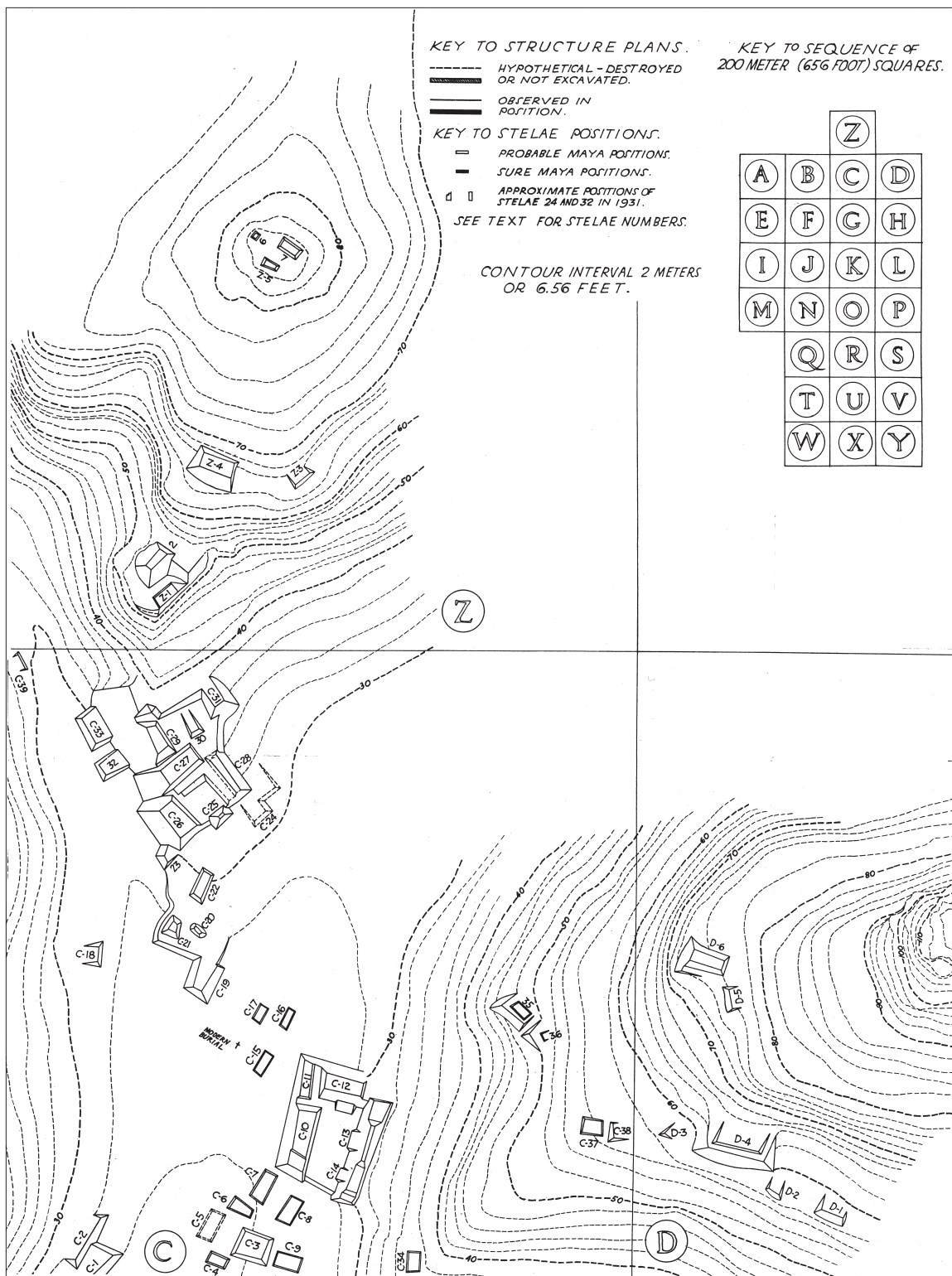
*1<sup>st</sup>, 2<sup>nd</sup>, & 3<sup>rd</sup>* ELDRIDGE R. JOHNSON & SUBSEQUENT EXPEDITIONS 1931-1939.  
THE UNIVERSITY MUSEUM • UNIVERSITY OF PENNSYLVANIA.  
*THIRD EDITION AS OF END OF 1939 SEASON.*

CONTOUR LINES AND SCHEMATIC MOUND FORMS AFTER PARRIS.  
RESTORED STRUCTURE PLANS AFTER CRESSON, GODFREY, MASON,  
PARRIS, PROSKOURIAKOFF, SATTERTHWAITE.  
DRAWN BY PROSKOURIAKOFF.



SCALE IN METERS.  
25 20 15 10 5 0 25 50 75 100

SCALE IN FEET  
100 50 0 100 200 300

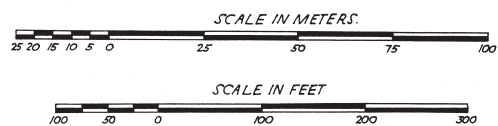
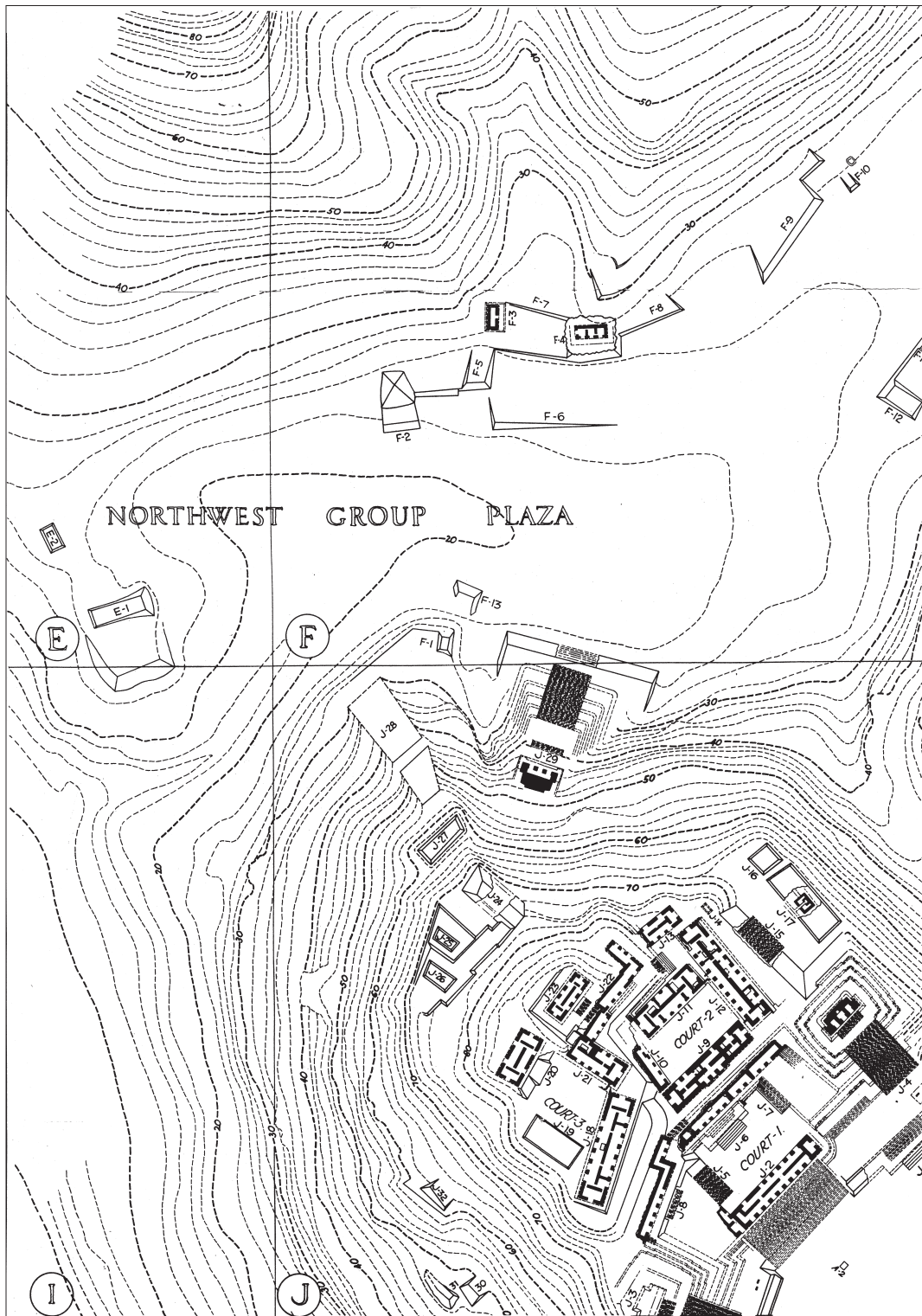


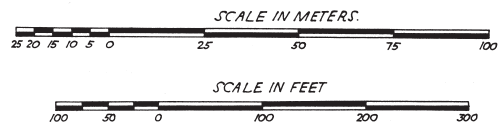
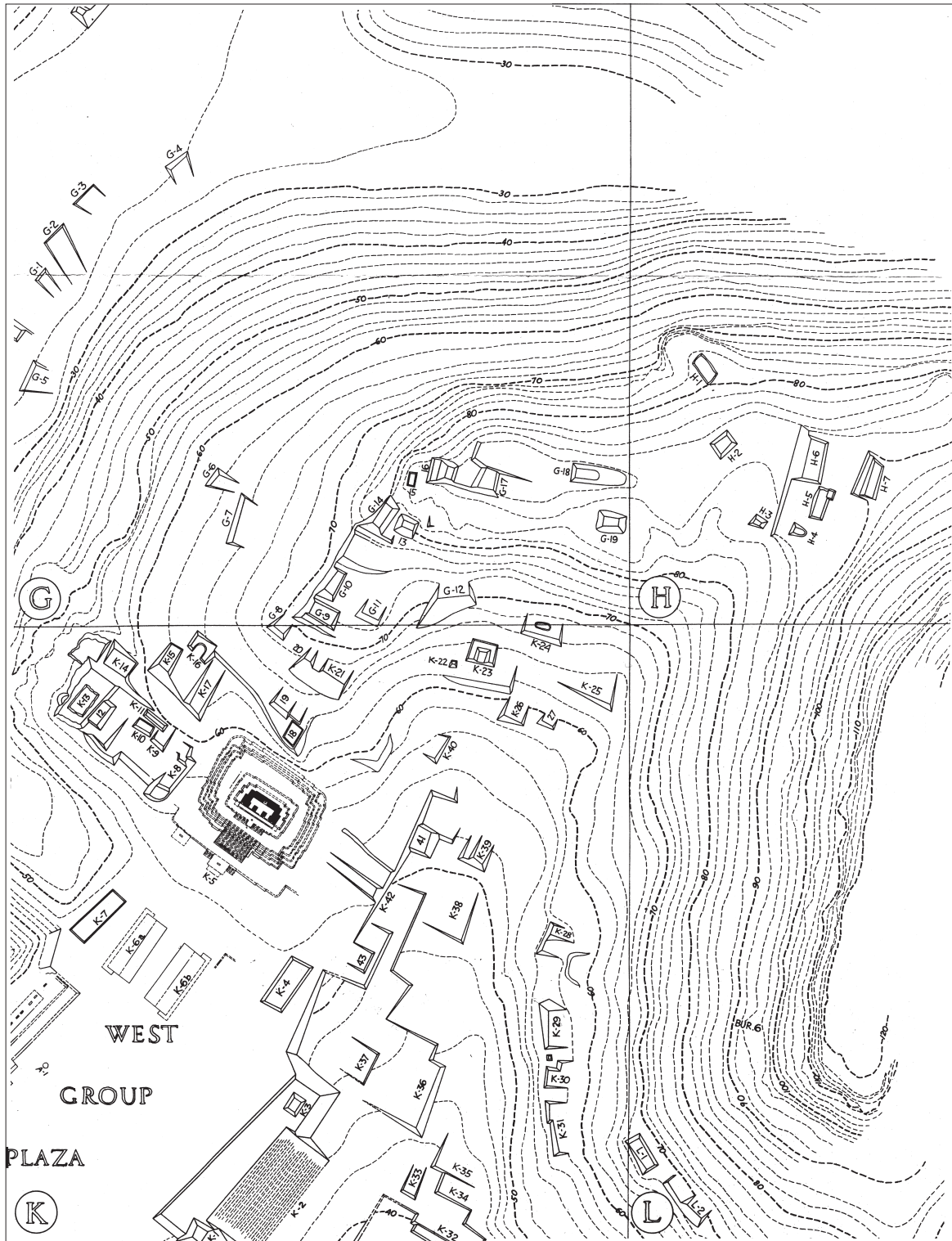
SCALE IN METERS:

