

**CUCA, CHACCHOB
DZONOT AKÉ**

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**Three Walled  
Northern Maya Centers**

**David Webster**



**Occasional Papers in Anthropology  
Department of Anthropology  
The Pennsylvania State University  
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Those involved in the production of the final manuscript include Carol Leathers, who typed most of it, Robert Santley, who produced some of the drawings, and Carson Murdy and Rebecca Storey, who were responsible for the Spanish abstract.



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## INTRODUCTION \*

A subject of considerable interest to archaeologists concerned with prehistoric evolutionary processes is the role of warfare, as a specific form of human competition, in the emergence and structuring of prehistoric complex societies. I have elsewhere (Webster, 1976a, 1977) maintained that contrary to traditional reconstructions, warfare was an important factor in the evolution of Lowland Maya civilization.

My own recent attempts to document Maya warfare have focused on the analysis of defensive systems, which are becoming increasingly well-known in the Maya lowlands of Yucatan and northern Guatemala (Figure 1). The study of defensive arrangements is attractive and productive from the archaeological point of view in several respects. First, formal defensive systems, especially those composed of earth or masonry, are usually quite preservable and visible to the archaeologist. The functional interpretation of defensive features is relatively straightforward and their configurations and sizes can be assumed to be closely related to the scale, intensity, technology, and organization of prehistoric military operations. Spatial and temporal patterning of defensive systems on the Maya landscape will, when sufficiently well-known, provide insights into regional Maya political relationships and their shifts through time.

A respectable tradition of Lowland Maya military architecture has long been known to exist (Webster, 1976b). Early Spanish explorers and soldiers, including Cortez on his march through the southern lowlands enroute to Honduras and the Montejos, who finally pacified the region, encountered a wide variety of native defensive systems. Earlier, during the Postclassic period (roughly from 1000-1500 A.D.) centers such as Tulum and Mayapan were heavily fortified. Indeed, the Postclassic has traditionally been identified, as a developmental stage, with increasing militarism, stimulated in part by the intrusion of Mexican or Mexicanized groups into the Lowland Maya zone.

Although evidence for the preceding Classic period (ca. 250-1000 A.D.) is sparser, there are major defensive earthworks at Tikal which may be of Early Classic date. My earlier work at Becan, in southern Campeche, Mexico, has revealed that one of the most impressive Mesoamerican fortifications was erected at the very end of the Pre-classic (ca. 150 A.D.) and continued to function at least intermittently as a military barrier for several centuries.

The subject of this report is a program of mapping and test-pitting carried out under my direction at three walled sites located in the northern Maya lowlands during the winter of 1976-77. The sites tested were Cuca, located northeast of Merida, Dzont Aké, near Tizimin in extreme northeastern Yucatan, and Chacchob, lying just north of the Puuc hills and southeast of the modern town of Teabo (Figure 2). All three sites have long been known to Maya archaeologists. E.W. Andrews IV first visited Cuca in 1942, but the concentric walls surrounding the

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\*A Spanish Abstract is found in Appendix E.

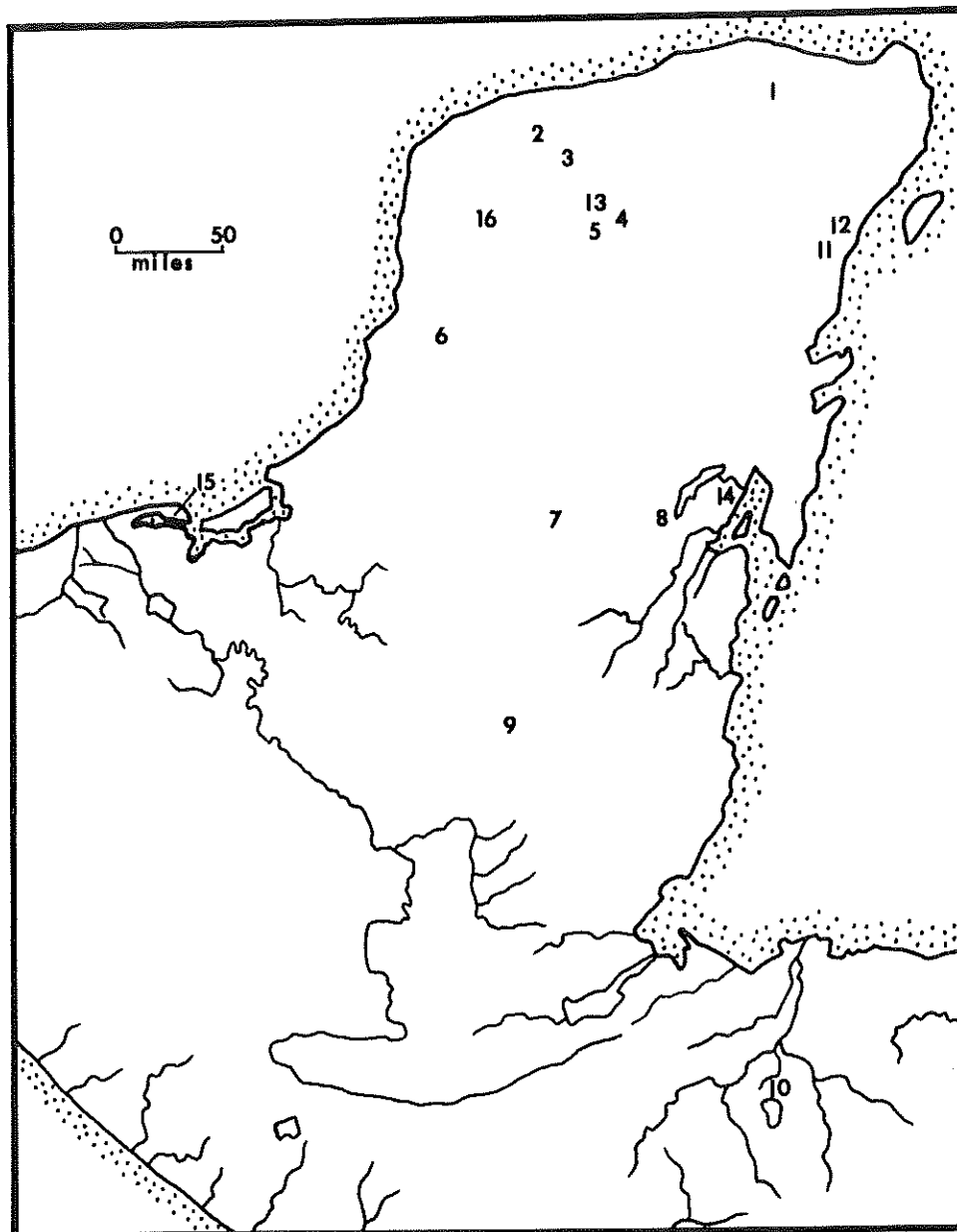


Fig. 1 Sites in the Maya Lowlands which have walls or other configurations known to have defensive potential.

- |                            |                 |
|----------------------------|-----------------|
| 1 Dzonot Aké               | 9 Tikal         |
| 2 Cuca                     | 10 Los Naranjos |
| 3 Aké                      | 11 Tulum        |
| 4 Chacchob                 | 12 Xelha        |
| 5 Muna                     | 13 Mayapan      |
| 6 Edzna                    | 14 Ichpaatun    |
| 7 Becan                    | 15 Aguacatal    |
| 8 La Victoria,<br>Acatucha | 16 Uxmal        |



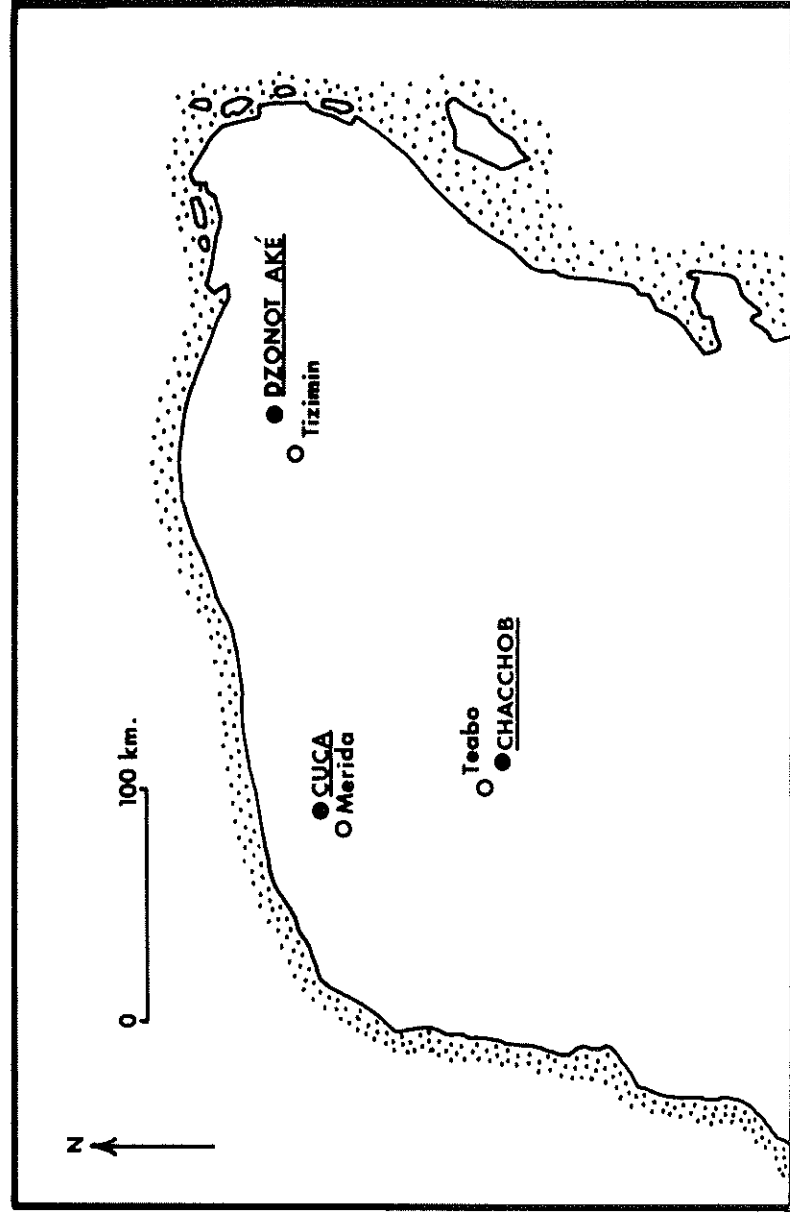


FIG. 2

site were not discovered until much later (Kurjack and Andrews V, 1976). Roys and Chamberlain reconnoitered Dzonot Aké in the early 1940s and noted what they thought were a "ditch and rampart" associated with the site (Roys, 1943:68). Chacchob has been known as a walled site since at least 1845, when an article entitled "Una Ciudad Murada" was published in the Registra Yucateco by Fray Estanislao Carrillo. Carrillo recognized the wall as an unusual feature not found at other Maya sites he had seen. More than a century later in 1952 Chacchob was the object of a brief three-day survey by Carnegie personnel (Pollock and Stromsvik, 1953).

Until our work, none of the sites had received more than cursory archaeological attention. Pollock and Stromsvik produced a surprisingly accurate map of the wall and major ceremonial structures at Chacchob, but most of the architecture at the site remained unrecorded and they collected only a small ceramic sample from a single test pit. No excavations had been carried out at Cuca or Dzonot Aké, and the only map of either site was a sketch map of Cuca based upon aerial imagery (Kurjack and Andrews V, 1976). Intact architectural elements clearly in the Puuc tradition were visible at both Cuca and Chacchob, indicating at least late occupations in the range of 750-1000 A.D., but no such intact features existed at Dzonot Aké.

Principal objectives of the 1976-77 project were: (1) clearing and mapping of all sites, and especially the wall-systems and associated features; (2) analysis and excavation of wall-systems to ascertain their original configuration, construction techniques, and probable functions; and (3) determination of major occupation phases at each site and the chronology of wall construction in relation to them.

Since the functional interpretation of boundary features with special focus on their military potential is a major concern of this study, I would like to expand a bit on it before going further. Anyone with a good knowledge of the ethnographic literature can point out a number of functions which boundary features may serve. Among the most common are:

- 1) military defense or protection against predators;
- 2) symbolic delineation of sacred space;
- 3) delineation and/or protection of social space and property;
- 4) control of human traffic and commerce;
- 5) restriction of access to elite/administrative zones;
- 6) screens for emphasizing social distance and privacy.

None of these, of course, is necessarily exclusive, even as a primary function, from the others.

The problem confronting the archaeologist concerned with distinguishing defensive boundaries is to determine that a given boundary system had defense as at least one of its primary functions. One way of approaching this problem is to rule out alternatives to the defensive one. Thus, part of my strategy in the analysis of the fortifications at Becan (Webster, 1976a) was to show that two alternative suggestions

for the Becan ditch--drainage canal and borrow pit--were wrong. Another obvious approach is to demonstrate that the size and configuration of boundary features is consistent with military defense. If there is independent evidence that warfare was a common process in the wider cultural system, the defensive interpretation is, of course, strengthened. Finally, one can recover clear evidence of military emergency or even attack, in the form of associated weaponry, mass burials, destruction levels, etc., as Wheeler (1943) was able to do at Maiden Castle. While this is clearly the most convincing form of evidence, its recovery is likely to be fortuitous and it may not even exist--after all, the most successful fortification is one which is never attacked. In summary, the proper identification of defensive systems requires multiple lines of evidence and a healthy skepticism.

### Mapping

All three sites were mapped using a combination of transit, tape, and Brunton compass techniques (Maps 1-4). Our basic strategy was to establish a baseline completely around each site on top of the surrounding wall(s) rather than the linear, cruciform baselines defining grid patterns so commonly used by archaeologists. This approach, which I had earlier found useful at Becan, had two advantages given our objectives. First, it allowed extremely accurate recording of the wall systems themselves and all associated features. Second, since all the sites are comparatively small, a great deal of the interior architecture could be mapped directly from our wall-baseline fixed points. Baselines were also shot through the interiors of all three sites, either along pre-existing trails or especially cut sight-lines, to facilitate mapping of features not easily visible from the wall lines.

Because of the limited time and personnel available for fieldwork at each site none could be cut over entirely, which is essential for completely trustworthy mapping. Nevertheless, the maps of both Chacchob and Dzonot Aké may be considered essentially complete, although a few low and extremely unobtrusive structures may have been missed. All structures in the inner zone at Cuca were cleared and mapped. The zone between the inner and outer walls, however, was heavily overgrown with scrub forest on the west and the low, dense vegetation characteristic of neglected henequen fields on the east. Because of the size of the site, neither area could be properly cleared. Large structures in the henequen zone are reasonably well surveyed. The western forest zone remains a blank except for structures immediately associated with the wall, and extensive clearing will be required in the future to fill in this gap in our information. It was possible to examine much of the western portion of the outer zone at Cuca by using a network of existing footpaths, and no obvious structures of any size--either pyramids or low platforms--were seen; the area seems to be almost a vacant zone in terms of large architecture.

In all cases, our base datum points were assigned arbitrary elevations of 10 m. Since contour-mapping was impossible due to limitations of time, topographical variations and heights of architectural features are indicated by a series of spot elevations in relation to the 10 m. datum point. Although contour-mapping would have been preferable, our strategy captured most essential topographic information since all three sites are quite level; none exhibited, for example, anything like the relief found at some Maya sites such as Seibal, although there are minor local variations in topography. For Cuca and Dzont Aké building heights are given in absolute figures (i.e., in relation to the 10 m. base datums). In the Chacchob map I have instead assigned each structure an elevation number indicating its maximum height above the surrounding terrain. All excavations are shown approximately to scale on each map. No attempt was made to map structures outside the wall-systems unless they were immediately adjacent to the walls. All structures, including walls, have been mapped as rubble, and orientation is only approximate except where intact architectural elements provided good sight-lines.

#### The Excavations

The project was originally conceived as a series of intensive test operations. Our concession from I.N.A.H. precluded large-scale excavation and clearing of sizeable architectural features apart from the walls themselves, although limited test excavations were permitted in small residential platforms. We knew that at least two of the sites, Dzont Aké and Cuca, had probably experienced long periods of occupation and construction activity, and it was felt that test-pitting through superimposed plaza floors, coupled with the wall excavations, would produce sufficient datable cultural material to enable us to rough out the various chronological sequences.

Major operations (eg., exposures of wall construction or a series of test excavations) were separately numbered as were trenches subsumed under an operation, and features were assigned sequential numbers within trenches. Units of collection were preferably defined by cultural stratigraphy, but excavators were allowed to exercise individual decisions concerning collection units depending upon the nature of the deposits and yield of cultural material. Most collection units are defined by cultural features such as plaza floors, although arbitrary stratigraphic controls were also commonly used, especially at Chacchob, where cultural features were very rare in our test pits. In many of our trenches these arbitrary stratigraphic units (eg. 20 cm. levels) were collapsed as natural stratigraphy became evident. Lot numbers were assigned to each excavation unit, usually a trench level, and are recorded in Appendix A. Breakdown of the ceramic collections by lot is given in Appendix B.

### Ceramic Analysis

Ceramic material from the three excavated sites was analysed in Merida during the month of August, 1977. Our total ceramic sample was sizeable--24,140 sherds--but about 50 percent of these remain unidentifiable or unidentified because they represent non-diagnostic, plain, unslipped wares and/or are poorly preserved. The core of the sample consists of 1678 identifiable rim sherds.

Because of the limited size of the ceramic sample, its preponderant derivation from secondary deposits, and the paucity of whole vessels (three from Dzonot Aké) no attempt was made to produce a highly detailed ceramic sequence for each site. To generate new types and varieties based upon such a sample would be premature, although I have made some preliminary new designations for some of the sherd material. My strategy was, rather, to evaluate the material from our excavations in light of the traditional Maya ceramic taxonomies and sequences, particularly those of Smith (1955, 1971), Brainard (1958), Ball (1977), and Sanders (1960) along with the as-yet largely unpublished sequence from Dzibilchaltun.

Whenever possible, I have adhered in my own ceramic nomenclature to type designations already established by others. For example, most of the Pure Florescent sherd material could easily be subsumed under the typology used by Smith (1971) in his discussion and description of the Cehpech complex at Mayapan, Uxmal, and Kabah. Most identifications are made at the level of type. Color, surface treatment, and paste characteristics were assessed during the ceramic analysis in Merida, but only when there is not close correspondence with established types is such information presented in detail in the following report. Unless otherwise specified, these characteristics fall into the ranges established for their types in the existing literature.

The ceramic material assigned to the Pure Florescent from Cuca and Chacchob and subsumed under the established Cehpech complex nomenclature would undoubtedly exhibit modal distinctiveness if larger and better controlled samples were available. Such samples should in particular be collected from Chacchob, since this site was apparently occupied for such a short period of time that it could provide a virtually synchronous assemblage for comparisons with other Puuc centers.

Comparative material from numerous sites was available to me in the MARI and INAH collections in Merida, the latter housed in the Palacio Canton. Our analytical strategy worked admirably for Cuca and Chacchob, both of which produced pure, or nearly pure, Puuc (Pure Florescent) ceramic assemblages. The Dzonot Aké collection, perhaps predictably given its origin in the little-known northeastern region of the Peninsula, is much more distinctive and more difficult to relate to established sequences.

In sorting through the ceramic collections, no attempt was made to deal in any rigorous sense with the ubiquitous unslipped-striated wares except when very well-preserved portions of vessels were recovered since these, as presently understood, have very little usefulness as chronological indicators. For all of the sites there were, as noted above, large percentages of sherds which were either highly weathered and/or unslipped/unstriated. The percentages of unidentifiable sherds are somewhat swollen by my practice of counting all sherds, however small, rather than ignoring those below a certain minimal size, as some ceramic analysts do. Illustrations of ceramic material are given in Appendix C. Sherd breakdown and lot derivation can be found, as noted, in Appendix B.

Because most of our excavation units consisted of secondary deposits, generally construction fill, and these were subject to contamination by earlier ceramic material, no fine-grained chronology based upon the ceramic samples was possible. Such deposits can usually be used to block out major periods of occupation in sites with considerable time-depth, especially when those occupations were discontinuous, and this was our intent. Both Cuca and Chacchob turned out to have little time-depth in terms of their major occupations, which are essentially single-component in nature. Dzonot Aké, as will be seen, presents some problems in chronological interpretation because the sample is small and the ceramic sequences of northeastern Yucatan poorly understood.

Ceramic material from the 1976-77 excavations is in the INAH collections at the Palacio Canton, Merida, Mexico. This material includes all rim sherds and selected body sherds from Cuca and Chacchob, and all sherds from Dzonot Aké.

Non-ceramic artifacts were very sparse and are described in Appendix D. These artifacts are also in the Merida collections.

#### CUCA

The site of Cuca (site no. 16Q-d(7):6) lies in the henequen zone of the northwestern plains of Yucatan. It is conveniently close to Merida, located only about 20 km. northeast of that city (lat. 20° 55' 45" N., long. 89° 24' 30" W). Quickest access is by way of the road to Tixpehual, and then by dirt road to the old Hacienda Cuca. The ruins lie about 2 km. to the east of the hacienda. Driving time from Merida is about 25 minutes.

### Architectural Configuration and General Character of the Site

Cuca is by far the largest of the three centers that we mapped and tested. The site consists of two separate zones delineated by a set of two concentric walls; the inner zone contains most of the large, ornate civic and elite architecture and has been mapped separately (Maps 1-2). The outer wall at Cuca is 2255 m. in length and encloses a total area (including the inner zone) of 33 hectares or .33 km<sup>2</sup>. The inner wall, though much more massive, is only 828 m. long and encloses an area of .046 km<sup>2</sup>.

Cuca is located on the lands of the Hacienda Cuca, now a henequen-producing ejido, and the eastern half of the site as well as an extensive zone outside the walls to the east is currently under cultivation and consequently comparatively clear of vegetation. The western sector is covered with very thick second-growth scrub; as previously noted this western sector has not been adequately surveyed and mapped.

Because of its proximity to Merida and the long history of henequen cultivation in the area, various portions of the site have been rather extensively disturbed by recent activity, particularly stone-robbing. Although the large architecture has been affected, the major depredations have seemingly been focused on the walls, and especially the outer wall. A recent road has destroyed a section of the outer wall immediately to the rear of the major pyramid on the eastern edge of the site, and other parts of the wall have wasted away with the removal of stone for the ubiquitous boundary fences and tramway foundations associated with henequen cultivation. Footpaths and tramway lines have been cleared through both walls and also through some large platform constructions.

The only sign of recent habitation within the wall system is a small Maya house and water tank, now abandoned and apparently functioning as a local shrine, located near the cenote. When we began our clearing, the remains of a very recent cornfield were found in the upper plaza at the center of the site (Plaza A), and approaches to the plaza had been blocked off with brush barricades, presumably to keep livestock, which are regularly pastured within the wall system, from destroying the crop.

The countryside around Cuca is very flat, but local depressions and bedrock outcrops produce considerable minor relief. Soil is extremely thin. Topographic relief is greatest in the cleared, eastern half of the site, while soil seems deeper and the topography flatter in the western forested zone. The walled area of Cuca is probably only the organizational center for a much larger inhabited zone. The henequen fields to the east are covered as far as the eye can see with low platform structures, pyramids, and plaza complexes. There is no obvious, striking decrease in the density of structures on the landscape outside the wall to the east, compared with the density of structures between the inner and outer walls.

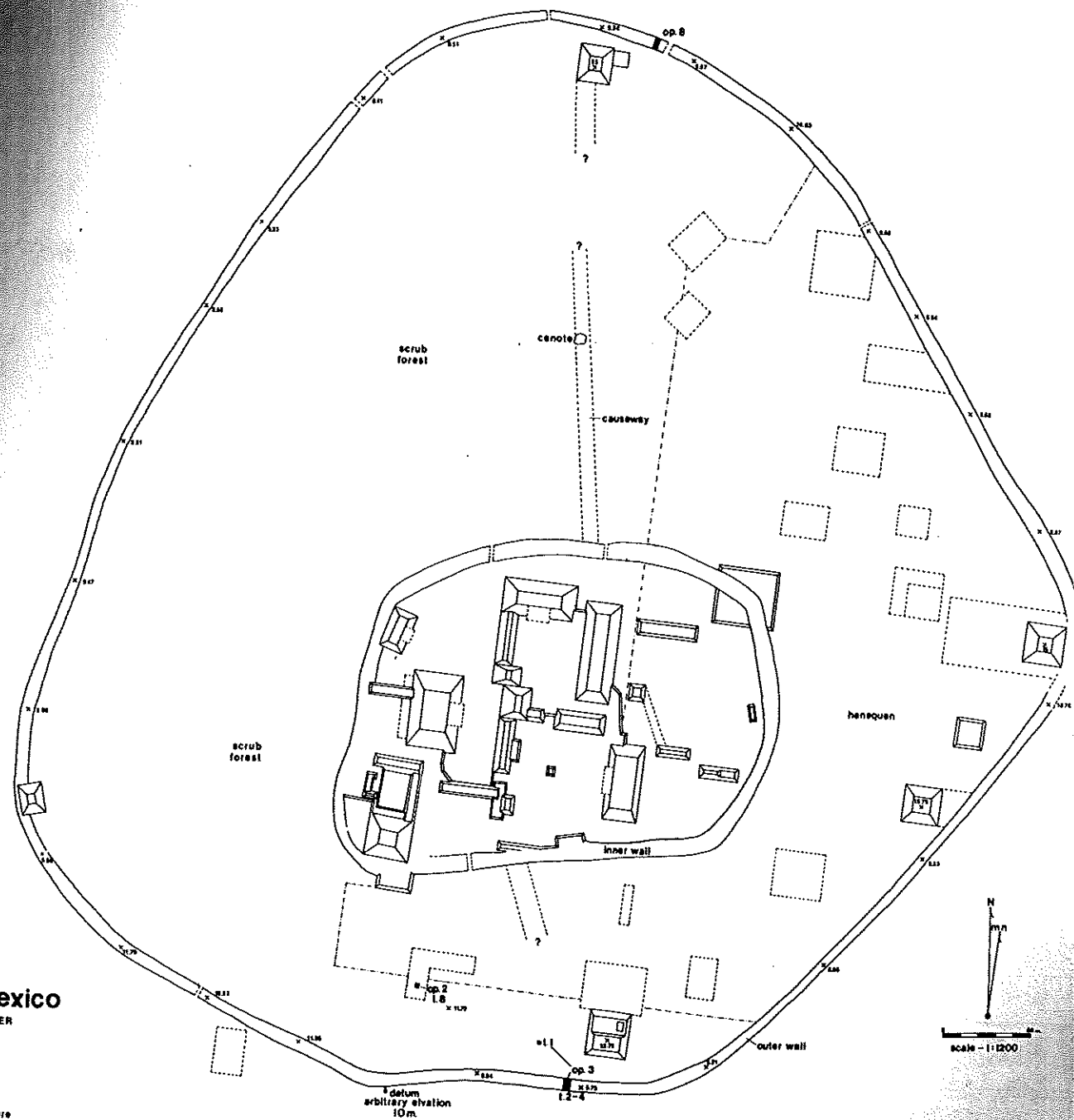


**Map 1**  
**CUCA**  
**Yucatan, Mexico**

WEBSTER & WEBSTER  
 1977

19Q-071-8  
 20° 55' 45" N  
 89° 24' 30" W

- x spot elevation
- amorphous structure
- - - henequen/scrub forest boundary
- excavation





## CUCA

x = spot elevation

### amorphous structure

## Excavation

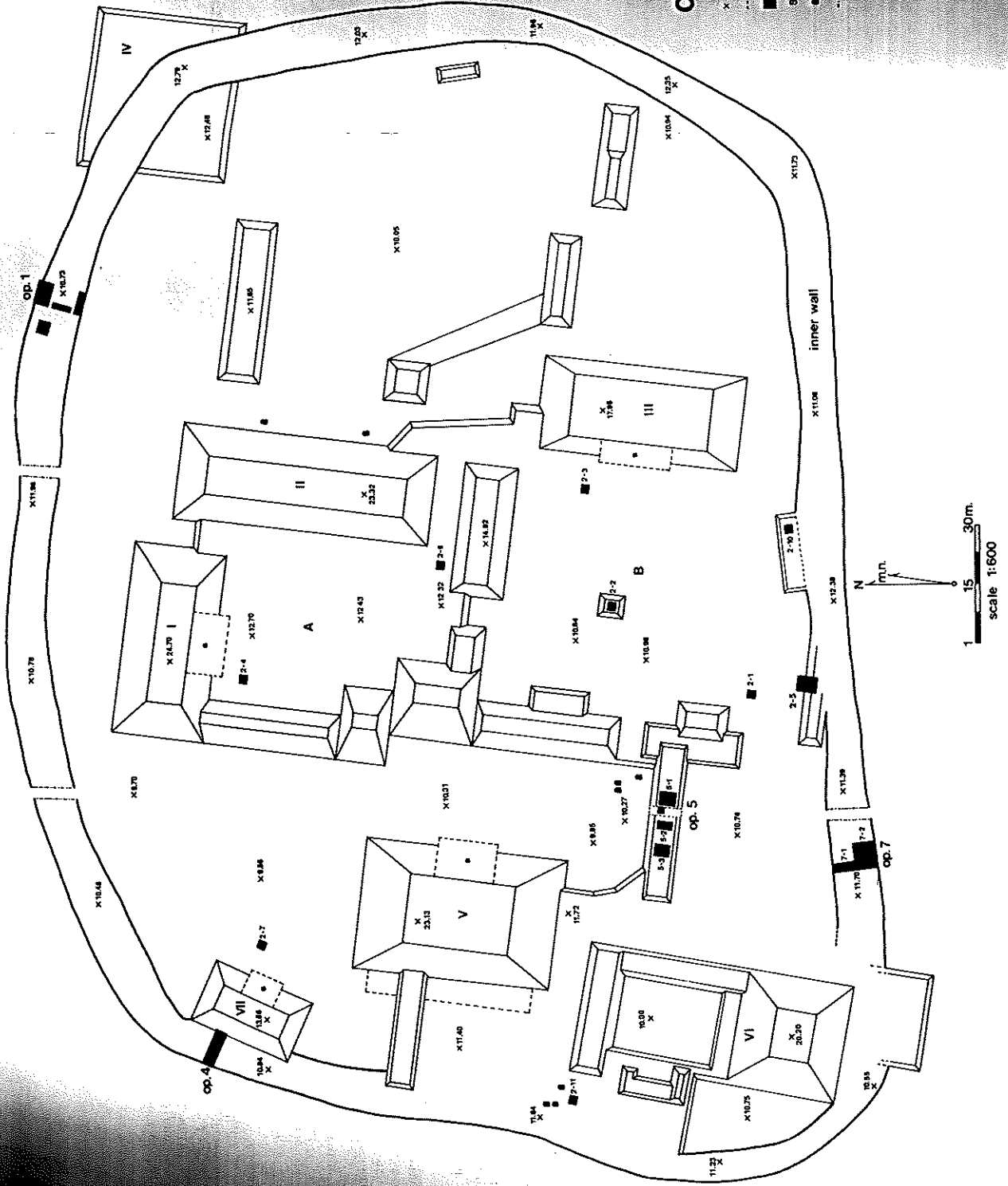
100%

8 - Probable

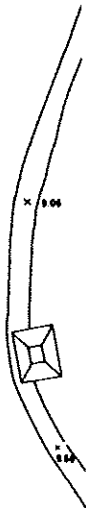
- possible state

... break in wall

16Q-d(7)6  
20° 55' 45" N.  
89° 24' 30" W.







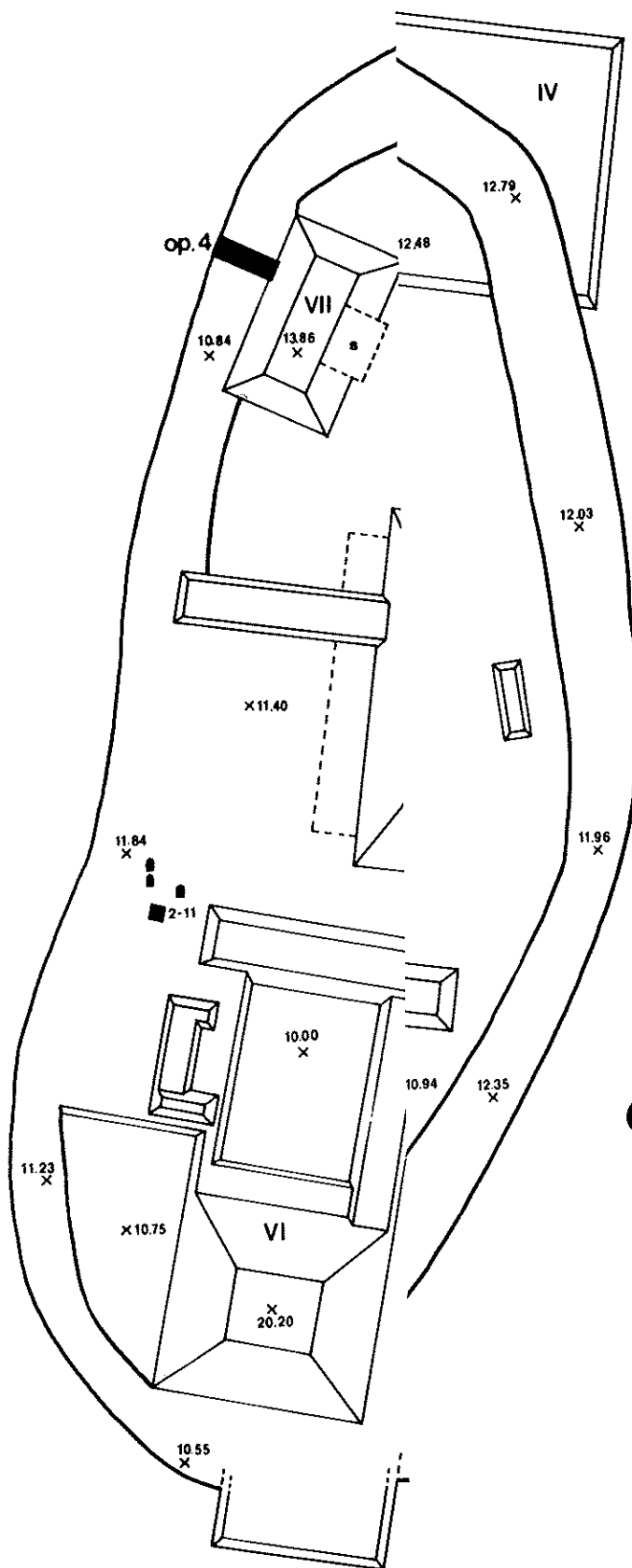
# **Map 1** **CUCA** **Yucatan, Mexico**

WEBSTER & WEBSTER  
 1977

16Q-d(7):6  
 20° 55' 45" N  
 89° 24' 30" W

- x spot elevation
- .... amorphous structure
- - henequen/scrub forest boundary
- excavation





## MAP 2

## CUCA

### central zone

WEBSTER and WEBSTER, 1977

- x - spot elevation
- amorphous structure
- - excavation
- s - probable stairway
- - possible stela
- break in wall

16Q-d(7):6

20° 55' 45" N.  
89° 24' 30" W.

The Inner Zone at Cuca

The architectural configuration of the inner zone at Cuca conforms closely to common preconceptions about what a "typical" Maya center should look like. An extensive area has been artificially leveled to the point that natural bedrock outcrops are only visible in a few areas (especially north of Structure V and east of Structure II). Numerous massive pyramids and range structures, with consistent alignments a few degrees east of north, are arranged around large plazas. The most impressive of these, Plaza A, is elevated about 2.5-3 m. above the level of its southern neighbor, Plaza B, and is delineated on the north and east by Structures I and II. These are elongated pyramids 10-12 m. in height. The eastern edge of Plaza B is marked by a structure (III) of similar dimensions. The two plazas are otherwise delineated, and separated, by complicated arrangements of range buildings and small pyramids. Plaza B is open on the south, but there are construction features associated with the inner wall on the south which may have been designed to relate to the plaza, and the wall itself seems quite ornate and complex in this zone, possibly in part to complement the interior architecture.

Structure IV is a large, low platform about 40 m. on a side and 2-3 m. in height. It probably includes a core of natural bedrock, and is of principal interest because the inner wall overrides it.

Three other structures of significant size are found within the inner wall. One of these, Structure VI, is a pyramid about 10 m. in height, terraced into the wall on the south but with a complex of attached range structures grouped around a sunken courtyard on the north. This pyramid complex gives the impression of being very self-contained. It does not relate in any highly formal manner to the huge Structure V to the northeast. This is probably the most massive single building at Cuca, measuring ca. 35 x 50 m. and with a height of 12-13 m., and is the only one in which intact architectural elements are preserved. Mid-way up the east face, and roughly in the center of Structure V, is a long vaulted room (the vault now mostly fallen) with a colonaded entryway and lintels preserved along the front (Plates 1-2). It is clear that this is only one of a series of similar rooms running along the east side of the building at this level, and probably there were several other levels with lineally-arranged rooms as well. In my opinion, the standing architecture represents the final stage of construction. Architectural style is good Puuc, with well-cut vault and wall masonry still retaining, in some places, a thin coating of plaster (originally red?). Portions of the standing architecture on Structure V were consolidated and restored during our work at Cuca,

Structure VII seems to be a smaller version of V, although no standing architecture is preserved on it. Stairway alignments are visible along its southeastern side. The alignment of Structure VII is shifted more to the NE than the alignments of the other architectural complexes, and it is backed up against the inner wall; I would provisionally suggest that unlike most of the other structures, VII is a late construction built to conform to a pre-existing wall, rather than vice versa.



Plate 1    Cuca

Intact architecture as seen on the east slope of Structure V.

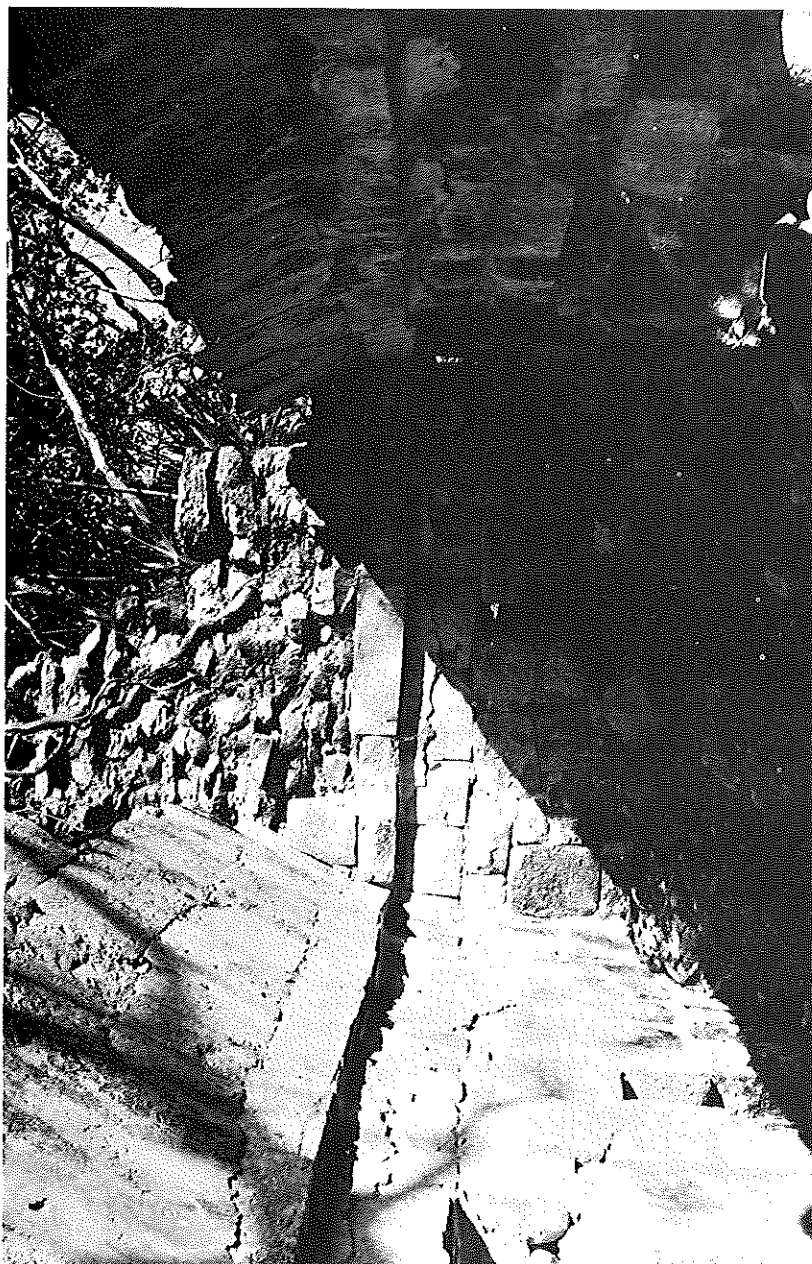


Plate 2    Cuca

Inside of vaulted room on Structure V; note the plaster preserved on the front and rear walls.



Apart from the large buildings described above, there are also found within the inner wall, particularly on the east, several low range structures which are relatively isolated from the other architectural complexes, though aligned consistently with them.

Carved decorative stone and architectural elements are to be seen in the collapse debris of most of the large buildings. Particularly conspicuous are fragments of large cylindrical columns and lintel/-door-jamb slabs similar to those still in place on Structure V. Two apparent blank stelae are still upright on the east side of Structure II, and may have flanked a monumental stairway there, although this is not the face of the building toward Plaza A. Other possible stela fragments are found in two groups, one to the southeast of Structure V and one near the wall to the southwest. All are blank.

Although the intact architectural remains associated with Structure V are rather plain, there is good evidence suggesting that other buildings possessed the ornate facades typical of so much Puuc architecture. During our clearing of the inner and outer walls we noticed a number of decorative stone elements which had been used for fill in wall construction. These included flaring, drum-like elements such as embellish the false columns along the facade of the palace at Labna (Proskouriakoff, 1963:61) and roughed-out noses for Chac masks.

#### The Outer Zone at Cuca

The outer zone at Cuca is, as noted above, only mapped on the east and south, and the architecture of this zone was not closely observed since extensive clearing in the neglected henequen fields would have been necessary. A few low structures may have been missed by our survey. The predominant architecture here consists of about 13 low, rectilinear platforms. These are all of respectable size, most falling into the range of from 20-50 m. on a side. All are low - 1-3 m. in height. Some of these platforms are obviously superimposed upon local bedrock outcrops, and I suspect that virtually all of them have, in fact, been erected on or around naturally elevated areas. Most of the platforms are quite amorphous, but there seems to be a tendency to align in the same direction as the major buildings within the inner wall. No formal groupings are obvious.

Casual inspection of the surfaces of these platforms revealed no intact architectural features or substantial amounts of cut stone, but some platforms do have mano/metate fragments in association and also exposed layers of the small rubble commonly laid down as grouting for plaster floors. Although only excavation can resolve the question of function, the overall size and configuration of the platforms suggests that they were substructures for domestic residences - probably elite residences. If so, they must have supported elaborate superstructures which were, except perhaps for wall-bases, built of perishable materials.

Four pyramids are found in the outer zone; one abuts the outer wall on the southwestern edge of the site. The largest pyramid - over 14 m. high - is just inside the wall on the extreme north. Near its southern base is a rectangular construction (altar?) of roughly shaped stone, but this looks like a recent construction to me. Two smaller pyramids are just inside the outer wall on the east; both seem to have been associated with low aprons, and both have suffered to some degree from stone-robbing. On the south is a low platform with a raised superstructure along its southern edge and a large apron platform to the north.

A causeway delineated by large, roughly-cut edging blocks runs from the inner wall towards the northern-most pyramid and probably connects with a similar causeway running south from that structure. About midway between the inner and outer walls, and actually on the causeway line, is a cenote with water obtainable at an 8-10 m. depth. What may be another causeway has been observed running out from the inner wall from the southwestern corner of Plaza B.

The overall impression is that the inner and outer zones at Cuca had very different functions. Most of the large religious/administrative civic structures are concentrated within the inner wall, as are some obvious elite residential units. In contrast, most of the outer zone is covered with structures less obviously of civic significance, and more consistent, in configuration, with substantial residences.

#### Excavation and Stratigraphy

Most of our excavations at Cuca were focused on the inner zone. It was here that the bulk of the large architecture was found and where the wall was most impressive. Most importantly, only the inner zone had experienced extensive leveling and plaza construction, thus producing optimal cultural stratigraphic contexts. Six 2 x 2 m. test trenches were excavated into plazas near major structures. One additional test pit was excavated into a low platform in the center of Plaza B. Apart from the wall trenches, the only other structural excavations in the inner zone were from trenches in a range building to the southeast of Structure V. This building had been badly damaged by a tramway path which had been cut completely through it, exposing floors and construction fill in the profiles.

Three large excavations focused on the inner wall (Operations 1, 4, 7) and two test pits (6, 10) were excavated into the small projections of the inner wall to the south of Plaza B.

In the outer zone two major cuts were made across the outer wall on the southern and northern peripheries of the site (Operation 3, trenches 2, 3 and 4, and Operation 8). A 2 x 2 m. test trench was excavated into a platform structure between the inner and outer walls

(Operation 2, trench 8), and another was placed in a vacant zone (Operation 3, trench 1). One 2 x 2 m. test trench does not appear on our map. It was placed on top of a large platform structure about 56 m. to the south of the outer wall.

All trenches were controlled by cultural and/or arbitrary excavation units; in most excavations cultural units predominate.

#### Operation 1, Trenches 1-4 (Figures 3-4, Plate 3B, Lots 1,2,3,4)

Our first wall excavations involved four trenches focused on a segment of the inner wall about 40 m. northeast of Structure II. In this area, the wall appeared as a mound of rubble about 13 m. in width and just over 2 m. in height. The only traces of coherent structure were faint stone alignments along the northern edge of the collapse rubble and low terrace arrangements along the crest.

Two excavations 6 m. long were laid out along the inner and outer edges of the rubble mound and digging progressed inward to pick up traces of standing construction. The outer trench (Trench 1) was extended 4 m. into the collapse rubble and exposed a step-like arrangement of two stone walls, each about 80 cm. high. The vertical face of the lowest, which rested directly upon bedrock, was very poorly preserved. Construction material was unshaped and unmortared limestone blocks and most of these had fallen away from the face, leaving only a few courses in their original positions. By contrast, the face of the upper terrace was very well preserved. Although also unmortared, more care seems to have been lavished on the stonework of this part of the structure. A small (1 x 1 m.) sounding within Trench 1 was made down to bedrock through the fill of the lower terrace. No sherds were recovered.

Trench 2, which was extended in toward the center of the mound for 2 m., failed to find intact wall facings or terrace elements along the interior edge of the wall, although solid construction rubble was encountered. Presumably the wall has fallen in this area or has been robbed for stone. Alternatively, there may have been a sloping stairway up the inside such as associated with the southern inner wall (see Op. 7).

Trench 3 was a 5 x 1.5 m. cut through the wall perpendicular to its long axis, just to the south of Trench 1. Here we penetrated the intact wall fill, which consisted of very large limestone blocks in a dark brown soil matrix. There were no signs of internal phasing--all construction was a single effort. We did not quite penetrate to bedrock in Trench 3 since the lowest fill was composed of limestone slabs too big to shift.

Trench 4 was a shallow, 3 x 3 m. exposure on the northern edge of the crest of the mound 4 m. to the west of Trench 1. Its purpose was to clear the remains of a low, terrace-like construction visible

rubble edge

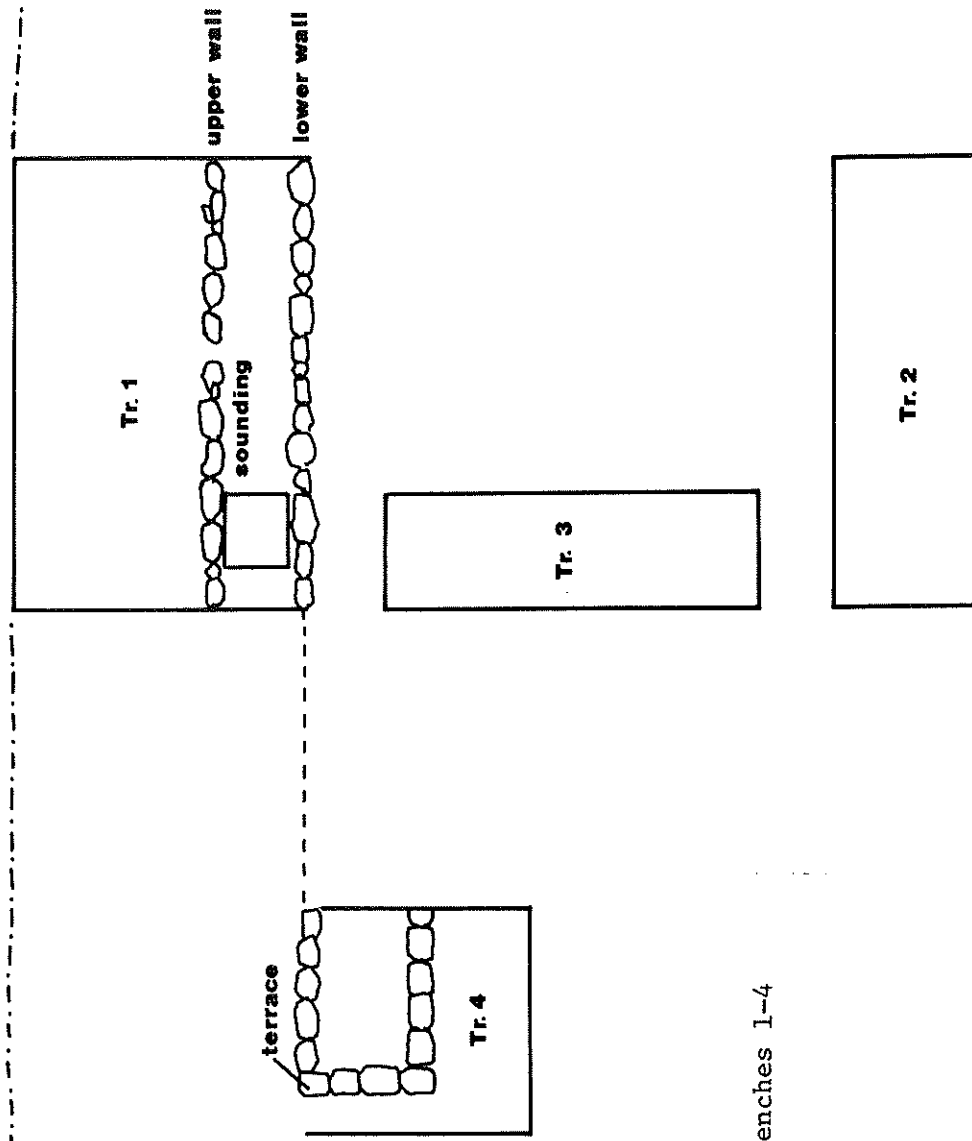


Fig. 3  
Cuca  
Operation 1, Trenches 1-4  
Plan

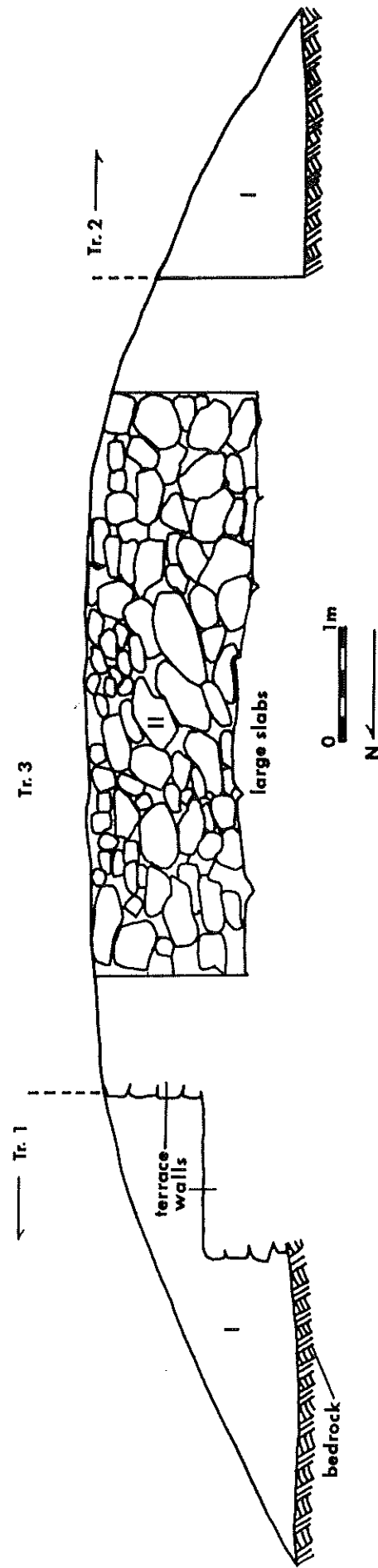


Fig.4 Cuca

Operation 1, Trenches 1-3

Composite profile of east walls  
of Trenches 1-3

- I Collapse rubble in brown soil matrix.
- II Large limestone rubble.

as faint stone alignments on the surface. The upper course of the upper wall face makes a 90° turn (i.e., to the south) then articulates with an alignment of roughly cut stone blocks one course high which runs parallel to the wall edge, forming a slightly-elevated (ca. 30 cm.) terrace about 2 m. wide. Similar alignments are commonly seen elsewhere on the inner wall.

Although a good deal of fill was moved in Operation 1 trenches sherds were very sparse--only 380 were collected and the majority of these are unidentifiable. Material from the collapse rubble in Trenches 1 and 2 is predominantly Cehpech, with some slight admixture of probable Formative red monochromes. Sherds recovered from intact structural fill in our small sounding trench and Trench 3 exhibit the same mix. While the latter contexts were not sealed, there is little doubt that most of the sherds were originally incorporated into the fill at the time of construction, suggesting that the wall cannot be older than Pure Florescent.

Results from Operation 1 reinforced our conception of the variability of the inner wall. Along the northern periphery of the inner zone, the wall was free-standing rather than a retaining wall as along the western edge. It was also much less massive than the southern segment, although constructed in a somewhat analogous manner. An unresolved question involves the derivation of the large amount of fallen debris along the outer edge of the wall. Judging from the exposed terrace elements on the wall summit, it did not slump from any structure there. In all probability, either the lower, or more probably, the upper wall was originally considerably higher, perhaps even forming a low breastwork before it slumped forward.

#### Operation 2, Trench 1 (Fig. 5 - Lots 27, 30)

A 2 x 2 m. test trench was excavated into the southwest corner of Plaza B. The first 30-40 cm. consists of fine soil and burnt humus grading into concentrations of small rubble just above the fragmentary floor Feature 1. Four superimposed floors (Features 1-4) were encountered, the upper two in fragmentary condition but the lower two extremely hard and well preserved throughout the trench. Floor 1 directly overlies Floor 2 with no intervening grouting, and Floor 3 similarly overlies Floor 4. Both Floors 2 and 4 are grouted. Beneath the grouting of Floor 4 is about 30 cm. of rubble and brown soil, which in turn rests upon a layer of huge limestone rubble which apparently was used to originally level the plaza. Only the smaller rubble blocks could be shifted, and our trench terminated without penetrating this layer. Sherds were recovered from above Floors 1 and 2 and from the fill beneath Floor 3 only.

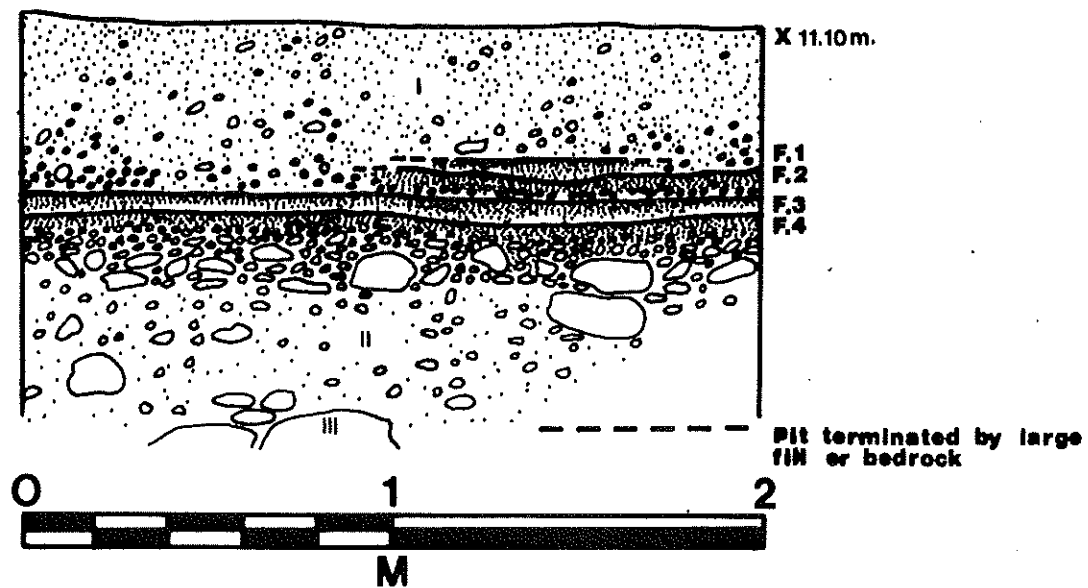


Fig.5

Operation 2, Trench 1  
South Wall Profile

- I Brown soil/burnt humus
- II Brown soil/small rubble
- III Large limestone fill

Operation 2, Trench 2 (Figs. 6-7 - Lots 28, 33)

Another 2 x 2 test trench was excavated through the rubble of a small stone-edged platform about 8 m. square situated in the middle of Plaza B; this structure was only 50-60 cm. high and its location suggested a small shrine or a late squatter's house-mound. At the time of excavation, it was in very bad condition. No coursed stone or cut stone was seen, and only the roughest of alignments indicated the original extent of the platform.

Beneath a thin topsoil layer 10-15 cm. deep is a layer of heavy limestone construction rubble about 80 cm. deep. No signs of internal phasing were found, so the platform was apparently a single-phase construction. Further excavation revealed that the platform had been superimposed on a succession of plaster plaza floors (Features 1-8). Floors 1 and 4-8 were laid down on layers of grouting while Floors 2 and 3 directly overlie Floor 4. Of these, Floors 1, 2 and 5 were very fragmentary and extended over only part of the test trench.

At a depth of about 2.2 m. there appeared blocks of huge limestone rubble similar to those found at the base of Trench 1. These were in a matrix of reddish soil and because of the difficulty of shifting this material (some of the larger pieces seem to have been projecting bedrock) the trench was terminated. Most of the stratigraphic units in Trench 2 were sterile; cultural material was recovered only from the topsoil and construction rubble of the platform, and from the grouting sealed between Floors 4 and 6 (Floor 5 was missed in the initial excavation and picked up only in profile).

Operation 2, Trench 3 (Fig. 8 - Lots 26, 29, 32)

This 2 x 2 m. test trench was positioned in the northeast corner of Plaza B near the ruined stairway of Structure III. A 20 cm. layer of humus and small rubble overlay a plaza floor (Feature 1) which was intact only over the western half of the trench. Floor 1 rested on a thin layer of fine grouting which in turn rested on a layer of large rubble. This large rubble had been laid down directly upon a second floor (Feature 2) which was preserved only in the northwest corner of the trench. A thick layer of grouting separated this floor from a lower one (Feature 3) the grouting of which had been superimposed upon a layer of huge limestone blocks. Although we managed with great effort to remove about a meter of this fill, only a handful of highly weathered sherds were recovered and the pit was terminated. Sherds were found throughout the trench except in the grouting between Floors 1 and 2.



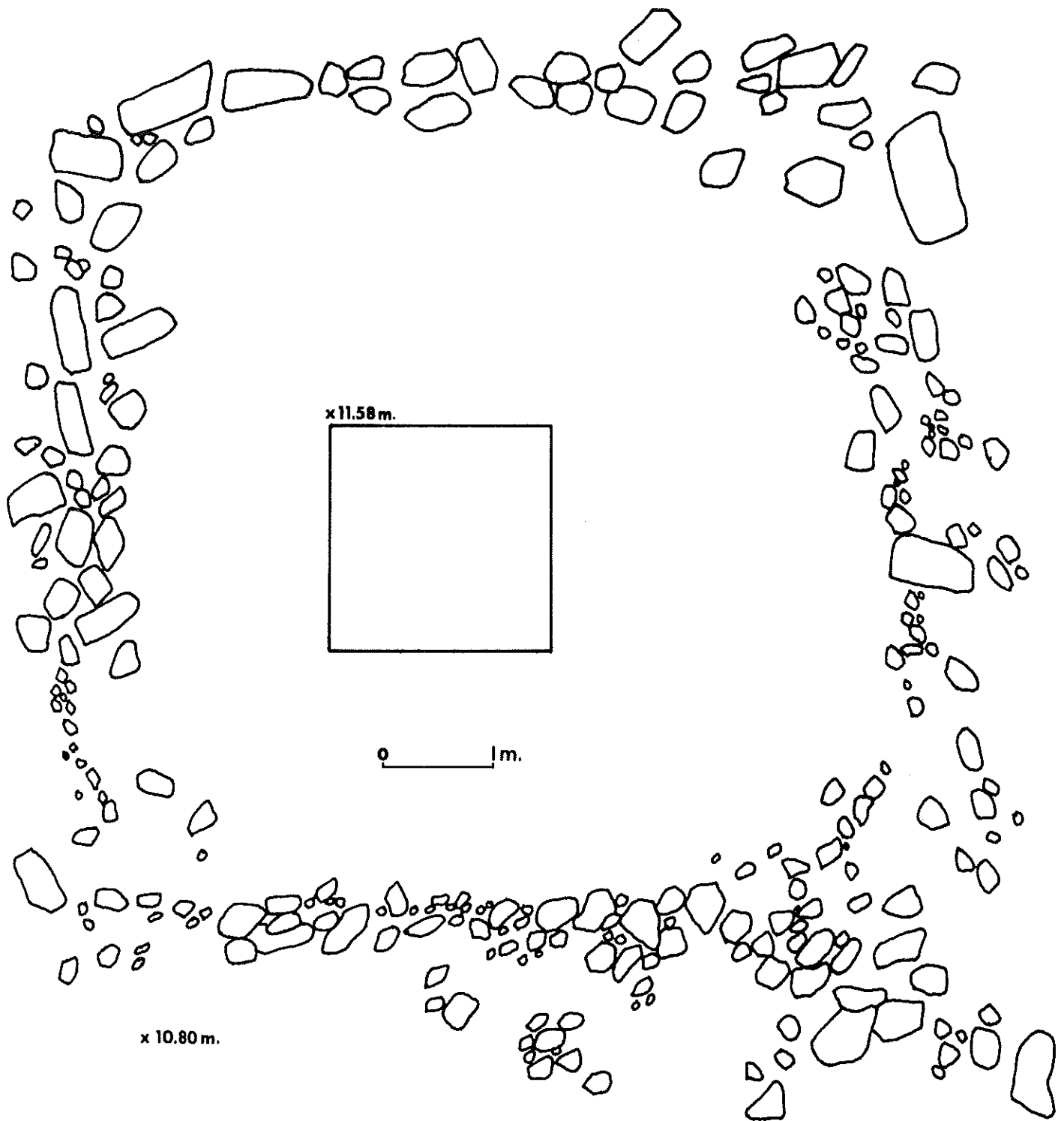


Fig. 6 Cuca

Plan of small rectangular structure in Plaza B  
showing position of Trench 2, Operation 2.

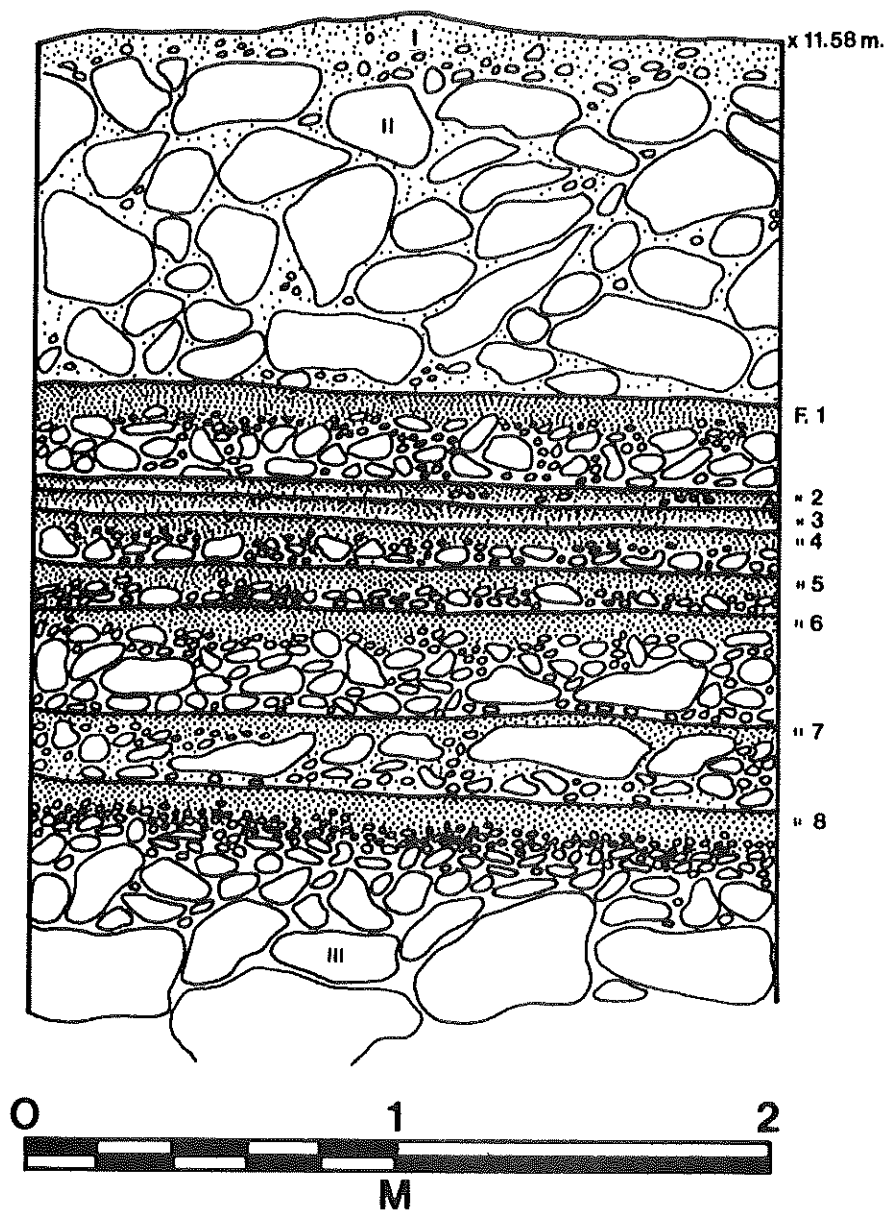


Fig.7

Cuca

Operation 2, Trench 2  
Profile, West Wall

- I Humus/topsoil
- II Rubble fill of platform
- III Large limestone fill in red soil matrix

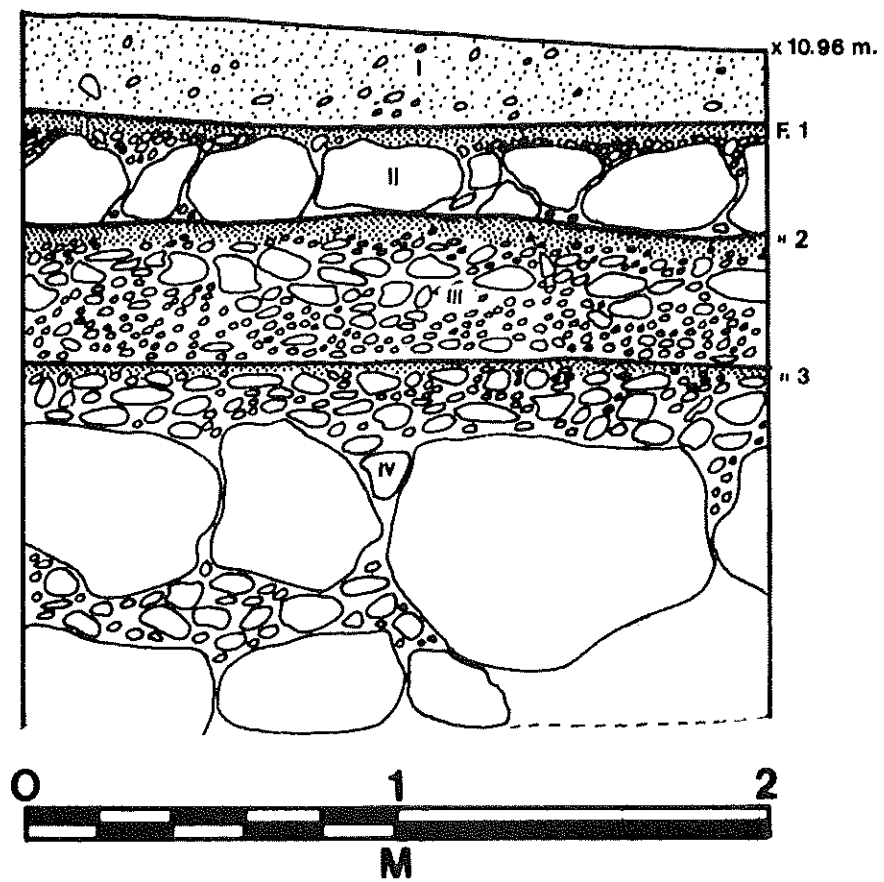


Fig. 8

Cuca

Operation 2, Trench 3  
Profile, South Face

- |     |                                 |
|-----|---------------------------------|
| I   | Humus/small rubble mixture      |
| II  | Grouting                        |
| III | Grouting                        |
| IV  | Grouting/large limestone rubble |

Operation 2, Trench 4 (Fig. 9 - Lots 31, 35)

A 2 x 2 m. test trench was placed in the northwest corner of Plaza A near the ruined stairway of Structure I. After clearing of approximately 32 cm. of mixed humus and construction rubble (probably collapse from Structure I) a succession of six closely superimposed plaza floors was exposed (Features 1-6). Of these, the first three were fragmentary but the lowest three were in excellent condition. Two more floors (Features 7 and 8) separated by thick grouting from the rest and each other then appeared; both had lost their surfaces. Finally we hit a layer of huge limestone blocks with no soil in their interstices. Eighty centimeters of this rubble was laboriously hoisted from the trench, but no sherds were recovered. Trench 4 was largely sterile; cultural material was found only in the humus-collapse layer overlying Floor 1 and in the fill sealed between Floors 7 and 8.

Operation 2, Trench 5 (Fig. 10-11-Lots 34, 37, 39, 42)

A 4 x 5 m. test trench was situated just inside a small projection of the inner wall where it bounds Plaza B on the south. Our intention here was to relate, if possible, the plaza floor(s) to the wall base. A layer of humus and collapse rubble from the nearby wall, between 40-65 cm. deep, overlay a series of three very fragmentary floors (Features 1, 2, 5) which sloped upward toward the wall summit. A deeper sounding in the northern third of the trench revealed a fourth sloping, well-grouted floor (Feature 3) which was about 40 cm. above an extremely fragmentary plaster surface (Feature 4) which could not be seen in the profiles but which was visible in patches in the bottom of the test trench. This surface in turn lay on a deep layer of small pebbles and reddish earth--probably old topsoil--and, just above bedrock, a layer of rubble. Sherds were found throughout Trench 5. Although none of the floor fragments we traced articulated with an intact wall-footing, their sloping configuration may indicate a function similar to that of the ramp-like stairs exposed along the inner wall in Operation 7 (see below).