25 20 15 10 5 0 25 50 75 100

SCALE IN FEET

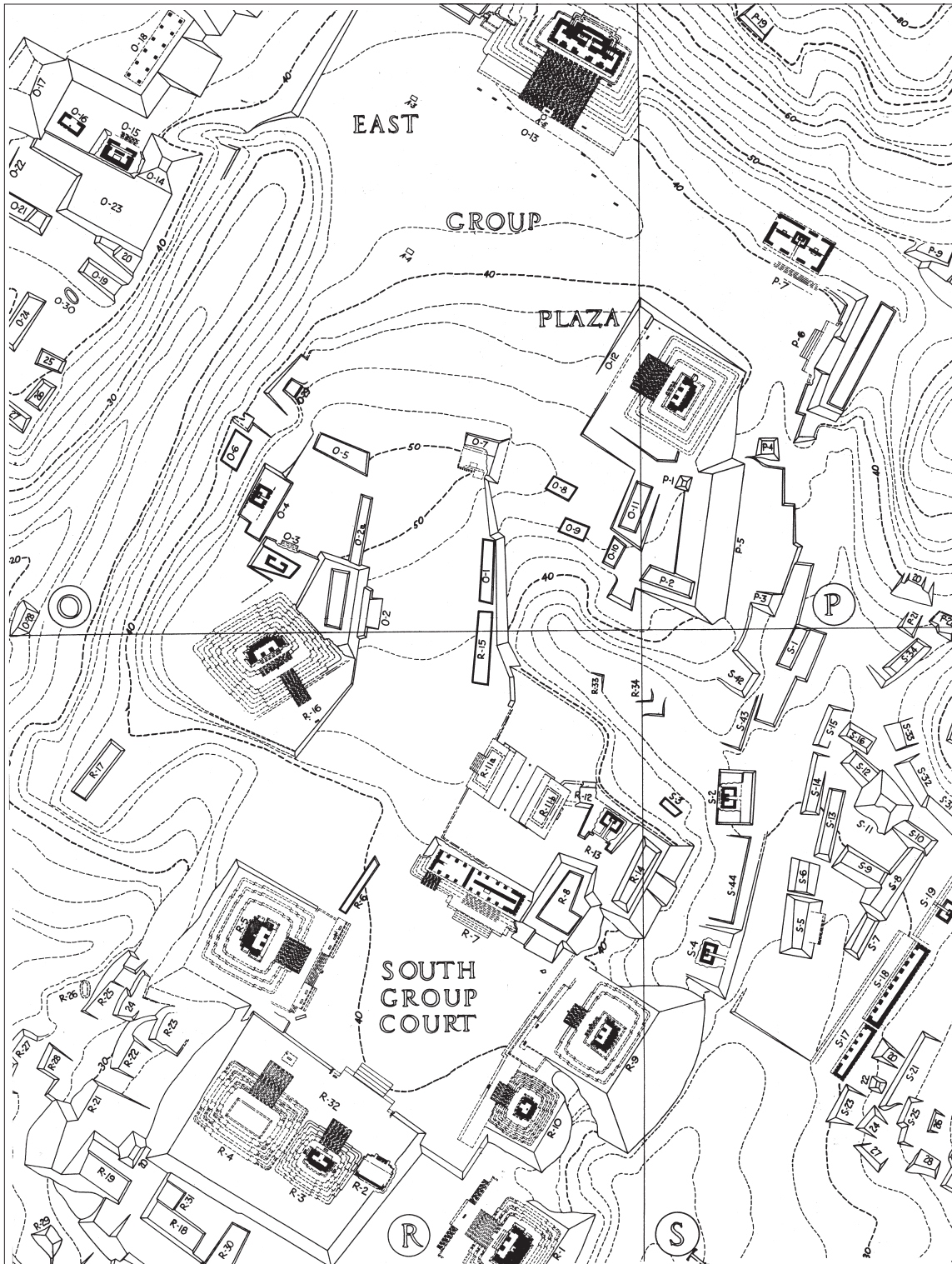
100 50 0 100 200 300









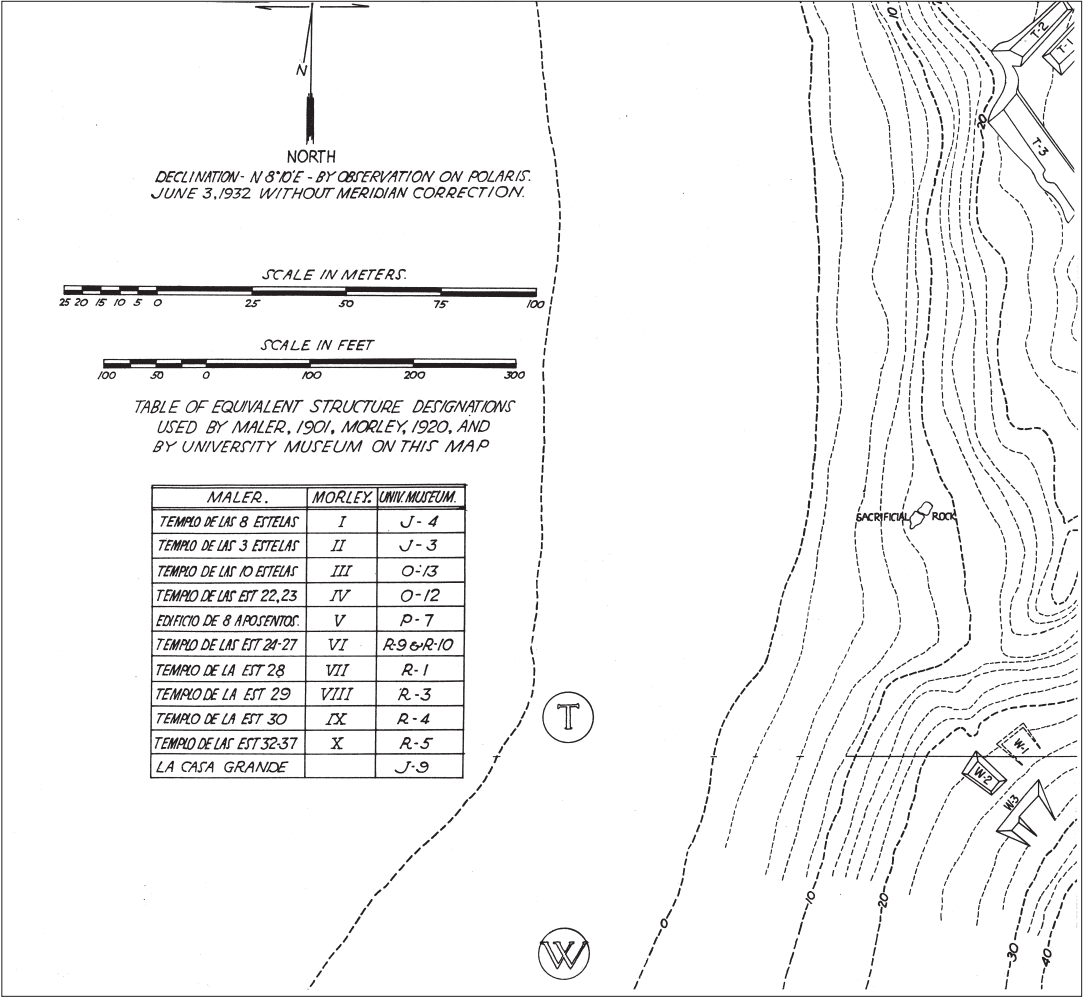


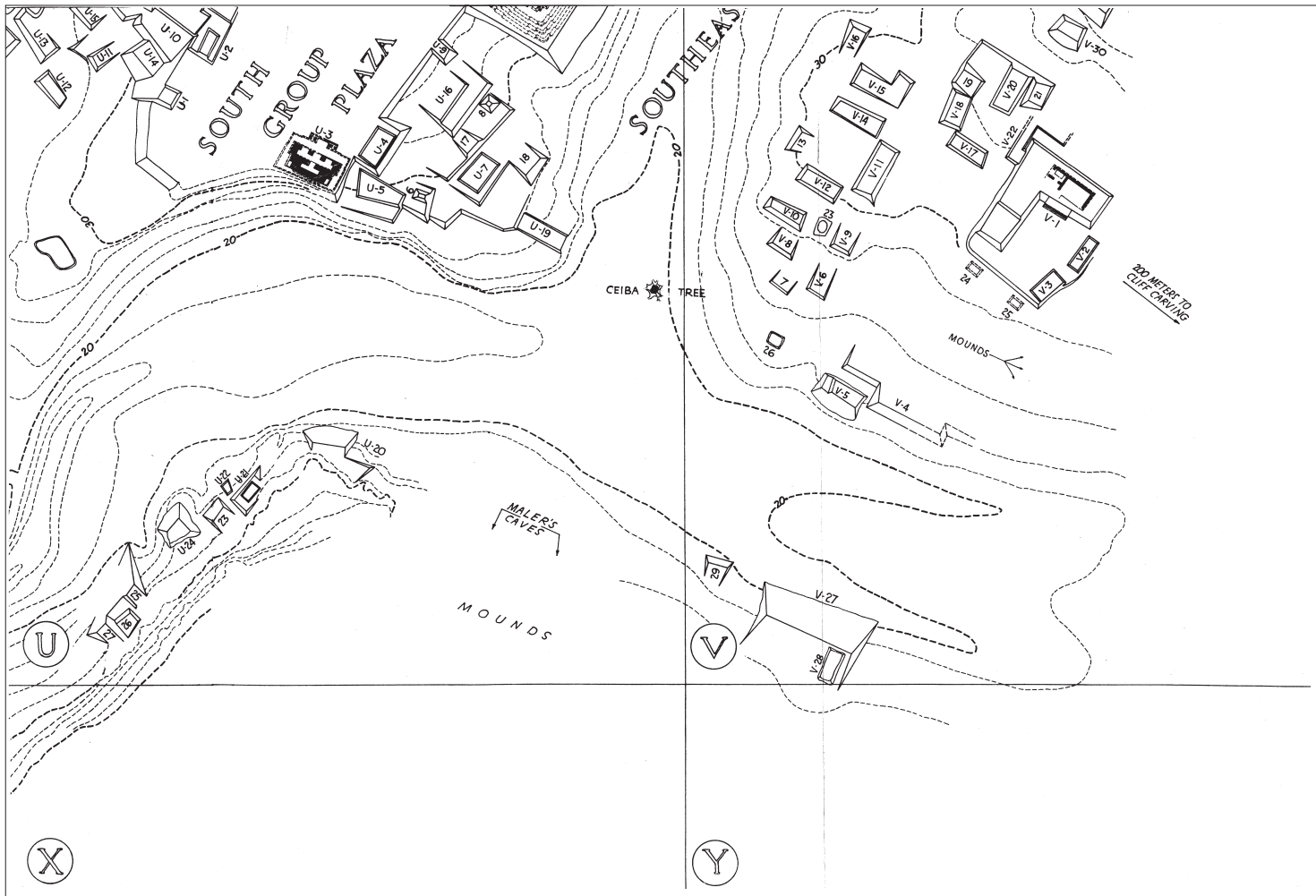
SCALE IN METERS.