Operation 2, Trench 6 (Fig. 12 - Lots 26, 38)

Another 2 x 2 m. test trench was sunk in the southeastern corner of Plaza A. The first 40 cm. consisted of humus and collapse debris from nearby large structures. This layer produced abundant sherd material (mostly weathered) including our only Fine Orange sherd from Cuca. Next three closely superimposed floors showed up (Features 1-3). Floor 3 was separated from two others (Features 4 and 5) by about 8 cm. of grouting. The lowest two floors again rested on enormous limestone

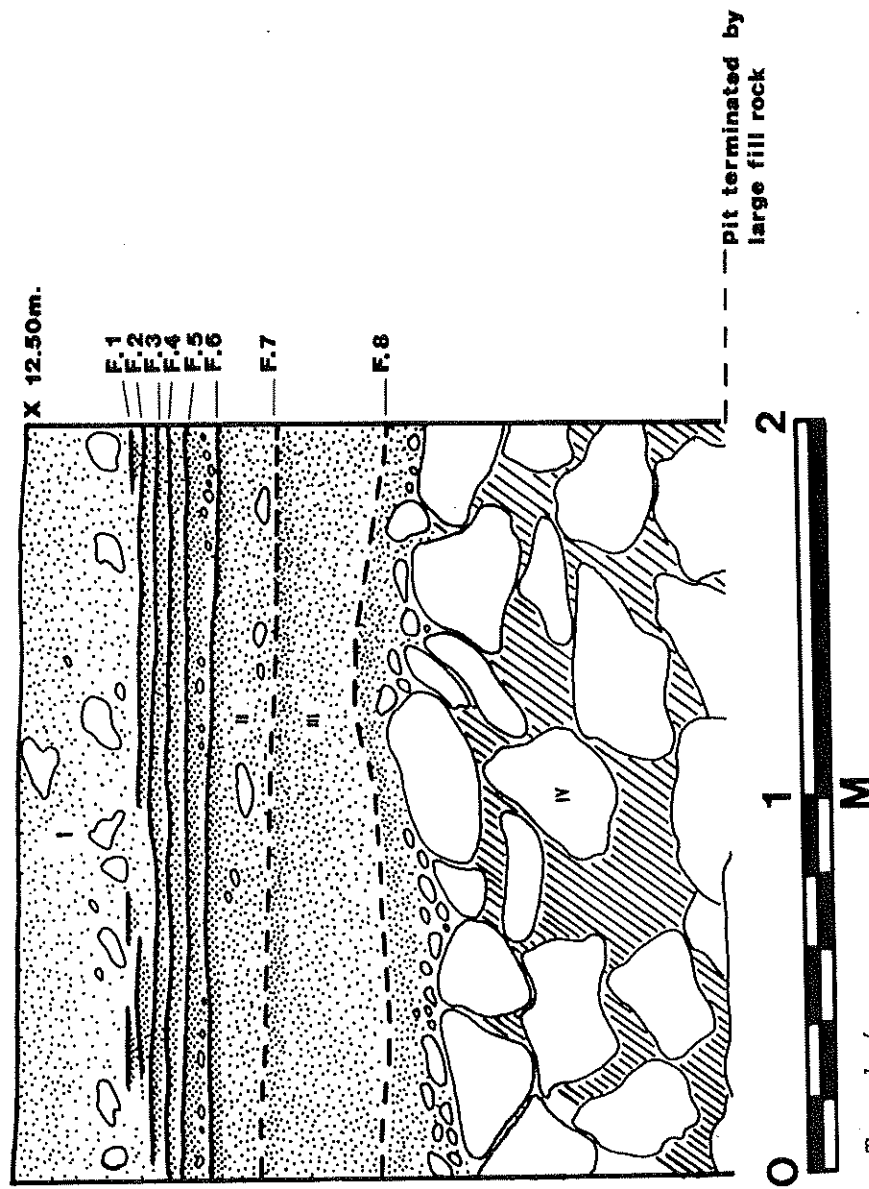


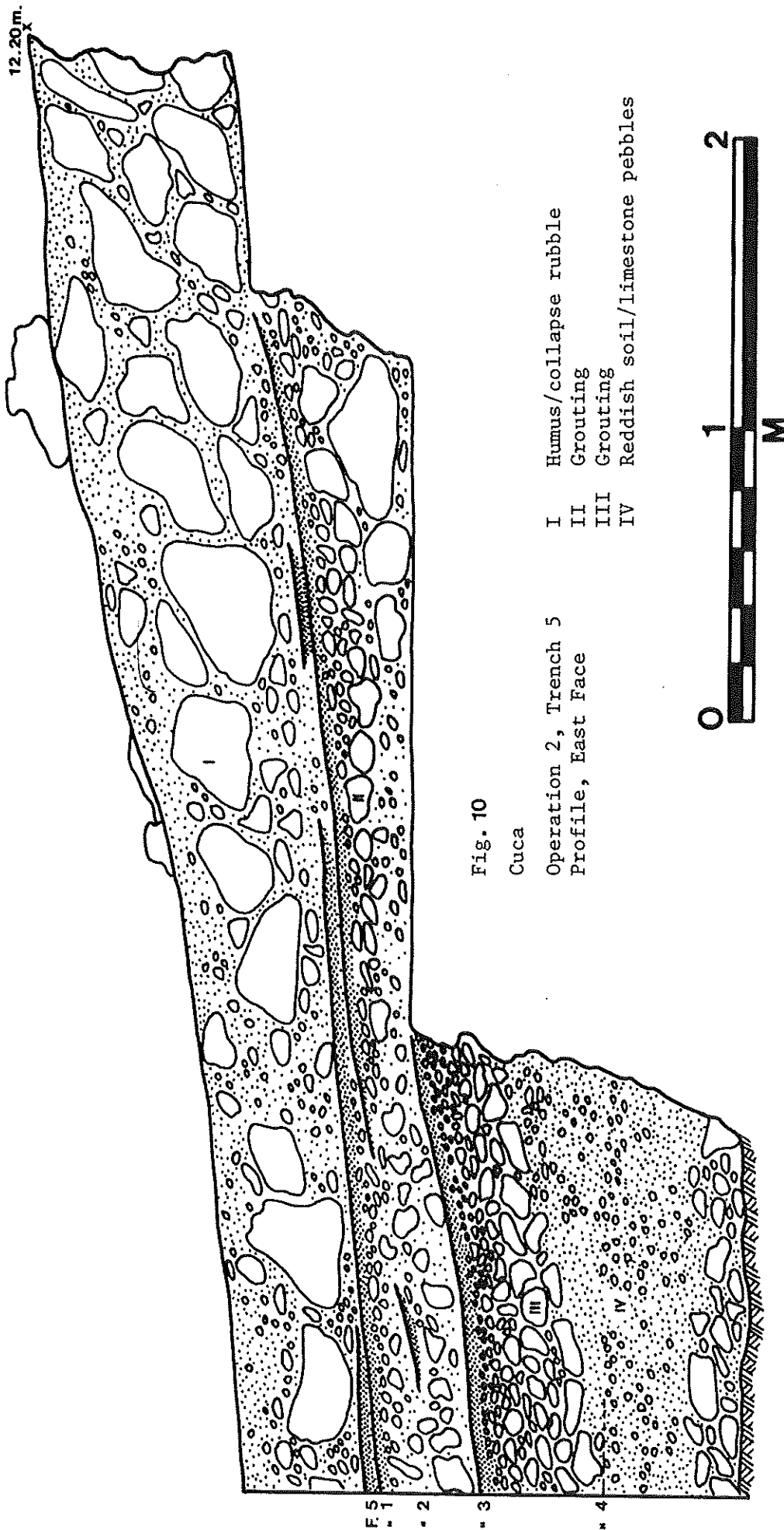
Fig. 9

Cuca

Operation 2, Trench 4

Profile, East Wall

- I Humus/collapse rubble
- II Grouting
- III Grouting
- IV Large limestone rubble fill



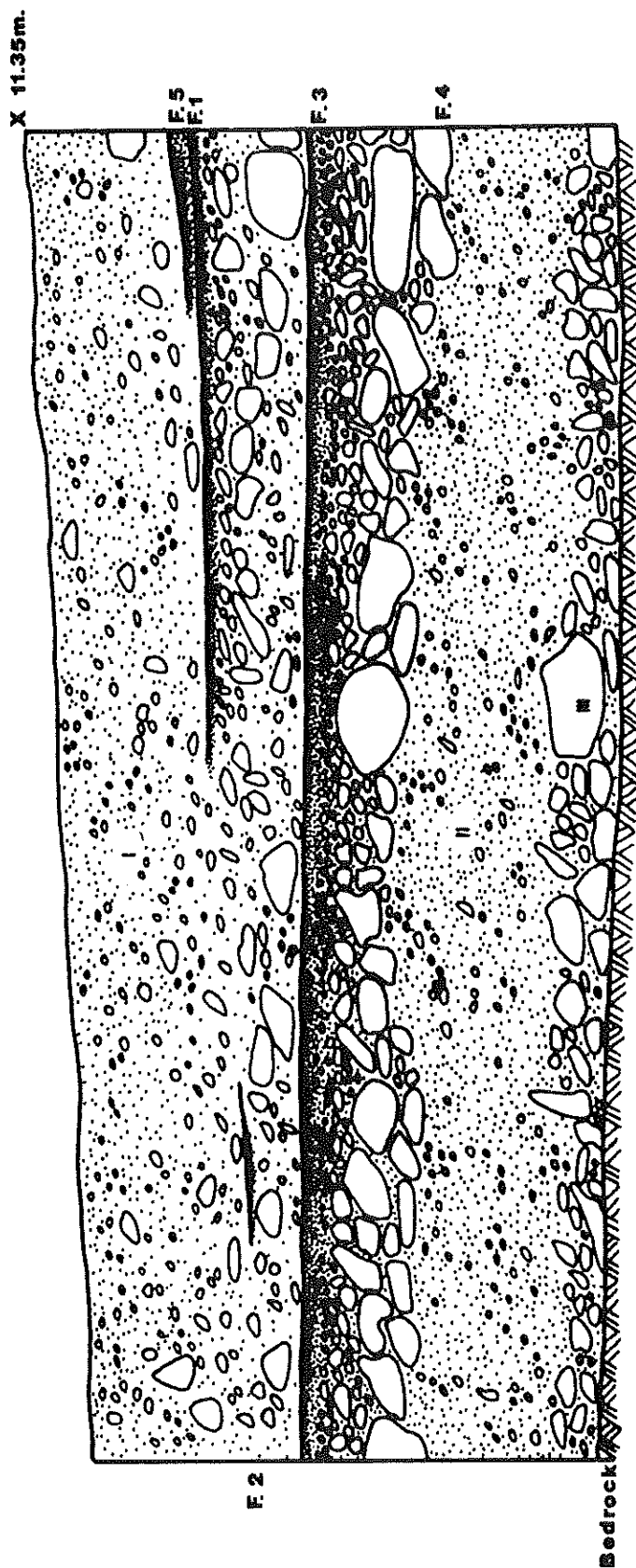


Fig. 11

Cuca

Operation 2, Trench 5, North Wall

- I Humus/collapse
- II Reddish earth/limestone pebbles
- III Large rubble

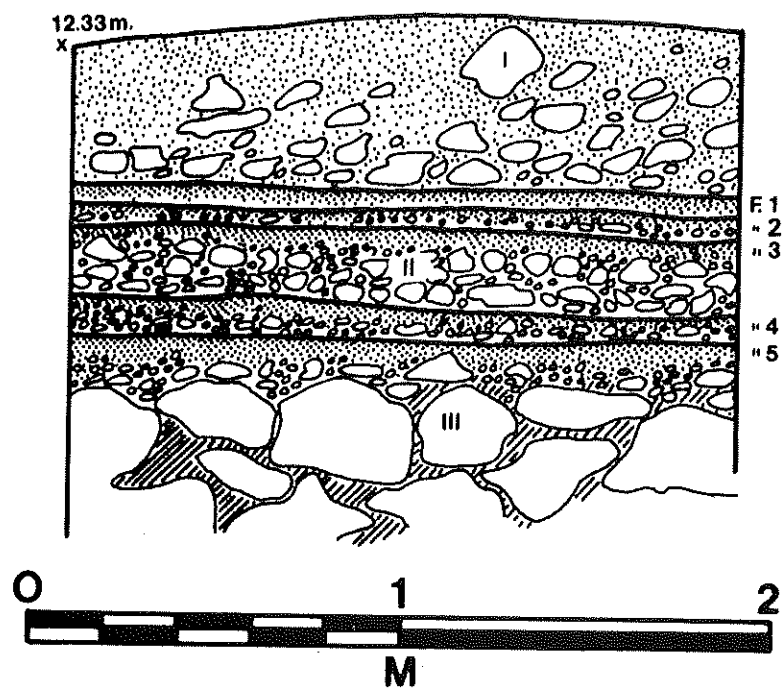


Fig.12

Cuca

Operation 2, Trench 6  
Profile, East Wall

- I Humus/collapse rubble
- II Grouting
- III Large limestone rubble



rubble which was sterile. Apart from the sherds above Floor 1, ceramics were recovered in Trench 6 only from the grouting of Floor 3.

Operation 2, Trench 7 (Fig.13 - Lots 5, 7, 9)

This 2 x 2 m. test trench was excavated into a level area directly in front of Structure VII. Beneath approximately 50 cm. of rubble mixed with dark brown soil was discovered a series of five superimposed floors. Most were fairly well preserved except for Floor 3, which was partly missing in the northern section of the trench, and which had apparently been disturbed when grouting was laid down for Floor 2. Both Floors 1 and 2 were well-grouted, but Floors 3 and 4 were repavings of Floor 5 without intervening grouting in any significant amount. Beneath Floor 5 was a layer of limestone rubble in brown soil lying just above bedrock, which was encountered at a depth of about 110 cm. Although the floors were level in the north face profile, Floors 3-5 slope or slump to the south in the profile of the west face. Sherds were uncovered from the debris and soil above Floor 1, sealed between Floors 1 and 2, and sealed beneath Floor 5. Puuc Slate Ware sherds were found in all levels.

Operation 2, Trench 8 (Fig.14 - Lots 40, 41, 43)

A 2 x 2 m. trench was excavated into the summit of a large, L-shaped platform about 1 m. high located between the inner and outer walls near the southern edge of the site. The north edge of Trench 8 abutted a faint stone alignment visible on the surface of the mound. Beneath a thin topsoil/humus layer were three floors (Features 1-3) and associated grouting; the first of these floors was extremely fragmentary. The alignment of surface stones continued down approximately 60 cm. and rested upon the grouting of Floor 3, which turned up at the wall face. It seems to be a small, rough, stone retaining wall only one course thick and preserved to a height of about three courses. Presumably Floors 1 and 2 also originally abutted the wall. Beneath Floor 3 was a layer of large rubble grading into firm brown soil. Bedrock was encountered about 1.25 m. below the surface. Sherds were recovered throughout.

Operation 2, Trench 9 (Fig.15 - Lot 11)

This 2 x 2 m. test trench was excavated near the center of a large rectangular platform located about 56 m. due south of our base datum outside the outer wall. Although only about 1 m. high the platform

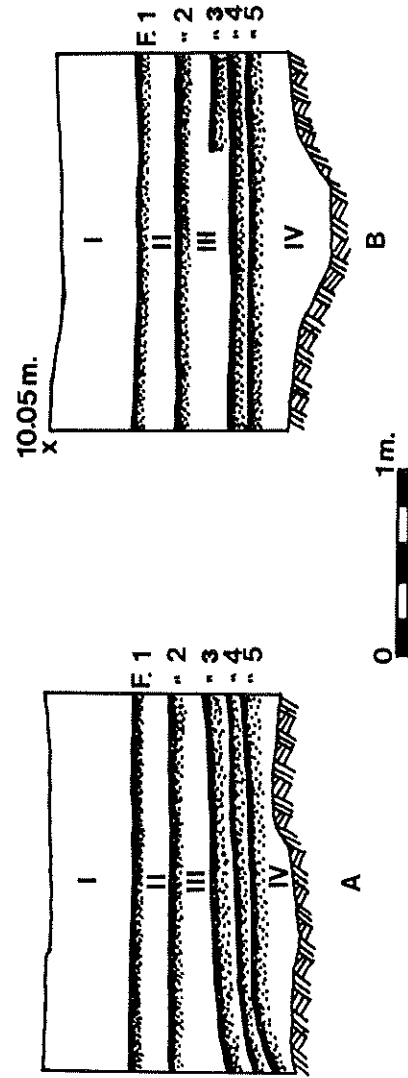


Fig. 13 Cuca  
 Operation 2, Trench 7  
 Profiles of west (A) and east (B) walls.

I Rubble in brown soil matrix  
 II Grouting  
 III Grouting  
 IV Rubble in brown soil

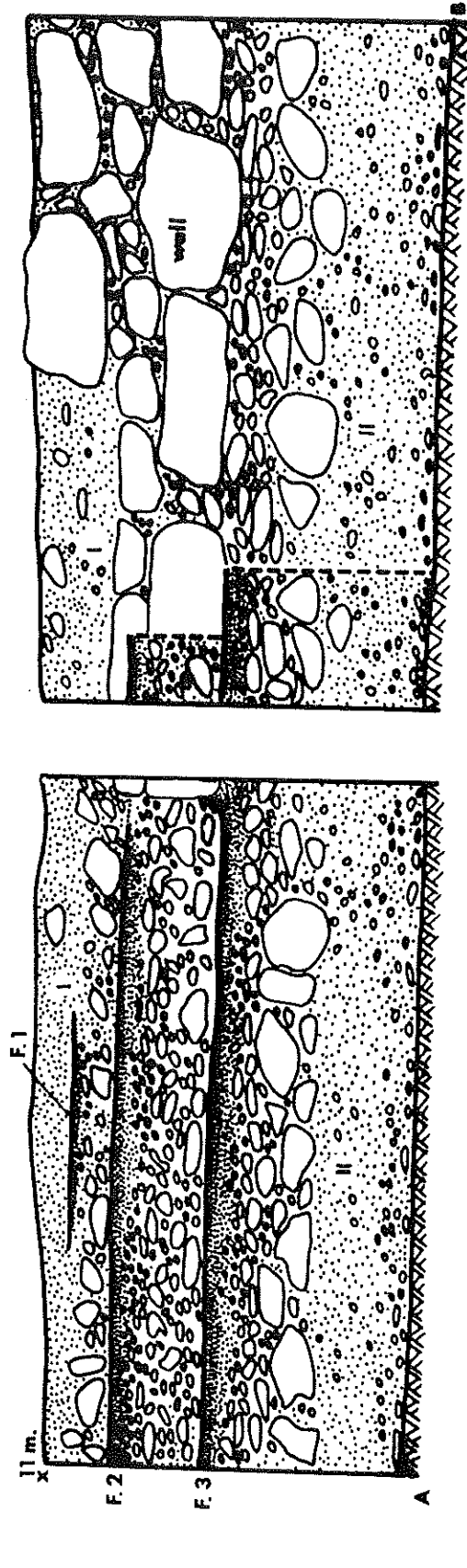


Fig. 14 Cuca

Operation 2, Trench 8

Profiles of west (A) and north (B) walls

I Brown humus/topsoil.

II Large rubble grading into brown soil.

Note that Floors (features) 2 and 3 have been stepped out from the north face to preserve them in the profile.

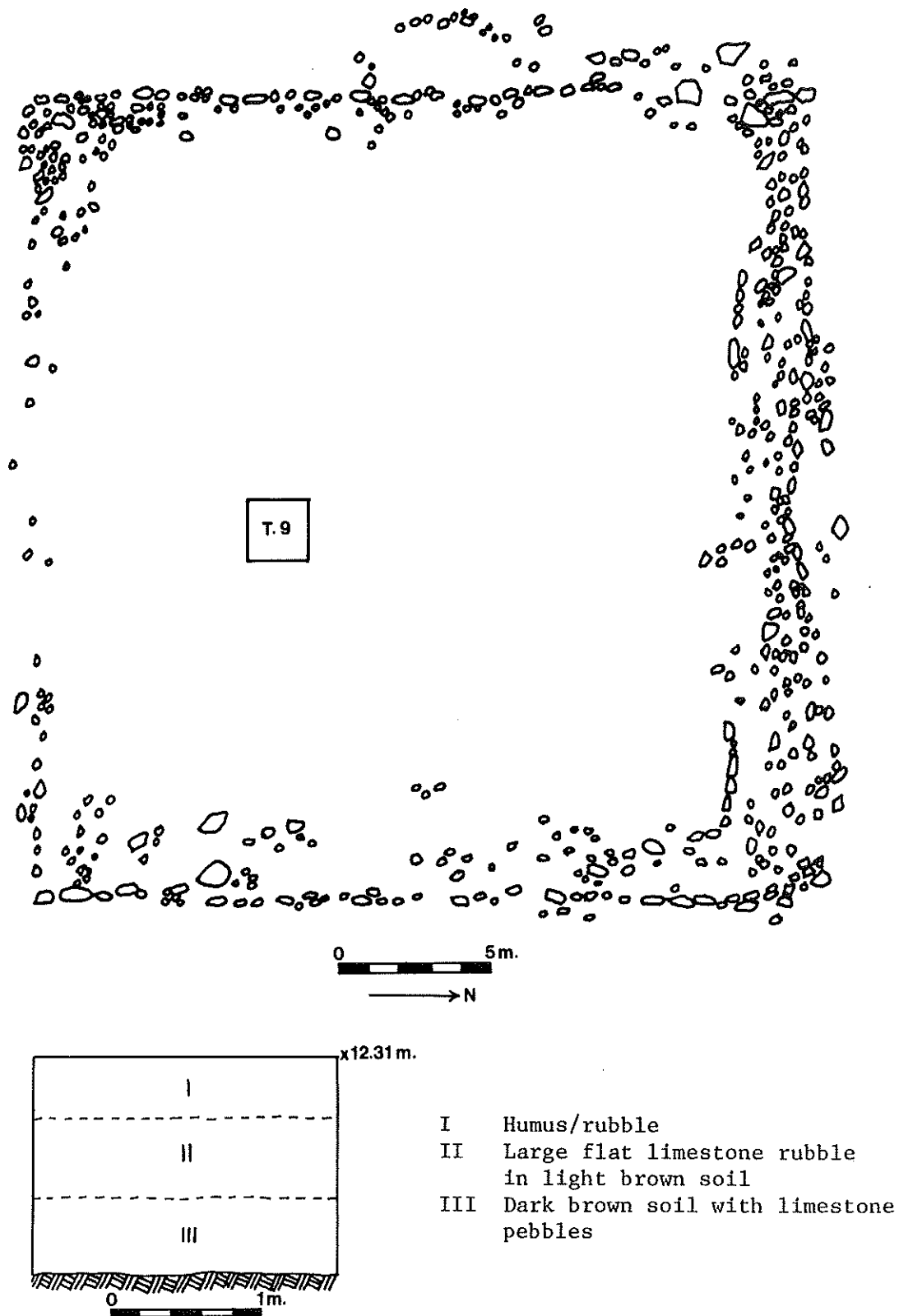
Fig. 15

Cuca

Operation 2, Trench 9

Plan of Structure

Profile, East Wall



measured fully 36 m. on a side. Large edging stones delineated the platform, with rough alignments visible both along the base and on the summit, but there was no sign of extensive superstructural rubble.

Beneath 40 cm. of mixed topsoil and small rubble was a 50 cm. accumulation of large, flat limestone rubble in a lighter soil matrix. This in turn overlay an apparent old soil layer of dark brown soil and small limestone nodules just above bedrock. In the interests of speed all of the sherds from this trench, most of which came from above the buried topsoil layer, were bagged as a single lot (11).

Operation 2 Trench 10 (Fig. 16 - Lots 40, 102, 106, 111)

A 2 x 2 m. test trench was excavated into the surface of a small rectangular platform adjoining the interior of the inner wall just to the south of Plaza B. We hoped to get a good ceramic sample from this structure which was apparently an integral component of the inner wall. Beneath 20 cm. of mixed humus and rubble was a well-preserved floor (Feature 1). Grouting beneath this floor consisted of large limestone blocks. A second floor, Feature 2, was encountered in the southern third of the trench only. It turned up to a line of rocks jutting out from the southern trench wall, and continued over the top of a rough stone alignment several courses high (Feature 3), meeting the upturned portion of a somewhat lower floor (Feature 4) which was intact over most of the northern part of the trench. The Feature 3 alignment extended below the level of Feature 4, and terminated at the level of another fragmentary floor (Feature 5) which had no preserved surface. Finally, an even deeper floor (Feature 6) was exposed. Fill beneath Features 4, 5, and 6 consisted of small limestone rubble in a light grey-brown soil matrix. The trench was carried down to a depth of ca. 80 cm. below Feature 6, but no sign of bedrock or old buried soil was encountered, and it was terminated at a depth of 2.5 m.

Although several phases of construction are obviously present, one, that involving Features 2, 3 and 4, suggests the existence of a set of low steps rising toward the crest of the inner wall. Similar but more convincing features of this sort are seen in Operation 2, Trench 5, and our Operation 7 trenches. Puuc Slate Ware sherds are found even in the lowest levels of Trench 10, and the trench is also notable for its abundant yield of Yucatan Chalky Ware.

Operation 2, Trench 11 (Fig. 17 - Lots 101, 104, 107)

A shallow 2 x 4.8 m. trench was completed between the northwest corner of the Structure VI complex and the outer edge of the inner wall. The inner wall in this area abuts the interior architecture and

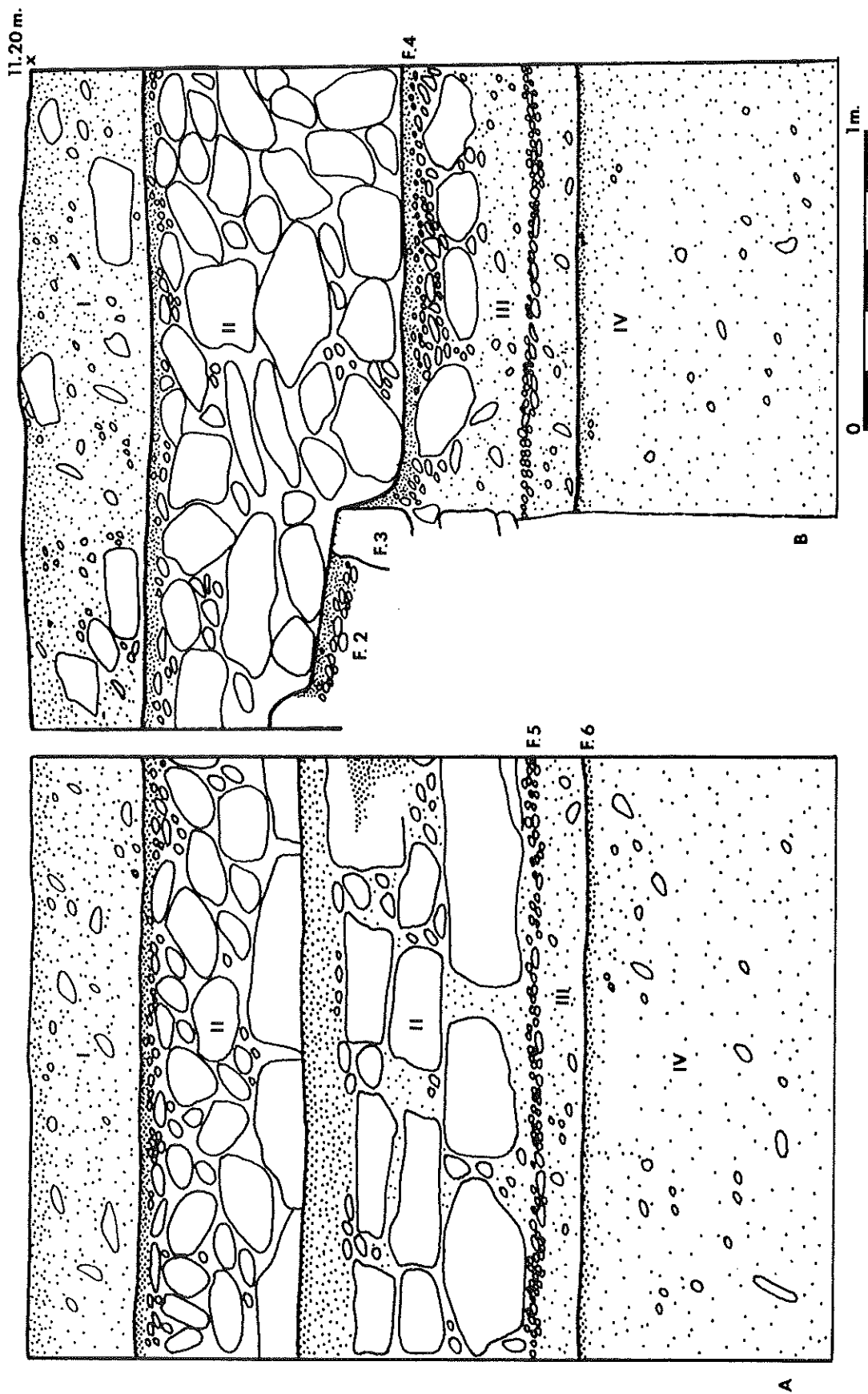


Fig.16 Cuca

Operation 2, Trench 10

Profiles of south (A) and west (B) walls

- I Humus and collapse rubble.
- II Large limestone fill.
- III Grouting.
- IV Rubble in brown soil.

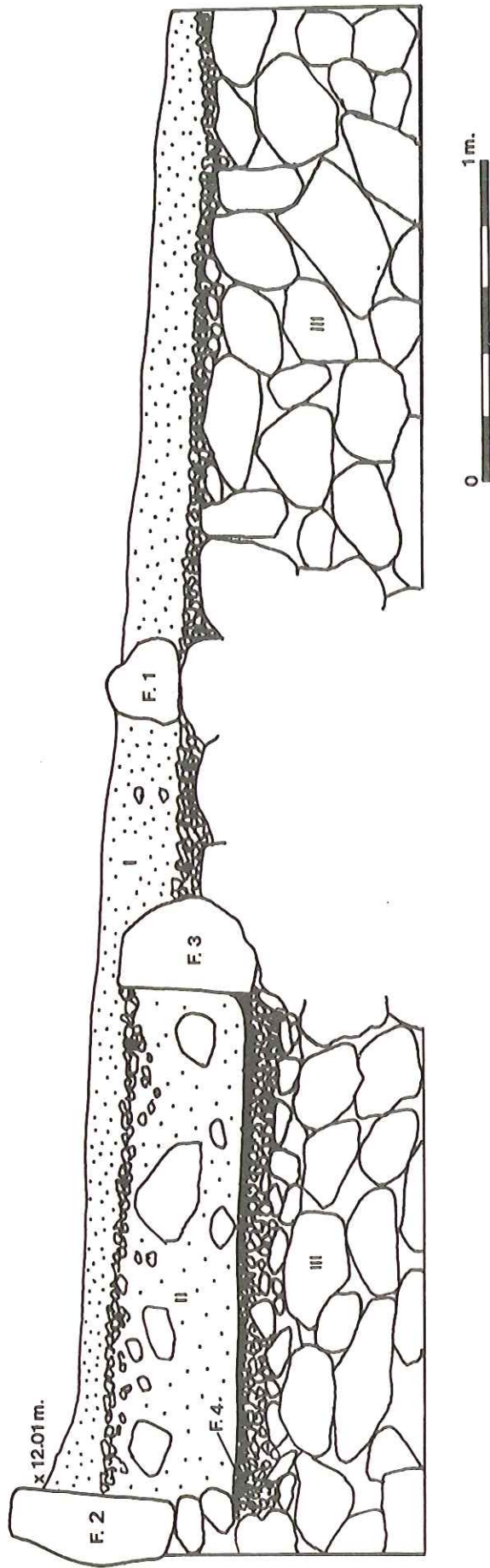


Fig. 17

Cuca  
Operation 2, Trench 11  
North Face

I Humus  
II Brown soil/rubble  
III Large limestone rubble

has, properly speaking, no inner face at all, although there is usually a slight decline in elevation of a few centimeters along the inner "edge". Several amorphous stone alignments were visible in this area and we felt they might indicate low steps connecting the interior of the site with the wall summit. In the eastern three meters of the trench we struck a layer of what seemed to be small rubble grouting beneath 10-20 cm. of humus, and this grouting layer directly overlay massive limestone construction rubble such as used extensively at Cuca for leveling plazas. Feature 1 was an alignment of rough stones which crossed the trench and seemed superimposed on the grouting.

In the western 1.8 m. of the trench we hit two more alignments running parallel to the wall--Features 2 and 3. The latter consisted of a single row of blocks nicely faced on the western side and top only. Grouting similar to that in the eastern part of the trench ran from a level corresponding to the middle of Feature 3 to the center of Feature 2, but no intact plaster surfaces were associated. At a depth of about 40 cm. below the surface, an intact plaster floor (Feature 4) ran beneath the Feature 2 alignment and turned up at the base of Feature 3. It was situated on a thin layer of grouting which in turn overlay huge limestone rubble.

At this point it became clear that we were not dealing with a stairway at all, but with floors and footings of some sort of definite structure which had been erected along the crest of the inner wall. Unfortunately we opened this trench late and had no time to carry our explorations further. No attempt was made to penetrate the large rubble fill to any depth, since it was sterile as elsewhere at Cuca.

Operation 3, Trenches 1, 2, 3, 4 (Figs.18, 19, Plate 3 , Lots 51, 52, 53, 61, 62, 63)

Operation 3 consisted of a set of trenches focused on a segment of the outer wall along the southern edge of the site and a smaller, nearby test trench. The wall trenches will be considered first. Trench 2 was a 1.5 x 3.5 m. excavation which cleared the collapse rubble along the outer edge of the wall. Trench 3, 2 m. long, cleared a similar area along the inside. Trench 4, 1 m. wide and 4.6 m. long, cut through the fill of the wall. Before excavation, the wall in this area appeared as a low mound of rubble 1-1.4 m. high and 6-8 m. wide.

After excavation, the intact portion of the inner wall was found to be about 4.5 m. in width, with inner and outer retaining walls consisting of rough limestone blocks chinked crudely together. The inner retaining wall was coursed, but the outer one was built at least partially of single upright stone slabs as much as a meter high. No mortar was encountered. Collapse rubble in Trenches 2 and 3, on the outside and inside of the wall respectively, was large limestone rubble

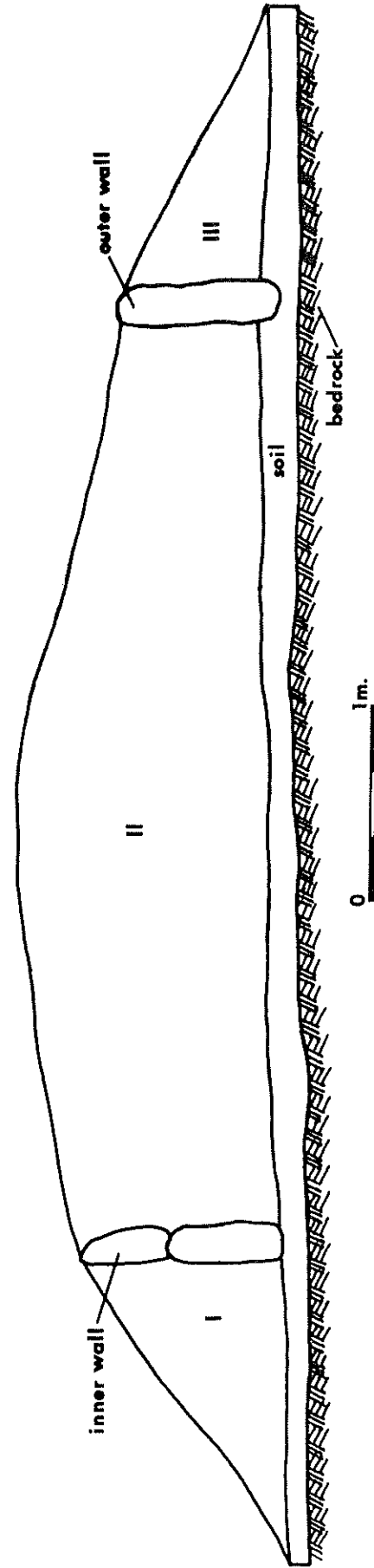
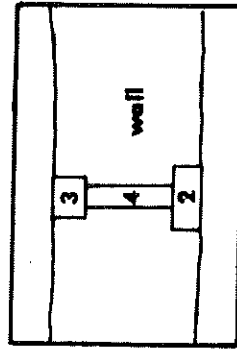


Fig. 18

Cuca

Operation 3, Trenches 2-4  
Plan and Composite Profile of West Walls.

- I Collapse rubble in light brown soil.
- II Limestone rubble.



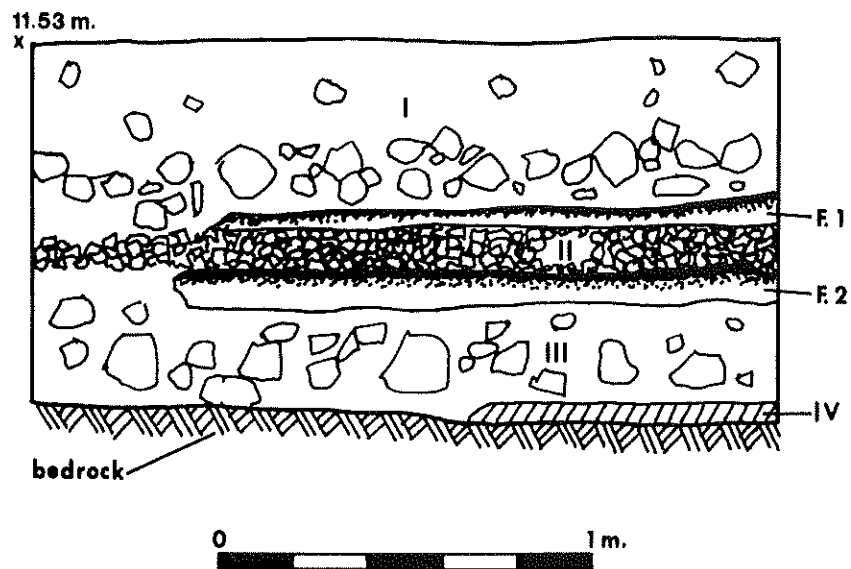


Fig. 19 Cuca

Operation 3, Trench 1  
Profile of east wall

- I Dark brown humus/topsoil mixture with some rubble.
- II Grouting.
- III Rubble fill.
- IV Lense of hard-packed brown soil.



A



B

Plate 3 Cuca

- A Limestone blocks of outer retaining wall of outer wall segment as exposed in Operation 3, Trench 2.
- B Terraces of outer face on inner wall as seen in Trench 1, Operation 1.

in a light soil matrix. Trench 4, dug directly through the wall, revealed that the construction material was a mixture of limestone rubble ranging from fist size to blocks 40 cm. across. Maximum height of the preserved section of the wall was about 1.5 m., and judging from the small amount of slumped material it could not originally have been much higher. A thin (20-30 cm.) layer of old soil directly underlay the wall.

We had hoped that a large amount of cultural material would have been incorporated into the fill of the wall, but it proved to be almost sterile. Only 10 identifiable sherds were discovered, and none were from sealed contexts. These included several Cehpech complex sherds and, interestingly enough, five probable Formative Sierra Red sherds which had been scooped up with the fill.

Trench 1 was a 1.5 x 2 m. test trench excavated into an exceedingly amorphous, low mound (only about 20 cm. high) located about 20 m. northwest of our wall excavation in Operation 3. Since most of the observed architecture at Cuca is sizeable, it was felt that this structure might be a remnant of an early (i.e., pre-Pure Florescent) occupation.

Beneath 40-50 cm. of dark brown humus mixed with small rubble, a poorly preserved floor was uncovered (Feature 1). This rested on a thin layer of grouting, which in turn covered the fragmentary remains of a massive floor about 10 cm. thick (Feature 3) lying on a deep layer of fill in a brown soil matrix. Just above bedrock in the southeast corner of the trench was a hard layer of reddish soil and small pebbles. Cehpech complex sherds with an admixture of Sierra Red sherds were found throughout. The small mound is clearly a late rather than early construction.

#### Operation 4, Trenches 1 & 2 (Fig.20 - Plate 4 - Lots 76, 77, 78, 79, 80)

Operation 4 consisted of two trenches located just off the rear of Structure VII. In this area the inner wall is backed up right against the interior architecture and appears as a retaining wall rather than as a free-standing construction. Before excavation there was a virtually uniform slope of collapse debris from the rear crest of Structure VII to the ground surface to the west of the inner wall. Trench 1, 2 m. in width, began at the base of this collapse debris and was driven through it perpendicular to the strike of the wall and toward the rear of Structure VII.

Material to the north of the wall face consisted of large collapse debris in a light brown soil matrix. When this was cleared, a slightly battered wall face three meters high was revealed. The wall consisted of roughly-shaped or natural limestone blocks chinked into place without mortar. The three lowest courses were larger, more formally-laid stone, with the upper courses of smaller, cruder stonework. The base of the wall rested upon an old topsoil.