25 20 15 10 5 0 25 50 75 100

SCALE IN FEET

100 50 0 100 200 300





## REFERENCES

- Amram, David W. 1942. Lacandon, Last of the Maya. *Mexico antiguo* 6:15–30.
- Andrews, E. Wyllys. 1942a. Archaeology: Yucatan: Architecture. *Carnegie Institution of Washington, Year Book* 41:257–63.
- \_\_\_\_\_. 1942b. The Inscription on Stela 38, Piedras Negras, El Petén, Guatemala. *American Antiquity* 7(4):364–68.
- \_\_\_\_\_. 1943. The Archaeology of Southwestern Campeche. *Carnegie Institution of Washington, Contributions to American Anthropology History* 40:1–100.
- Arreola, J. M. 1920. El Temazcal o baño mexicano de vapor. *Ethnos* 1(2):28–33.
- Bachand, Bruce R. 1997. Examination of a Ceramic Collection From Piedras Negras, Guatemala. M. A. thesis, Department of Anthropology, Brigham Young University, Provo.
- Baker, M. Louise. 1936. Lintel 3 Restored, and Why. *University Museum Bulletin* 6(4):120–23.
- \_\_\_\_\_. n.d. Unpublished Paintings and Drawings of Maya Pottery. University Museum, Philadelphia.
- Berlin, Heinrich. 1985. Tatiana Proskouriakoff (1909–1985). *Anales de la Sociedad de Geografía e Historia de Guatemala* 59:277–278.
- Beyer, Hermann. 1930. A Deity Common to Teotihuacán and Totonac Cultures. *Proceedings of the International Congress of Americanists* (23 session, 1928). pp. 82–84. New York.
- \_\_\_\_\_. 1937. Lunar Glyphs of the Supplementary Series at Piedras Negras. *El México antiguo* 4:75–82.
- \_\_\_\_\_. 1939. Elucidation of a Series on Lintel 2 of Piedras Negras. *El México antiguo* 4:289–92.
- \_\_\_\_\_. 1940. Rectification of a Date on Stela 12 of Piedras Negras. *El México antiguo* 4:7–8.
- Black, Stephen L. 1990. Field Methods and Methodologies in Lowland Maya Archaeology. Ph.D. dissertation, Department of Anthropology, Harvard University.
- Blom, Frans. 1930. Preliminary Notes on Two Important Maya Finds. *Proceedings of the International Congress of Americanists* (23 session, 1928). pp. 167–71. New York.
- \_\_\_\_\_. 1932. The Maya Ball-Game Pok-Ta-Pok (Called Tlachtli By the Aztec). *Tulane University of Louisiana, Middle American Research Series Publication* 4:485–530.
- \_\_\_\_\_, and Oliver LaFarge. 1926–27. *Tribes and Temples; A Record of the Expedition to Middle America Conducted by the Tulane University of Louisiana in 1925*. 2 v. New Orleans, LA: Tulane University of Louisiana.
- Boas, Franz. 1921–22. *Album de colecciones arqueológicas, ilustraciones por Adolfo Best; publicación de la Escuela Internacional de Arqueología y Etnología Americanas*. Mexico City: Librería Internacional de Müller Hermanos.
- Bolles, John S. 1938. Description of the Site (Yaxchilán). In *The Inscriptions of Péten*. pp. 351–60. Washington, DC: Carnegie Institution of Washington.
- Burkitt, Robert. 1930a. Excavations at Chocóla. *Museum Journal* 21(1):5–40.
- \_\_\_\_\_. 1930b. Explorations in the Highlands of Western Guatemala. *Museum Journal* 21(1):41–72.
- \_\_\_\_\_. n.d. Catalogue of the Guatemalan Collection. Unpublished manuscript.
- Butler, Mary. 1931. Dress and Decoration of the Maya Old Empire. *Museum Journal* 22(2):155–83.
- \_\_\_\_\_. 1935a. *Piedras Negras Pottery*. Piedras Negras Preliminary Papers 4. Philadelphia: University of Pennsylvania Museum.
- \_\_\_\_\_. 1935b. A Study of Maya Mould Made Figurines. *American Anthropologist* 37(4):636–72.

- \_\_\_\_\_. 1936a. Ethnological and Historical Implications of Certain Phases of Maya Pottery Decoration. *American Anthropologist* 38(3):452–61.
- \_\_\_\_\_. 1936b. Piedras Negras Pottery. Ph.D. dissertation, Department of Anthropology, University of Pennsylvania.
- \_\_\_\_\_. 1969. John Alden Mason (1885–1967). *Journal of American Folklore* 82(325):266–267.
- Chambon, Ludovic. 1994. *Un gascón en México*. Mexico City: Consejo Nacional Para la Cultura y las Artes.
- Cipriano, Ralph. 1990. David Amram, Jr., 89, Explorer, Rare-Book Dealer and Musician. *Philadelphia Inquirer*, October 5.
- Clavigero, Francesco S. 1817. *The History of Mexico*. Charles Cullen, trans. Philadelphia.
- Codex Magliabecchiano. 1903. *The Book of the Life of the Ancient Mexican; Containing an Account of Their Rites and Superstitions; An Anonymous Hispano-Mexican Manuscript Preserved at the Biblioteca Nazionale Centrale, Florence, Italy; Reproduced in Facsimile*, ed. Zelia Nuttall. Berkeley, CA: University of California Press.
- Coe, Michael D. 1992. *Breaking the Maya Code: The Last Great Decipherment of An Ancient Script*. New York: Thames and Hudson.
- Coe, William R. 1953. The Artifacts, Caches, and Burials of Piedras Negras, Guatemala. M.A. thesis, Department of Anthropology, University of Pennsylvania.
- \_\_\_\_\_. 1958. Piedras Negras Archaeology: Artifacts, Caches, and Burials. Ph.D. dissertation, Department of Anthropology, University of Pennsylvania.
- \_\_\_\_\_. 1959. *Piedras Negras Archaeology; Artifacts, Caches, and Burials*. Philadelphia, PA: University of Pennsylvania Museum.
- Cresson, Francis M. 1937. Foot Forms of Pottery Vessels at Piedras Negras. In *Twenty-fifth Anniversary Studies, Philadelphia Anthropological Society*, ed. D. S. Davidson, pp. 37–46. Philadelphia, PA: Philadelphia Anthropological Society.
- \_\_\_\_\_. 1938. Maya and Mexican Sweat Houses. *American Anthropologist* 40(1):88–104.
- \_\_\_\_\_. n.d.a. Carved Orange and Grey Wares at Piedras Negras, 1939. Unpublished manuscript.
- \_\_\_\_\_. n.d.b. Maya Thrones and Benches, 1939. Unpublished manuscript.
- \_\_\_\_\_. n.d.c. Pottery Periods at Piedras Negras, 1938. Unpublished manuscript.
- \_\_\_\_\_. n.d.d. Pottery Types of Yucatan in the Usumacinta Area, 1939. Unpublished manuscript.
- \_\_\_\_\_. n.d.e. Unpublished and incomplete manuscript studies of form and decoration of Piedras Negras ceramics, incorporating and adding to the material available in Butler 1935a; and of ceramic stratigraphies at the Acropolis and at Structure K-5, 1937–41.
- Cross, Dorothy. 1969. J. Alden Mason. (1885–1967). *Bulletin of the Archeological Society of New Jersey* 24:1–4.
- Danien, Elin. 1991. The University Museum at Piedras Negras: The Shift from Individual to Institutional Expeditions in Mesoamerica. Paper presented at the annual meeting of the Society for American Archaeology, New Orleans.
- Diccionario pocomchi-castellano y castellano-pocomchi de S. Cristobal Cacoh; fragmentos en todo 145 fojas útiles, n.d. Manuscript, Berendt Linguistic Collection, University of Pennsylvania Libraries.
- Dieseldorff, Erwin P. 1926. Kunst und Religion der Mayavölker, I. *Zeitschrift für Ethnologie* 57:1–45.
- Escalona Ramos, Alberto. 1935. The Expedition to Piedras Negras, Guatemala. *University Museum Bulletin* 5(6):74–75.
- Excavations at Piedras Negras. *University Museum Bulletin* 3:178–79, 1932.
- Expedition to Piedras Negras. *University Museum Bulletin* 4:78–79, 1932.
- Frankfort, Henri. 1924. *Studies in Early Pottery of the Near East*. London: Anthropological Institute of Great Britain and Ireland.
- Gamio, Manuel. 1922. *La población del Valle de Teotihuacán; representativa de las que habitan las regiones rurales del distrito federal y de los estados de Hidalgo, Puebla, México y Tlaxcala*. 2 v. Mexico: Dirección de Talleres Gráficos.
- \_\_\_\_\_. 1926–27. Cultural Evolution in Guatemala and Its Geographic and Historic Handicaps. *Art and Archaeology* 22:203–22; 23:17–32, 71–78, 129–33.
- Gann, Thomas W. F. 1900. *Mounds in Northern Honduras*. Washington, DC: Bureau of American Ethnology.
- \_\_\_\_\_. 1918. *The Maya Indians of Southern Yucatan and Northern British Honduras*. Washington, DC: Bureau of American Ethnology.
- \_\_\_\_\_. 1925. *Mystery Cities: Exploration and Adventures in Lubaantun*. New York: Duckworth.



- \_\_\_\_\_. 1926. *Ancient Cities and Modern Tribes*. New York.
- Gates, William. 1931. *An Outline Dictionary of Maya Glyphs, With A Concordance and Analysis of Their Relationship*. Baltimore: Maya Society.
- Godfrey, William S. 1940. The Stela of Piedras Negras. B. A. Honors Thesis, Department of Anthropology, Harvard University.
- Golden, Charles W. 2002. Bridging the Gap Between Archaeological and Indigenous Chronologies: An Investigation of the Early Classic/Late Classic Divide at Piedras Negras, Guatemala. Ph.D. dissertation, Department of Anthropology, University of Pennsylvania.
- Golden, Charles W., J. Tomás Barrientos Q., Zachary Hruby, and A. René Muñoz. 1998. Reconocimiento de La Pasadita. In *Proyecto Arqueológico Piedras Negras: informe preliminar, 2, segunda temporada, 1998*, ed. Héctor L. Escobedo and Stephen D. Houston, pp. 333–351. Guatemala City: Universidad del Valle de Guatemala.
- Golden, Charles W., Héctor Escobedo, and Stephen Houston. 2000. “Hasta la Victoria compañeros”: The Guerrilla and Archaeology on the Usumacinta River. Paper Presented at the Annual Meeting of the American Anthropological Association, San Francisco.
- Gordon, George B. 1896. *Prehistoric Ruins of Copán, Honduras: A Preliminary Report of the Explorations by the Museum, 1891–1895*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- \_\_\_\_\_. 1902. *The Hieroglyphic Stairway, Ruins of Copán*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- \_\_\_\_\_. 1925–26. *Examples of Maya Pottery in the Museum and Other Collections*. Philadelphia: University of Pennsylvania Museum.
- Graham, Ian. 1990. Tatiana Proskouriakoff 1909–1985. *American Antiquity* 55(1):6–11.
- Hammond, Norman. 1982a. *Ancient Maya Civilization*. New Brunswick, NJ: Rutgers University Press.
- \_\_\_\_\_. 1982b. Pom for the Ancestors: A Reexamination of Piedras Negras Stela 40. *Mexicon* 3(5):77–79.
- Hirtzel, JSH. 1925. Collections d’antiquités guatémaltèques du Musée d’archéologie de l’Université de Gand. *Proceedings of the International Congress of Americanists* (21 session, 1924). pp. 668–672. Göteborg.
- Holley, George R. 1983. Ceramic Change at Piedras Negras, Guatemala. Ph.D. dissertation, Department of Anthropology, Southern Illinois University, Carbondale. 665 leaves.
- \_\_\_\_\_. 1986. The Ceramic Sequence at Piedras Negras, Guatemala. *Cerámica de cultura maya* 14:49–72. Philadelphia.
- \_\_\_\_\_. 1987. Living on the Edge: The Ceramic Sequence of Piedras Negras, Guatemala. In *Maya Ceramics: Papers from the 1985 Maya Ceramic Conference*. Prudence M. Rice and Robert J. Sharer, eds. pp. 183–202. Oxford: British Archaeological Reports.
- Holmes, William H. 1895. *Archaeological Studies Among the Ancient Cities of Mexico*. Chicago, IL: Field Columbian Museum.
- Houston, Stephen, Héctor Escobedo, Donald Forsyth, Perry Hardin, David Webster, and Lori Wright. 1998. On the River of Ruins: Explorations at Piedras Negras, Guatemala, 1997. *Mexicon* 20(1):16–22.
- Houston, Stephen, Héctor Escobedo, Perry Hardin, Richard Terry, David Webster, Mark Child, Charles Golden, Kitty Emery, and David Stuart. 1999. Between Mountains and Sea: Investigations at Piedras Negras, Guatemala, 1998. *Mexicon* 21(1):10–12.
- Houston, Stephen, Héctor Escobedo, Richard Terry, David Webster, and Kitty Emery. 2000a. Among the River Kings: Archaeological Research at Piedras Negras, Guatemala, 1999. *Mexicon* 22(1):8–17.
- Houston, Stephen, Héctor Escobedo, Richard Terry, David Webster, and Kitty Emery. 2000b. In the Land of the Turtle Lords: Archaeological Investigations at Piedras Negras, Guatemala, 2000. *Mexicon* 22(1):97–110.
- Houston, Stephen, Héctor Escobedo, Mark Child, Charles Golden, and René Muñoz. 2001. Crónica de una muerte anunciada: los años finales de Piedras Negras. In *Reconstruyendo la ciudad mayas: el urbanismo en las sociedades antiguas*. Andrés Ciudad Ruiz, Maria Josefa Iglesias Ponce de León, and Maria del Carmen Martínez Martínez, eds. pp. 84–85. Madrid: Sociedad Española de Estudios Mayas.
- Houston, Stephen, Héctor Escobedo, Mark Child, Charles Golden, and René Muñoz. 2003. Moral Community and Settlement Transformation Among the Classic Maya:

- Evidence from Piedras Negras, Guatemala. In *The Social Construction of Ancient Cities*, ed. Monica L. Smith, pp. 212–253. Washington, DC: Smithsonian Books.
- Jijón y Caamaño, J. 1923. Puruhá. *Boletín de la Academia Nacional de Historia* 6:32–66.
- Jonas, Susanne. 2000. *Of Centaurs and Doves: Guatemala's Peace Process*. Boulder, CO: Westview.
- Joyce, Thomas A. 1926. Report on the Investigations at Lubaantun, British Honduras in 1926. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 56:207–30.
- \_\_\_\_\_. 1932. The eccentric flints of Central America. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 62:xvii–xxvi.
- \_\_\_\_\_, J. C. Clark, and J. Eric S. Thompson. 1927. Report on the British Museum Expedition to British Honduras, 1927. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 57:295–323.
- Keur, Dorothy. 1971. Mary Butler Lewis (1903–1970). *American Anthropologist* 3(1):255–256.
- Kidder, Alfred, II, and Linton Satterthwaite. 1968. J. Alden Mason. *Expedition* 10(2):2–3.
- Kovak, Amy M., and David Webster. 1999. RS 26: Excavaciones en la periferia de Piedras Negras. In *Proyecto Arqueológico Piedras Negras: informe preliminar, 3*. Hector L. Escobedo and Stephen D. Houston, eds. pp. 299–318. Guatemala City: Universidad del Valle de Guatemala; Instituto Nacional de Antropología e Historia Guatemala.
- Kramer, G., and S. K. Lowe. 1940. *Archaeological Sites in the Maya Area, 1940 Edition. Map in Six Sections, Revision of Map Ruins in the Maya Area, 1924, by Frans Blom and O. G. Ricketson Jr.* New Orleans, LA: Middle American Research Institute, Tulane University.
- LaFarge, Oliver, and Douglas Byers. 1931. *The Year Bearer's People*. New Orleans, LA: Middle American Research Institute, Tulane University.
- Landa, Diego de. 1937. *Yucatan Before and After the Conquest*, ed. William E. Gates. Baltimore: The Maya Society.
- \_\_\_\_\_. 1941. *Landa's Relación de las Cosas de Yucatan. A Translation*, ed. Alfred M. Tozzer. Cambridge, MA: Peabody Museum of Archaeology and Ethnology, Harvard University.
- Linné, Sigvald. 1934. *Archeological Researches at Teotihuacán, Mexico*. Stockholm: Ethnographical Museum of Sweden.
- Lothrop, Samuel K. 1924. *Tulum: An Archaeological Study of the East Coast of Yucatan*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1926. *Pottery of Costa Rica and Nicaragua*. New York: Museum of the American Indian, Heye Foundation.
- \_\_\_\_\_. 1926. Stone Sculptures from the Finca Arevalo, Guatemala. *Museum of the American Indian, Heye Foundation, Indian Notes* 3:147–71.
- \_\_\_\_\_. 1927. Pottery Types and Their Sequence in El Salvador. *Museum of the American Indian, Heye Foundation, Indian Notes and Monographs* 4:165–220.
- \_\_\_\_\_. 1928. Santiago Atitlán, Guatemala. *Museum of the American Indian, Heye Foundation, Indian Notes* 5:370–395.
- \_\_\_\_\_. 1933. *Atitlán: An Archaeological Study of Ancient Remains on the Borders of Lake Atitlán, Guatemala*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1936. Sculptured Pottery of the Maya and Pipil. *Maya Research* 3(2):140–52.
- Madeira, Percy C. 1931. An Aerial Expedition to Central America. *Museum Journal* 22(2):88–153.
- Maler, Teobert. 1901. *Researches in the Central Portion of the Usumatsintla Valley*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- \_\_\_\_\_. 1903. *Researches in the Central Portion of the Usumatsintla Valley*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- Marian Angell Godfrey Boyer (1892–1989). *Philadelphia Inquirer*, October 20, 1989.
- Martínez Hernandez, Juan. 1929. *Diccionario de Motul, maya español; atribuido a fray Antonio de Ciudad Real y Arte de lengua maya por fray Juan Coronel*. Mérida: Compañía Tipográfica Yucateca.
- Mary Butler Lewis (1903–1970). *Anthropology Newsletter* 11(3):3, 1970.
- Mason, Gregory. 1928. *Pottery and Other Artifacts From Caves in British Honduras and Guatemala*. New York: Museum of the American Indian, Heye Foundation.
- \_\_\_\_\_. 1930. Finds Two Towers Among Mayan; Pennsylvania University Group Also Discovers Walls Thirty Feet High in Guatemala; Ice Amazes the Indians Dropped by Parachute From Plane to Explorer, It Is Novel Sight. *New York Times*, December 14, p. 9.

- Mason, J. Alden. 1931a. An Air-Survey in Central America. *University Museum Bulletin* 2(3):72–79.
- \_\_\_\_\_. 1931b. A Maya Carved Stone Lintel from Guatemala. *University Museum Bulletin* 3(1):4–7.
- \_\_\_\_\_. 1933a. Introduction. In *Description of the Site, with Short Notes on the Excavations of 1931–32*. Piedras Negras Preliminary Paper 1. Philadelphia: University of Pennsylvania Museum.
- \_\_\_\_\_. 1933b. Jade Ornaments from Piedras Negras. *University Museum Bulletin* 4(2):53–56.
- \_\_\_\_\_. 1933c. The Piedras Negras Expedition. *University Museum Bulletin* 4(4):92–93.
- \_\_\_\_\_. 1933d. A Remarkable Throne from Guatemala. *University Museum Bulletin* 4(4):90–92.
- \_\_\_\_\_. 1933e. Stela 12 from Piedras Negras. *University Museum Bulletin* 4(4):88–90.
- \_\_\_\_\_. 1934a. Descripción de un magnífico lintel maya exculpido en piedra, procedente del sitio arqueológico de Piedras Negras, Guatemala. *Anales de la Sociedad de Geografía e Historia de Guatemala* 10(4):413–17.
- \_\_\_\_\_. 1934b. Maya Sculptures Rescued From the Jungle. *Bulletin of the Pan American Union* 68:88–101.
- \_\_\_\_\_. 1934c. A Stela from Piedras Negras. *University Museum Bulletin* 5(2):53–57.
- \_\_\_\_\_. 1934d. A Stucco Head from Guatemala. *University Museum Bulletin* 5(1):24–27.
- \_\_\_\_\_. 1935a. Mexican and Maya Sweat-Baths. *University Museum Bulletin* 6(2):65–69.
- \_\_\_\_\_. 1935b. Preserving Ancient America's Finest Sculptures. *National Geographic Magazine* 68(5):537–70.
- \_\_\_\_\_. 1936. Esculturas mayas rescatadas de la selva. *Diario de Centro America*, January 25, 27.
- \_\_\_\_\_. 1938. Resultado científico de las excavaciones arqueológicas en la zona de Piedras Negras, Petén. *Anales de la Sociedad de Geografía e Historia de Guatemala* 15(2):202–16.
- \_\_\_\_\_, and Linton Satterthwaite. 1938. Preparation for Publication of Results of the Piedras Negras Expedition. Report of the Committee on Research, Grant 10, 1938. *American Philosophical Society, Year Book* for 1938:257–58.
- \_\_\_\_\_, Linton Satterthwaite, and Mary Butler. 1934. The Work of the Eldridge R. Johnson Middle American Expedition of the University Museum, Philadelphia, at Piedras Negras, Petén, Guatemala. *Maya Research* 1(1):30–36.
- Maudslay, Alfred P. 1889–1902. *Archaeology. Biologia Centrali-Americana*. 5 v. London.
- Mayan Sculpture to be Shown Here; Ancient Stele of Stone Weighing a Ton Will Be Brought From Guatemala. *New York Times*, April 30, 1933, p. N3.
- Mayas' Fall Now Laid to Revolt; Pennsylvania Archaeologists Find Shattered Thrones in Guatemala Jungle Indicating an Uprising; Theory Holds Ruling Priests, Instead of Leading An Exodus, Were Overthrown. *New York Times*, November 14, 1937, p. 43.
- Merwin, Raymond E., and George C. Vaillant, 1932. *The Ruins of Holmul, Guatemala*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- Morley, Sylvanus G. 1915. *Introduction to the Study of Maya Hieroglyphs*. Washington, DC: Bureau of American Ethnology.
- \_\_\_\_\_. 1920. *The Inscriptions of Copán*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1922. Archaeology. *Carnegie Institution of Washington, Year Book* 20:359–364.
- \_\_\_\_\_. 1929. Report on the Piedras Negras Expedition. *Carnegie Institution of Washington, Year Book* 28:327–328.
- \_\_\_\_\_. 1931. Report of the Yaxchilan Expedition. *Carnegie Institution of Washington, Year Book* 30:132–139.
- \_\_\_\_\_. 1935. *Guide Book to the Ruins of Quiriguá*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1936a. Annual Report of the Division of Historical Research. *Carnegie Institution of Washington, Year Book* 35:120–122.
- \_\_\_\_\_. 1936b. Yucatan, The Home of the Gifted Maya. *National Geographic Magazine* 70: 590–644.
- \_\_\_\_\_. 1938a. The Inscriptions at Piedras Negras. In *The Inscriptions of Petén*, v. 3, pp. 1–312; v. 5, Plates 27–39, 116–146, 178e, 178g. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1938b. *The Inscriptions of Petén*. 3 v. Washington, DC: Carnegie Institution of Washington.
- Morris, Earl, Jean Charlot, and Ann Axtell Morris. 1931. *The Temple of the Warriors at Chichén Itzá, Yucatan*. Washington, DC: Carnegie Institution of Washington.
- Noguera, Eduardo. 1936. Antecedentes y relaciones de la cultura teotihuacana. *El Mexico Antiguo* 3(58):3–90.