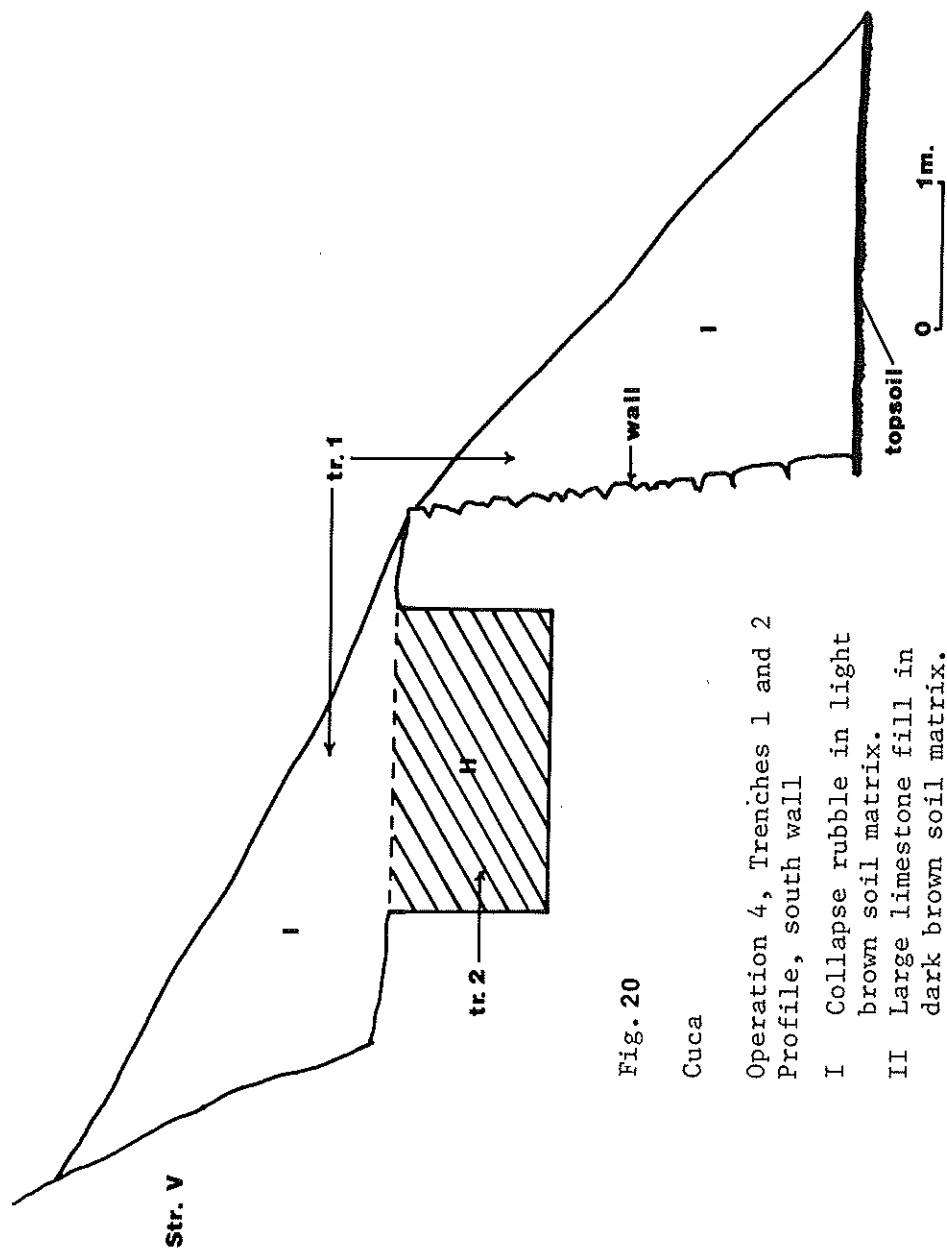


Fig. 20

Cuca

Operation 4, Trenches 1 and 2  
Profile, south wall

- I Collapse rubble in light brown soil matrix.
- II Large limestone fill in dark brown soil matrix.

We next extended Trench 1 back toward Structure VII on a level with the top of the wall hoping to strike intact construction of the rear wall of this building. Eventually this upper section of Trench 1 was driven back 3.5 m. Material was large rubble in a light brown matrix which became whiter in the southern part of the trench, and sherds, which were very abundant in the whole upper section of Trench 1, were even more numerous in the white matrix. Eventually it became obvious that the rear wall of Structure VII had fallen away and that we were encountering the internal fill of the building. At this point the trench was stopped.

Trench 2 was a 2 x 2 m. test trench sunk 1 m. into the construction fill behind the retaining wall. As in our outer wall exposures, this fill was mainly large limestone rubble, but in a darker soil matrix with few sherds in sharp contrast to the collapse rubble in the overlying upper Trench 1 exposure. Trench 2 was excavated in two 50 cm. levels, but neither could be considered sealed and both were subject to contamination from above.

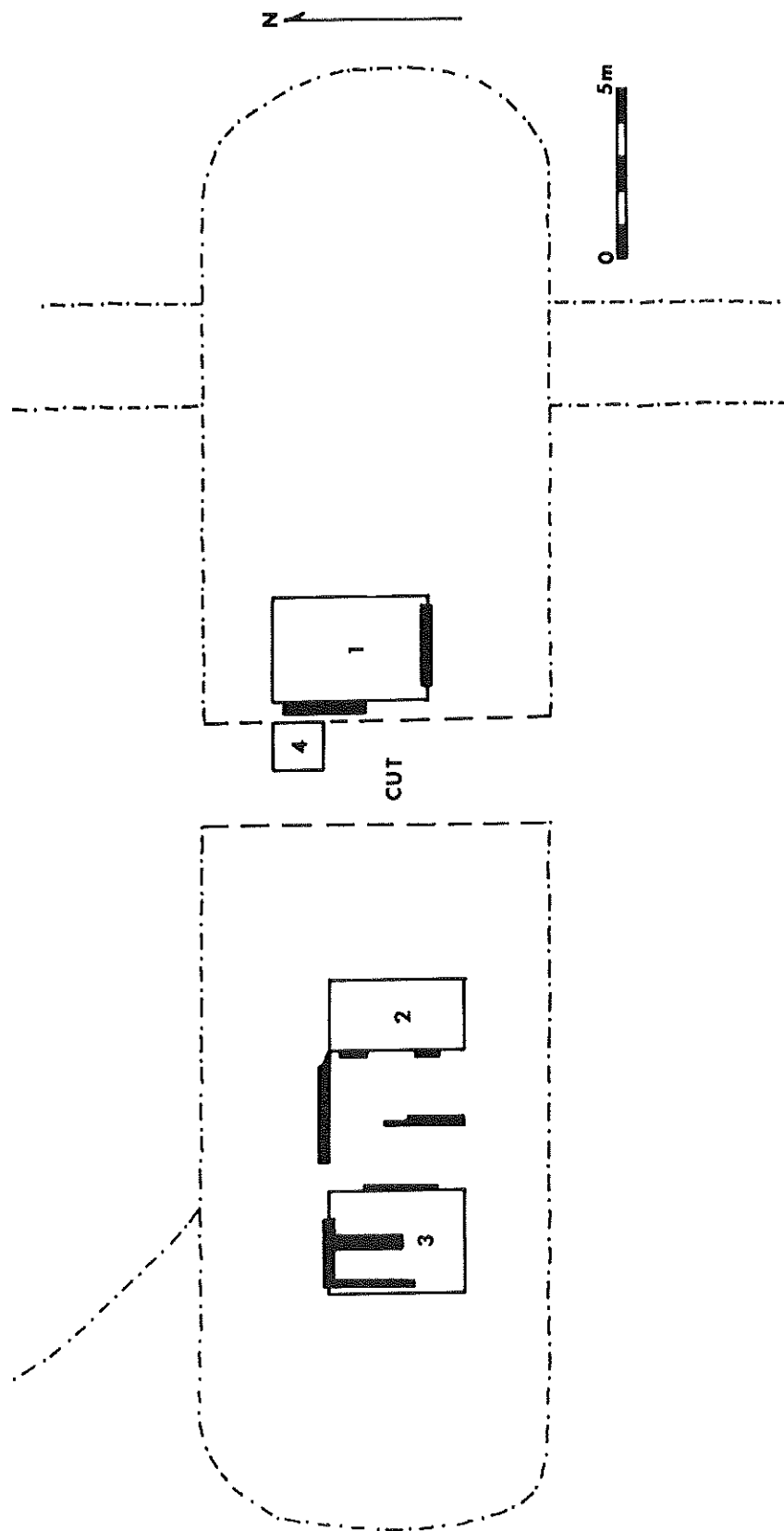
A large collection of 3,422 well-preserved sherds was recovered from Trench 1, and about half of these were found in the white matrix at the southern end of the trench which probably represents collapse rubble from the rear of Structure VII. Sherd densities were so high in the upper part of Trench 1 that I suspect an extensive midden was associated with the rear slope of the structure. By contrast, the fill behind the wall in Trench 2 produced only 88 sherds. Almost all of the material from Operation 4 was Cehpech complex in origin, and the largest concentrations of Puuc Redware and Thin Slateware, as well as Puuc Slateware, at the site as a whole were recovered from this area. Sherds from Trench 2 were predominantly Cehpech with some earlier admixture, and the presence of a probable Pure Florescent midden overlying the inner wall, along with our findings from Operation 7 (see below) clearly indicate a Pure Florescent construction date for it. If my assumption of a midden is correct, Structure VII, which seems to be a smaller version of the immense Structure V, probably had elite domestic functions.

Operation 5, Trenches 1-4 (Figs. 21-24 - Plate 4 - Lots 6, 8, 19, 62, 64, 65, 66, 67, 69)

Operation 5 consisted of a series of shallow horizontal trenches which tested the summit of a long linear mound situated in the inner zone just to the northeast of the Structure VI complex. This mound was in dilapidated condition with no visible architectural elements on its surface apart from faint stone alignments which seemed to be wall bases. It measured approximately 40 m. in length and 10 m. in width with a maximum height of about 2.3 m.

We were attracted to this structure because it had been severely disturbed by a massive cut 3 m. wide near its center, perpendicular to its long axis, which had been made to accommodate a henequin tramway.

Fig. 21  
Operation 5, Trenches 1-4  
Plan Showing Trench Locations  
and Remaining Wall Segments.



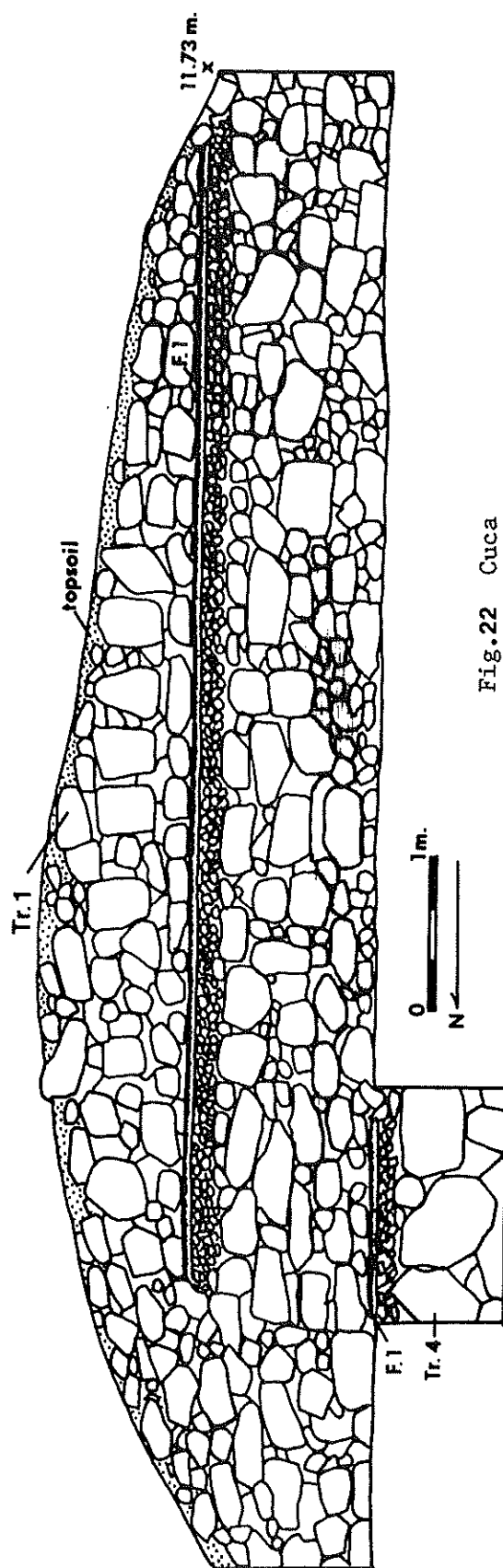


Fig.22 Cuca

Operation 5, Trenches 1 and 4

Profile of east wall of mound as exposed in tramway cut. Except for thin topsoil the deposit consists of large limestone construction fill.



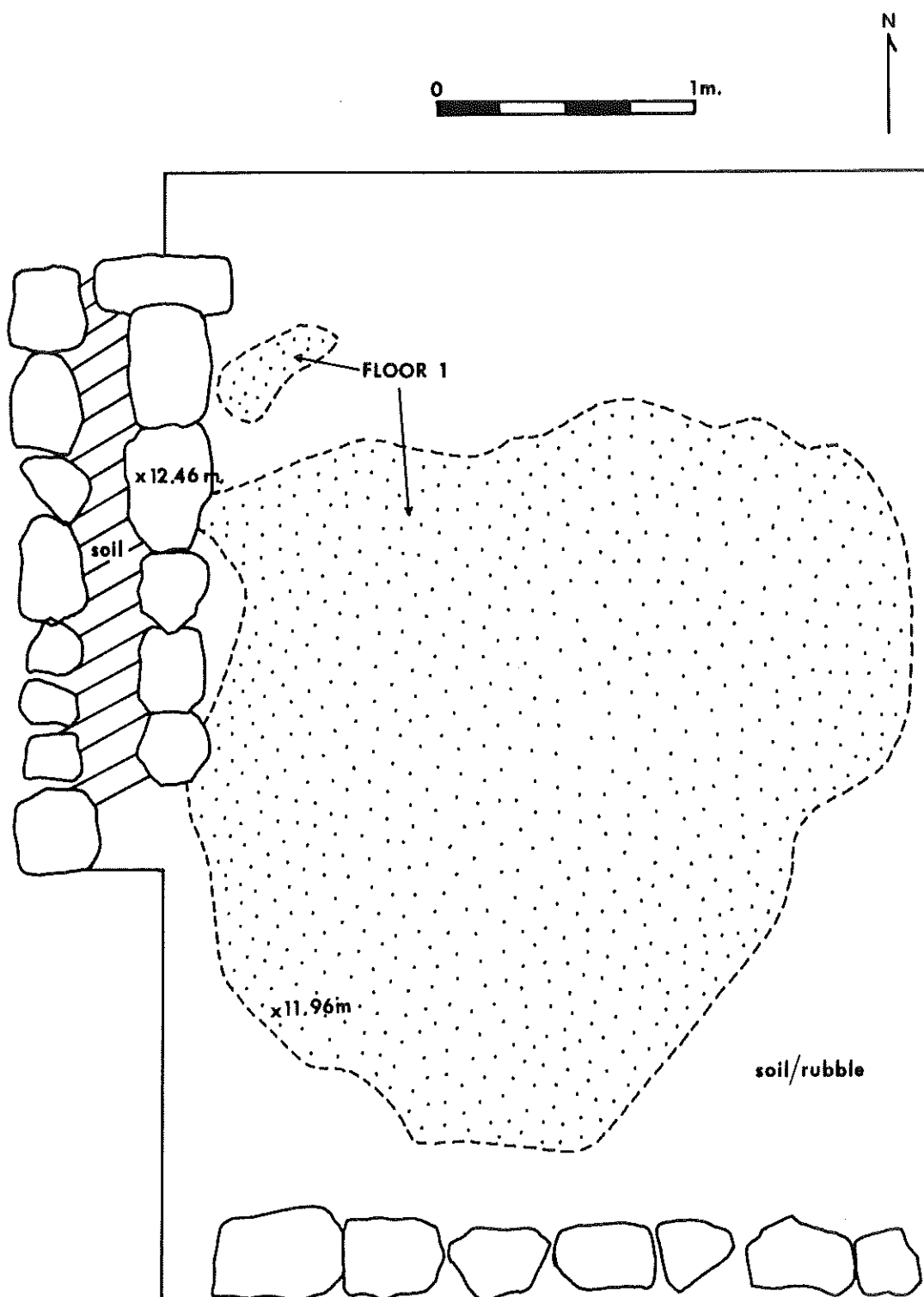


Fig. 23

Cuca

Operation 5, Trench 1

Plan

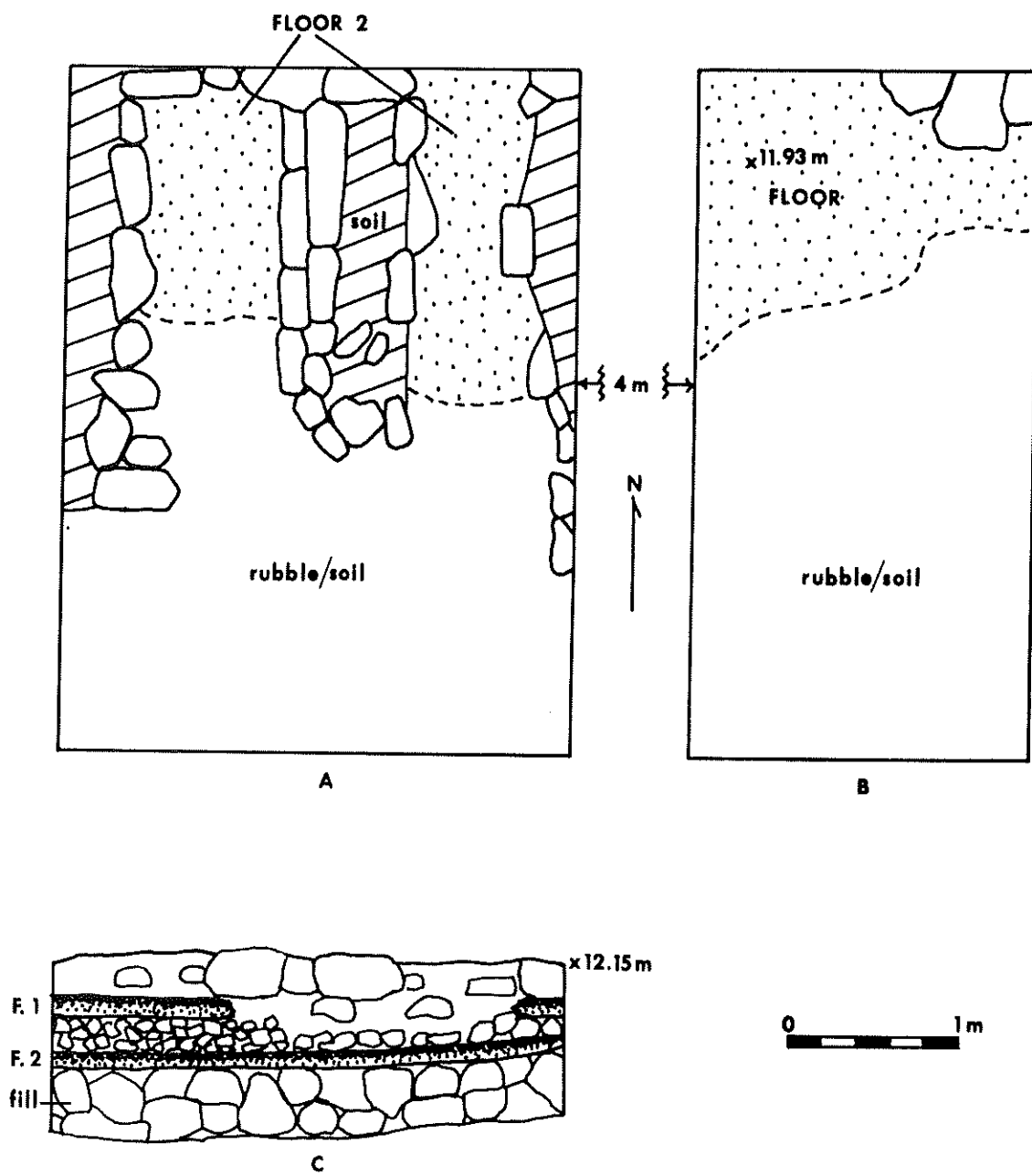


Fig. 24

Cuca

Operation 5, Trenches 2 and 3.

A Plan of Trench 3

B Plan of Trench 2

C Profile, North Wall of Trench 3.

This cut produced a superb profile of the mound in which two floors were visible as well as what seemed to be the edge of a wall buried by collapse rubble. Our efforts were aimed at salvaging as much information as possible concerning this structure by cleaning up the profile and clearing the collapse rubble on its summit from the underlying intact construction. Since we did not possess the time or manpower to clear the whole summit area, we attempted to position the trenches along the visible surface stone alignments, hoping to determine the original basic character of the superstructure. The latter operations were designed to give us a good ceramic sample from the latest contexts of what was probably a large elite residence.

Trench 1 measured 4.3 x 3 m. and was positioned just to the east of the cut to explore several stone alignments. After the removal of 40-60 cm. of limestone collapse debris in a matrix of recent brown humus the remains of a fragmentary floor (Feature 1) were exposed over most of the central part of the trench. One piece of decoratively carved stone and a metate fragment were found in the collapse debris. The floor was in bad condition, having almost entirely lost its surface. With it were associated two sections of low foundation walls uncovered along the southern and western margins of the trench. The southern wall was only a single course wide and high and consisted of roughly faced limestone blocks. The western wall was similarly constructed, although two courses wide, and at its northern end two courses high. The total height of both walls was 40-60 cm. No connections could be traced between floor 1 and the southern wall, but the base of this wall was at approximately the level of the floor so the two are presumably related. We did find fragments of floor 1 directly underlying the west wall, which had apparently been laid right on top of it. Removal of floor 1 showed it to have been well-made and unusually thick--10 cm. A layer of small rubble grouting about 20 cm. thick lay beneath floor 1, and a ceramic sample was extracted from it; because of the poor conditions of the overlying floor this sample should not be considered sealed. The grouting layer had been laid down directly upon an exceedingly well-preserved lower floor (Feature 2) which extended with its smooth plaster surface intact over the entire trench. It is this floor which is visible in the east wall profile of the tramway cut.

Floor 2, which like floor 1 was about 10 cm. in thickness, was removed and a sealed sample of sherds obtained from the approximately 20-30 cm. layer of small rubble grouting beneath. This grouting rested upon the basic construction material of the mound--large, rough limestone blocks with scarcely any binding matrix. Excavation in Trench 1 was halted at this point because the profile suggested only large fill with no features below the level of floor 2. We did notice that right on the tramway path about 1.2 m. below the level of floor 2 was another fragmentary floor. We cut a small 1.5 x 1.5 m. trench (4) down through this floor after clearing collapse rubble from it. Again the floor measured about 10 cm. in thickness with 20 cm. of grouting, but beneath was a layer of enormous rubble such as we had encountered in our deep test trenches in Plazas A and B. This

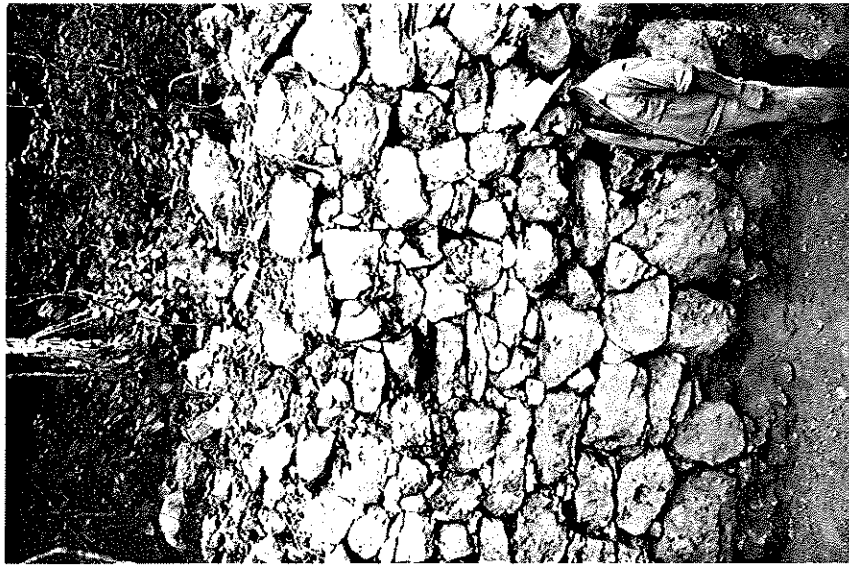
deepest floor ran right beneath the mound and I feel it represents an early plaza paving rather than early phase of mound construction.

In order to enlarge our ceramic samples from the linear mound and to try to make more sense out of the stone alignments at or near the surface we opened two more shallow trenches on the mound summit to the west of the cut.

Trench 2 measured 4 x 2 m. and was located 8 m. west of Trench 1. No wall foundations were exposed in this trench, but a fragmentary floor covered approximately the northern third of it at a depth of 50 cm. below the surface. This floor, about 10 cm. thick, was situated on a layer of grouting 20 cm. thick overlying large limestone blocks. The general elevation and stratigraphic context of this floor suggests that it is identical with the extensive, well-preserved floor 2 discovered in Trench 1. Since our excavations in Trench 1 and our profile of the east wall of the cut indicated that below was the massive fill of the original mound, we curtailed excavation in Trench 2 and shifted to another exposure, the 4 x 3 m. Trench 3, 4 m. further west.

Three fragmentary wall foundations showed up along the eastern and western edges and the center line of Trench 3, although none were preserved in the southern third of the trench. These apparently were erected just above a very fragmentary floor (Floor 1) which was in such bad condition that we picked it up only in the north and east profiles. Below the grouting of floor 1 was another floor (Floor 2) which sat directly upon large construction rubble and which was intact only in the northern portion of Trench 3. On the basis of general stratigraphic positions and elevations I would equate floor 1 in Trench 3 with floor 1 in Trench 1. Floor 2 in Trench 2, the single floor in Trench 2, and floor 2 in Trench 1 would accordingly also correlate. Arguments against these equations, apart from slight differences in elevation, are the apparent absence of an upper floor in Trench 2 and the absence of grouting beneath floor 2 in Trench 3. Nevertheless, I feel that the overall similarities strongly suggest that the equations are correct.

Three major construction episodes are revealed by our Operation 5 trenches. First a plaza floor was laid down similar to those elsewhere at Cuca. Next a low platform was created by the deposition of a 1 m. thick layer of huge limestone rubble with practically no binding matrix; this was capped with 20 cm. of grouting and a thick floor covering much, or all, of the platform's surface (assuming the preceding correlation of floors is accurate). No wall segments have been discovered associated with this platform floor. Another floor was subsequently laid down over the first and a series of walls running perpendicular or parallel to the axis of the mound were erected. These delineated and perhaps sub-divided rectilinear units on the mound's summit. Apparently none of these walls was very high. They are preserved to a maximum height of two courses (40-60 cm.) and judging from the small amount of fallen construction debris associated with them, they could never have been much higher. Walls are composed of limestone blocks, some of which are only roughly shaped while others are faced. The



A



B

Plate 4 Cuca

A Inner wall in its terrace aspect as exposed in Operation 4.

B South and west walls of summit structure as exposed in Trench 1, Operation 5.

"walls" are best interpreted as wall-footings or foundations which supported either exterior walls or interior dividing walls composed of perishable materials. Because of our limited exposures and their ruined condition, no overall patterns can be determined from the existing wall fragments. These superstructures probably consisted of wattle and daub, since fragments of burned clay were found in the fallen construction debris; these fragments were very similar to the burned wattle I excavated years ago from an obviously burned wattle and daub structure at Kaminaljuyu, although considerably smaller (Webster, 1973).

Four hundred thirty-six sherds were recovered from the uppermost layers of construction rubble (Lots 6, 10, 64). Puuc Slate Ware makes up most of the identifiable sherds (50%), and all of the other common Cehpech complex wares are also present along with eight Yucatan Chalky Ware sherds. An essentially similar collection was recovered beneath the levels of the various floors on the summit of the mound. There is no doubt that the structure was erected during the Pure Florescent occupation and that was not occupied after that time.

While our exposures were limited, the available evidence suggests that the platform supported a residential structure. Puuc Slate Ware and Unslipped Ware were dominant, and a metate fragment was in association. Although it has impressive dimensions and is located in an elite zone, the architecture was plain and perishable. I suggest that the structure functioned either as an elite residence itself or an ancillary structure for a larger elite establishment. I favor the former interpretation, since some elaborate ceramic types were present (especially among the red wares) as well as unslipped censer fragments.

Operation 7, Trenches 1 & 2 (Fig. 25 - Lots 44, 45, 46, 47, 48, 49, 103, 105, 109, 110)

Operation 7 was a major exposure of the inner wall about 30 m. southeast of Structure VI. It is along this southern periphery of the inner zone that the wall appears most massive, and our previous exposures in Operations 1 and 4 revealed quite variable construction in various segments. Before excavation, the inner wall appeared as a massive rubble mound about 16 m. wide and just over 3 m. in height measured from the adjacent flat ground to the south (the bordering plaza to the north is noticeably higher). Trench 1, measuring 10 x 2 m., was laid out from the northern edge of the wall rubble to its crest. Trench 2 was 5.25 m. long and 3.5 m. wide with the long axis perpendicular to the strike of the wall. Each was designed to expose construction features on the inside and outside of the wall respectively. Only a few faint traces of intact structure were visible prior to excavation, notably some stone alignments indicating the presence of a low terrace on the wall summit.



Trench 1 revealed a sequence of features, the most prominent of which are a series of sloping steps or terraces rising from the plaza level to the inner crest of the mound. These were exposed after the removal of only about 20-40 cm. of dark humus mixed with construction rubble. The sloping surfaces behind each of the four steps were composed of small limestone rubble which probably originally underlay a plaster paving. The stones which formed the risers of the steps or terraces were fairly well-cut. Hoping to find a plaza floor which would articulate with Feature 1, the lowest step, a 2 m. x 1 m. cut was made at the north end of Trench 1 down to bedrock. At the level of the base of Feature 1 a layer of small limestone grouting showed up, but no paving was preserved. Beneath was a thick layer of massive construction rubble similar to the fill which our test trenches had turned up in Plazas A and B, and this extended right down to bedrock at a depth of about 1 m. below the surface with no signs of multiple plaza floors.

At the upper (southern) end of Trench 1 was a double alignment of rough stones (Feature 2) which was preserved to a maximum height of two courses (50 cm.). A floor remnant (Feature 6) was found between them on a level with the top of the Feature 3 riser, and obviously represents a paving laid down prior to the construction of the Feature 2 alignments, which seem to be part of a low terrace about 3 m. wide which was a later addition to the summit of the wall. Sherds were not abundant in the humus/collapse rubble overlying the steps (Lot 44) or in the construction fill associated with the terrace structure (Lot 47) but do include obvious Cehpech complex types. Sherds of this complex were also represented in the abundant collection from the plaza fill in the sounding at the north end of Trench 1. This context also produced our largest single sample of Yucatan Chalky Ware - 174 sherds; many of these seem to be from a single smashed jar. It is important to note the very small amount of collapse debris on the north slope of the wall. This is in sharp contrast to our findings in Trench 2.

Trench 2, which exposed the southern face of the wall, initially penetrated deep layers of large collapsed construction debris in a loose matrix of light brown soil (Lot 45). Along the southern edge of Trench 2 a sounding was carried down to bedrock at about 1.6 m. below the surface. It penetrated a thick grouting layer which had originally been covered with a plaster floor, only a fragment of which had survived (Feature 3). The grouting in turn rested on a thick rubble layer, and our trench followed the surface of this rubble in toward the wall to the north of the sounding. About 1.5 m. from the southern end of Trench 2 we encountered intact construction fill composed of rough limestone blocks mortared into place, with a vertical face preserved to a height of 1 m. Smaller limestone rubble seemed to be concentrated on the intact surface of this construction which was almost 2 m. wide and which was designated Feature 1. Although no intact portions of Feature 3 continued beneath the massive construction fill of Feature 1, the layer of grouting appeared to do so.

Another similar feature (2) was found rising about 1 m. above the first, but this time there was no sign of mortar and the stonework was rougher. The vertical face of Feature 2 extended down behind Feature 1,



and its surface also had small rubble on it. Finally we hit a well-made wall preserved to a height of 3.5 m. (Feature 4). The bottom 6-7 courses consisted of roughly-shaped limestone and stood to a height of about 2 m. This section of the wall was slightly battered. Above it, and inset from it by about 15 cm., was a vertical face 1.6 m. tall (including the outer edging stones of the summit terrace). This wall was very well made by contrast with the others and had been both mortared and plastered. The fill of Feature 5 had been backed up right against it. At the base of Feature 4, and clearly extending some distance beneath it, was a floor fragment (Feature 6) on almost exactly the same level as the Feature 3 fragment at the south end of the trench, probably a remnant of the same floor.

The sequence of events recorded in our profile of Trenches 1 and 2 is clear. The wall was erected on an area where there was an abrupt change in bedrock elevation from south to north, with the northern bedrock zone a full 2 m. higher. Construction in the northern end consisted of deep plaza fill and one probable paving, above the level of which the rising terraces ascend the core of the wall. In Trench 2 to the south the sequence is more complex. Our sounding reveals what may be small construction rubble overlain by 25-30 cm. of grouting for a (single?) floor, represented by the fragments Features 3 and 6. Directly above the level of Feature 6 was built the core of the wall, with its slightly battered facade and vertical upper structure (C); when plastered, this wall must have been very impressive. Later the massive Feature 5, with its poor, unmortared fill and vertical face (B) was laid right up against Feature 4, in effect widening the wall by about 1.8 m. and apparently cutting down through the grouting of the floor(s) Features 3 and 6. Finally a very similar construction, Feature 1, was laid up against Feature 5, but this was of better workmanship, the stones being mortared together. This final addition to the wall widened it a further 2 m., but only partly disturbed the Feature 3 grouting.

Features 1 and 5 are best explained as formal additions designed to widen the original wall. Because of its poor construction, I interpret the vertical face of Feature 5(B) to be only a task wall, and the addition of both layers would then be essentially synchronous. We would have, then, an early, well built wall which was for some time a free-standing construction, and an outer, later wall facade, with a rough wall sandwiched between them. Neither of the two additions is preserved to its original height. Judging from the large amount of fallen construction debris on the south slope of the wall, the added segments probably originally stood no higher than the present wall summit (i.e., as high as Feature 4). This collapsed material could only have come from the top portions of Features 1 and 5. If, on the contrary, it had fallen from a wall segment lying directly over the present crest of the wall, there would have been much more collapse debris on the summit and on the northern slope in Trench 1. The only caveat to this interpretation is that the "surfaces" of Features 1 and 5 seemed to have a good deal of small limestone rubble; if this is taken to indicate paving, then we must envision two terrace-like structures

in front of Feature 4. Evidence for this is extremely sparse. Such constructions would not be consistent with a wall-function and in any case, if they ever existed, the attitude of the overlying fallen debris indicates that they were quickly buried. Because of the massive size of the southern part of the inner wall, we were unable to section it completely, and the earliest facade uncovered (Feature 4) may in fact not be the earliest constructed. That is, Feature 4 could be an addition like Features 1 and 5, with earlier wall units still buried beneath the massive fill.

Our Operation 7 trenches produced a sizeable collection of 2521 sherds. Of these, the largest proportions were recovered from the collapse rubble and humus on the north and south slopes of the wall (Lots 44, 45, 46). Those which are identifiable include all of the major Cehpech complex wares with no later admixture. Most of this material probably represents sherds incorporated into the construction fill of the additions to the original wall (i.e., collapsed remains of Features 1 and 5). Lots 49 and 103 consist of material recovered from the intact portions of these features, and reflect basically the same mix of wares. In neither case is there admixture of later material, clearly indicating that at least the additions to the inner wall were of Pure Florescent date.

Material from the fill associated with the remains of the terrace structures on top of the wall (Lot 47) was sparse, but identifiable sherds are all Cehpech complex in origin.

An important context for understanding the chronology of the wall construction is the floor fill associated with the fragmentary floor, Feature 3. This fill, about 40 cm. deep, was encountered both in front of Feature 1 and running beneath it. Two large lots (105 and 109, the latter sealed) again produced an abundance of Cehpech complex sherds, so there was an apparent Pure Florescent floor in this area before the wall additions. If Feature 6 is in fact another fragment of the same floor, which seems probable from its elevation, this floor ran right under the original core of the wall and so pre-dates it. We also recovered sherds from the floor fill sealed beneath Feature 5 (Lot 110), but in this area the wall addition seems to have disturbed the fill, resulting in the admixture of large rubble. Again, however, Cehpech sherds are preponderant.

Finally, our sounding at the north end of Trench 1, which penetrated about 1 m. of plaza fill before hitting bedrock, produced another collection of Cehpech complex sherds; in addition, we collected our largest sample of Yucatan Chalky Ware from this context. Many of these Yucatan Chalky Ware sherds seem to have come from a single, large broken jar as noted above.

Operation 8 (Fig. 26 - Lots 13, 14, 15, 16)

After the completion of our Operation 3 wall exposure, a second cut was made through the outer wall, this time on the northern periphery of Cuca. This cut was designated Operation 8, and began with the clearing of construction rubble in two three-meter sections, one along the inside of the wall, and one along the outside. The outer edge of the wall showed up as a vertical face of rough limestone blocks preserved to a height of 80 cm., with the lower courses consisting of larger blocks than the upper. Unfortunately, we found no traces of an inner wall face; either it had fallen completely or had been removed during some episode of stone-robbing (note that there is a recent path cut through the wall immediately adjacent to Operation 8). We next joined the two cleared areas with a cut through the center of the wall, resulting in a completed excavation measuring 3 m. x 7 m.