- Painted Maya Throne Found in Guatemala; University of Pennsylvania Expedition Also Unearths a Burial Vault of 514 A.D. *New York Times*, July 13, 1932. p. 13.
- Parnell, J. Jacob, Richard E. Terry, and Charles Golden. 2001. Using in Field Phosphate Testing to Rapidly Identify Middens at Piedras Negras, Guatemala. *Geoarchaeology* 16(8):855–73.
- Peñafiel, Antonio. 1890. *Monumentos del arte Mexicano antiguo*. 5 v. Berlin: A. Asher.
- Proskouriakoff, Tatiana. 1946. *An Album of Maya Architecture*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1950. *A Study of Classic Maya Sculpture*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1960. Historical Implications of a Pattern of Dates at Piedras Negras, Guatemala. *American Antiquity* 25(4):454–475.
- \_\_\_\_\_. 1961. Lords of the Maya Realm. *Expedition* 4(1):14–21.
- Rands, Robert L. 1973. Classic Maya Collapse: Usumacinta Zone and the Northwestern Periphery. In *The Classic Maya Collapse*, ed. T. Patrick Culbert, pp. 165–205. Albuquerque: University of New Mexico Press.
- Reynolds, George M. 1968. In Memoriam: J. Alden Mason. 1885–1967. *Journal of the Archaeological Society of Maryland* 4(1):3.
- Richards, Horace G., and Henry J. Boekelman. 1937. Foot Forms of Pottery Vessels at Piedras Negras. In *Twenty-Fifth Anniversary Studies*, ed. D. S. Davidson, pp. 37–46. Philadelphia: Philadelphia Anthropological Society.
- Ricketson, Edith B. 1934. Notes on the Pottery of the House Mounds of Uaxactún. In *House Mounds of Uaxactún*, Guatemala, by Robert Wauchope, pp. 161–170. Washington, DC: Carnegie Institution of Washington.
- Ricketson, Oliver G. 1928. Report on the Uaxactún Project. *Carnegie Institution of Washington Year Book* 27:307–312.
- \_\_\_\_\_. n.d. Unpublished Map of Main Groups at Piedras Negras, 1921. Unpublished manuscript.
- \_\_\_\_\_, and Edith B. Ricketson. 1937. *Uaxactún, Guatemala; Group E, 1926–1931*. Washington, DC: Carnegie Institution of Washington.
- Ridgway, Robert. 1912. *Color Standard and Color Nomenclature*. Washington, DC.
- Río, Antonio del. 1822. *Description of the Ruins of An Ancient City; Translated From the Original Manuscript of Captain Don Antonio Del Río by Doctor Paul Félix Cabrera*. London: H. Berthoud, and Suttaby, Evance and Fox.
- Rivera, Miguel. 1987. Tatiana Proskouriakoff (1909–1985). *Revista Española de Antropología Americana* 17:306–307.
- Roberts, Henry B. n.d. Notes on Toltec Ceramics. Unpublished manuscript.
- Rosas, Mauricio. 1988. Tatiana Proskouriakoff (1909–1985). *Estudios de Cultura Maya* 17:473–474.
- Roys, L. 1934. The Engineering Knowledge of the Maya. *Carnegie Institution of Washington, Contributions to American Archaeology* 6:27–105.
- Ruppert, Karl. 1931. Temple of the Wall Panels, Chichén Itzá. *Carnegie Institution of Washington, Contributions to American Archaeology* 1(3):117–140.
- \_\_\_\_\_. 1935. *The Caracol at Chichén Itzá, Yucatan, Mexico*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_, and J. H. Dennison. 1943. *Archaeological Reconnaissance in Campeche, Quintana Roo and Petén*. Washington, DC: Carnegie Institution of Washington.
- Sahagún, Bernadino de. 1938. *Historia general de las cosas de Nueva España*. 5 v. Mexico: P. Robredo.
- Satterthwaite, Linton. 1933a. Description of the Site, with Short Notes on the Excavations of 1931–32. *Piedras Negras Preliminary Paper 1*. Philadelphia: University of Pennsylvania Museum.
- \_\_\_\_\_. 1933b. The Piedras Negras Expedition. *University Museum Bulletin* 4(5):120–126.
- \_\_\_\_\_. 1933c. The South Group Ball Court, Structures R-11-a and R-11-b, With A Preliminary Note on the West Group Ball Court, Structure K-6-a and K-6-b. *Piedras Negras Preliminary Papers 2*. Philadelphia: University of Pennsylvania Museum.
- \_\_\_\_\_. 1935a. The Black Rocks. *University Museum Bulletin* 6:6–15.
- \_\_\_\_\_. 1935b. Palace Structures J-2 and J-6, With Notes on Structure J-6-2nd and Other Buried Structures in Court 1. *Piedras Negras Preliminary Paper 3*. Philadelphia: University of Pennsylvania Museum.
- \_\_\_\_\_. 1936a. Notes on the Work of the Fourth and Fifth University Museum Expeditions to Piedras Negras, Guatemala. *Maya Research* 3(1):74–93.

- \_\_\_\_\_. 1936b. A Pyramid Without Temple Ruins. *Piedras Negras Preliminary Paper 5*. Philadelphia: University of Pennsylvania Museum.
- \_\_\_\_\_. 1936c. The Sixth Piedras Negras Expedition. *University Museum Bulletin* 6(5):7–19.
- \_\_\_\_\_. 1936d. An Unusual Type of Building in the Maya Old Empire. *Maya Research* 3(1):62–73.
- \_\_\_\_\_. 1937a. Identification of Maya Temple Buildings at Piedras Negras. In *Twenty-fifth Anniversary Studies, Philadelphia Anthropological Society*, ed. D. S. Davidson, pp. 161–177. Philadelphia: Philadelphia Anthropological Society.
- \_\_\_\_\_. 1937b. Thrones at Piedras Negras. *University Museum Bulletin* 7(1):18–23.
- \_\_\_\_\_. 1937c. Types of Buildings and Ceramics at Piedras Negras. *Boletín bibliográfico de antropología americana* 1:100.
- \_\_\_\_\_. 1938a. Archaeological Excavations at the Maya Old Empire Site Piedras Negras During the Seventh Field Season, 1937. Report of the Committee on Research, Grant No. 170 (1937). *American Philosophical Society, Yearbook for 1938*:236–238.
- \_\_\_\_\_. 1938b. Maya Dating by Hieroglyph Styles. *American Anthropologist* 40(3):416–28.
- \_\_\_\_\_. 1938c. Description of the [Piedras Negras] site. In *The Inscriptions of Petén*, v. 1, pp. 5–26. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1938d. Evidence For a Logical Sequence of Roof Types on Maya Buildings at Piedras Negras. *Science* 88:564.
- \_\_\_\_\_. 1939–40. Evolution of a Maya Temple. *University Museum Bulletin* 7(4):2–14; 8(2–3):18–24.
- \_\_\_\_\_. 1940. Another Piedras Negras Stela. *University Museum Bulletin* 8(2–3):24–27.
- \_\_\_\_\_. 1941. Some Central Petén Maya Architectural Traits at Piedras Negras. In *Los Mayas antiguos; monografías de arqueología, etnografía y lingüística mayas, publicadas con motivo del centenario de la exploración de Yucatán por John L. Stephens y Frederick Catherwood in los años 1841–42*, pp. 181–208. Mexico: El Colegio de Mexico.
- \_\_\_\_\_. 1942a. Maya Temple Grows Up; Excavations at Piedras Negras Reveal Evidences of a Five-Times-Reconstructed Temple. *Scientific American* 167:18–19.
- \_\_\_\_\_. 1942b. Two Maya Bowls: A Problem in Reconstruction. *University Museum Bulletin* 9(4):10–12.
- \_\_\_\_\_. 1943. New Photographs and the Date of Stela 14, Piedras Negras. *Carnegie Institution of Washington, Notes on Middle American Archaeology and Ethnology* 1(28):182–188.
- \_\_\_\_\_. 1946. Incense Burning at Piedras Negras. *University Museum Bulletin* 11(4):16–22.
- \_\_\_\_\_. 1969. John Alden Mason. 1885–1967. *American Anthropologist* 71(5):871–879.
- \_\_\_\_\_. n.d.a. Preliminary Notes on Piedras Negras Burials, 1934. Unpublished manuscript.
- \_\_\_\_\_. n.d.b. The Sixth and Seventh University Museum Expeditions to Piedras Negras, 1937. Unpublished manuscript.
- Saville, Marshall. H. 1929. Votive Axes from Ancient Mexico. *Museum of the American Indian, Heye Foundation, Indian Notes* 6:266–99, 335–42.
- Schellhas, Paul. 1935. Die Stele Nr. 12 von Piedras Negras. *Zeitschrift für Ethnologie* 66:416–422.
- Schirmer, Jennifer. 1998. *The Guatemalan Military Project: A Violence Called Democracy*. Philadelphia: University of Pennsylvania Press.
- Schlosser, Ann L. 1978. Ceramic Maya Lowland Figurine Development with Special Reference to Piedras Negras, Guatemala. Ph.D. dissertation, Department of Anthropology, Southern Illinois University, Carbondale.
- Seler, Eduard. 1901. *Die alten Ansiedelungen von Chaculá im Distrikte Nentón des Departements Huehuetenango der Republik Guatemala*. Berlin: Dietrich Reimer.
- Smith, A. Ledyard. 1932. Two Recent Ceramic Finds at Uaxactún. *Carnegie Institution of Washington, Contributions to American Archaeology* 2(5):1–25.
- \_\_\_\_\_. 1934. Uaxactún. *Carnegie Institution of Washington, Year Book* 33:82–86.
- \_\_\_\_\_. 1937. Structure A-XVIII, Uaxactún. *Carnegie Institution of Washington, Contributions to American Archaeology* 4(20):1–27.
- Smith, Robert E. 1937. *Study of Structure A-I Complex at Uaxactún, Petén, Guatemala*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. n.d.a. Preliminary Shape Analysis of the Uaxactún Pottery, 1936. Unpublished manuscript.
- \_\_\_\_\_. n.d.b. Ceramics of Uaxactún: A Preliminary Analysis of Decorative Technics and Design, 1936. Unpublished manuscript.
- Spinden, Herbert J. 1930. Maya Dates and What They reveal: A Re-Examination of the Evidence in



- Correlation Between Central American and European Time Counts. *Brooklyn Institute of Arts and Sciences, Science Bulletin* 4:1–111.
- \_\_\_\_\_. 1913. *A Study of Maya Art*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- Stephens, John L. 1867. *Incidents of Travel in Central America, Chiapas and Yucatan*. 2 v. New York: Harper.
- Stoll, David. 1993. *Between Two Armies in the Ixil Towns of Guatemala*. New York: Columbia University Press.
- Stoll, Otto. 1886. *Guatemala: Reisen und Schilderungen aus den Jahren 1878–1883*. Leipzig: F.A. Brockhaus.
- Strömsvik, Gustav. 1931. Notes on the Metates of Chichen Itzá, Yucatan. *Carnegie Institution of Washington, Contributions to American Archaeology* 1:141–57.
- Superb Maya Carving from Piedras Negras. *El Palacio* 32(9):127–28, 1932.
- Tatiana Proskouriakoff. *Antropología e historia de Guatemala*, pp. 171–173, 1985.
- Termer, Franz. 1930–31. Zur Archäologie von Guatemala. *Baessler Archiv* 14(4):167–91.
- Third Expedition of the University Museum, Philadelphia, To the Old Empire Maya Site of Piedras Negras. *Museum News* 11(13):3, 1934
- Thompson, J. Eric S. 1931. Archaeological Investigations in the Southern Cayo District, British Honduras. *Field Museum of Natural History, Anthropological Series* 17(3):215–362. Chicago.
- \_\_\_\_\_. 1932. The Solar Year of the Mayas at Quirigua, Guatemala. *Field Museum of Natural History, Fieldiana Anthropology* 17(4). Chicago.
- \_\_\_\_\_. 1939. *Excavations at San José, British Honduras, With Appendix by Anna O. Shepard*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1943. The Initial Series of Stela 14, Piedras Negras, Guatemala, And a Date on Stela 19, Naranjo, Guatemala. *Carnegie Institution of Washington, Notes on Middle American Archaeology and Ethnology* 1(11):113–116.
- \_\_\_\_\_. 1944. The Dating of Seven Monuments at Piedras Negras. *Carnegie Institution of Washington, Notes on Middle American Archaeology and Ethnology* 2(39):65–82
- \_\_\_\_\_, H. E. D. Pollock, and J. Charlot. 1932. *A Preliminary Study of the Ruins of Coba, Quintana Roo, Mexico*. Washington, DC: Carnegie Institution of Washington.
- Townsend, Nicolle, and John J. Parnell. 1998 PN 38: excavación de un grupo de casas rurales In *Proyecto Arqueológico Piedras Negras: informe preliminar, 2, segunda temporada, 1998*, ed. Héctor L. Escobedo and Stephen D. Houston, pp. 275–279. Guatemala: Universidad del Valle de Guatemala.
- Tozzer, Alfred M. 1911. *A Preliminary Study of the Prehistoric Ruins of Tikal, Guatemala*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- \_\_\_\_\_. 1913. *A Preliminary Study of the Prehistoric Ruins of Nakum, Guatemala*. Cambridge, MA: Peabody Museum of American Archaeology and Ethnology, Harvard University.
- Uhle, Max. 1922–23. Influencias mayas en el alto Ecuador. *Boletín de la Academia Nacional de Historia* 4: 205–240. Quito.
- University of Pennsylvania Expedition Makes Mayan Finds; Excavators Unearth Three Superimposed Temples at Piedras Negras; Chronology Is Studied. *New York Times*, October 14, p. N2, 1934.
- Unusual Find at Piedras Negras. *El Palacio* 32(19–20):264–265, 1932.
- Urquizú, Mónica, E. Christian Wells, Isabel Aguirre, Nancy Monterroso, Ernesto Arredondo, and Alfredo Román. 1999. Unidades residenciales en Piedras Negras: Resultados de las investigaciones realizadas en las temporadas de campo de 1997 y 1998. In *Simposio de Investigaciones Arqueológicas en Guatemala (12 session, 1998)*. pp. 393–410. Guatemala: Instituto de Antropología e Historia de Guatemala.
- Vaillant, George C. 1927. *The Chronological Significance of Maya Ceramics*. Ph.D. dissertation, Department of Anthropology, Harvard University.
- \_\_\_\_\_. 1930. Excavations at Zacatenco. *Anthropological Papers of the American Museum of Natural History* 32(1):1–197.
- \_\_\_\_\_. 1931a. A Bearded Mystery. *Natural History* 31(3):343–352.
- \_\_\_\_\_. 1931b. Excavations at Ticoman. *Anthropological Papers of the American Museum of Natural History* 32(2):199–439.
- \_\_\_\_\_. 1932a. Stratigraphical Research in Central Mexico. *Proceedings of the National Academy of Sciences* 18(7).

- \_\_\_\_\_. 1932b. A Pre-Columbian Jade and Where the Jade Tiger Was Discovered; Artistic Comparisons Which Suggest the Identification of a New Mexican Civilization. *Natural History* 32(6):512–520.
- \_\_\_\_\_. 1935. Chronology and Stratigraphy in the Maya Area. *Maya Research* 2(2):119–143.
- \_\_\_\_\_. 1938. A Correlation of Archaeological and Historical Sequences in the Valley of Mexico. *American Anthropologist* 40(4):535–73.
- Vaillant, Suzannah B., and George C. Vaillant. 1934. Excavations at Gualupita. *Anthropological Papers of the American Museum of Natural History* 35(1):1–135.
- Villacorta Calderón, Carlos A. 1939. *Estela 36, Piedras Negras: el original se encuentra en el Museo Arqueológico de la ciudad de Guatemala*. Guatemala City: Tipografía Cordon.
- Villacorta Calderón, José A. 1933a. Estelas de Piedras Negras. *Anales de la Sociedad de Geografía e Historia de Guatemala* 10:3–20.
- \_\_\_\_\_. 1933b. Estelas de Piedras Negras. *Revista del Museo Nacional de Guatemala* 4:65–84.
- \_\_\_\_\_. 1934. Estelas de Piedras Negras. *Revista de las Españas*, pp. 143–149.
- Wardle, H. Newell. n.d. Notes on Chiriquí Pottery. Unpublished manuscript.
- Wauchope, Robert. 1934. *House Mounds of Uaxactún, Guatemala; With Notes on the Pottery, by Edith B. Ricketson*. Washington, DC: Carnegie Institution of Washington.
- \_\_\_\_\_. 1938. *Modern Maya Houses: A Study of Their Archaeological Significance*. Washington, DC: Carnegie Institution of Washington.
- Webster, David L., and Amy M. Kovak. 1999. RS 27: Excavaciones en la periferia de Piedras Negras. In *Proyecto Arqueológico Piedras Negras: informe preliminar*, 3, ed. Hector L. Escobedo and Stephen D. Houston, pp. 319–34. Guatemala City: Universidad del Valle de Guatemala; Instituto Nacional de Antropología e Historia.
- William S. Godfrey, Jr (1916–1980). *Anthropology Newsletter* 21(5):3, 1980.
- Willoughby, Charles C. 1903. Piedras Negras, Newly Discovered City. *Scientific American* 89:221.

# INDEX

- Abandonment, 322, 327
- Academy of Natural Sciences, 44, 161, 385
- Acosta, J. de, 205
- Acropolis, 8, 16, 26, 27
  - Restoration drawing, 181–183; see also Sub-Acropolis structures
- Agouti, 129
- Aguacatán, 242
- Aguirre, B., 235
- Aké, 399
- Alfred V. Kidder Medal, 387
- Alta Verapaz, 115, 398
- Altars, 167
  - Altar 1, 8
  - Altar 2, 8, 25, 26, 63, 73
  - Altar 3, 8, 23
  - Altar 4, 8, 23
  - Altar 5, 23, 150
  - Column Altars, 8, 202
  - Column Altar 1, 202
  - Column Altar 3, 193, 202
  - Column Altar 4, 195, 202
  - Drum altars 22, 25, 150, 332, 333, 335–338
  - Portable altars, 320, 321, 325, 326
- Alvaro Obregon, 156
- American Geographical Society, 385
- American Museum of Natural History, 386
- American Philosophical Society, 157, 386
- Amram, D., 11, 158, 161, 385
- Amsden, M., 173
- Anta, 167
- Apron face, 227
- Apron molding, 167
- Archaeological Institute of America, 11
- Archaic period, 111, 131
- Architecture, 155–170
- Armadillo, 161
- Arreola, J. M., 242, 245, 247
- Arroyo Chinikiha, 160
- Atitlán, lake, 112, 113
- Awl, bone, 359
- Aztec, 127, 247
- Baker, M. L., 5, 8, 237
- Baking Pot, 120
- Balakbal, 386
- Ballcourt, 205–240; see also Structures K-6 and R-11
  - Aprons, 209, 227
  - Bench, 206, 227
  - Double-T shape, 207
  - Extension, 207
  - Field, 207
  - I-shape, 207
  - Inner, 208
  - Lines, 208
  - Markers, 208, 221–224, 235–237
  - Niches, 209
  - Playing surface, 209
  - Ramp, 210
  - Stop-surfaces, 209
  - Structure, 206
- Beads, Bone, 359
  - Clay, 128
  - Shell, 357
- Becan, 386
- Belize, 46, 94, 111, 124, 127, 387; see also Baking Pot, Cahal Pech, Caracol, Lubaantún, Mountain Cow, Tzimin
  - Kax, Xunantunich
- Benches, 334, 335, 390–394
  - Bench 9, 390
  - Bench 10, 391
- Berendt, K. H., 4, 5, 267
- Blom, F., 3, 7, 20, 29, 48, 157, 173, 205, 210, 399
- Board of Economic Welfare, 385
- Boca del Cerro, 160
- Bolles, J. S., 57, 158
- Bonampak, 5
- Bone, 359
- Bowditch, C. P., 394
- Boyer, F., 386
- Brasseur de Bourbourg, C. E., 394
- Brinton, D. G., 4
- British Museum, 11
- Bryn Mawr, PA, 385
- Burial vault, 354
- Burials, 3, 27, 44, 47, 150, 236; see also Cremation
  - Burial 1, 354–356
  - Burial 2, 354, 356, 357
  - Burial 3, 354, 358, 359
  - Burial 4, 236, 237, 343, 360, 361
  - Secondary burials, 356
- Burkitt, R., 4, 5, 48
- Butler, M., 2, 3, 5, 7, 8, 11, 155, 158, 385, 395
- Butler, S. D., 385
- Byers, D., 244
- Caches, 23, 44, 78, 202, 226, 338
  - Cache 1, 44
  - Cache 2, 44
  - Cache 3, 44
  - Cache 4, 44
  - Cache 5, 44
  - Cache vessels, 105
- Cahal Pech, 5
- Calakmul, 57
- Calcite, 115
- Campeche, 112, 124, 127, 156
- Cancuen, 393
- Capstones, 321, 326
- Caracol, 4, 5, 7, 387
- Carnegie Institution of Washington, 1, 8, 11, 15, 20, 29, 34, 57, 155, 157–159, 181, 386

- Cartographic conventions see Mapping  
 Carved Orange pottery see Pottery: Orange 3  
 Casa Grande see Structure J-9  
 Cave, 5 8  
 Cedar, 161  
 Ceiling see Roofing  
 Celt, 150, 236  
 Censer, 58, 150, 151  
   Effigy 105  
   Lacandon 105  
   Ladle 105  
   Spiked 105  
 Ceramic Technology Project, 385  
 Cerro Zapote, 111  
 Chacamax river, 160  
 Chajcar, 124  
 Chalchuapa, 5  
 Chamá, 5, 92, 112, 113, 119, 124, 396, 399  
 Chamber, 354  
 Chambon, L., 1, 7  
 Chana, 386  
 Charnay, D., 10  
 Chert see Flint  
 Chicazapote, 161  
 Chichel, 48  
 Chichén Itzá, 5, 15, 46, 113, 158, 159, 173, 210, 242, 244–246,  
   256, 266, 386, 393, 395, 398  
 Chihuahua, 122  
 Chihuatal, 94  
 Children, 358, 359  
 Chipal, 48, 119  
 Chiriquí, 121  
 Chixoy river, 115, 160  
 Chronology, 78, 225, 237–239, 398  
 Chuitinamit, 120  
 Chukumuk, 115  
 Cist period see Postclassic period  
   Cists, 22, 150, 190, 333, 354–359  
   Cist 1, 334, 339–341  
   Cist 2, 334, 339–341  
   Cist 3, 334, 339–341  
   Cist 4, 25  
   Cist 6, 25  
   Cist 7, 25  
   Cist 8, 25  
   Stela cists, 153  
 Classic period, 112–115  
 Clavigero, F. S., 247  
 Cobá, 265  
 Codex Magliabecchiano, 247  
 Coe, W. R., 2, 5  
 Colton, H. S., 210  
 Column altar see Altars  
 Concrete, 48, 204, 227, 240, 279, 328, 342  
 Construction material, 62–63, 81–83, 162–163  
 Construction sequence, 36, 37, 78, 79, 83–84, 145–146, 212,  
   213, 215–221  
 Copán, 5, 11, 48, 92, 94, 96, 101, 112, 113, 115, 120, 124,  
   159, 205, 393  
 Costa Rica, 122  
 Courts, 319  
   Court 1, 26, 67  
   Court 2, 26, 27, 28, 399  
   Court 3, 26, 27, 28  
 Cremation, 333, 342  
 Cresson, F. M., 6, 8, 158, 184, 241, 267, 329, 385, 389  
 Crocodile, 161  
 Cuchumatán mountains, 244  
 Curtain holder, 259  
 Deer, 47, 161  
 Del Río, A., 73  
 Denison, J. H., 386  
 Dentition, 342, 356, 357  
 Dental modification, 359  
 Desempeño, 161  
 Designations, 175–178  
   Group, 175  
   Mound, 171  
   Section, 175  
   Structure, 171, 175  
*Diccionario Motul*, 246  
*Diccionario pokomchi-castellano*, 267  
 Dieseldorff, E. P., 7  
 Dish indentation, 91  
 Diving god, 131  
 Drainage, 256  
   Slab-lined, 89  
 Drum altars see Altars  
 Duck, 161  
 Dwellings, 318  
 Earplug, 128–130  
 Edificio de 8 Apostentos see Structure P-7  
 Egan-Wyer, T. 7, 11, 16, 158, 386  
 El Cayo, 17, 161  
 El Chile, 158, 161, 266  
 El Mirador, 5  
 El Paraiso, 266  
 El Porvenir, 160  
 El Quiché, 112, 121  
 El Retiro, 161  
 El Salvador see also Cerro Zapote, Chalchuapa, Santa Elena  
 Epigraphy, 386, 387  
 Escobedo, H., 2  
 False pyramids, 23, 140  
 Feldspar, 115  
 Field Museum of Natural History, 11, 386  
 Figurines, pottery, 44, 121–139, 151, 236, 383  
   Anthropomorphic, mold-made 122–127;  
   Anthropomorphic, modeled 127  
   Zoomorphic, mold-made 127, 128  
   Zoomorphic modeled 128  
   Personal ornaments 128  
 Filadelfia, 161  
 Fill, 169, 203, 227, 240, 323, 330, 332, 342, 371  
 Fire chamber, 251, 252, 257, 258  
 Fish, 161  
 Fitler, W. W., 157  
 Flint, 23, 25, 78, 226, 359  
 Blades, 342  
 Lenticular blades, 150  
 Eccentrics, 338  
 Floors, 42, 62, 81, 323, 372  
 Flue, 252  
 Frog, 161  
 Gamio, M., 7, 157, 242  
 García, F., 157