During the exposure of the outer wall face two very fragmentary superimposed floors were noticed in profile immediately beneath the lowest courses of the wall. Although not preserved to any degree north of the wall, it was clear that they ran beneath it to the south, and our trench connecting the two cleared areas was designed not only to test the construction fill, but also to recover sherd samples from beneath the floor fragments. After the removal of the construction rubble, floor 1 was found intact over an area measuring 2 x 3 m. in the central part of the trench, with fragments of floor 2 preserved only in two patches immediately beneath the wall facing itself. Small rubble grouting in a brown matrix underlay floor 1, but floor 2 was separated from bedrock by only 10-20 cm. of brown soil.

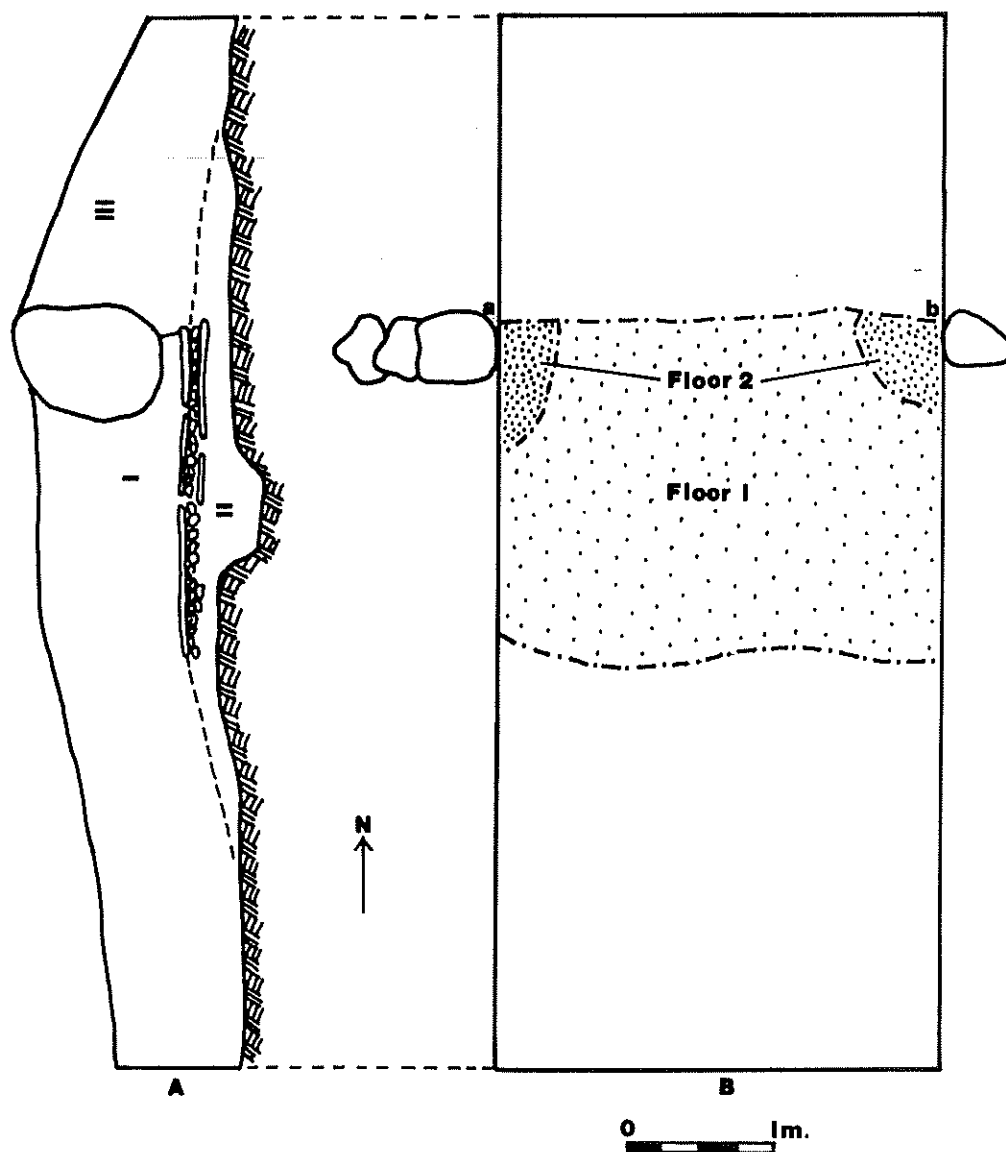
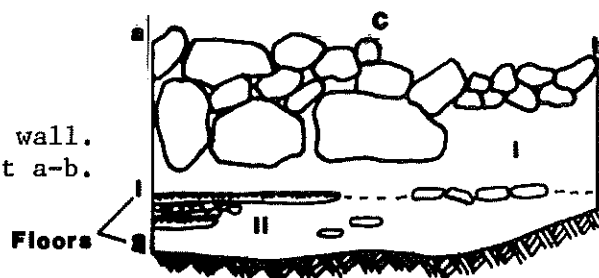
Sherds from collapsed or intact construction fill (Lot 13) were sparse, but included clear Cehpech complex material with a slight admixture of possible Preclassic sherds. From this context also came the only Post-Conquest pottery we found at Cuca--5 fragments of salt-glazed vessel. Lot 14 includes material recovered from below the level of floor 1 down to bedrock to the north of the wall face, and consists of a similar mixture (except that slateware identification was made on the basis of diagnostic shapes in this context). Finally, Lots 15 and 16 consisted, respectively, of material sealed beneath floor 1 down to the level of floor 2 in the central part of the trench, and from the level of floor 2 down to bedrock. Cehpech wares were found in the grouting of floor 1, but all identifiable sherds from beneath the level of floor 2 were probable Formative redwares. This is the only "pure" Formative sample found anywhere at Cuca.

Operation 8 revealed that the outer wall on the north, destruction considered, had the same basic size, configuration, and construction techniques as found in its southern sections. It also showed that at least some Pure Florescent structures preceded the wall on the peripheries of the site and were later overridden by it.

Fig. 26 Cuca

Operation 8, Trench 1

- A Profile of north wall.
- B Plan trench showing portions of Floors 1 and 2 sealed under wall.
- C Section across front of wall at a-b.



- I Large limestone construction rubble.
- II Brown soil.
- III Collapse rubble in brown soil.

## Discussion

Our small test excavations, especially those sunk into successions of plaza floors, indicate at least two major building episodes at Cuca, not counting any problematical pre-Pure Florescent occupations or resurfacings. In Plaza A, for example, above the level of initial plaza leveling, there seem to have been two, and possibly three major plaza renovations (see Operation 1, Trenches 4 and 6). The same pattern is seen in Plaza B in some trenches (eg., Operation 1, Trench 3) but considerable variation can occur even over short distances. Compare, for example, the complicated succession of floors in Operation 2, Trench 2, with the nearby Trench 3, which is in the same plaza.

## The Wall Systems at Cuca

Although walled sites are not uncommon in the northern Maya Lowlands, Cuca is unusual in that it is surrounded by two concentric walls. Both are now in ruinous condition and appear as huge, sinuous mounds of limestone rubble, with intact structural features very seldom visible without excavation.

### The Outer Wall

The outer wall has a total length of 2255 m, and encloses an area of about .33 km<sup>2</sup>. Although I have described the Cuca walls as concentric, inspection of the map shows that neither is laid out in any highly symmetrical or formal manner. The outer wall in particular appears to have been opportunistically designed to enclose several large structures on its periphery which in all probability predate its construction somewhat. This tendency is especially evident on the extreme north and east where large pyramid complexes are just inside the outer wall. I suggest that the marked "bulging" of the wall produced by the relatively straight segments on the northwest, northeast, and southeast indicates a clear concern on the part of the builders to enclose these structures. The primary concern in the layout of the outer wall seems to have been to incorporate large pyramid structures (probably temples). That a similar concern did not extend to large platform structures is seen in the apparent disturbance of such structures along the northeastern periphery of the site, and in the stranding of several platforms just outside the wall.

Mapped as rubble, the outer wall is low, generally 1-2 m. in height, and ranges in width from about 6-10 m. It follows the low contours of the natural bedrock of the henequen fields, and, as the spot elevations on its crest show, does not exhibit abrupt variations in height (as the Chacchob wall does). Many sections of the outer wall

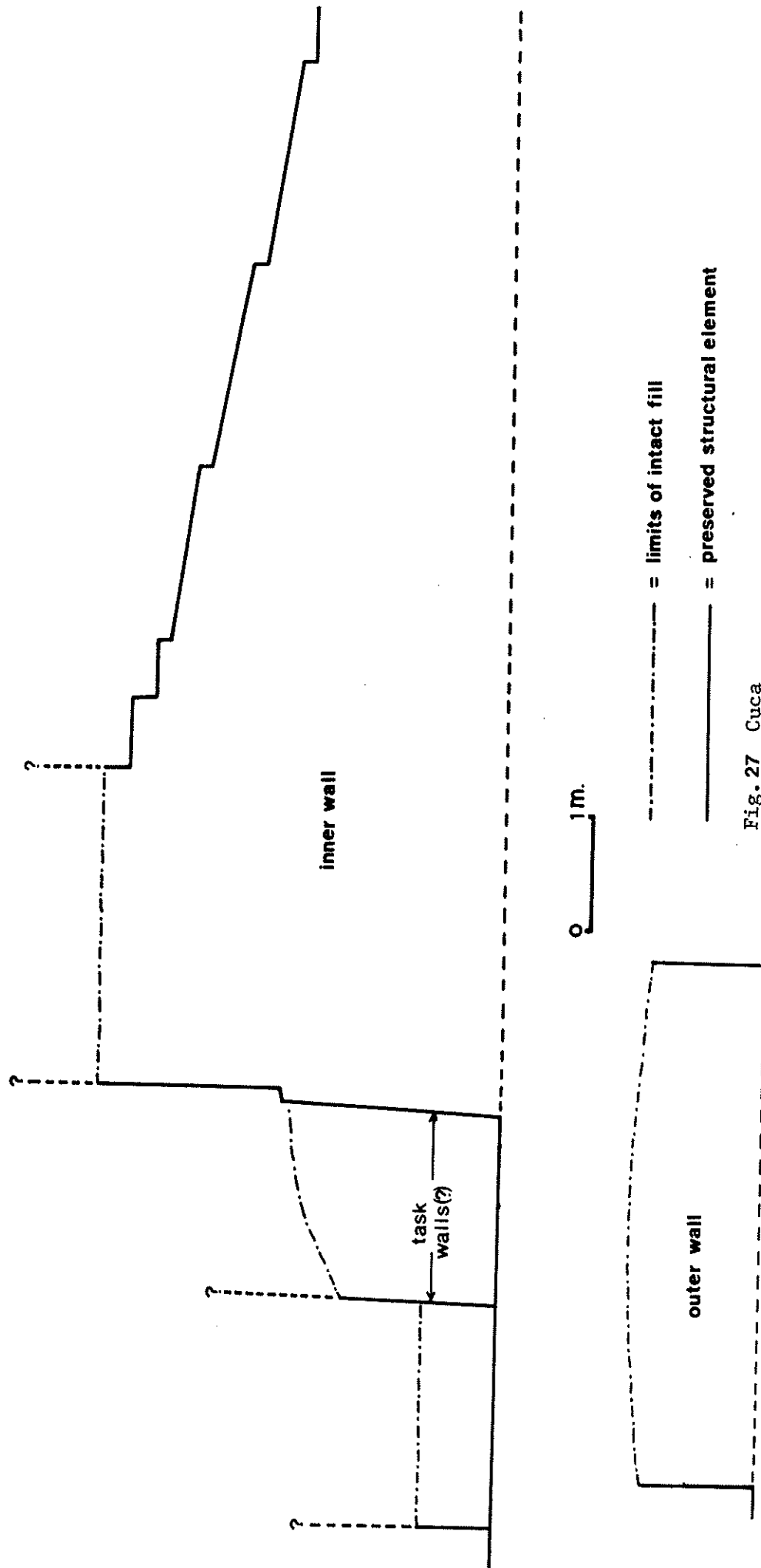


Fig. 27 Cuca

Simplified crosssections of inner and outer walls as revealed in Operations 3 and 7.

appear to have been extensively diminished by stone robbing since the site was abandoned, and most of this activity probably occurred in connection with the construction of tramway and boundary walls associated with henequen cultivation. A number of narrow breaks in the wall can be seen by surface inspection, particularly on the north, and have been included in the map. None show surface configurations suggesting formal gateways and several appear to be narrow clearings for recent footpaths or as access routes for livestock, which are driven into the site to graze.

Construction of the outer wall is best seen in our southern (Operation 3) exposure. Here the wall consists of large limestone rubble sandwiched between massive retaining walls of irregular limestone slabs. After clearing, its dimensions are 4.5 m. in width and about 1.5 m. in height. Judging from the amount of collapse rubble the original height could not have been much greater. Construction material is large rubble for the core, and rough, unmortared slabs and blocks for the retaining walls. All of the construction rests on a thin soil layer overlying bedrock. No formal superstructural features were noted or uncovered in our Operation 3 exposure or anywhere else on the outer wall. No breaks in the wall were seen which on the basis of surface evidence look like gates or passages.

#### The Inner Wall

By contrast with the outer wall, the inner wall at Cuca is very short (828 m.) but much more elaborate and massive, and certainly more variable in configuration. In its ruined condition, it appears as a large rubble mound 10-12 m. in width and from 1-3 m. in height. Alignments of rough-cut stones are visible in many places along its crest, particularly in the area to the south of Structure IV. Evidence, though very fragmentary, of superstructural elements including paving was uncovered in Operation 2, Trench 11, and in our major Operation 7 exposure.

Our map reveals several interesting characteristics of the inner wall, apart from its sheer size. For one thing, although it encloses architectural complexes which exhibit very formal arrangements, the wall itself is quite irregular. I suggest that its layout, as was the case with the outer wall, is most consistent with the enclosure of a pre-existing set of architectural complexes. For example, the asymmetrical bulge on the southwest seems obviously calculated to incorporate the Structure VI complex. Further supporting evidence for the speculation that the inner wall post-dates much of the architecture associated with it is seen in its superposition on top of an earlier large platform - structure (IV), the underlying floor fragments found in Operation 7, and the ceramic associations discussed below. In addition, numerous decorative stone architectural elements are found in the wall rubble, and reflect the Puuc style. Either they

represent elements from buildings cannibalized for fill during the construction of the wall, or surplus building materials. In either case, the wall must somewhat post-date the internal construction. There may be exceptions, such as Structure VII, which departs somewhat from the orientation of the other major complexes and seems to be positioned to conform to a pre-existing wall.

Another peculiar aspect of its configuration is that while for most of its length it is a single, free-standing construction, along much of its western periphery the wall is basically a retaining wall. In some places (e.g., near Structures VI and VII) it is backed up right against large buildings (or vice versa, see Operation 4). Elsewhere there may be either no inner face at all, or only a very low one. This retaining or buttressing arrangement is, I believe, due to the fact that the elevated outcrop upon which much of the inner zone construction rests rises more abruptly on the west than elsewhere. (This difference in elevation can be seen in our profile of the inner wall as exposed in Trenches 1 and 2, Operation 7). Examination of the spot elevations along the inner wall indicate that there are no abrupt alterations in its height; the variation which does exist usually reflects the adaptation of the wall-construction to local topographic features, although some is probably caused by stone-robbing.

Disturbance of the inner wall has apparently been pretty minimal. There are three large cuts presently visible in it, and at least two of these have been recently made for tramway construction. No obvious structural features are seen on the surface which indicate the presence of possible gates (e.g., as we did find at Chacchob). I should interject here the observation that the presence of a wall does not necessarily presuppose the presence of gates or openings. Ramps or stairways may provide alternative means of access. On the other hand, the inner wall was high enough to have been pierced by low, vaulted openings, and once these collapsed no visible surface traces might remain.

We made three major exposures of the inner wall (Operations 1, 4, 7) and all revealed very different configurations. Our Operation 1 trenches show a wall with multiple, superimposed, stone-faced, rubble-filled terraces, the whole 7-8 m. wide and presently preserved to a height of 2 m. Operation 4, off the back of Structure VII, showed the retaining-wall configuration discussed above, with a preserved vertical face of rough limestone blocks 3 m. high. The most elaborate and massive manifestation of the inner wall is along its southern periphery, and is exposed in Operation 7. Here it is 12-13 m. in width, with a slightly battered outer face still preserved to a height of almost 4 m. There is no inside face, but rather a long, ramp-like stairway. Remains of a low terrace seem to have surmounted the wall here, and this feature can be seen in fragmentary form elsewhere along the summit. A similar set of stairs was partially exposed in a nearby trench near the southern corner of Plaza B (Operation 2, Trench 5). Quite possibly this southern section of the wall was elaborately finished off on the inside to compliment the inner architectural features.



The wall here is not only larger than elsewhere, but more solidly built with mortared joints; it also went through several phases of construction, and at least the initial one may have had a plastered external face.

#### Functions of the Wall Systems at Cuca

The crucial question with regard to the walls at Cuca is whether their configuration is consistent with a defensive function. It would be only fair to say in this regard that the outer wall is, at least as exposed in our excavations, of dubious defensive value in terms of Maya military capabilities. It is impressively broad, but very low. Only if manned by a large number of defenders would it be defensible. Certainly it would not by itself have stopped anyone, or even functioned as an effective sheltering breastwork from behind which to fight. Unfortunately alternative functions are not obvious. The wall is so low that it does not constitute a barrier to human movement of any kind and certainly would not have provided even secure visual privacy for those living within it.

If a timber palisade were added to the wall or, perhaps even better, a hedge of the thorny vegetation which abounds in northern Yucatan, it would be an effective screen or first line of defense. Unfortunately no evidence for such features was found nor, given the construction of the outer wall, is it likely to be. It is perhaps significant that no signs of burning were noticed on the surface of either inner or outer wall or in excavations. Had perishable superstructures existed, fire would have been an effective weapon against them. The lack of charcoal associated with the wall does not preclude the existence of perishable features, but certainly suggests that if they were present they were not successfully attacked. The wall also encloses a sufficiently large area so that people from the surrounding countryside could have found shelter within it in sizable numbers - indeed they would probably have been necessary for its effective defense. An order of magnitude estimate of construction fill originally invested in the outer wall is  $10,000 \text{ m}^3$ .

For the inner wall, there is no question that even without any additional perishable features it would have constituted a militarily-effective barrier. It is much more massive than the outer wall (the estimated volume of fill is about  $25,000 \text{ m}^3$  over a total length of 838 m. compared to about  $10,000 \text{ m}^3$  in a length of 2255 m. for the outer wall). This larger mass is in particular reflected in the impressive height of the inner wall which is still 3-4 m. high in some places, and even the lowest sections would have stood at least 2 m. high. Overall it would have been a much more defensible feature than, say, the Mayapan wall.

It should be observed that one effect of both wall systems is to severely limit access to the outer, and especially to the inner zone. Certainly there is no reason to believe that the walls might not have served functions in addition to defensive ones. For example, the inner wall obviously symbolically isolates, in spatial terms, a core of civic-ritual and high class residential complexes, insulating them from the surrounding countryside and guaranteeing them privacy. This tendency to restrict access to high status or special purpose precincts in various ways is known widely in Maya archaeology (e.g., the evolution of the A-V complex at Uaxactun). The almost total isolation of such precincts by massive masonry walls is, however, highly atypical of most Maya settlement arrangements, and I would argue that the defensive consideration was uppermost. This is particularly likely since both walls appear for a variety of reasons to have been "tacked on" to an existing Puuc settlement which was not very old. Had the inhabitants possessed well-established traditions prescribing isolation and privacy for civic-ritual-elite complexes, the walls should have been more formally laid out around, and contemporary with, the rest of the large architecture (e.g., like the walled administrative precincts in Chinese cities). That such traditions developed over the comparatively short Puuc occupation, thus necessitating the construction of the walls, seems inherently less likely than the proposition that a military emergency arose.

In summary, the walls certainly render Cuca defensible, with the outer wall probably serving simply as an initial defensive screen, while the inner one constituted an impressive central citadel. Major architectural complexes within the inner zone at Cuca are defensible, especially those enclosing Plazas A and B, but I do not believe that the architectural arrangements were primarily determined by defensive considerations.

There is no doubt that the walls are Pure Florescent constructions. Evidence for this assessment includes the presence of Cehpech complex wares beneath intact wall segments (e.g., in Operation 7 and 8), in material from collapsed or intact construction fill, the presence of what seems to be a Pure Florescent midden overlying part of the inner wall (Operation 4), and most convincingly our whole program of test-pitting which indicates that apart from a sparse earlier (Late Formative) occupation Cuca was an entirely Pure Florescent center.

It is also clear for a variety of reasons already mentioned that the initial Pure Florescent occupation preceded the erection of the present fortifications; to reiterate, these include:

- 1) the spatial layout of the walls with respect to other architecture;
- 2) the presence of Pure Florescent floors beneath inner and outer walls, and an apparent Pure Florescent midden overlying the outer walls (Operation 4);
- 3) the occurrence of carved building stones used as wall fill.

I suspect, as a matter of fact, that Cuca was occupied for some considerable time before it was initially fortified. Thereafter at least some segments of the inner wall were renovated and enlarged. An unresolved question is whether both inner and outer walls were built as a single effort, or whether one precedes the other.

#### Ceramic Assemblage at Cuca

Excavations at Cuca produced a total collection of 11,341 sherds. Basic typological breakdown is given in Table 1; Table A in Appendix B provides the breakdown in greater detail with lot provenience. About half of the total sample, 5753 sherds, were well-enough preserved for analysis. Another 287 had lost their surfaces but on the basis of paste characteristics and form can be assigned with reasonable confidence to the Puuc Slate Ware. The core of the sample consists of 640 rim sherds. No complete or reconstructable vessels were recovered.

The Cuca collection as a whole is overwhelmingly dominated by material assignable to the Cehpech complex of the Pure Florescent period (Smith, 1971). Puuc Slate Ware is by far the dominant ware at the site, and is accompanied by all of the minority fine wares diagnostic of the Cehpech complex, including Puuc Red Ware, Thin Slate Ware, Cauich Coarse Cream Ware, and traces of Fine Grey and Fine Orange wares. Also present in small amounts are thick, poorly preserved monochrome red sherds, usually mixed with Pure Florescent material in construction fill, which I have provisionally assigned to the Late Pre-classic Sierra Red group. In addition, many sherds of the highly distinctive Yucatan Chalky Ware are mixed throughout our collections, although this ware is not normally found associated with the Cehpech complex as a diagnostic.

#### Puuc Slate Ware, Muna Slate Group

Rim and body sherds of this ware total 3108, or about 57 percent of identifiable sherds (27.47% of total) and most fall into the Muna Slate Type. As previously noted, another 287 sherds probably fall into the Slate Muna Type. Common forms including the large, bolster rim, strap handled basins (Fig. 1 - K-Q)\*, basal break dishes with slab or bulbous feet (Fig. 1 - V-Z,a), and large jars (Fig. 1 - I-L). Lacking at Cuca are the beveled rim, ringstand-base bowls and hemispherical bowls found in other Puuc collections. Decorated Puuc Slate Ware sherds are represented by Tekit Incised Type basal-break bowls (Fig. 2 - A-E) and a few trickle-painted body sherds. The more elaborate decorated Puuc Slate Ware types seem to be missing entirely, except for two highly fragmentary sherds which are possibly Nohcacab Incised.

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\*References to ceramic illustrations in this and other sections refer to figures in Appendix C.

Table 1  
Ware Classifications for Cuca

|                                                                    | Number     | % of Total | % Identified |
|--------------------------------------------------------------------|------------|------------|--------------|
| Puuc Slate Ware (rim and body):                                    | 3108       | 27.4       | 56.8         |
| Puuc Red Ware (rim and body):                                      | 837        | 7.4        | 15.3         |
| Unslipped-striated (rim and body):                                 | 706        | 6.2        | 12.9         |
| Thin Slate Ware (rim and body):                                    | 81         | .7         | 1.5          |
| Sierra Red (?) (rim and body):                                     | 257        | 2.3        | 4.7          |
| Cauich Coarse-Cream Ware:<br>(rim and body)                        | 33         | .3         | .6           |
| Yucatan Chalky Ware:<br>(rim and body)                             | 428        | 3.8        | 7.8          |
| Misc. Identified Types:                                            | 15         | .1         | .3           |
| Highly weathered sherds with<br>diagnostic Puuc Slate Ware shapes: | 287        | 2.5        | --           |
| Unidentified weathered or<br>unslipped-unstriated sherds:          | 5474       | 48.3       | --           |
| Misc. unidentified:                                                | <u>114</u> | 2.0        | --           |
| Total                                                              | 11,341     |            |              |

Table 2

Cuca Identifiable Rims: Type and Vessel-Shape Breakdown

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Puuc Slate Ware, Slate Muna Group

|                                        |     |
|----------------------------------------|-----|
| Muna Slate Type: bolster-rim basins    | 147 |
| basal-break dishes                     | 105 |
| globular jars                          | 8   |
| Tekit Incised Type: basal-break dishes | 3   |

Puuc Red Ware, Red Teabo Group

|                                       |     |
|---------------------------------------|-----|
| Teabo Type: basal-break dishes        | 147 |
| hemispherical bowls                   | 32  |
| Becal Incised Type: basal-break bowls | 3   |

Thin Slate Ware, Ticul Group

|                                            |    |
|--------------------------------------------|----|
| Ticul Thin Slate Type: hemispherical bowls | 58 |
|--------------------------------------------|----|

Cauich Coarse Cream Ware

|                                             |    |
|---------------------------------------------|----|
| Holactun Black-on-Cream: bolster-rim basins | 12 |
|---------------------------------------------|----|

Yucatan Chalky Ware

|               |    |
|---------------|----|
| globular jars | 13 |
|---------------|----|

Sierra Red (?) Monochrome Ware

|                                |     |
|--------------------------------|-----|
| flaring sided dishes or plates | 108 |
|--------------------------------|-----|

---

### Puuc Unslipped Ware

Only 706 sherds of the common unslipped, striated utility ware found at Puuc sites were recovered at Cuca. No rims of this ware were found (although many small, upper rim sections lacking striations among our unidentified sherds probably go with the striated body sherds) so type designations are not attempted. Such striated sherds make up a surprisingly low 12.9% of our total identified collection.

### Puuc Red Ware, Red Teabo Group

A very high percentage (15.3%) of the identified sherds at Cuca are Puuc Red Ware types. These are predominantly Teabo Type basal-break dishes (Fig. 1 - A-H) and small hemispherical bowls with slightly beaded rims (Fig. 1 - S-U). Forty-two sherds of Becal Incised Type, decorated with geometric incisions, were also recovered (Fig. 2 - G-K) as was a small Tekax Black-on-Red Type body sherd.

### Thin Slate Ware Ticul Group

Only 1.5 percent of our identified sherds are Thin Slate Ware, Ticul Thin Slate Type. Forms include hemispherical bowls with direct or beaded rims, and probably dishes with flaring sides (Fig. 1 - M-R).

### Cauich Coarse-Cream Ware

Cauich Coarse-Cream Ware, a minority ware in Puuc assemblages, is present in small amounts (33 sherds) and sherds are assigned to the Holactun Black-on-Cream type. All sherds apparently represent the remains of large basins with bolster rims, sometimes swelling on the interior and pointed or slightly flattened on top (Fig. 1 - R-U). Interestingly enough, our sample of Cauich Coarse-Cream Ware is considerably larger than our sample of trickle-decorated Puuc Slate Ware sherds from Cuca, though many many of the latter have probably lost their decoration through weathering.

### Fine Paste Wares

Our excavations turned up only two fine paste ware sherds. One was an extremely weathered but unmistakable fragment of Fine Grey Ware,

and the other was a small Fine Orange Ware sherd (type unspecified) from a tall cylinder with incised decoration (Fig.2 - F).

#### Late Formative (?) Monochrome Red Sherds

A sizeable quantity (258) of very small, poorly preserved monochrome red sherds were found mixed with the Cehpech complex material, usually in construction fill. Slips are slightly waxy and flake easily from the underlying paste. Forms are predominantly low dishes or plates with flaring sides and everted, slightly thickened rims (Fig.2 - L-Y). Color ranges from red through brownish-red to purplish-red (7.5R 3/6, 7.5R 4/10, 5R 4/6). I have provisionally assigned this material to the Late Formative Sierra Red Group but this designation should be regarded as questionable, especially since monochrome redwares also characterize some Early Period (Classic) Yucatan assemblages.

#### Yucatan Chalky Ware

The occurrence of this ware in substantial amounts (428 sherds) and in many different contexts at Cuca is surprising, since it is not a component of the Cehpech complex as traditionally defined for Puuc sites to the south. Sherds conform closely to the descriptions by Smith (1971:31) and to type samples in the INAH and MARI collections in Merida. Although rims are few (Fig.1 - b-j) they all seem to represent large storage jars with restricted necks and everted, plain, rounded rims,

#### Miscellaneous Identified Sherds

Miscellaneous sherds include a few glazed sherds which are obviously Post-Conquest, and a handful of what seem to be very fragmentary pieces of unslipped censers.

#### Comparison and Discussion

Overall, the Cuca ceramic collections conform very well to other Cehpech complex collections from classic Puuc sites such as Uxmal and Kabah, but there are significant minor differences. For one thing, the two most numerous wares, Puuc Slate Ware and Puuc Unslipped Ware, stand in very different ratios at Cuca. In the Uxmal/Kabah collections, the ratio is about 5:4 respectively (Smith, 1971:14a) while at Cuca it is only about 5:1. Another striking difference is the very high proportion

(15.3%) of Puuc Red Ware in our collection. This ware is usually present in Cehpech complex collections in proportions of 5 percent or less. One explanation for this surprisingly large redware component is that as a fine ware it would be highly correlated with elite contexts. Most of our trenches at Cuca were within the inner zone which seems to have had obvious elite residential as well as civic/religious functions, so Puuc Red Ware is perhaps expectably over-represented. Only 14 sherds of this ware were recovered from contexts outside of the inner wall. Within the inner zone, redware sherds were common above the highest floor on the large domestic structure tested in Operation 5 (Lot 64) and were present in extremely high concentrations in what I believe represents Pure Florescent midden off the back of Structure VII (Operation 4). This latter context was so rich that it has skewed the total collection in terms of the Puuc Red Ware percentages. Our concentration on an essentially elite zone is also probably responsible for the previously mentioned high ratio between Puuc SlateWare and the under-represented Puuc Unslipped Ware. For example, the Operation 4 midden produced very few unslipped, striated sherds. Apparently the Cuca elite was also poorly supplied with the prestigious fine paste imports, since only one sherd each of Fine Grey and Fine Orange were found.

Another anomaly is not so easily explained. The Thin Slate Ware which is a companion ware to Puuc Red Ware in Puuc assemblages, and which usually is present in roughly comparable amounts (e.g., as at Chacchob) is very poorly represented (1.5%). As an "elite" or "fancy" ware, its abundance might be expected to equal that of Puuc Red Ware in the inner zone, but in fact it does not. The two wares do sometimes seem to occur separately, or at least in very different percentages, at some sites outside the core area of the Cehpech complex. At Becan, for example, where Ticul Thin Slate suddenly appears in the Xcocom Complex as an intrusive ware, it does not seem to be accompanied by large amounts of Puuc Red Ware (Ball, 1977a). Since both probably were produced in a few unknown centers for wider distribution, it may be that Cuca was favorably situated for the acquisition of Puuc Red Ware, but for political or economic reasons could not obtain Thin Slate.

Yucatan Chalky Ware, though common in northwestern Yucatan, is not a component of the Cehpech complex in the Puuc zone proper. Smith (1971:31) assigns the ware to the Cochuah Complex (300-600 A.D.) in his Yucatecan sites. It is also abundant in Pure Florescent collections at Dzibilchaltun, and according to Michael Simmons (personal communication) goes well back into the Early Period (Tepeu II equivalent) at that site. The ware is so abundant and widespread at Cuca that I doubt it represents earlier, redeposited material, and consequently its occurrence suggests strong ties to nearby Dzibilchaltun. Chacchob, much further south, lacks the ware entirely in its pure Cehpech complex material.

Although the monochrome red sherds which I have tentatively assigned to the Sierra Red group indicate a Late Formative occupation of the zone later covered by the Pure Florescent center, it seems to have



been very sparse. Sierra Red sherds appear to have been scraped up, usually along with Cehpech complex material, and redeposited as construction fill. There are no contexts at Cuca which I would interpret as definite Formative constructions. Our collections lack any Classic or Early Period wares which bridge the gap between the Late Formative and Pure Florescent occupations (with the possible, but doubtful exception of Yucatan Chalky Ware), unless the monochrome red ware has been misidentified and actually represents Early Period material.

### Ceramic Stratigraphy and Chronology

Apart from the Late Formative community, the occupation at Cuca appears to be wholly confined to the Pure Florescent. Cehpech complex sherds are found in most sizeable lot collections, including deep levels of test trenches. Test trenches frequently encountered series of 4-6 superimposed floors, especially in Plazas A and B. Although confined to the Pure Florescent, the occupation at Cuca thus seems to have considerable time depth, probably some hundreds of years, in sharp contrast to our subsequent findings concerning Chacchob (see below). Major excavations on the large architectural complexes at Cuca would probably reveal multiple rebuildings. Ceramic samples from terminal contexts at Cuca, such as recovered from Operation 4 and 5, never contain post-Cehpech material.

Given the essentially single-period ceramic assemblage from Cuca there would be no doubt that the wall systems were of Pure Florescent date even if we had not tested them. Our tests did turn up sizeable quantities of associated Cehpech complex sherds, especially in our exposures of the inner wall in Operations 1, 4 and 7. Associations include Pure Florescent floors underlying segments of the inner wall, and probable Pure Florescent middens overlying it. Existing evidence strongly suggests that the original Puuc settlement was unfortified, or perhaps fortified by some sort of perishable defensive system of which no traces remain. Both inner and outer walls by their configurations appear to have been added to a preexisting settlement, and stratigraphic data from the inner wall independently confirms this conclusion. At least some parts of the inner wall experienced additions and elaborations. The outer wall seems to have been raised as a single effort, but we have no information enabling us to decide whether its construction predates, post-dates, or is contemporary with that of the larger wall. Since the inner wall is much more effective as a defensive barrier and protects a much more strategic zone of the site, I suspect that it was erected first, with the outer wall tacked on later as an outer defensive screen.

No materials were recovered in any of our excavations which were suitable for radiocarbon dating, so we have no absolute dates for Cuca. Ball and Andrews V (1975) place the beginning of the Pure

Florescent at about 770 A.D. or somewhat earlier than the traditional date of 800 A.D. But as Ball has argued (n.d., p. 23) we have no real assurance that the Puuc tradition was in fact in full decline by the generally accepted terminal date of 1000 A.D. It is quite possible that it overlaps to some degree the emergence of a strong Mexicanized polity and associated distinctive ceramic complex at Chichen Itza. If, indeed, the zone to the south of the Puuc Hills is the "core" region for the development of the Puuc tradition in all of its dimensions, including architecture and ceramics, expansion of Puuc sites to the north of the Puuc Hills into the northwestern plains of Yucatan would be rather late in the Pure Florescent period. I speculate that the original founding of Cuca probably occurred ca. 850-900 A.D., and that the site continued to be occupied beyond 1000 A.D. in an increasingly competitive political environment.

## CHACCHOB

Chacchob (site no. 16Q-d (11):1) is located approximately 15 km. southeast of the modern town of Teabo (latitude 20° 19' 45" N., longitude 89° 13' 0" W.). Although members of the Carnegie expedition drove to the site in the early 1950s, it would not be possible to get a vehicle into the site today without a good deal of clearing, and even then the vehicle would have to be designed for very rough traveling. Walking time to Chacchob from Teabo is about 2 1/2 -3 hours. An alternative approach is from the village of Xaya to the south. Walking time on this route is only 1 1/2 hours, but the road to Xaya itself is bad, and the village is not as convenient a source of laborers or supplies as Teabo. Our own supplies and workmen came in by mule and on foot from Teabo.

### Architectural Configuration and General Character of the Site

Chacchob is a comparatively small Maya organizational center. A masonry wall some 1410 m. in circumference encloses an area of approximately 13.7 hectares (.137 km<sup>2</sup>). Three visible gates provide access through the wall, two on the south and one on the north (Gates A, B, C - see Map 3).

The countryside around Chacchob is generally flat but exhibits striking localized topographic variation; this variation has affected the configurations of the wall and interior architecture in important ways discussed below. Massive bedrock outcrops and sinkholes are found within the wall-system, especially in the southwest and northwest sectors, and have seemingly discouraged construction in these areas. Several impressive collapse features are present, including one just to the northwest of Structure I which has been incorporated into a low platform structure. None are obvious water sources and the water table seems quite deep. At the time of our dry-season visit (early January) we acquired water from a modern well in the center of the site in which the water level was 22 m. below the surface. Chacchob is today mainly covered with immature second-growth scrub, presumably the result of ranching and milpa clearing in the 1940s and 1950s. No cultivation is presently carried out within the wall, although extensive milpas border it on the east and south.

In their original survey, Pollock & Stromsvik (1953) mapped only the wall, the major temple pyramid (Structure I), three small pyramids, and several low platform buildings. Our own mapping reveals a much greater diversity of structures. Unlike most Maya centers, the major architectural layout at Chacchob shows very little orderly planning. Conspicuously absent are large plaza arrangements defined by temple pyramids and/or range structures. The dominant architectural feature at the site is the Structure I complex near the wall on the east, which







I have shown as Pollock & Stromsvik mapped it and which is described in detail by them. A very steep, almost tower-like pyramid rises from a lower substructure to a total height of about 14 m. and is ascended by a (false?) stairway on its northwestern face. The remains of a well-preserved plaster floor are visible on its summit amid collapse rubble, and a recent looter's hole has been cut through it. The whole complex sits on a low artificial terrace which also supports several low range structures, some of which still have intact vaults. Although construction is in the Puuc style (Plates 5,7) there is no evidence in the collapse debris of elaborately carved decorative elements (as at Cuca) and this structure, and indeed all structures at Chacchob, seem to have been rather plain in contrast to the highly ornate buildings at many other Puuc sites. It is possible that this impression of plainness might be more apparent than real, caused by the removal of decorated stone in recent times, but I think this unlikely. Chacchob is remote from centers of modern population compared to many Maya sites, and stone-robbing has probably been minimal. By contrast, Cuca, situated near Merida and several large haciendas, has obviously experienced large-scale stone robbing, but decorative constructional elements are commonly encountered in the debris there. Pre-Conquest stone robbing could have removed some carved elements. We know that earlier veneer and decorative stones were sometimes used to dress up the otherwise slipshod architecture at Mayapan, which lies some distance to the north, but Chacchob seems rather distant to be a wholesale source of stone for that site.