- Glaxo Smith Kline, 386  
 Glyphs, introducing, 36  
 Godfrey, M. A., 386  
 Godfrey, W. S., 158, 385, 386  
 Gordon, G. B., 5, 205  
 Gordon, S. G., 44  
 Grasshoppers, 385  
 Greenstone, 236  
 Groups, 175  
     East Group, 17, 21–24, 107, 129  
     Northwest Group, 17, 28  
     South Group, 16–21, 107, 129, 395  
     Southeast Group, 16, 17, 28, 29, 108–111, 129  
     West Group, 8, 17, 24–28, 129, 153, 267, 398  
 Guatemala see also Aguacatán, Alta Verapaz, Atitlán, Cancuen, Chajcar, Chamá, Chichel, Chipal, Chuitinamit, Chukumuk, Cuchumatán, Desempeño, El Chile, El Mirador, El Paraíso, El Porvenir, El Quiché, El Retiro, Holmul, Kaminaljuyú, Kixpek, La Muralla, Lake Atitlán, Motagua River, Nakúm, Naranjo, Nébaj, Pueblo Viejo Aguacatán, Quen Santo, Quiriguá, Rabinal, Salama, Salcaja, San Agustín Acasaguastlán, San Francisco El Alto, San Pedro Carcha, Santa Lucia Cotzumalhuapa, Tactic, Tayasal, Tikal, Uaxactún, Utatlán, Xolchún, Xutilha, Zaculeu  
 Hallowell, H. J., 44  
 Hammerstone, 226  
 Haury, E. W., 210  
 Healey, G., 5  
 Hematite, 342  
 Hochob, 92  
 Holley, G., 2  
 Holmes, W. H., 181  
 Holmul, 92, 94, 96, 99, 112, 120, 393, 398  
 Honduras see also Copán, Ulúa River  
 Horton, D., 396, 398  
 House A see Sub-Acropolis Structure 3  
 House B see Sub-Acropolis Structure 4  
 Houston, S. D., 2  
 Howler monkey, 161  
 Hudson Valley Archaeological Survey, 385  
 Hummingbird, 161  
 Iguana, 161  
 Insect, 161  
 International School of Archaeology and Ethnology, 386  
 Isla de Sacrificios, 395  
 Itzincab, 399  
 Jacalteco, 266  
 Jade, 78, 128, 357, 359  
 Jadeite see Jade  
 Jaguar, 161  
 Jaina, 398, 399  
 Jatate river, 160  
 Jayne, H.H.F., 1, 7, 157  
 Jenks, J. S., 157  
 Johnson, E. R., 7, 11, 157  
 Jones, C., 6  
 Jonuta, 101, 113, 119, 122, 124, 393, 399  
 Joyce, T. A., 10, 46  
 Kaminaljuyú, 111, 124  
 Keeley, F. J., 44  
 Kekchí, 5  
 Kidder, A. V., 1, 210  
 Kilmartin, J. O., 173  
 Kixpek, 5, 101, 103, 112, 113, 119, 396  
 La Farge, O., 7, 244  
 La Muralla, 386  
 La Reforma, 160  
 Labná, 120, 398, 399  
 Labor, 163, 164  
 Labrets, 357  
 Lacandon, 58, 161, 333, 400  
 Lacantún river, 160  
 Laguna de Terminos, 160  
 Landa, D. de, 163, 246, 393  
 Lenticular blade see Flint  
 Lintels, 159, 261  
     Lintel 1, 8, 23, 153  
     Lintel 2, 8, 23, 47, 73, 149, 153  
     Lintel 3, 8, 23, 71, 73, 149, 153, 331, 393  
     Lintel 4, 8, 19, 122, 149, 153, 330  
     Lintel 5, 8, 25, 140, 149, 150  
     Lintel 6, 153  
     Lintel 7, 8, 24, 149  
     Lintel 8, 26, 149, 329–331  
     Lintel 9, 26, 330, 331  
     Lintel 10, 28, 359  
     Lintel 11, 19, 149, 153  
     Lintel 12, 8, 23, 25, 149, 153, 330  
     Lintel 14, 8, 19, 29, 47  
     Lintel 57, 8  
 Lithics, 46; see also Flint, Manos, Metates, Obsidian  
 Lizard, 161  
 Lothrop, S. K., 228, 242  
 Lubaantún, 34, 122, 129  
 Macabillero, 161  
 Macaw, 161  
 MacGowan, K., 210  
 Madeira, P. C., 5, 7, 156, 157  
 Mahogany, 161  
 Maler, T., 1, 3, 8, 10, 18, 25, 29, 73, 150, 153, 155, 160, 170, 388  
 Manos, 46, 226, 236, 327  
 Mapping, 11–15, 170–181  
     Cartographic conventions, 171  
 Marian Angell Godfrey Boyer Medal, 386  
 Marquina, I., 159  
 Mason, J. A., 1, 5, 8, 11, 16, 155, 157, 158, 228, 242, 386, 388  
 Masonry, 79, 203, 227, 240, 322, 323, 328, 332, 342, 362, 371, 372  
 Maudslay, A. P., 7  
 Maxcanú, 400  
 McGregor, J. C., 210  
 Mendoza, S., 158, 386  
 Mercer, H., 4  
 Merwin, R., 34  
 Metate, 46, 226  
 Mexico see Becán, Bonampak, Calakmul, Campeche, Chichén Itzá, Chihuahua, Cobá, El Cayo, Hochob, Jaina, Jonuta, Labná, Maxcanú, Milpa Alta, Palenque, Río Bec, Tabasco, Tancá, Tenosique, Teotihuacán, Texcoco, Tonalá, Tulúm, Uxmal, Valley of Mexico, Veracruz, Yalloch, Yaxchilan, Yucatan  
 Milpa Alta, 246, 256  
 Minerals, 44



- Miscellaneous Stone Sculpture *see* Sculpture
- Mold, figurine, 130
- Moore, L., 7
- Morley, S. G. 3, 7, 8, 10, 29, 138, 140, 146, 157, 159, 170, 190, 210, 242, 266
- Morris, E. H., 266
- Mortar, 48
- Motagua river, 115, 396
- Mountain Cow, 99
- Mundo Nuevo, 161
- Nakúm, 112, 120, 127, 393
- Naranjo, 127
- National Geographic Society, 385
- Nébaj, 5
- Negative painting, 90
- Nelson, Z., 8
- New World Archaeological Foundation, 386
- Newport Tower, 385
- Nicaragua *see* Rivas
- Noguera, E., 157
- Norris, E., 7
- Nueva Orizaba, 160
- O'Neill, J. P., 173
- Oaxaca *see* Yucununahui
- Obsidian, 23, 226, 338, 362
- Old Empire *see* Classic period
- Olmec, 127
- Opossum, 47
- Order of the Quetzal, 387
- Oxpemul, 386
- Palaces, 50–89, 169; *see also* Structures J-2, J-6, J-9, J-11, J-13, J-18, J-21, J-23
- Palenque, 7, 56, 62, 73, 122, 155, 158, 160, 256, 391, 393, 400
- Palizada, 160
- Palma, E., 1, 7, 10
- Palo Blanco, 266
- Panama *see* Chiriquí
- Panel stone, 169
- Pared de los Reyes, 386
- Parris, F. P., 7, 8, 11, 15, 16, 29, 158, 171, 190, 213, 267, 386
- Parrot, 161
- Pasión river, 160
- Paso Caballo, 161
- Peabody Museum of American Archaeology and Ethnology, Harvard University, 10, 23, 34, 73, 138, 396, 400
- Peccary, 47
- Pennsylvania Historical Commission, 385
- Pennsylvania State University, 386
- Penrose, B., 157
- Pérez, A. E., 7
- Pérez, O., 245
- Personal ornaments, pottery, 128
- Petate, 245
- Petroglyphs, 18
- Petrographic analysis, 115–121
- Pezzati, A., 7
- Philadelphia Museum of Art, 386
- Philadelphia Orchestra, 386
- Piers, 59, 60, 79, 169, 329, 332
- Pilsbry, H. A., 44
- Pinelo, V. M., 158, 386
- Plaster, 48, 204, 227, 240, 323, 328, 342
- Finishing plaster, 48
- Platforms
- Building platforms, 324, 375
- Platform, basal, 167, 324
- Platform courts, 169
- Platform of the Twenty-Five Altars *see* Structure O-7
- Supplementary platforms, 169, 320, 375
- Plaza, 169, 343–362
- Plazuela *see* Plaza
- Plinth, 169
- Plumbate pottery *see* Pottery: Plumbate,
- Pokonchi, 249, 266
- Pollock, H.E.D., 158, 265
- Postclassic period, 341
- Postel, W. A., 90
- Pottery, 44, 90–139, 202, 203, 226, 385, 395–400
- Pottery, Classification:
- Black 1, 103
- Black 2, 103
- Black, Miscellaneous, 103
- Brown 1, 103
- Brown 2, 103
- Brown, Miscellaneous, 103
- Carved Gray, 395, 396, 398, 400
- Carved Slate, 395, 398, 400
- Dark on Light Orange, 96
- Dark on Light Red, 96
- Engraved Red, 398, 400
- Fine Orange, 395, 398, 400
- Fine Slate, 396, 398, 399
- Gray Slate, 396
- Mottled, 101–103
- Orange 1, 98;
- Orange 2, 98, 99
- Orange 2a, 99–101
- Orange 3, 101, 395, 396
- Orange, 96
- Plumbate, 124, 395, 398, 400
- Polychrome A-1, 91, 92
- Polychrome A-2, 92
- Polychrome B, 92
- Polychrome C, 92
- Polychrome C-1, 92–94
- Polychrome D, 94
- Polychrome D-1, 94
- Polychrome E, 94
- Red 1, 103
- Red, Miscellaneous, 103
- Unslipped, 105
- Usulután, 111
- Yellow, 101
- Pottery, Forms; *see also* Censers
- Bowls, 90
- Dishes, 90
- Disks, 226, 342, 359
- Household or storage vessels, 105
- Jars, 90
- Masks, 151
- Miniature vessels, 105
- Plates, 90
- Pottery cache vessels *see* Caches
- Pottery counters, 46
- Proskouriakoff, T., 2, 8, 158, 161, 171, 184, 210, 386, 389
- Pueblo Viejo Aguacatán, 159
- Pure rock fill, 48

- Puuc, 393  
 Pyramid, 169; see also Structure
- Quartz, 115  
 Quen Santo, 99  
 Quiché, 248  
 Quiriguá, 5, 11, 120, 159, 242, 266
- Rabinal, 24  
 Raccoon, 130  
 Ramon, 161  
 Rands, R., 2  
 Raw materials, 48  
 Red paint, 27, 68, 369  
 Rehn, J.A.G., 44  
 Reygadas Vertiz, J., 159  
 Ricketson, O. G., 7, 8, 10, 159, 170, 173, 228  
 Río Bec, 386  
 Rivas, 121  
 Roberts, H. B., 138  
 Roofing, 259–261, 330, 368, 369  
     Beam-and-mortar roofing, 167  
 Ross, J. H., 7, 158, 387  
 Rubber, 161  
 Ruppert, K., 3, 29, 158, 210, 242, 386
- Sacrificial Rock, 15, 17, 18  
 Sahagun, B. de, 246  
 Salama, 5  
 Salcaja, 111  
 San Agustín Acasaguastlán, 396  
 San Francisco El Alto, 48, 386  
 San José rapids, 160  
 San José Usumacinta, 161  
 San Juan Teotihuacan see Teotihuacan  
 San Martín de los Piramides, 245  
 San Pedro Carcha, 5  
 San Pedro Martir river, 160  
 Sanborn, C. A., 7  
 Santa Clara lake, 161  
 Santa Elena, 111  
 Santa Lucia Cotzumalhuapa, 159  
 Satterthwaite, L., 1–4, 6, 7, 158, 159, 387, 389  
 Satterthwaite, M. C., 387, 389  
 Sculpture, 330  
     Miscellaneous Stone Sculpture 1, 23, 150  
     Miscellaneous Stone Sculpture 4, 34  
     Miscellaneous Stone Sculpture 5, 34  
     Miscellaneous Stone Sculpture 9, 71, 73, 390  
     Miscellaneous Stone Sculpture 10, 8  
     Miscellaneous Stone Sculpture 16, 8  
 South Group Ball Court Sculptured Stone, 8  
 Section drawings, 181  
 Sharer, R. J., 5  
 Shark, 357  
 Shell, 44, 46, 78, 226, 342, 357  
 Shook, E. M., 5, 158, 266  
 Sills, 169  
 Slabs, 48  
 Smith, A. L., 158, 173, 205, 400  
 Smith, H. M., 161  
 Smithsonian Institution, 161  
 Snake, 161  
 Solar deity, 356  
 Sotutá, 399
- South Group Ballcourt, 20; see also Structure R-11  
 Spider monkey, 161  
 Spinden, H. J., 10, 73  
 Spindle whorl, 44, 226, 353, 359  
*Spondylus* shell, 128  
 Stair-side extension, 169  
 Stairways, 44, 83, 330, 335, 374  
 Stalacite, 327  
 Standard Fruit and Steamship Company, 158  
 Steam screen, 250, 251  
 Stela, 146–149, 189, 197, 385, 389  
     Stela 1, 8, 10, 25  
     Stela 2, 8, 19, 25  
     Stela 3, 8, 10, 25, 393  
     Stela 4, 8, 25  
     Stela 5, 8, 25  
     Stela 6, 8, 25, 393  
     Stela 7, 8, 25  
     Stela 8, 25, 150  
     Stela 9, 8, 25, 146, 150, 153  
     Stela 10, 8, 25, 146, 153  
     Stela 11, 8, 23, 25, 146, 150, 153  
     Stela 12, 8, 23, 393  
     Stela 13, 8, 23  
     Stela 14, 8, 10, 23  
     Stela 15, 8, 11, 23  
     Stela 16, 23  
     Stela 17, 23  
     Stela 18, 23  
     Stela 19, 23  
     Stela 20, 23  
     Stela 21, 23  
     Stela 22, 22  
     Stela 23, 22  
     Stela 24, 19  
     Stela 25, 8, 19, 189, 190  
     Stela 26, 8, 19, 190  
     Stela 28, 18  
     Stela 29, see Lintel 14  
     Stela 30, 19  
     Stela 31, 8  
     Stela 32, 8, 19  
     Stela 33, 8, 19  
     Stela 34, 8, 19  
     Stela 35, 8, 19  
     Stela 36, 8, 19, 73  
     Stela 37, 19  
     Stela 40, 8, 11, 25, 146  
     Stela 41, 21  
     Stela 42, 19  
     Stela 43, 25  
     Stela 44, 19  
     Stela 45, 47, 225  
 Stela cists see Cists  
 Sting-rays, 78, 357  
 Stoll, Otto, 248  
 Stone vessels, 353  
 Storage vessels see Pottery forms: Household or storage vessels  
 Stromsvik, Gustav, 46  
 Structures see also Sub-Acropolis structures, Platforms  
     Structure E-1, 28  
     Structure E-2, 28  
     Structure F-1, 28  
     Structure F-3, 7, 318–323  
     Structure F-4, 7, 323–328

Structure J-1, 7, 25  
 Structure J-3, 7, 25, 140–153  
 Structure J-3-2nd, 25  
 Structure J-4, 7, 25  
 Structure J-5, 7, 27  
 Structure J-6, 7, 27, 50–89  
 Structure J-6-2nd, 74–78  
 Structure J-7, 7, 27  
 Structure J-8, 7, 27  
 Structure J-9, 7, 27  
 Structure J-10, 7, 27  
 Structure J-11, 7, 27  
 Structure J-12, 7, 27, 390, 399  
 Structure J-13, 7, 28  
 Structure J-15, 28  
 Structure J-16, 28  
 Structure J-17, 7, 27, 28  
 Structure J-18, 7, 27, 378–380  
 Structure J-19, 7, 28  
 Structure J-2, 7, 25–27, 50–89  
 Structure J-20, 7, 26–28  
 Structure J-21, 7, 28  
 Structure J-22, 7, 26–28  
 Structure J-23, 8, 26–28  
 Structure J-24, 8, 26, 28, 380, 381  
 Structure J-25, 26, 28  
 Structure J-26, 26, 28  
 Structure J-27, 26  
 Structure J-29, 8, 28  
 Structure K-1, 22, 24  
 Structure K-2, 22  
 Structure K-3, 22, 24  
 Structure K-5, 8  
 Structure K-5-1st, 8  
 Structure K-5-2nd, 24  
 Structure K-5-3rd, 8, 24  
 Structure K-6, 8, 24, 30–49, 205, 228–240  
 Structure K-7, 24  
 Structure N-1, 267–280  
 Structure N-1, 8, 26, 267–280  
 Structure N-1-1st-A, 273–276  
 Structure N-1-1st-B, 271–273  
 Structure N-1-2nd, 269–271  
 Structure O-1, 20, 21  
 Structure O-2, 8, 21, 377, 378  
 Structure O-2-a, 21  
 Structure O-3, 8, 21, 383  
 Structure O-4, 8, 21  
 Structure O-5, 21  
 Structure O-6, 21  
 Structure O-7, 8, 21, 23, 46, 332–342  
 Structure O-7-1st, 335–338  
 Structure O-7-2nd, 334  
 Structure O-8, 22  
 Structure O-9, 22  
 Structure O-10, 22  
 Structure O-11, 22  
 Structure O-12, 8, 22, 23, 28  
 Structure O-13, 8, 18, 23, 150  
 Structure O-13-2nd, 23  
 Structure O-14, 23  
 Structure O-15, 8, 23  
 Structure O-16, 8, 23  
 Structure O-17, 26  
 Structure O-18, 8, 26, 328–332

Structure P-1, 22  
 Structure P-2, 22  
 Structure P-3, 28  
 Structure P-4, 28  
 Structure P-5, 22  
 Structure P-6, 8, 22, 24, 28, 373–376  
 Structure P-7, 7, 22, 24  
 Structure R-1, 8, 18  
 Structure R-2, 8, 18, 19  
 Structure R-3, 8, 18, 19, 20  
 Structure R-4, 8, 18, 19  
 Structure R-5, 8, 19, 20, 29  
 Structure R-6, 19  
 Structure R-7, 8, 20  
 Structure R-8, 20  
 Structure R-9, 8, 19, 184–204  
 Structure R-10, 8, 19  
 Structure R-11, 30–49, 210–228  
 Structure R-11-1st-A, 219  
 Structure R-11-1st-B, 218, 219  
 Structure R-11a-b, 8, 20  
 Structure R-12, 20  
 Structure R-13, 8, 20  
 Structure R-14, 20  
 Structure R-15, 8, 20  
 Structure R-16, 8, 21  
 Structure S-1, 28  
 Structure S-2, 8, 28  
 Structure S-4, 8, 28  
 Structure S-5, 8, 381–383  
 Structure S-17, 8  
 Structure S-18, 8  
 Structure S-19, 8  
 Structure U-1, 18  
 Structure U-2, 18  
 Structure U-3, 8, 18  
 Structure U-4, 18  
 Structure U-5, 18  
 Structure U-6, 18  
 Structure U-7, 18  
 Structure U-8, 18  
 Structure U-9, 18  
 Structure V see also Structure P-7  
 Structure V-1, 8, 28; plazuela, 343–362  
 Structure V-1-1st-A, 352–354  
 Structure V-1-1st-B, 352–354  
 Structure V-1-2nd-A, 350–352  
 Structure V-1-2nd-B, 350–352  
 Structure V-1-3rd-A, 348–350  
 Structure V-1-3rd-B, 348–350  
 Structure V-2, 8, 29  
 Structure V-3, 8, 29  
 Structure I see Structure J-4  
 Structure II see Structure J-3  
 Structure III see Structure O-13  
 Structure IV see Structure O-12, Structure R-5  
 Structure IX see Structure R-4  
 Structure VI see Structures R-9 and R-10  
 Structure VII see Structure R-1  
 Structure VIII see Structure R-3  
 Structure X see Structure R-5  
 Structure X-5, 24

Stuart, D., 7

Stucco, 23, 48, 151, 169, 369, 383

Sub-Acropolis Structures, 363–372

- Sub-Acropolis Structure 1, 365, 366
- Sub-Acropolis Structure 3, 366–369
- Sub-Acropolis Structure 4, 369
- Sweathouses, 241–317, 385; see also Structures J-17, N-1, O-4, P-7, R-13, S-2, S-4, S-19
  - Benches, 252
  - Ceiling, 255
  - Drainage and entrance arrangements, 249, 250, 256
  - Enclosing structure, 252
  - Exterior niche, 252
  - Heat and steam producing arrangements, 250–252, 256–259
  - Heat and steam retaining arrangements, 252, 259–261
  - Identification traits, 261–263
  - Roofing, 252
- Tabasco, 124
- Tabular stone, 169
- Tactic, 249
- Tancah, 265
- Tayasal, 5
- Teeth see Dentition
- Temazcalli see Sweathouses
- Temples, 170, 184–204
  - Temple of Eight Chambers see Structure P-7
  - Templo de la Estela 28 see Structure R-1
  - Templo de la Estela 29 see Structure R-3
  - Templo de la Estela 30 see Structure R-4
  - Templo de las 10 Estelas see Structure O-13
  - Templo de las 3 Estelas see Structure J-3
  - Templo de las 8 Estelas see Structure J-4
  - Templo de las Estelas 22 y 23 see Structure O-12
  - Templo de las Estelas 24–27 see Structures R-9 and R-10
  - Templo de las Estelas 32–37 see Structure R-5
- Tenosique, 10, 156, 157
- Teotihuacán, 121, 245, 396, 397
- Texcoco, 127
- Tezcatlipoca, 247
- Thrones, 8, 27, 68–73, 170, 331, 390–394
- Throne 1, 390, 393
- Throne 2, 390
- Throne 3, 390
- Ticks, 161
- Ticul, 398
- Tikal, 5, 73, 161, 386, 391
- Toad, 161
- Todd, M. C., 7
- Toltec, 128
- Tonalá, 159
- Toro, A., 159
- Toucan, 161
- Tozzer, A. M., 73, 266
- Tulum, 265
- Turtle, 47
- Tzeltal, 266
- Tzimin Kax, 112
- Uaabal, 386
- Uaxactán, 11, 92, 99, 112, 131, 159, 161, 205, 256, 393, 395, 396, 398
- Ulúa river, 101, 120, 127
- Unclassified Buildings and Substructures; see also Structures F-3, F-4, J-19, J-24, O-2, O-3, O-7, O-18, P-6, S-5, Structure V-1 plazuela, and Sub-Acropolis Structures 1, 3, and 4
- Unit, 170
- United Fruit Company, 158
- Universidad del Valle de Guatemala, 7
- University of Pennsylvania, 387
  - Archives, 5–7
  - Burkitt Collection, 396
  - Fairchild Aerial Survey, 5, 157
  - Museum, 4–6, 23, 27, 90, 155, 356, 385, 386, 388, 389, 398
  - Tikal Project, 3, 4, 387
  - Usumacinta river, 10, 101, 112–115, 122, 127, 129, 131, 159, 160, 266, 388, 393, 398–400
- Utatlán, 159
- Uxmal, 158
- Uxul, 386
- Vaillant, G. C., 386, 398, 400
- Valley of Mexico, 127, 128
- Vassar College, 385
- Vaults, 59–62, 79, 323; see also Burial vaults
- Veneer, 170
- Ventura Mendez, M., 245
- Vera Cruz, 101
- Villacorta B., C. A., 157
- Villacorta C., J. A., 157
- Villanueva G., F., 7, 157
- Walls, 42, 59, 60, 79, 203, 227, 240, 323, 328, 332, 372, 372
  - Basal walls, 167
  - Partition walls, 328
  - Retaining walls, 342
  - Sherd wall, 256, 257
- West Group Ball Court see Structure K-6
- Whistle, bird-effigy, 78
- Wild pig, 161
- William Simpson and Sons, 385, 386
- Window, 170
- Works Progress Administration, 385
- Xochicalli, 247
- Xolchún, 48, 159
- Xunantunich, 5
- Xutilhá, 5
- Yalloch, 94, 112
- Yaxchilan, 20, 34, 57, 73, 101, 124, 127, 155, 158–161, 266, 321, 327, 386, 393, 396, 400
- Yoalticatl, 247
- Yoxihá, 398, 400
- Yucatan, 265, 266, 398
- Yucunahui, 205
- Zaculeu, 159
- Zapote, 161