Three other small pyramids (Structures III, IV and V) cluster near the center of the site, although the arrangement is haphazard. None have associated standing architectural elements, and the construction debris includes very little well-dressed stone. All obviously represent civic structures of some sort.

Large, low stone platforms make up the bulk of the architecture at Chacchob. These platforms are generally rectilinear, although several exhibit rather odd shapes because natural limestone outcrops have been incorporated into them. Platforms vary considerably in size, but most range between 10-40 m. on a side, and between .5-3 m. in height. They are typically edged with large irregular or roughly dressed stone blocks or slabs which may be up to a meter or more long. Good alignments can usually be traced and there is a rather consistent orientation of all platforms (and indeed all architecture) in a north-east/southwest direction. Platforms may occur in amorphous clusters or singly. Nicely cut stone is occasionally noted in association with platforms and is sometimes mixed in construction with cruder stonework. As Pollock & Stromsvik note, this could either indicate pillaging from older buildings or use of surplus stone from other projects.

Small rubble which probably formed the base for plaster flooring is found on the surfaces of most platforms, although nowhere was intact plaster observed. Several of the platforms supported masonry super-structures whose wall-bases are still preserved (see Pollock &

Stromsvik, 1953, pp. 86-95 for detailed descriptions), but many lack such features and may have carried entirely perishable buildings instead.

In my opinion the platforms almost certainly were domestic in function, although only excavation will confirm this contention. Judging from their size and from the rather impressive labor expenditure necessary for their construction, I provisionally suggest that these are the remains of elite households.

Apart from the temple architecture and large platforms, there are two architectural complexes of note. One is the Structure II complex immediately to the southwest of Structure I. The dominant feature here is a huge substructure of irregular shape (erroneously shown as a large rectangle on the Pollock & Stromsvik map) approximately 60 m. on a side. A high bedrock outcrop has been partially built over and the fill is shored up by retaining walls on the north and northwest sides. Paving rubble covers the surface of the substructure, which supports several buildings, including a small pyramid along its western edge which may have been vaulted. Along the southern edge of the Structure II complex are a series of long range structures and rectilinear platforms.

In the southwest sector of the site are the relatively isolated remains of a large but exceedingly amorphous substructure of unusual height - about 3 m. It carries several equally amorphous smaller buildings; Pollock & Stromsvik report traces of vaults here but we did not see them.

Scattered about the site and interspersed among the architectural features already described are numerous small amorphous structures or rectangular platforms which barely project above ground level. Most differ from the larger platforms only in scale, but all are still sizeable enough to have served as residences.

The overall internal settlement arrangement at Chacchob is highly distinctive and reflects a unique occupational history. As previously noted, apart from a rough directionality, there is little or no regularity in the layout of major structures, and certainly no sign of the highly formal plaza groupings which usually characterize even small Maya centers such as Chacchob. The dominant and imposing Structure I, which clearly had important ritual functions, is not even centrally located either with respect to the other buildings or to the area defined by the wall.

Despite this lack of regularity, one may discern a number of apparent clusters of low platform structures. The most imposing of these is just north and northwest of, and immediately adjacent to, Structure I. Another, consisting of a closely juxtaposed series of linear buildings is on the southern edge of Structure II, and a third is the amorphous cluster near the west wall. All of these clusters produced apparent midden deposits. What may be a fourth cluster of much less impressive platforms is that near the wall on the extreme northwestern periphery of the site. Based on our limited



testing and surface observations made in conjunction with mapping, I believe most of these platforms can be best interpreted as having elite residential/domestic functions. Although spatially extensive and obviously requiring considerable skill and expenditure of labor, most are low and probably represent single-phase constructions.

Many of the structures at Chacchob have been adapted to local bedrock outcrops, but some areas of the site were avoided for construction purposes because of the presence of extremely rough collapse and solution features. Even when the site was occupied, the natural landscape features would have been very conspicuous, a rarity at most Maya centers where such features are usually obliterated or masked by the cultural landscape. The absence of paved plaza floors (see below) would of course have reinforced the "backwoods" appearance of the site.

All things considered, the architectural features at Chacchob clearly suggest what one might call a 'pioneer' elite establishment--one that was occupied for a very short time, probably not more than a few generations at the most. Independent evidence for such an interpretation is provided, as we shall see, by the stratigraphic and ceramic evidence.

### Excavations and Stratigraphy

Our excavations at Chacchob had two main objectives: (1) to recover a representative, and preferably stratified ceramic sample which would allow us to determine the occupational history of the settlement and its wider cultural affiliations, and (2) to ascertain the original scale, configuration, and function of the wall system and establish its approximate date of construction.

### Test Excavations

Seventeen 2 x 2 m. test trenches (Operation 1, Figures 28-32) were excavated to accomplish the first objective. Fourteen of these trenches were located between large structures where plaza construction was likely, or immediately adjacent to buildings where we hoped to find midden debris. Most of these excavations are concentrated in the southeastern half of the site where architectural remains are most densely concentrated. Two test pits (15 & 16) were excavated into the construction fill of a very low, rectangular platform near the wall on the northwest, and another (11) into the platform on which Structure I is erected: I interpreted most of the large, low platforms at Chacchob as elite architecture, probably residential complexes, and hence unavailable for excavation according to the conditions of my permit.

All of these test trenches were carried down to bedrock, and all were excavated according to arbitrary levels. Since none turned up cultural features or complex stratigraphy, I will not discuss each trench individually but restrict myself to general comments concerning our information from the Operation 1 trenches as a whole.

All of our 2 x 2 test trenches bottomed out at very shallow depths - generally less than one meter and often no more than 20-25 cm. Our deepest pit (Trench 1) at ca. 1.7 m. began as a garbage pit and was turned into a test excavation when we began to turn up quantities of sherds. Because of the shallow soil and the absence of paved plaza floors (see below) cultural material from all of these excavations was subject to considerable mixing, especially through root action. As our profiles clearly indicate, bedrock, even in areas which would have functioned as plazas when Chacchob was occupied (eg., Trenches 2, 13), has not been artificially leveled-off but remains quite irregular.

Perhaps the greatest surprise was our failure to discover any sign of paved plaza floors in our test pits at Chacchob. There is no question that such paving, so ubiquitous at other Maya sites, is absent in the areas that we tested. Soil conditions are such that even minor plaza constructions in poor condition would have been readily visible in profiles, and there was no sign of the extensive rubble fill or grouting associated with pavings. Despite its lack of formal plaza areas defined by highly regular arrangements of large architecture, as found in the central zone at Cuca, Chacchob has extensive open areas which probably had analogous functions. Since bedrock is so irregular, it can only be supposed that hard-packed soil served as plaza floors.

Soil at Chacchob is quite thin and, except for a weakly developed humus layer, characteristically ranges from brown through reddish-brown, red, and purplish-red in color. Texture is usually light - typically a mixture of silt and clay. Soil profiles are poorly developed; often there is no visible change in soil color or texture right down to bedrock, although in the reddish soils color tends to deepen in the "B" horizon. Bedrock is hard and massive and mechanical weathering seems almost entirely absent. Limestone inclusions are not common in our profiles except in trenches near areas disturbed by construction.

The color, texture and apparent importance of chemical rather than mechanical weathering of the soil and bedrock suggest a light vegetation cover with heavy leaching rather than well-developed forest. Much of the site was in pasture until recently, but not long enough to account for these soil characteristics. Moreover, sherds are common in all levels of our trenches, indicating either that much of the soil is of respectable age and/or that there has been a great deal of mixing subsequent to deposition. It should be noted that even deposits near structures--i.e., probable middens which produced large sherd samples (eg. Trench 9)--lacked dark, organic concentrations, again consistent with extensive leaching.

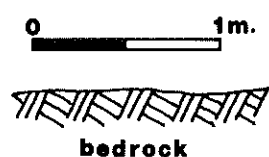
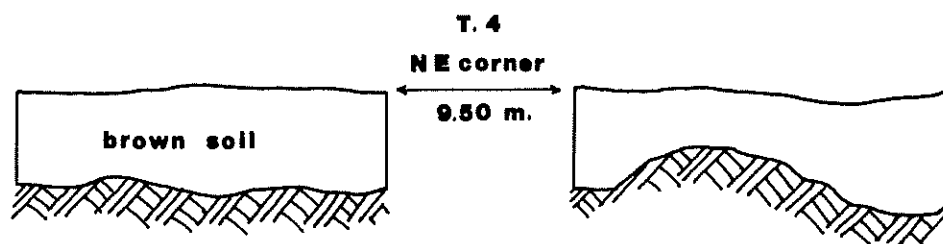
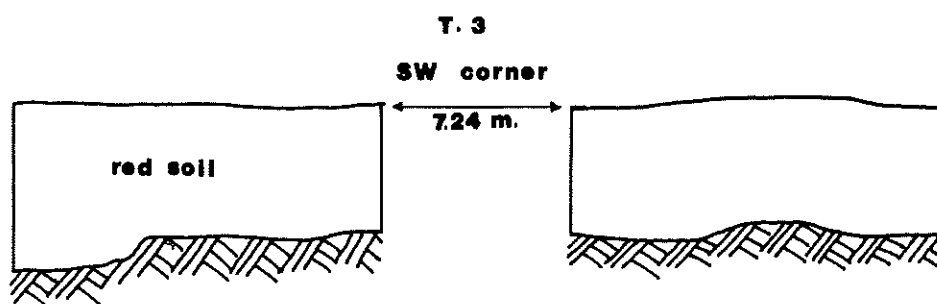
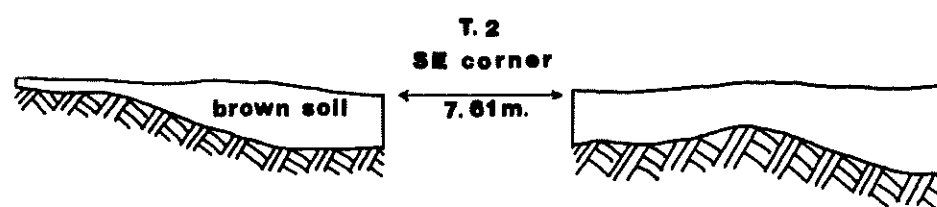
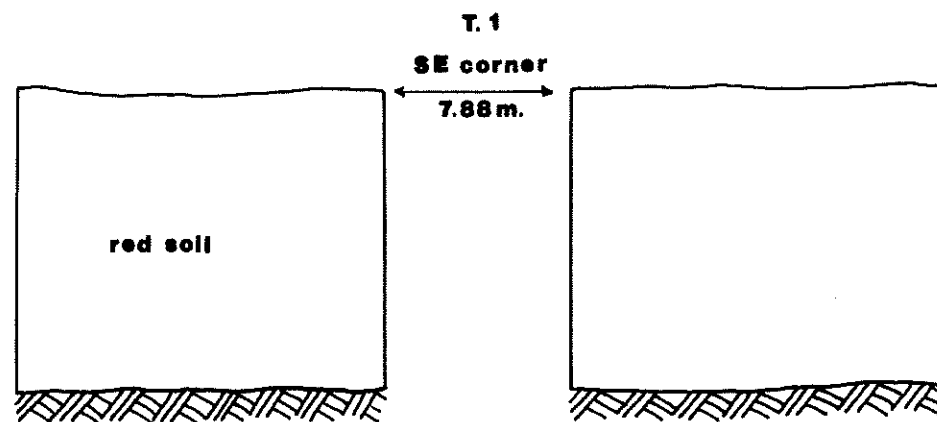


Fig. 28 Chacchob  
Profiles of Test Trenches 1-4.

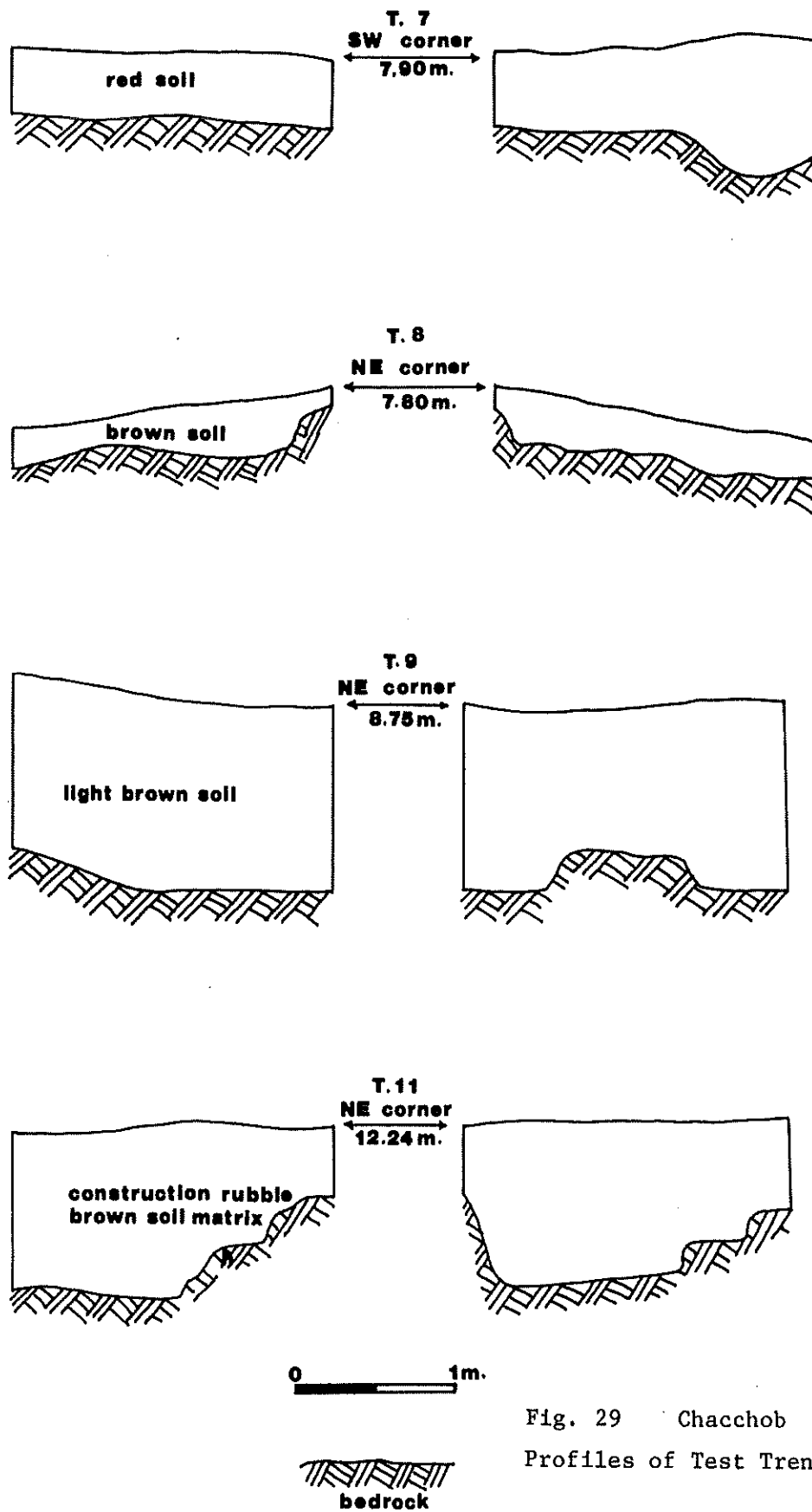


Fig. 29 Chacchob  
Profiles of Test Trenches 7-11.

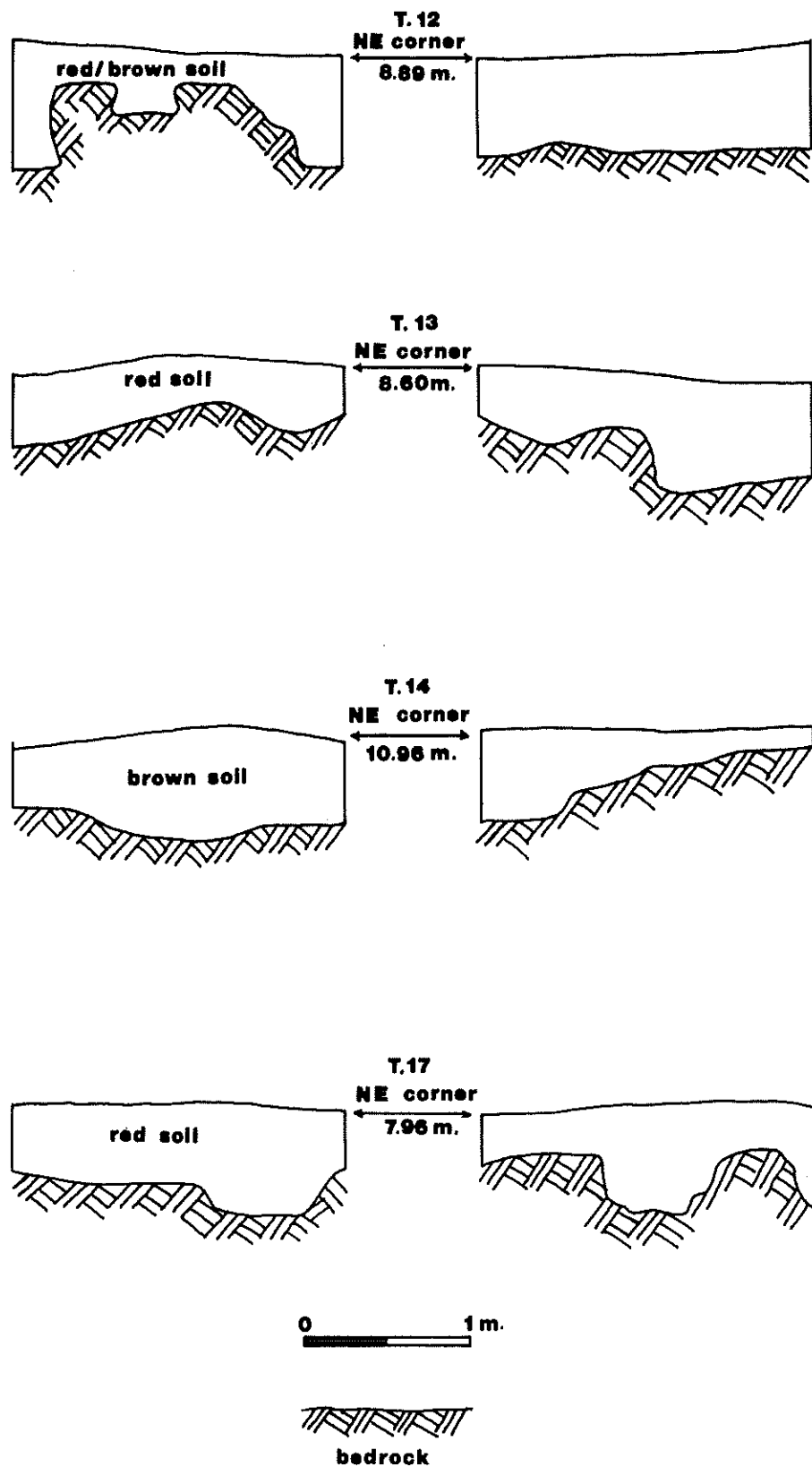


Fig. 30 Chacchob  
Profiles of Test Trenches 12-14, 17.

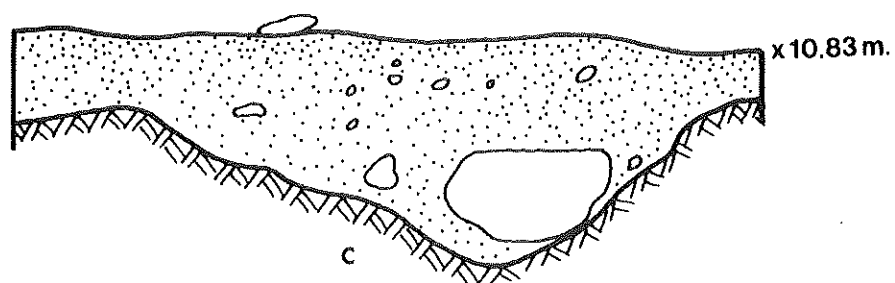
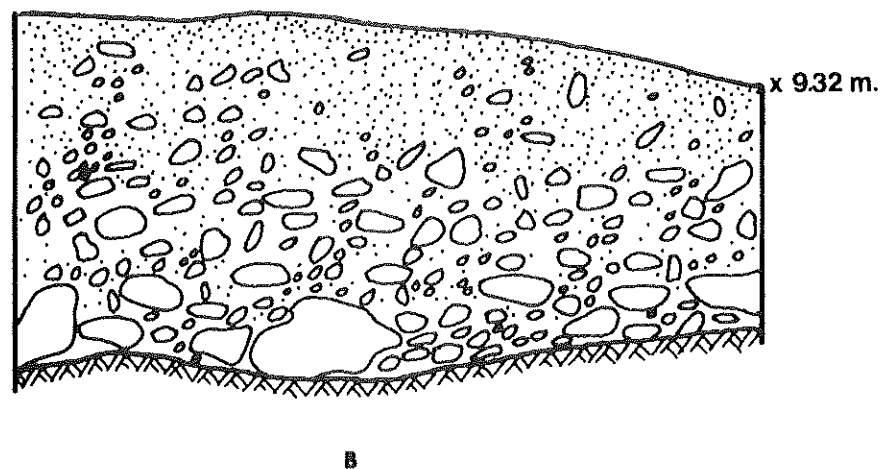
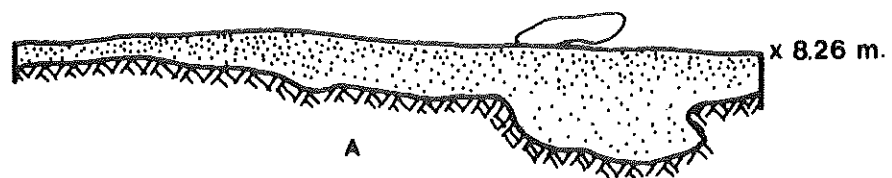


Fig. 31 Chacchob

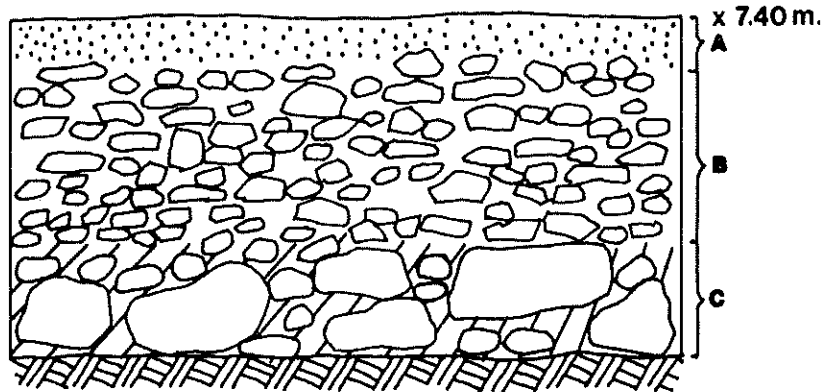
Profiles of Operation 1 Trenches 5(A), 6(B), and 10 (C).

A Light brown humus

B Light brown humus grading into construction debris

C Light brown humus mixed with limestone rubble

T. 15



T. 16

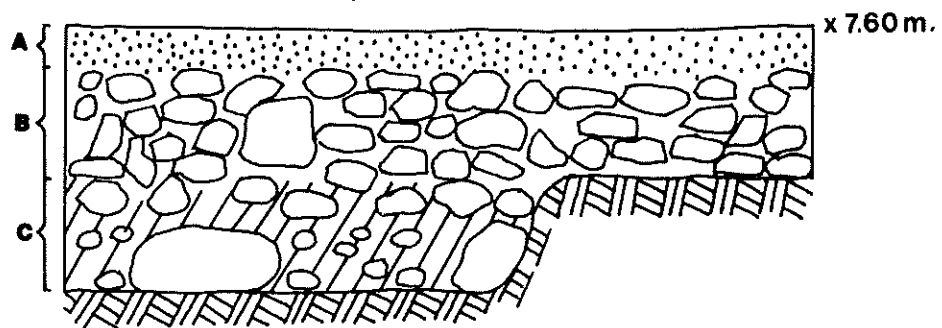


Fig. 32



Chacchob

Operation 1

Trench 15 (east wall)

Trench 16 (East Wall)

A = humus level.

B = rubble fill in dark brown soil.

C = reddish brown soil with carbonate  
coated rubble.

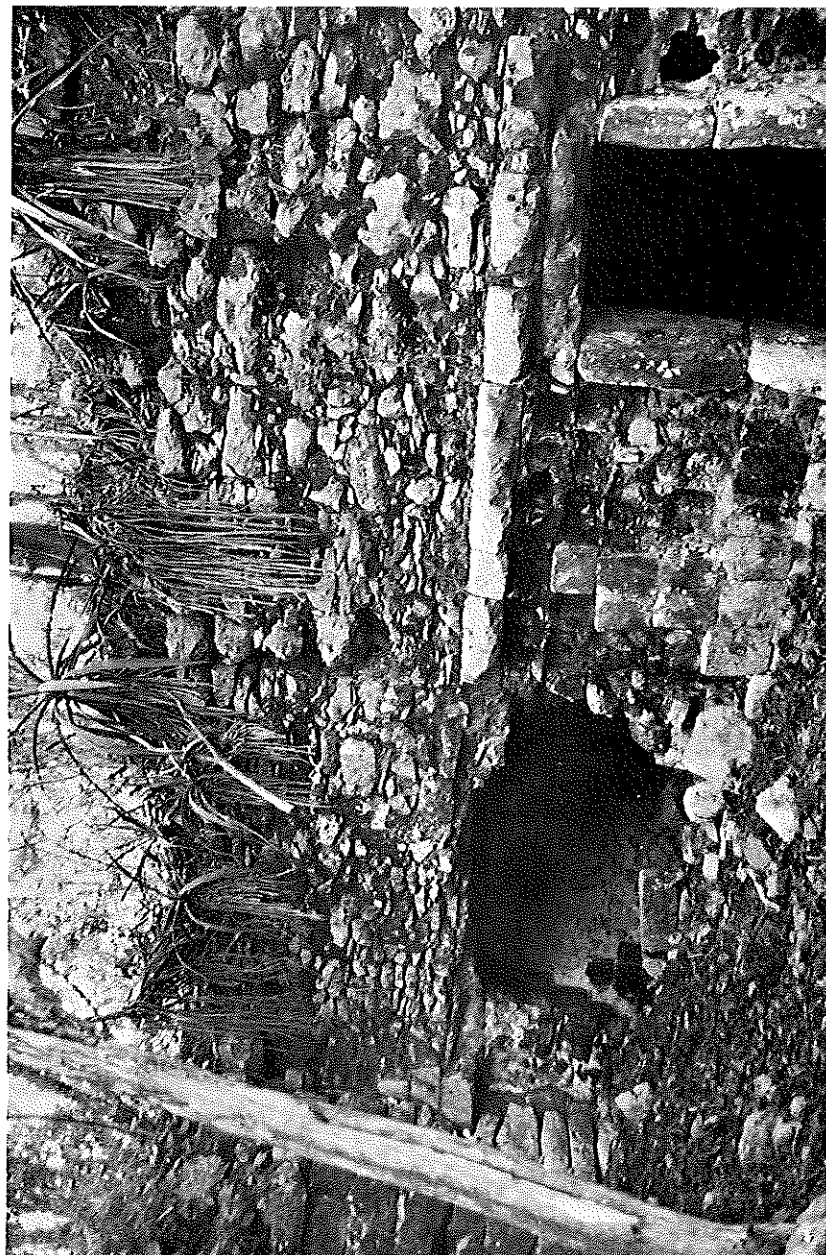


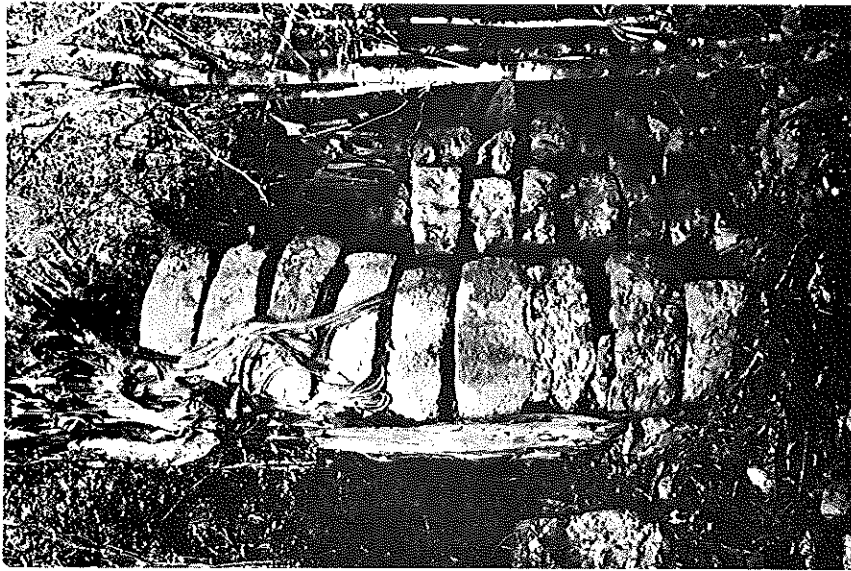
Plate 5 Chacchob

Intact architecture in Structure I complex.





Plate 6 Chacchob  
Cleared section of wall.



A



B

Plate 7 Chacchob

A Corner element of substructure of Structure I complex.

B Cleared section of wall to east of Structure I complex.

Table 3

Lot Breakdown for Chacchob Test Trenches:

| <u>Test Trench No.</u> | <u>Test Trench Lots</u> |
|------------------------|-------------------------|
| 1                      | 1, 2                    |
| 2                      | 3                       |
| 3                      | 4, 5                    |
| 4                      | 6, 9, 11                |
| 5                      | 27                      |
| 6                      | 28, 30                  |
| 7                      | 7, 10                   |
| 8                      | 8                       |
| 9                      | 12, 15, 17, 21          |
| 10                     | 29                      |
| 11                     | 13, 19, 22              |
| 12                     | 14, 16, 18              |
| 13                     | 20, 23, 25              |
| 14                     | 24                      |
| 15                     | 77, 79                  |
| 16                     | 76                      |
| 17                     | 101                     |

Because of the shallow nature of the deposits, the apparent mixing which has occurred, and the absence of well-defined cultural features which could be used as stratigraphic controls, little or no useful information could be derived from the stratigraphic relationships in our test trenches. Fortunately, given the nature of the ceramic collection from Chacchob (see below) this stratigraphic uniformity presents no problems in interpretation but rather is expectable in light of the apparent short duration of the occupation.

#### Wall Excavations

Five excavations focused on the wall and associated features. These included the clearing of two gaps, or gates, in the southern section of the wall (Operation 4 - Gate A; Operation 2, Trench 1 - Gate B), traces of which had been noted on the surface, and three exposures of the structure of the wall itself (Operation 2, Trench 2; Operation 3, Operation 5). Because of the massive size of the wall, none of our structural trenches in Operations 2, 3, and 5 were excavated completely through it. Besides being beyond our capacities in deployable time and labor, we had learned at Cuca that the huge rubble of the wall-fill was likely to be sterile, and that we would have to rely on extreme good fortune to anticipate recovering sizeable ceramic samples from the very thin soil buried beneath the wall. Clearing of collapse debris and exposure of features on the wall summit were sufficient to reveal the major configuration of the wall system.

#### Operation 2, Trench 1 - Gate B (Fig. 33 - Plate 9 - Lot 26)

Gate B manifested itself on the surface of the wall-rubble as two stone alignments cutting perpendicularly across the northwest-southeast strike of the wall. Each alignment was approximately 5.4 m. in length and the gap separating them was about 1.9 m. The small upper terrace alignments which commonly are visible running along the crest of the Chacchob wall were found on both sides of the gate, but did not extend across it, nor was there any sign of paving rubble over the gate area.

The fill of Gate B consisted largely of huge, irregular limestone blocks, many of which required several men to shift, in a matrix of smaller rubble and brown soil. All of this material was purposely deposited to fill the gate, since there is no adjacent structure from which it could have collapsed. No vault stones were recognized.

Upon exposure, the gate walls were found to consist of large irregular blocks of limestone, roughly faced and fitted, and chinked together with smaller stones. The walls are intact to a height of

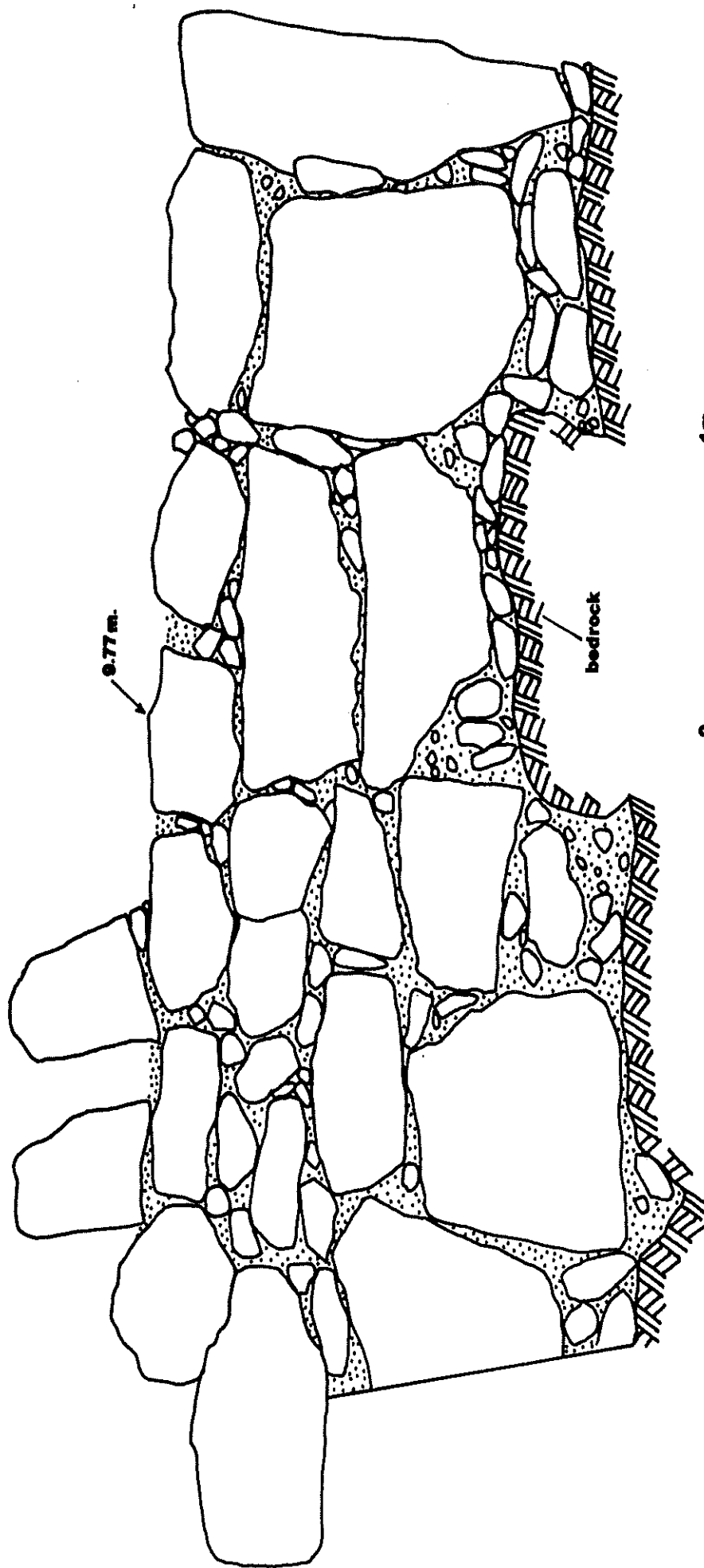


Fig. 33 Chacchob

sketch of northwest wall of Gate B as seen in Operation 2, Trench 1.

1-1.8 m., and rest directly upon very irregular massive bedrock with no intervening buried soil layer. Bedrock in the gap between the gate walls is worn by solution but shows no sign of extensive wear by foot traffic. Since bedrock must have been exposed when the gate was functioning either traffic was very light or the life-span of the gate itself was short.

All of the gate-fill was removed as a single stratigraphic unit (Lot 26). Only 88 sherds were recovered, most of them highly weathered and unidentifiable. Fortunately the nearby Gate A yielded a much larger ceramic sample (see below). Gate B, along with Gate A, was obviously filled in prehistoric times. It has been suggested to me that the filling might have been done more recently in connection with the use of the site of Chacchob as a cattle corral. This explanation is doubtful for two reasons. First, the amount of labor required to fill the gates with rubble was enormous; the modern Maya would have closed such gaps with perishable brush barriers (eg., as they did in Plaza A at Cuca). Second, cattle can easily walk right across the low rubble mound of the Chacchob wall, which nowhere acts as an effective barrier either with or without gates. Perishable barriers have been erected along the crest of the mound in many places to prevent cattle from straying into nearby milpas.

#### Operation 2, Trench 2 (Fig. 34)

In an attempt to acquire ceramic samples from the fill of the wall small excavations were opened along the inner and outer faces of a segment on the southwestern periphery of the site. After the removal of the collapse debris, the tops of the inner and outer retaining walls were found and the fill removed behind them to a depth of 80 cm. Beneath a capping of small rubble was the major structural fill consisting of large limestone blocks. This fill was sterile. Very faint remains of an upper terrace could be seen along the top of the wall, but this feature was not excavated. Wall width was 5.5 m., and the present height, to the top of the now-ruined upper terrace, would probably have been just about 2 m.

#### Operation 3 (Figs. 34-36 - Plate 8 - Lots 51, 52)

Operation 3 was a major wall exposure 4 m. in width immediately behind (i.e., to the southeast) of Structure I. The wall is quite massive in this area and has a distinct downward slope from southwest to northeast as it crosses a large natural outcrop, which also exaggerates its height. Before clearing, the wall appeared as a large rubble mound about 7 m. in width and 2-3 m. in height, with a conspicuous upper terrace about 1.3 m. wide along its crest,

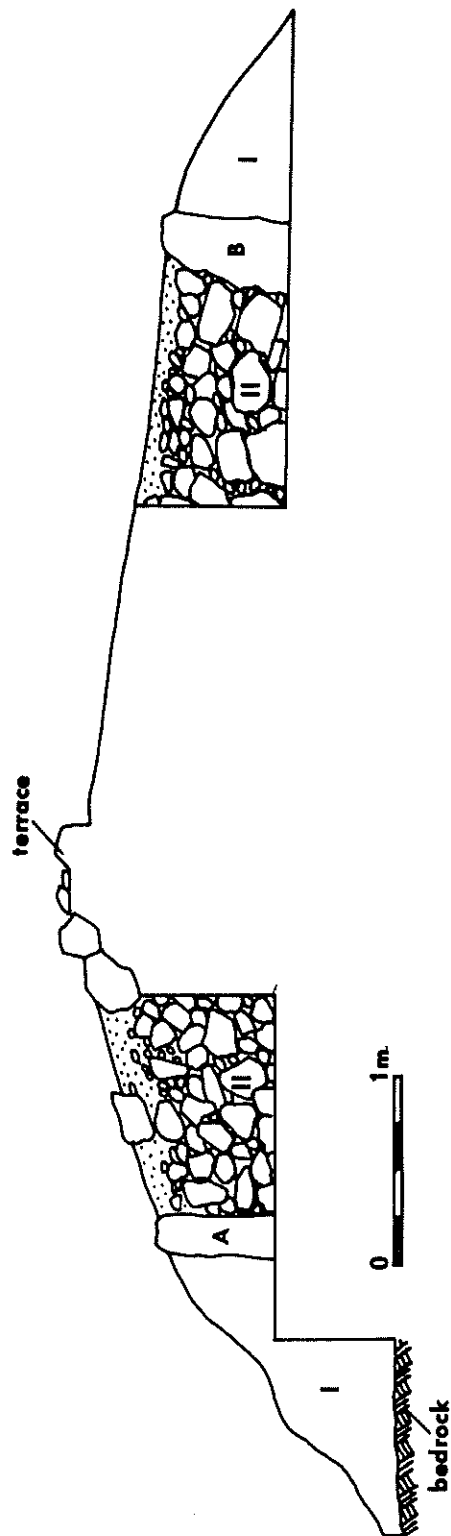


Fig. 34 Chacchob

Operation 2, Trench 2

Profile of northeast wall

A Top section of outer retaining wall.

B Top section of inner retaining wall.

- I Limestone collapse rubble in brown soil matrix.
- II Limestone construction fill.

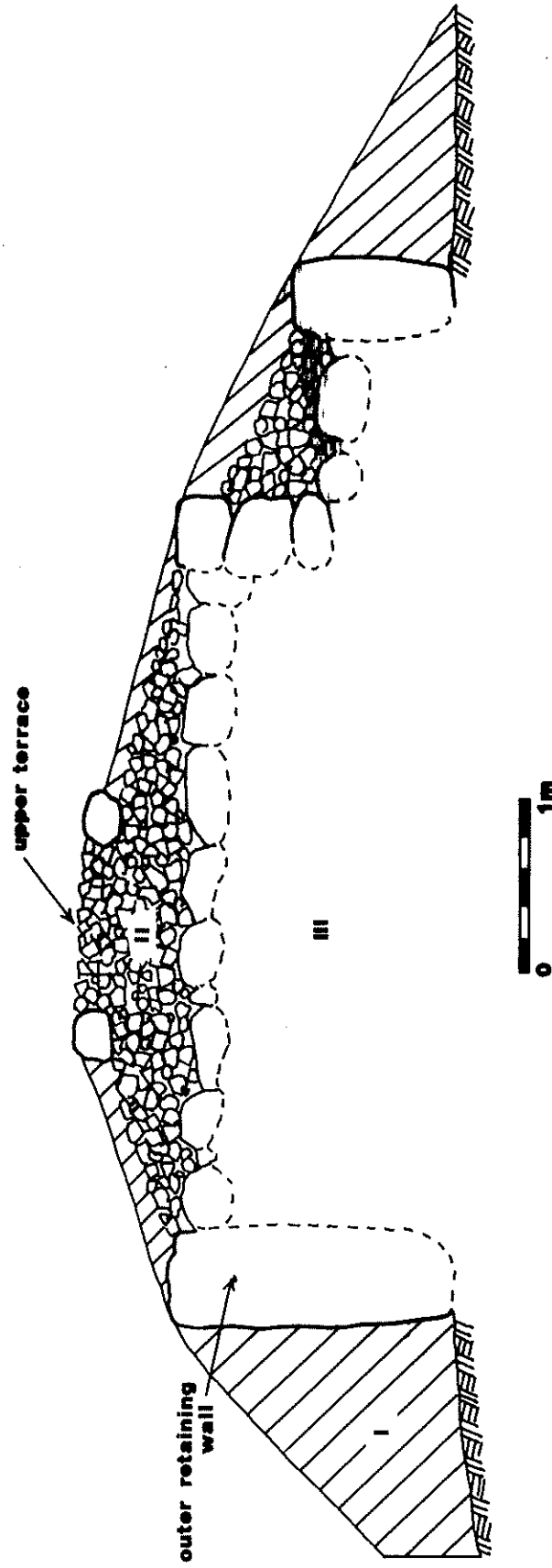


Fig. 35 Chacchob

Trench profile showing details of wall construction, Operation 3.

- I Collapse rubble in brown soil matrix.
- II Small limestone construction rubble.
- III Large limestone construction rubble.



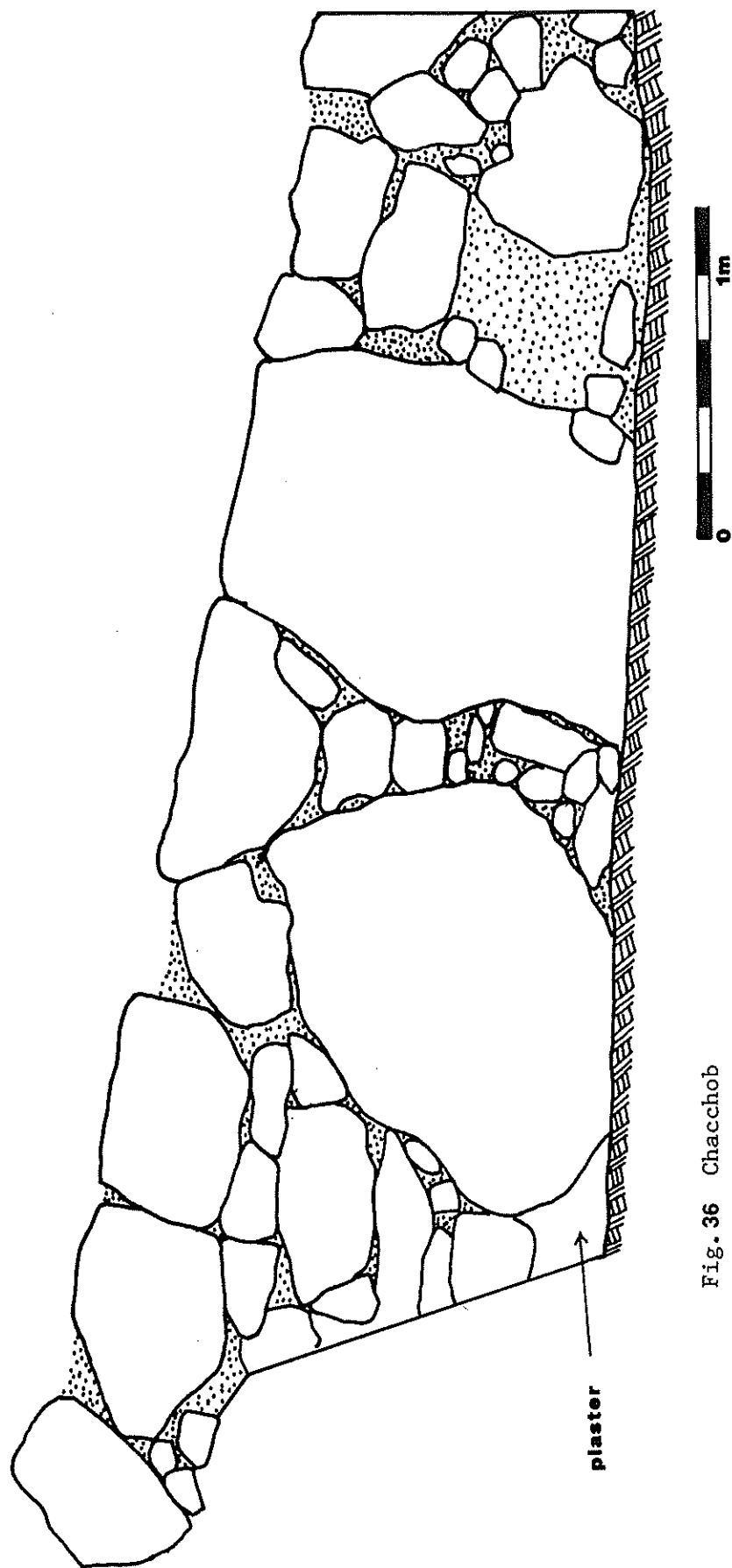


Fig. 36 Chacchob

Drawing of outer face of lower wall-terrace,  
Operation 3, showing masonry construction.



Plate 8 Chacchob

Small terrace element on top of cleared wall segment, Operation 3.

After the collapse debris had been cleared, the intact portion of the wall was found to measure 6 m. in width and 2.25 m. in height. The outer face was a rough retaining wall consisting of huge limestone slabs and smaller limestone blocks roughly chinked together. The wall was dry-laid, no signs of mortar being seen, and brown earth filled the interstices between rocks. The huge foundation slabs of the outer face rested directly upon bedrock. An unexpected find was a small portion of intact plaster adhering to the outer face of the wall. Just above bedrock this otherwise vertical fragment of plaster turned out horizontally. It thus seems likely that the crude masonry of the outer face of the wall (and possibly the whole wall) was thinly surfaced with plaster; the turn-out at the bottom could indicate that this vertical surfacing articulated with horizontal pavings outside the wall, or alternatively and more probably, it could simply have been a finishing feature of the base of the vertical surfacing.

Unlike the outer side of the wall, the inner side was built with two retaining walls, an inner face consisting of rough limestone slabs about 80 cm. high and another, higher and of roughly coursed irregular blocks, creating a terraced effect. Construction fill of the wall is mainly composed of huge limestone blocks with no binding matrix. This large rubble seems to have been capped with fist-sized rubble to a depth of 20-30 cm. Surmounting the wall is an upper terrace edged with rough stone (in this trench only one course high but several courses can be seen elsewhere) about 1.5 m. in width. We did not carry our trench completely through the wall since removal of the massive internal fill would have required an expenditure of time and energy which would have been unproductive, given the extreme paucity and poor condition of the sherd material associated with the wall, and would have added little or nothing to our understanding of the wall configuration.

#### Operation 4, Trench 1 - Gate A (Fig. 37 - Plate 9 - Lot 78)

Parallel surface alignments perpendicular to the direction of the wall, similar to those which had earlier hinted at the existence of Gate B, were noted along the southern wall section just to the south of Structure II. Again the characteristic upper terrace and small paving rubble was missing, leading us to postulate the existence of another filled-in gate - Gate A.

The fill of Gate A was removed as a single excavation unit and was similar in all respects to that encountered in the Gate B excavation-- huge limestone rubble in a matrix of smaller rubble and brown soil. Fortunately a great deal of cultural debris had been dumped into the gap as it was filled. One thousand five hundred thirty-eight sherds (over 20% of our total ceramic sample from Chacchob) and two broken, bifacial chert blades (Fig. 1)\* were recovered from the gate excavation. The greater concentrations of debris in Gate A as opposed to Gate B can probably be explained by the proximity of the former to the Structure II complex which, judging from our rich test pits in the

\* All non-ceramic artifact illustrations are shown in figures in Appendix D.

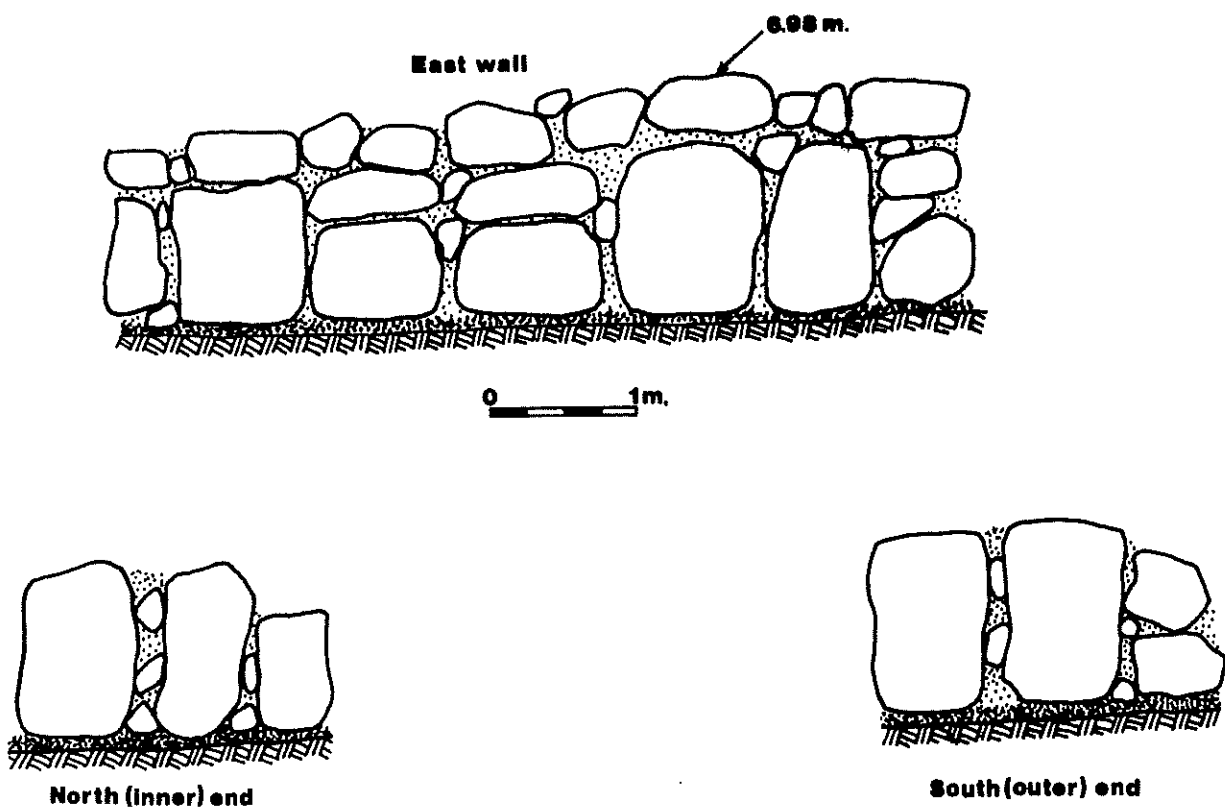


Fig. 37 Chacchob

Construction details of Gate A.



A



B

**Plate 9** Chacchob

- A Gate B after clearing; note the rough stone walls and the irregular bedrock of the gate floor.
- B South wall of Gate A after clearing; note the large stones closing off the outer end of the gate and the milpa just outside the wall.

area, probably had domestic functions that produced abundant midden material. This was apparently picked up as fill when the gate had to be closed off.

After clearing, the east wall of the gate, 5.7 m. in length, was found to be composed of irregular and roughly shaped and faced limestone blocks, some over a meter high. The north and south ends of the gate had been closed off with huge slabs before the inner gate fill was deposited. We could find no coherent structure to the west wall of the gate. Several explanations are possible for this lack of coherence: (1) we simply missed the wall (very unlikely); (2) the western wall slumped into the gate gap, or was pulled down as the gap was filled; (3) the "gate" is not a gate at all, and there never were two walls; in this case the east wall, which is structurally very distinctive, would merely have been a task wall erected at some point during the construction of the defenses. Of these explanations, I believe (2) to be the most likely. This question is of some minor interest, since if the "gate" did not really exist, then the abundant sherd material recovered from Operation 4 is contemporary with the initial construction of this portion of the wall, not some later stage of re-filling. Considering the overall short occupation evident at Chacchob, this does not make much difference from a chronological point of view, but might support the argument that the settlement might have existed for some time before the wall was erected and that it had not been originally founded as a fortified center.

#### Operation 5 (Fig. 38)

A second partial cut was made through the wall on the northeast; the emphasis here was on clearing whatever remained of the inner and outer retaining walls and delimiting terrace arrangements or other features carried by the wall substructure. This operation reinforced our findings from Operation 3. The basic structure was revealed as large rubble sandwiched between rough retaining walls, the whole just over 6 m. in width, surmounted by a capping of small rubble and the very fragmentary remains of an upper terrace. Our suspicion that the wall had been wholly or partially plastered was strongly confirmed by the discovery along both the inner and outer retaining walls of large fragments of plaster paving (Features 1 and 2) 2-3 cm. thick, directly overlying bedrock. These turned up at the base of the respective retaining walls, and in the case of Feature 2 the plaster surfacing extended up the stone masonry for a distance of 30 cm.

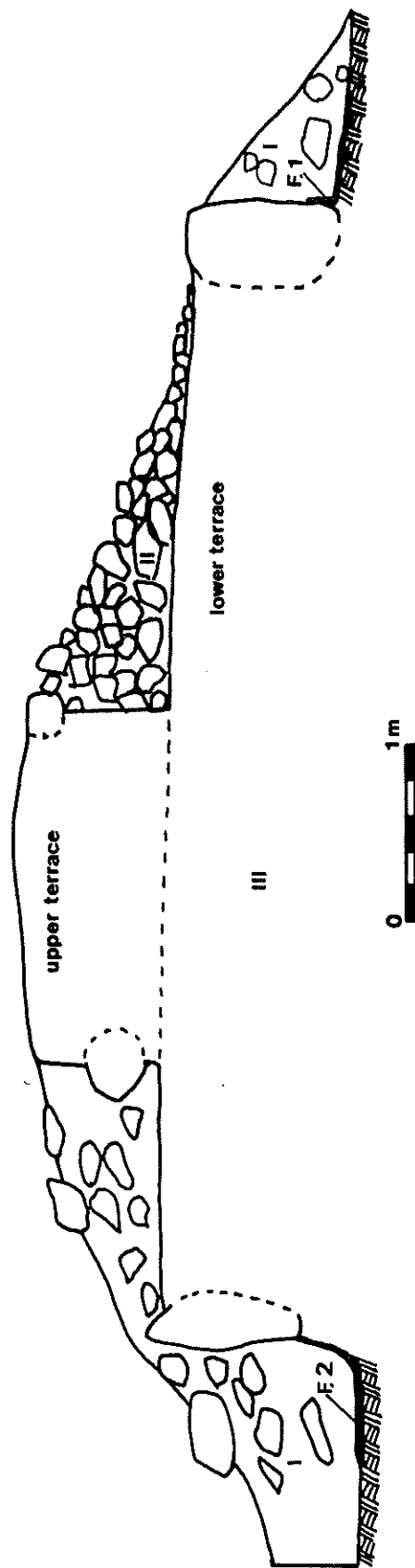


Fig. 38 Chacchob  
 Operation 5, Trench 1  
 Profile of south wall  
 I Collapse rubble in brown soil matrix.  
 II Small limestone rubble.  
 III Large limestone rubble.

### The Wall System at Chacchob

The Chacchob wall, as revealed by our mapping and excavations, emerges as a very impressive construction. The total length of the wall is 1410 m., and it delineates a roughly oval area with a north-west/southeast diameter of 525 m. and northeast/southwest diameter of 396 m. The wall presently appears as a low mound of uncut or roughly-shaped stones and averages about 10 m. in width with a maximum elevation of 2.25 m. The only construction features visible without excavation are long stone alignments along the crest of the mound--the remains of low terraces (Plate 8)--or transverse stone alignments marking the positions of gates now filled with rubble.

As noted by Pollock and Stromsvik the wall was obviously laid out to take good advantage of local topographic variations to augment its effective height. Although the wall is today only about 2 m. high, and when intact was certainly no higher than 3 m., the steep slopes found adjacent to it, especially along its outside circumference, create the illusion of much greater height and certainly enhanced its function as a barrier. This effect is most marked along the northwestern and southwestern sections of the wall. Another peculiarity of the Chacchob wall is that no attempt seems to have been made to keep the top of the wall horizontal; that is to say the strike of the wall summit approximates that of the topography which it overrides. As the spot elevations indicate, it can rise or fall several meters in absolute elevation over a horizontal distance of 30-40 m.

Assuming that the excavated Gates A and B, and their apparent counterpart on the north, Gate C, represent the only openings built into the wall, access to the site would have been very limited (by contrast I mapped seven major causeways across the Becan ditch over a total length of about 1800 m.). More openings may, of course, be obscured by surface debris. The known gates are narrow - under 2 m. in width - and roughly constructed. Apart from their narrowness, they present no obstacles to traffic such as constrictions or abrupt turns, and there is no sign that they were covered or vaulted as are the Tulum gates. We did not notice the stairways which Pollock and Stromsvik claim they found associated with the gates. The extreme roughness of the bedrock floor between the gates over which traffic had to pass, and the lack of polish which limestone often acquires even from the passage of bare feet, suggests that the gates were not in use for very long. All gates were deliberately filled to the height of the adjacent walls and the abundant associated ceramic material, scraped up from nearby middens, indicates that nearby architectural complexes had been occupied for some time.

Our three partial exposures of intact wall segments reveal similar overall configurations even though there seem to be differences in minor detail from one area of the wall to another, especially in the small upper terraces. The basic component of the wall consists of a core of large limestone rubble and earth sandwiched between



retaining walls consisting of unshaped or roughly-shaped limestone blocks and slabs, some of which may be as much as a meter or more high. On top of this substructure (which in Operation 3 seems to be stepped on the inside) was laid a capping of fist-sized rubble, which in turn carried a small terrace-like superstructure. The terrace usually runs down the center of the wall and is edged with roughly-shaped, coursed stone (3-4 courses sometimes still preserved) with small rubble between. Terrace remains are 50 cm. or less in height, although originally somewhat higher, and 1-2 m. in width. Overall, the wall when intact would have averaged between 5-6 m. in width, and between 2-3 m. in height (depending upon the height of the upper terrace), with the effective height somewhat greater as a result of the adjacent sloping terrain.

Construction techniques are very crude. The rough blocks of the retaining walls are of variable size and shape and cannot be described as formally coursed, but are rather chinked insecurely into place. Neither the rock of the retaining walls nor the large interior fill is bonded by any sort of mortar. The whole structure gives the impression of having been erected quickly and with an indifferent concern for the more careful construction which the interior architecture usually exhibits. What appear to be borrow pits can be seen at intervals along the outer perimeter of the wall, so construction material was probably not carried very far. If Chacchob were located further south, say in the Petén, where much heavier tropical forest growth often severely damages large architecture through root action, the wall would not be nearly so well preserved.

Considering this slipshod construction it is puzzling that the wall should have been plastered, especially since the plaster pavings that the Maya preferred were not laid down on interior plazas anywhere at Chacchob. Yet the preserved plaster fragments found in our Operation 3 and 5 trenches point clearly to this conclusion. Apparently there was some overriding concern with the external appearance of the wall, rather than quality of masonry (this is reminiscent of much of the architecture at Mayapan).

Our excavations turned up no traces of perishable structures such as timber breastworks or palisades which could have been erected on top of the wall with little additional effort and which would have greatly enhanced its efficacy as a barrier. Even the brushwork screens which the local Maya build today along the wall summit to keep cattle from their milpas are pretty impressive barriers. Given the nature of the wall construction, however, and its state of preservation, no evidence of such features can be anticipated, even if they originally existed.

A few small masonry platforms are contiguous with the inner side of the wall on the northwest and southeast section, but these appear to be incidental to its function.

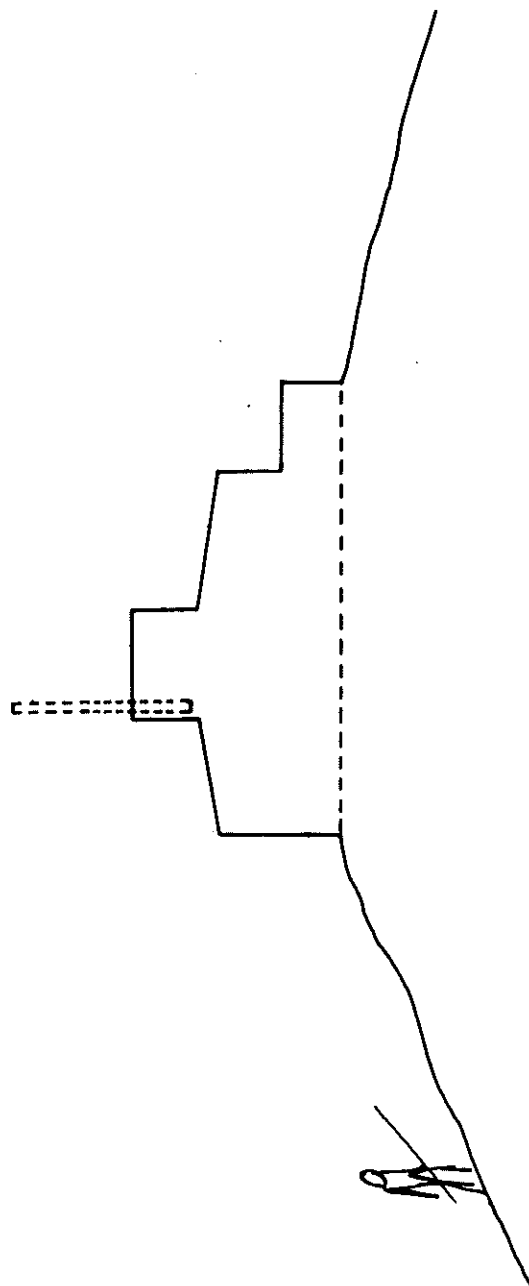


Fig. 39 Chacchob

Reconstruction of the Chacchob wall as seen  
in Operation 3; the palisade is hypothetical.

0 1m.

Perhaps the most surprising feature of the wall is its scale. A rough estimate of its volume of rock and rubble fill is  $14,800 \text{ m}^3$ ; much of this material probably came from immediately adjacent borrow-pits. This figure is about half of the estimated fill used in all of the non-temple architecture at Chacchob -  $30,000 \text{ m}^3$ . I would judge that the erection of the wall involved about one-fifth of all the labor expended in construction activities at the site as a whole. Using Erasmus' (1965) calculations as a model, the completion of the wall would have required a minimum of about 15,000 man days of labor. Such an expenditure is high considering the seemingly quite limited population represented by the formal (mapped) platforms within the walled zone, which I would estimate, in order of magnitude terms, at no more than 1,000 people, including all ages and sexes. While the wall system could have been built in a reasonably short time by the labor available to such a population--say two to five months depending upon the composition of the work force--I think it more likely that additional labor was conscripted from outlying settlements. This would be more consistent with the idea of Chacchob as an elite enclave.

The question of exactly when the wall was built in relation to the interior architecture--whether it was a feature of the original community or a later addition--cannot be answered on the basis of the available evidence. Part of the difficulty here is that neither the wall nor the interior structures exhibit any strikingly formal layout (eg., as does the inner zone at Cuca) so it is hard to determine whether one set of features in any way constrained the other. I favor the view that the wall was erected as an integral part of the original settlement pattern or very shortly after the settlement was established. It does not look "tacked on" to an existing set of buildings as do both of the walls at Cuca, it does not override other, earlier structures (except possibly one on the extreme north) nor have any number of outlying structures been isolated by it. My impression is that of an originally compact community which was either meant to be enclosed by the barrier, or which was quickly enclosed before it began to sprawl spatially.

The most crucial question, of course, concerns the function of the Chacchob wall. There is no doubt that, seen in the technological and organizational context of Maya warfare, the size and configuration of the wall are consistent with military defense. Even without the addition of perishable screens, palisades or breastworks it would have constituted an impressive obstacle if adequately manned. Its adaptation to natural sloping terrain, which increases its effective height and if kept clear of vegetation along the exterior of the wall, produces a natural glacis, was obviously calculated. The shoddiness of the building techniques argues for hurried construction consistent with military threat, and certainly every attempt was made to severely restrict access, judging from the few, narrow gates. The scale of construction, which seems excessively massive considering the rather unimpressive interior architecture, suggests that functions other than mere symbolic delineation of sacred or social space, or privacy,

were uppermost in the minds of the builders. In fact, no large structures seem to lie outside the wall near Chacchob. The in-filling of all known gates, which in effect cut off easy access to the site completely, and the fact that they were never cleared nor were new gates cut through the wall, may indicate not only a military threat but one which may have necessitated the abandonment of the site. Unfortunately no other direct evidence of a military emergency or disaster was turned up. Considering all of the evidence I suggest that defense was a primary function of the Chacchob wall system.

Although the community of Chacchob was screened by a peripheral defensive system, none of the interior arrangements seem to have been made with an eye to defensive considerations. Many Maya sites possess architectural complexes which had primary civic/religious/residential functions, but which also could be effectively defended. An example would be the Monjas quadrangle at Uxmal, and at Becan there are long, linear structures which may have been erected as interior lines of defense. Whatever the functions of the interior architecture may have been, the settlement clearly was not founded as a military enclave in the strict sense that its total configuration was dictated by military considerations.

#### Ceramic Assemblage

Our test trenches at Chacchob produced a total of 7575 sherds. Their typological breakdown is given below in Table 4; Table B in Appendix B provides the breakdown in greater detail in articulation with lot provenience.

Four thousand six hundred fifty-two rim and body sherds, or approximately 60% of the entire Chacchob collection, were sufficiently well-preserved for analysis. Another 418 had lost most of their surfaces, but in paste characteristics and diagnostic shapes clearly fall into the Puuc Slate Ware range of variation and probably can be assigned with confidence to this ware. Finally, 2505 sherds, or about 33% of the total collection were unidentifiable, being highly fragmentary, weathered, or showing no distinctive surface treatment. No whole or completely reconstructable vessels were recovered.

The most striking feature of the Chacchob ceramic assemblage is its extreme conformity to the Pure Florescent Cehpech complex as described by Smith (1971). Puuc Slate Ware is by far the dominant ware at the site, exceeding even the unslipped ware in abundance. The most commonly associated minority wares of the Cehpech complex, Puuc Red Ware and Thin Slate Ware, are present, but the Fine Orange and Fine Grey Wares, as well as Cauich Coarse-Cream Ware, all found at Cuca, are not.

Table 4

Chacchob Sherds Broken Down into Major Wares

---

|                                                                |             |         |
|----------------------------------------------------------------|-------------|---------|
| <u>Identified Sherds</u>                                       |             |         |
| Puuc SlateWare Rims                                            | 386         | } 66.7% |
| Puuc SlateWare Body Sherds                                     | 2719        |         |
| Striated, Unslipped Body Sherds                                | 1388        | 29.8%   |
| Puuc Red Ware Rims                                             | 3           | } .9%   |
| Puuc Red Ware Body Sherds                                      | 41          |         |
| Orange on Red Rim                                              | 1           |         |
| Unslipped Censer Fragments                                     | 1           |         |
| Puuc Unslipped Ware, Yokat Striated Variety Rims               | 3           |         |
| Thin SlateWare Rims                                            | 30          | } 1.1%  |
| Thin SlateWare Body Sherds                                     | 24          |         |
| Misc. Unclassified Sherds                                      | <u>56</u>   | 1.1%    |
| Total                                                          | 4652        |         |
| <br><u>Probable Puuc SlateWare Sherds</u>                      |             |         |
| Rims                                                           | 239         |         |
| Body                                                           | <u>179</u>  |         |
| Total                                                          | 418         |         |
| <br><u>Unidentified Unslipped/Unstriated, Weathered Sherds</u> |             |         |
|                                                                | <u>2505</u> |         |
| Total                                                          | 7575        |         |

---

Table 5

Chacchob Identifiable Rims: Type and Vessel-Shape Breakdown

---

|                                          |           |
|------------------------------------------|-----------|
| <u>Puuc SlateWare, Slate Muna Group</u>  |           |
| Muna Slate Type basal-break dishes       | 118       |
| bolster-rim basins                       | 135       |
| globular jars                            | 75        |
| ringstand bowls                          | 27        |
| hemispherical bowls                      | 9         |
| restricted-opening bowls                 | 2         |
| impressed variety basal-break dishes     | 5         |
| Tekit Incised Type basal-break dish rims | 8         |
| <u>Puuc Unslipped Ware</u>               |           |
| Yokat Striated Type                      | 3         |
| <u>Puuc Red Ware</u>                     |           |
| Teabo Red Type                           | 3         |
| <u>Thin Slate Ware</u>                   |           |
| Ticul Type                               | <u>30</u> |
| Total                                    | 415       |

---

### Puuc Slate Ware, Slate Muna Group

Identifiable sherds of this ware make up over 41% of the total ceramic inventory from Chacchob, and another 5.5% have paste characteristics and/or diagnostic shapes which allow relatively certain assignment to the slateware types even though surface treatment is no longer visible. Most of the slateware material is assigned to the Muna Slate Type (Smith, 1971:27-28). Common forms include large basins with the characteristic bolster rims and vertical strap handles (Fig. 3 - m-u, V,W); basal-break dishes with slab or hollow, bulbous feet, (Fig. 3 - a-l); and large globular jars with medium restricted necks and out-flaring, usually direct rims (Fig. 3 - A-J). I have also illustrated some "jar" rims with flattened, squared lips (Fig. 3 - N-U) but these may be parts of pedestal bases.

Apart from the characteristic smooth, translucent, and slightly waxy slip, most sherds of the Muna Slate Type show no decoration. Only 70 rim and body sherds exhibit trickle-painting. A few basal-break bowls are decorated with circular or gouge-impressions just above the break in profile (Fig. 5 - A-D). I have designated these Muna Slate Type, Impressed Variety.

Minority types include Nohcacab Composite Type basal-break dishes with incised/impressed pre-slip decorative bands just above the break (Fig. 5 - E-G), Tekit Incised Type basal-break dishes with patterns of incised lines between lip and break (Fig. 4 - a-i), and two Akil Impressed jar body sherds.

### Puuc Unslipped Ware

Unslipped, striated body sherds from large jars make up about 18% of the Chacchob collection. Most of these probably represent the Yokat Striated Type but the extreme paucity of large rim and neck fragments makes such an assignment problematical. Only three rim sherds are definitely classified as Yokat Striated, Yokat Variety (Fig. 3 - K-M). Necks are plain, with exterior striations beginning just below the bases of the constricted necks.

### Puuc Red Ware, Red Teabo Group

Only 43 Puuc Red Ware Sherds were recovered. The only shape present appears to be the hemispherical bowl with direct or slightly beaded rim (Fig. 4 - S-V). Unlike the redware sherds at Cuca, none of the Chacchob sherds exhibit any surface decoration apart from the extremely smooth, lustrous slip.

### Thin Slate Ware Ticul Group

The other fine ware commonly found in the Cehpech complex, Thin Slate Ware is also very poorly represented at Chacchob (54 sherds). Shapes are very similar to the redware shapes discussed above--mainly hemispherical bowls with direct, beaded, or slightly everted rims (Fig. 4- L,N-R) and possibly a tall cylinder (Fig. 4 - M).

### Miscellaneous Sherds

Miscellaneous material (Fig. 5-H-L) includes miniature vessels, small modeled adornos, unslipped censer fragments, what is probably a Puuc Slate basal-break dish with aberrant surface treatment, and a red-on-orange rim (not shown).

### Comparison and Discussion

The Chacchob assemblage exhibits striking similarities and also important differences when compared with assemblages from other Puuc sites such as Uxmal and Kabah (insofar as we can be said to know very much about Puuc assemblages anywhere). Known Puuc assemblages, as Brainerd noted long ago (1958:26) tend to be highly homogeneous, and comparisons, especially when based upon small, poorly controlled samples which have not been statistically manipulated, stress similarities rather than differences. Apart from possible small modal differences, the Puuc Slate Ware repertoire from Chacchob, with its characteristic bolster-rim basins, large jars, basal-break dishes, and ringstand and hemispherical bowls, would fit nicely into the samples from Uxmal and Kabah (Smith, 1971:144-166). This ware does seem to be present in somewhat higher percentages at Chacchob (66.7% of positively identified sherds), especially in proportion to the Puuc Unslipped Striated Ware (29.8%).

Likewise, the minority wares, Thin Slate and Puuc Red Ware, are in their ranges of shapes and decorations consistent with the Uxmal/Kabah samples, but are present in much lower percentages, comprising together barely 2% of our entire sample. Ball (n.d. 21) has referred to these two minority wares, which he feels reflect an elite sub-complex, as diagnostic of the Cehpech ceramic sphere.

Both of the other special wares which are often found with the Puuc assemblage--Fine Orange Ware of the Balancan/Altar groups and Cauich Coarse-Cream ware--seem to be lacking entirely. It is conceivable that their absence may be an artifact of our sampling; but I feel this unlikely since our Chacchob collection, restricted as it is, comes



from a very small site and should be more representative of the Cehpeh complex than the sample from Uxmal in terms of its size.

Ball has speculated that three of these minority diagnostic wares--Thin SlateWare Puuc Red Ware, and Balancan/Altar Fine Orange Paste Ware--constitute an elite sub-complex. This interpretation is consistent with the findings at Cuca, and at Becan it is this apparent sub-complex which appears intrusively in the early Post Classic Xcocom complex (Ball, 1977a:135). At Chacchob, however, despite its obvious elite functions, this "sub-complex" seems to be absent or only poorly represented. In my opinion, this need not be seen as invalidating either my interpretation of Chacchob as an elite residential enclave, or Ball's identification of the elite sub-complex. Assuming that both functional interpretations are correct, several explanations suggest themselves. First, since these undoubtedly special-purpose wares were not local products at all Puuc sites, but rather long or short-range imports, geographical isolation may be a factor. Alternatively, there may have been some sort of political circumscription in the apparently volatile political situation in which Chacchob existed that restricted access to certain luxury commodities. Finally, the accessibility of these wares may not have been constant throughout the Pure Florescent period, and Chacchob may have been occupied during a time of low accessibility. At sites such as Uxmal with an apparent long time span during the Pure Florescent, the fine wares would be well-represented even though such periods occurred.

#### Ceramic Stratigraphy and Chronology

As previously noted, most of our Chacchob trenches were very shallow and none of the ceramic samples were protected from post-depositional mixing by durable constructions such as plaza floors. In those trenches which did produce three to four stratigraphic levels (eg., 4, 9, 11, 12, 13) sherd concentration showed a dramatic decrease with depth. Identifiable Puuc SlateWare sherds occur in virtually all excavation units, and sometimes in large quantities in low levels of deep trenches in deposits just above bedrock (eg., trench 9). They also occur in the structural fill of Trenches 11, 15, and 16. Although most of the test trenches produced fewer than 100 sherds, in several the concentrations were sufficiently dense to suggest midden deposits. These include Trenches 5, 6, and 10 near the large amorphous structure in the western sector of the site and Trench 9 in the Structure II complex. Unfortunately, no organic material suitable for radiocarbon determinations, either in the form of refuse or burials, was recovered from any of our trenches including those which seem to have been middens, so the ceramic assemblage remains free-floating except insofar as it can be related to other, dated ceramic sequences.

Fortunately, the Chacchob ceramic assemblage is about as pure as such an assemblage can be. Unless our sample is grossly inadequate, or unless the weathered sherds mask unsuspected variety, the conclusion is clear--Chacchob is a single phase site. Not a single sherd showed up which would indicate either an earlier or later occupation than that of the Pure Florescent as represented by the Cehpeh complex. While it is not inconceivable that such material remains to be found at Chacchob, it is certainly not abundant, and earlier or later occupations--again if they exist--must have been very ephemeral.

I should mention parenthetically at this point that there is no doubt that the general region in which Chacchob is situated has a much more complicated settlement history than that represented at the site itself. One of my workmen, Jose Naal of Teabo, took me to a deep solution cavern near a milpa originally cut by his father about three or four km. east of Chacchob. Apparently the trickle of water in this cavern is known for its reliability, and judging from the variety and abundance of ceramic material littering its floor it attracted the prehistoric Maya for hundreds and more probably thousands of years. Unfortunately, I neglected to collect a ceramic sample on this spur-of-the-moment and hair-raising excursion, most of which I spent dangling from ropes over shadowy abysses, lighted only by a tiny bulb affixed to the hat of my cheerful guide and tenuously attached by unreliable-looking wires to a 6-volt battery clutched in his hand. I encourage anyone who can do so to make a collection at this important site and I recommend Naal as a guide--but bring your own light!

Not only is Chacchob a single phase Pure Florescent site, but all evidence from our stratigraphic and architectural investigations points to a very short occupation within the Pure Florescent period itself--I would suggest no more than several generations, and possibly even less. In fact, a compelling reason for more work at Chacchob is that it is a unique site which can offer a virtually synchronous glimpse of a newly founded Maya center in all of its aspects, including its ceramic assemblage.

One of our main objectives was to date the wall system. Assuming that radiocarbon samples are lacking, the best approach to dating such a construction is to recover large amounts of material from its fill, as well as earlier material sealed beneath and later material overlying it. I was able to find all these kinds of deposits, for example, associated with the Becan embankment (Webster, 1976a). Unfortunately, at Chacchob we were reluctant to try to cut through the sub-structural fill of the wall. Our experience at Cuca and our initial testing at Chacchob suggested that the huge rubble fill was likely to be sterile and that the discovery of sizable quantities of underlying sherds would be highly fortuitous. There were, moreover, no later structures or other observable features superimposed on top of the wall.

Puuc Slate Ware sherds were found in the collapse debris cleared from sections of the wall exposed in our Operation 3 and Operation 5

trenches. A single sherd of this ware was also recovered from the intact construction fill of the upper terrace in Operation 3. Large ceramic samples came from both Gates A and B, especially the former, and contained huge quantities of Puuc Slate Ware probably scooped up from nearby middens. The closing-off of the gates involved considerable effort and was done with considerable care, almost certainly when the wall was discharging its principal role of protecting a functioning community, possibly under the stress of a military emergency. Given the overall nature of the ceramic assemblage the wall must be considered an integral part of the community and a Pure Florescent construction. The only question which remains unresolved, as previously mentioned, is whether it was erected at the time the original community was founded or shortly thereafter.

Without associated radio-carbon determinations, the occupation of Chacchob cannot be absolutely dated, except insofar as its ceramic assemblage and associated architecture indicate a general Pure Florescent provenience. For a variety of reasons which are discussed in the concluding section, I favor a fairly late, brief occupation at Chacchob.

## DZONOT AKÉ

The site of Dzonot Aké (16Q-e[4]:3) is located about 20 km. east of the modern city of Tizimin, and about 6 km. north of the main road between Tizimin and Colonia Yucatan. The modern pueblo of Dzonot Aké is situated about 1 km. north of the site. Traveling time by car from Tizimin is approximately 25 minutes. Latitude/longitude is 21° 13' 40"N, and 87° 56' 0"W.

Situated as it is in the eastern half of the state of Yucatan, Dzonot Aké and its surrounding countryside receive sufficient rain to maintain fairly high forest. Much of this forest has been cleared for milpas, but even larger tracts have been turned into pasture, which is especially abundant to the west of the site.

Of the three sites tested, only Dzonot Aké possibly figures in the ethnohistoric literature on the Maya at the time of the Spanish conquest in the sixteenth century. Roys (1957) notes the existence of a town called Dzonot Aké in the province of Chikinchel. The province seems to have consisted of independent communities which nevertheless cooperated to maintain their privileged access to salt producing beds. Roys (1957:107) speculates that Dzonot Aké and several other towns formed a defensive screen against southern provinces desiring access to the coastal salt-beds, and this interpretation is, of course, consistent with the existence of a possible defensive system at the site of the same name.

Montejo's forces fought a battle against the Maya in 1528 at a place recorded as Aké, and Roys believes this can be identified with the modern village of Dzonot Aké, about 1 km. north of the ruins that we tested and on whose ejido lands they are situated. Whether the archaeological site was occupied in the sixteenth century is doubtful, although it has a very long occupational history. Roys was not always very critical in his correlations of ethnohistoric place names and archaeological sites. On the basis of the work described below, no sizable contact period population seems to have existed at the site called Dzonot Aké, so the appellation is probably inappropriate. Several other large sites are situated in the region and one of these may yield late Postclassic material.

### Architectural Configuration and General Character of the Site

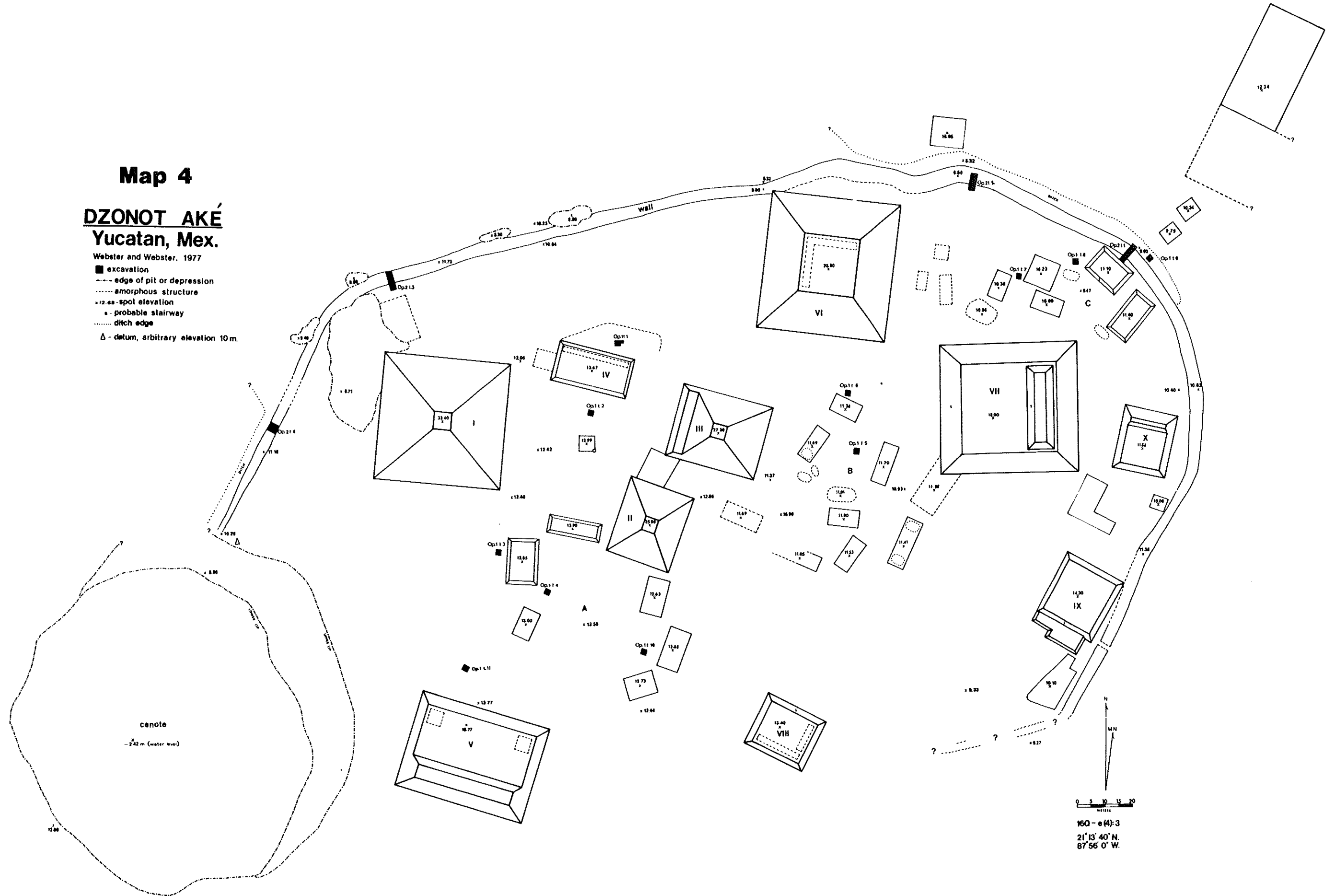
The accompanying map of Dzonot Aké (Map 4) does not include all of the structures which probably relate to the site. What is represented is rather a core zone of large architecture which is partially enclosed by a low wall of limestone rubble. This wall system was first noted by Roys and Chamberlain (Roys, 1943:68) and subsequently by me in the course of a brief survey in 1975. Several good-sized low platforms

# Map 4

## DZONOT AKÉ Yucatan, Mex.

Webster and Webster, 1977

- excavation
- edge of pit or depression
- ..... amorphous structure
- +12.55 spot elevation
- probable stairway
- ..... ditch edge
- Δ - datum, arbitrary elevation 10 m.



0 5 10 15 20  
METERS

160 - e (4) 3  
21° 13' 40" N.  
87° 56' 0" W.

lie outside the walled zone, and the wall itself overlies and has disturbed extensive plaza construction on the northeast. A major architectural complex also can be seen several hundred meters to the southeast of the walled zone. It seems prudent, until a more intensive ground survey can be made, to view Dzont Aké as a sprawling site lacking the high degree of nucleation found at Chacchob. It is nevertheless clear that the mapped area does include the most impressive architectural features.

That portion of Dzont Aké investigated by our survey covers an area of approximately 6 ha., bounded, except on the south, by the previously mentioned wall. The dominant topographic feature is a huge cenote with a surface diameter of over 100 m. This is a steep, but not vertically-walled cenote, and standing water is about 12.5 m. below our surface datum. Apart from the cenote, the site is fairly flat, reflecting the general character of the neighboring countryside as well as the extensive leveling associated with plaza construction (see below). A huge, deep borrow pit is located just off the northwestern corner of Structure I. I am inclined to see this is a fairly recent feature because of its unusual position, although certainly one would expect stone to be more readily accessible by mining Structure I itself rather than by excavation.

Vegetation, especially in the northern part of the walled zone, is impressive high forest which reminds one more of the Peten or southern Campeche than northern Yucatan. To the south there has been recent milpa cultivation. Undergrowth is generally sparse, visibility good, and we missed, if any, only the smallest and most ephemeral structures in our mapping operations.

Major architecture (Structures I-X) exhibits considerable variation. Three large pyramids (Structures I, II and III) are typically high, steep, temple substructures with very restricted summit areas; they measure, respectively, about 21 m., 13 m., and 15 m. in elevation. The largest, Structure I, has been extensively mined for stone, especially on its eastern slope. Traces of a three-sided (?) summit structure can be seen, oriented roughly E-W, probably indicating the presence of a stairway down the damaged eastern slope which is also, of course, consistent with the orientation of the other large buildings. Structure II is a smaller version of Structure I, except that there are no visible architectural features apart from collapse rubble.

Just to the northeast of Structure II, and connected to it by a low, amorphous mound, is Structure III. A low terrace runs along its western edge, and what may be another terrace level is faintly visible about 3 m. from the top. A good alignment of small, nicely-cut stones in a hard mortar matrix has been exposed by tree-fall on the summit, and is oriented 10°-12° east of north. Some recent stone-robbing has occurred, especially on the north slope, and here several intact courses of stone are visible--large, roughly shaped blocks with lots of mortar.

Construction techniques in all three of these major buildings are crude. Well-cut and shaped stone is almost entirely absent (except on the summit of Structure III as noted above) and no decorative elements were seen.

The three other large structures at the site (V, VI and VII) are significantly different than those described above. All are low by comparison (approximately 5 m., 9 m., and 8 m., respectively) and have rather spacious flat summits with expanses of small rubble which probably was underlayment for plaster surfacing.

Structure V supports a large, linear range building 8-10 m. wide and about 1.7 m. high running along its southern edge. Huge, rough-cut stone alignments, possibly the remains of a stairway, run along the north side of the summit building. A metate is in association. Two smaller, amorphous, low platforms are on the northwestern and northeastern corners, and the fragments of a possible plain stela are associated with the latter.

Structure VI has a raised summit area about 19 m. square, and faint traces of a superstructure are seen along the north and west sides. Structure VII is very similar to Structure V in that it supports a range building along the eastern edge which measures about 1.5 m. high and 9 m. wide. Paving rubble is found over the surface of the summit structure as well as the substructure. The western edge of the summit building has alignments of massive, rough-cut oriented exactly N-S which probably indicate a stairway here, and similar alignments are also found on the western slope of the substructure.

Well-shaped building stone or decorative stone elements seem absent from Structures V, VI and VII. Neither is there unequivocal evidence that any of the summit buildings were definitely vaulted.

Structure X is essentially a smaller version of VII, except that it is only about 1.5 m. high. Structure IX is a low platform with only a very amorphous raised area along its eastern edge. A lower terrace is attached to it on the southwest, and there are alignments of large, rough, squared slabs at the interface between the terrace and the large building, probably a stairway. Structure VIII has the remains of linear superstructures 3-4 m. wide on its south and east edges, and what appears to be a much-disturbed stairway on the north.

Structure IV is of considerable interest because, along with I and the II-III complex, it defines a small, irregular plaza. Its western end has been heavily robbed, but there is a low summit structure along the north edge. Small, rough-cut stone blocks are among the rubble. Surface collection on Structure IV yielded a sizeable collection of Mayapan effigy-censer fragments, especially from the tree-fall on the north slope. Just to the south, roughly in the center of the plaza, is low shrine with a disk-shaped stone altar about 80 cm. across on its southeastern corner.

The remaining architecture at Dzonot Aké consists of three clustered complexes of small mounds designated as Groups A, B, and C on the map. Group A consists of two sets, each of which has three mounds in rather haphazard arrangement. These vary in height from about 50 cm. to 1.5 m. The northwestern cluster is most impressive, with some rather massive, rough stone alignments on the larger buildings.

The B group does not exhibit the pairing of A, and has 11 structures ranging from large platforms over a meter in height with traces of stone superstructures, to small, extremely amorphous piles of rubble a few cm. high.

Group C shows a similar variation. Here two good-sized platforms 1.6 - 2 m. in height define the north and east sides of a plaza, with a jumble of smaller mounds to the west. The larger structures in this group have massive edging blocks and/or stairway remains of roughly-cut slabs.

Several other low platforms are scattered throughout the site but none are remarkable, except for those outside the ditch on the north-east. The latter, along with a very large low platform structure, should probably be regarded as integral parts of the site cut off from the other architectural complexes by the wall construction.

The overall configuration of the site is difficult to work out, a consequence, I believe, of the long history of occupation revealed by our test pits and by our ceramic collections. One thing is obvious - the wall is one of the very latest constructions at Dzonot Aké. From its layout I would guess that the wall was planned to incorporate the major structures, I, VI and VII. These, perhaps along with V, are probably very early structures, judging from their size and rough construction, as well as the abundance of early-looking ceramics in our test excavations. I would provisionally suggest that they date to the Early Period, perhaps early in that period, or even the Late Formative. Structures I, VI and VII show similar orientations, and could be conceived to delineate an enormous plaza. Because of its similarity in scale and construction, Structure V may also be early, although its orientation is not congruent with the others. Structures II and III are puzzling. Although construction techniques are the same as those of the larger buildings, alignments are not exact, and location violates the idea of a large plaza defined by Structures I, VI, and VII. These buildings may either be contemporary with the larger structures, thus producing two plaza groups, or they may be later additions. Of the two possibilities, I incline toward the latter.

One may interpret the positions of the smaller buildings (IV, VII, IX, and X) in several ways. For example, IX and X may be, on the basis of their orientation, very late buildings which have oriented themselves to the position of an already existing wall, or, alternatively the eastward swing of the wall may have been designed to incorporate them. In terms of building techniques, they resemble the larger



buildings. Structure IV does seem to have been constructed to delineate the northern edge of a small plaza, and I believe the association of Mayapan ceramics with the structure indicates later re-use.

It seems clear that Groups A, B and C are among the latest constructions on the site, and are primarily composed of domestic/maintenance structures reflecting occupation by a small elite group and their retainers of what was formerly a primarily religious/civic precinct. The wall was almost certainly erected to enclose this terminal occupation.

### Excavation and Stratigraphy

As at Chacchob, I interpreted the architecture at Dzonot Aké, because of its apparent isolation within a walled compound, as elite architecture and hence unavailable to us for excavation. Unlike Chacchob, however, Dzonot Aké experienced a long sequence of occupation and cultural stratigraphic units, especially superimposed plaza floors and floor fill, could be identified in most of our excavations. Eleven 2 x 2 m. test trenches were completed. These were located in the center of plazas, in close proximity to probable residential structures and, in one case (Op. 1, Trench 9) in the bottom of the "ditch" feature just northeast of Group C. Our strategy was to place one or more test trenches near each major group of structures or in plazas defined by such structures. Four larger trenches cut through the wall--two on the northwest and two on the northeast. These provided us with large, well-controlled ceramic samples and also sufficient exposures of the wall to reveal its basic structure--or as it turned out its lack of structure.

#### Operation 1, Trench 1 (Fig. 40-Plate 10-Lots 1, 5, 8, 15, 17, 18, 19, 24)

This 2 x 2 test trench was excavated into the surface of an irregular terrace-like platform jutting out from behind the low Structure IV. Structure IV had yielded a sizeable surface collection of Mayapan effigy-censer fragments, and we hoped that Trench 1 might reveal late construction levels. After the removal of 10-20 cm. of humus, a deep (ca. 40 cm.) layer of greyish-brown soil with lime-stone inclusions was encountered. This covered a plaster floor which was intact throughout most of the trench, but which was only in fair condition with much of its surface lost (Feature 1). As the floor was being cleared, the lower leg bones of a human skeleton were found protruding into the trench from the northeast corner. In order to expose the burial (Feature 2) a 1.2 x .7 m. extension of Trench 1 was made from the northwest corner.

The burial exposed in the extension was that of an adult, extended on its back with arms lying across the upper part of the body and hands folded on the lower abdomen. Only the long bones of the legs and arms were well-preserved; the pelvis, ribs, vertebrae, and skull were all badly crushed and were impossible to extricate. A slateware vessel (Fig. 9A) was inverted over the face; it was cracked in half, and in Plate 10 the upper half of the vessel has been removed for the photograph to show the skull beneath. A rough measurement of the length of the burial (the foot bones were scattered) is 1.62 m. No sign of a pit was discerned during the excavation of the extension, but the burial had clearly been intruded down to the level of the Feature 1 floor, and had partially disturbed it. After the exposure of the burial, the extension was filled and excavation continued in the main part of Trench 1.

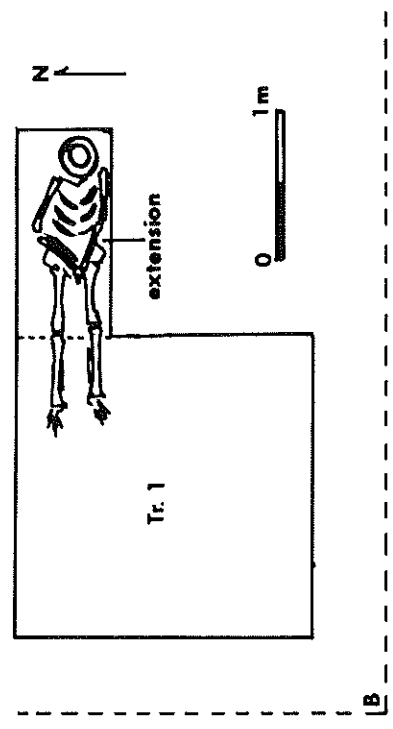
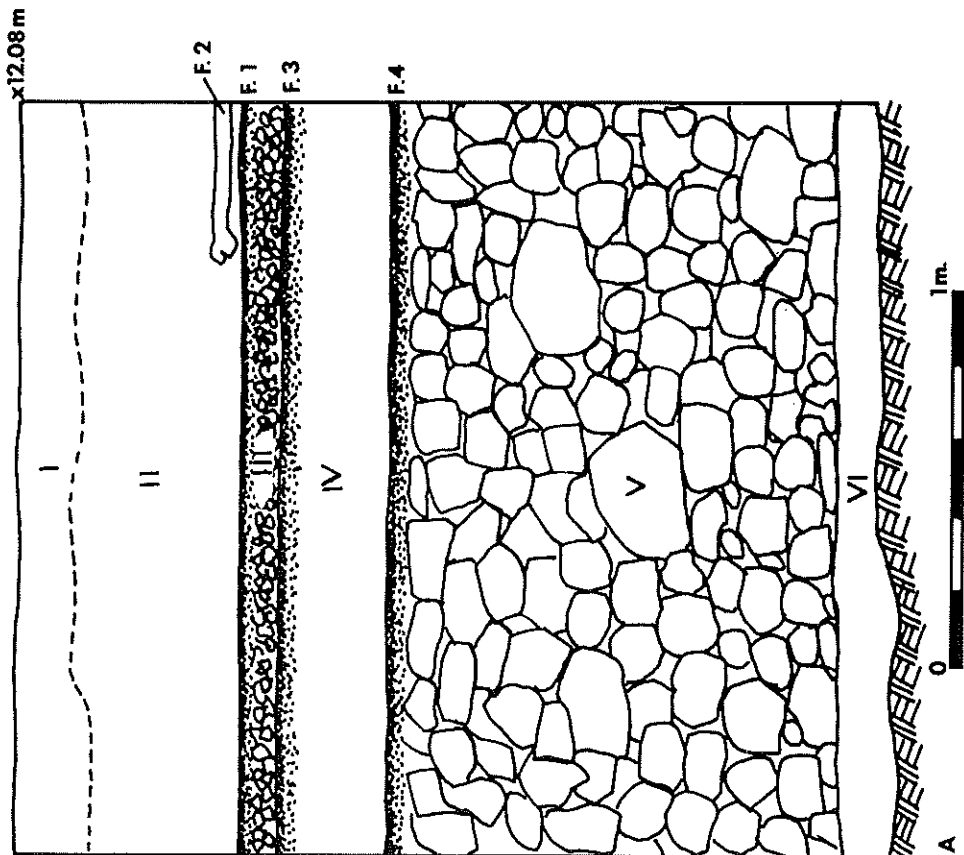


Fig. 40 Dzonot Aké

- A Operation 1, Trench 1  
Profile of north wall
- B Plan of trench showing  
extension for burial

- I Dark brown humus
- II Grey-brown soil with  
some limestone rubble
- III Grouting
- IV Small limestone rubble
- V Large limestone fill
- VI Compact red soil

About 10 cm. below Feature 1 was a second floor (Feature 3) in good condition except for a weathered surface. A third floor (Feature 4) in excellent condition was found below Feature 3, separated from it by 25 cm. of small rubble grouting. This floor sat directly upon a thick (ca. 110 cm.) level of large limestone rubble 10-20 cm. or more in diameter--obviously construction rubble. This in turn lay on a 10-15 cm. deep layer of buried red topsoil just above bedrock.

The upper level of Trench 1, including the Feature 1 floor cluster, yielded slateware and Thin Slate sherds as well as the slateware vessel with the burial. Material sealed below the level of Feature 1 is, except for a single slateware sherd in level 5 (Lot 19) all Dzonot Aké Variegated or Brown types, with admixtures of striated ware.

#### Operation 1, Trench 2 (Fig. 41 - Lots 2, 12, 13)

Trench 2 was a 2 x 2 m. test trench excavated into the plaza just south of Structure IV, roughly halfway between Structure IV and the small altar in the middle of the plaza. About 50 cm. below the surface, after the removal of humus and grey soil layers, a well-preserved plaza floor (Feature 1) was uncovered--intact except for a few rodent burrows. This floor was about 10 cm. thick and lay on a 20 cm. layer of grouting which in turn lay above a thick deposit of limestone rubble--fist sized and larger--scattered through a light brown soil matrix. Trench 2 was discontinued at 90 cm. below the surface.

Apart from weathered/unslipped sherds, Trench 2 yielded predominantly Dzonot Aké Variegated and Brown types.

#### Operation 1, Trench 3 (Fig. 42-43 - Lots 3, 6, 10, 11, 16, 22, 25)

Trench 3, measuring 2 x 2 m., was positioned just a little to the west of the largest structure of Group A. After the removal of approximately 55 cm. of humus and light grey soil, a sequence of five superimposed plaza floors was encountered. These were collectively designated Feature 1, since all seemed to be resurfacings, without intervening grouting, of the first, or lowest floor, which was grouted. Although most of the floors show up clearly in the north and east profiles of the trench, they were very poorly preserved in plan, with none preserved over the entire trench floor. Ceramic material definitely sealed beneath Feature 1 was recovered only from the eastern half of the trench (Lot 15).

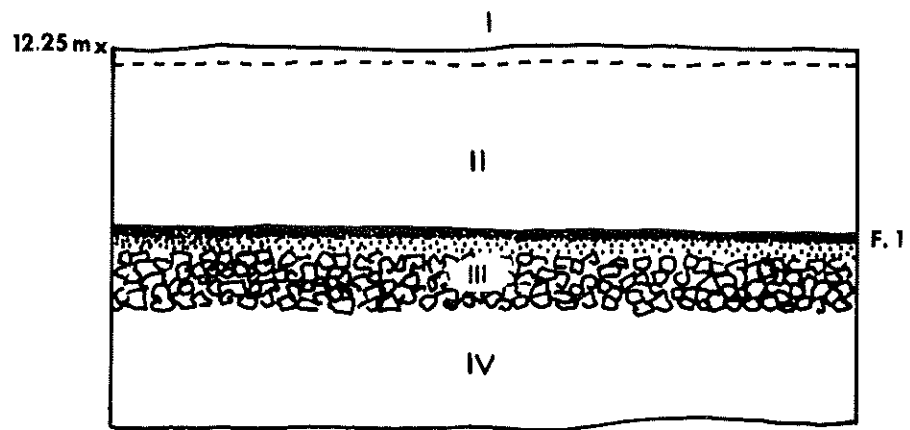


Fig. 41 Dzonot Aké

Operation 1, Trench 2  
Profile of the north wall

- I Humus.
- II Soft grey-brown topsoil/rubble mixture.
- III Grouting
- IV Light brown soil with large limestone rubble.

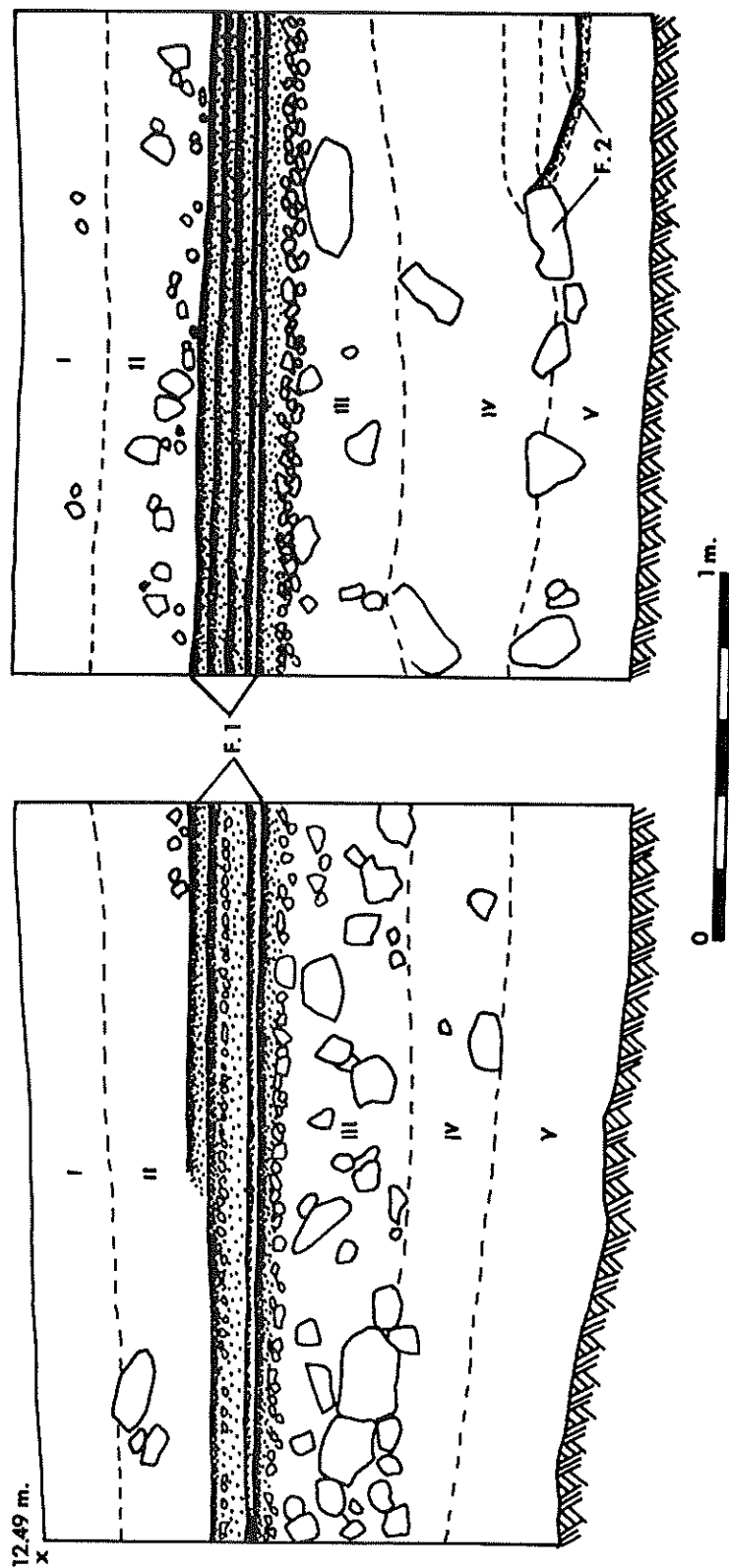


Fig. 42 Dzonot Aké  
 Profiles of north (A) and east (B) walls of  
 Trench 3, Operation 1.

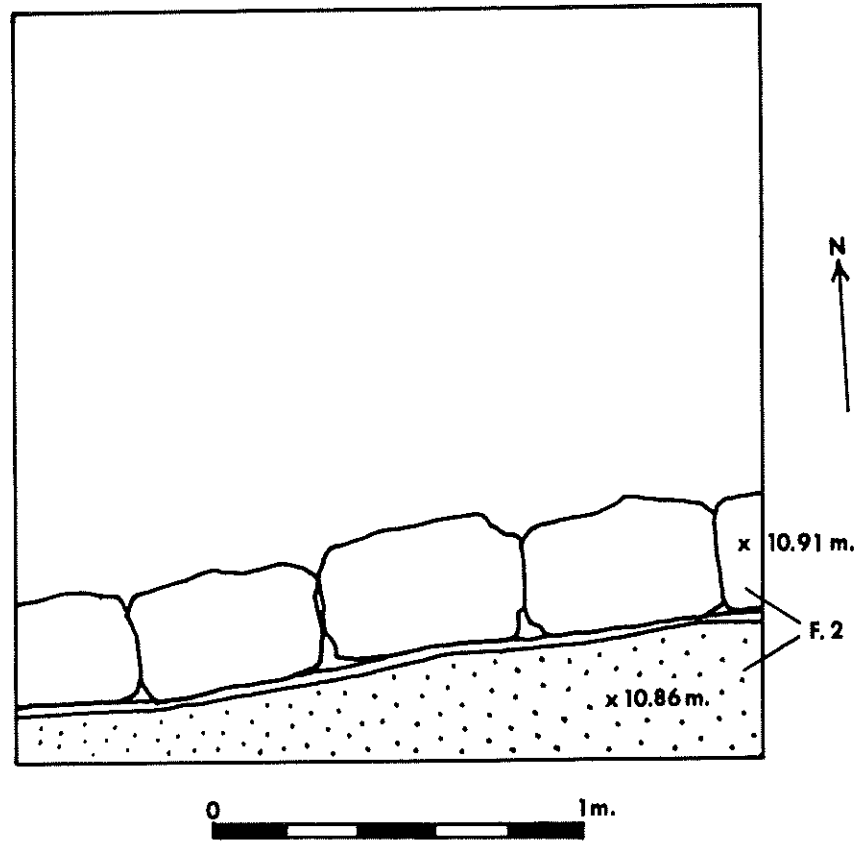


Fig.43 Dzonot Aké

Plan of Trench 3, Operation 1 showing floor fragment and edging stones (Feature 2). Soil to the north of the feature is old topsoil - red-brown and compact.

About 55 cm. below the level of the lowest floor we encountered another Feature (2) consisting of a line of roughly shaped limestone blocks cutting across the southern part of the trench at a slight diagonal to the trench walls. To the south of this alignment, at a depth of about 155 cm. below the surface, was another floor about 5 cm. thick which curved up to meet the stones. This curve is clearly seen in the profile of the east wall, as are faint traces of what appear to be three other curving floors also associated with the alignment but which were discerned only in the profile. Feature 2, both stones and associated floor, sat on an old reddish-brown topsoil layer lying directly on bedrock.

The distribution of identifiable sherds in Trench 3 is highly significant. Material from above and within the Feature 1 floor cluster is predominantly slateware, while below this level are found only Dzonot Aké Variegated and Dzonot Aké Brown types, along with striated and weathered sherds. There is the strong likelihood that at the very least, Feature 2 is a Formative construction.

Operation 1, Trench 4 (Fig. 44 - Lots 4, 7, 9, 14)

Trench 4 was a 2 x 2 m. test trench excavated near the southeast corner of the major structure in Group A. After the removal of about 45 cm. of humus and soft brown soil we struck Feature 1, a badly chewed-up floor which, although it had lost most of its surface, was more or less intact throughout the trench. Beneath Feature 1 was a thick (ca. 30 cm.) layer of grouting, and then another very well preserved floor (Feature 2) which had been superimposed on a large rubble layer. At the base of the trench, just above bedrock, was 30 cm. of hard-packed, reddish-brown buried topsoil.

Above Feature 2 is a mixture of slateware and Formative ware, but sealed below Feature 2 all identifiable material is Formative or unslipped/striated.

Operation 1, Trench 5 (Fig. 45 - Lots 26, 31, 36, 41, 42)

Trench 5 was a 2 x 2 m. test trench positioned in the center of Group B. After the removal of 30-40 cm. of fine, light brown soil and humus mixed with limestone rubble, two well-preserved floors (Features 1 and 2) were encountered, separated by about 10 cm. of grouting. These covered the entire area of the trench. Feature 2 rested on a deep layer of large construction rubble with practically no binding matrix. A third floor (Feature 3) lay immediately beneath this rubble layer and just above a similar one. This deepest rubble layer had been laid down on a hard-packed red soil layer just above



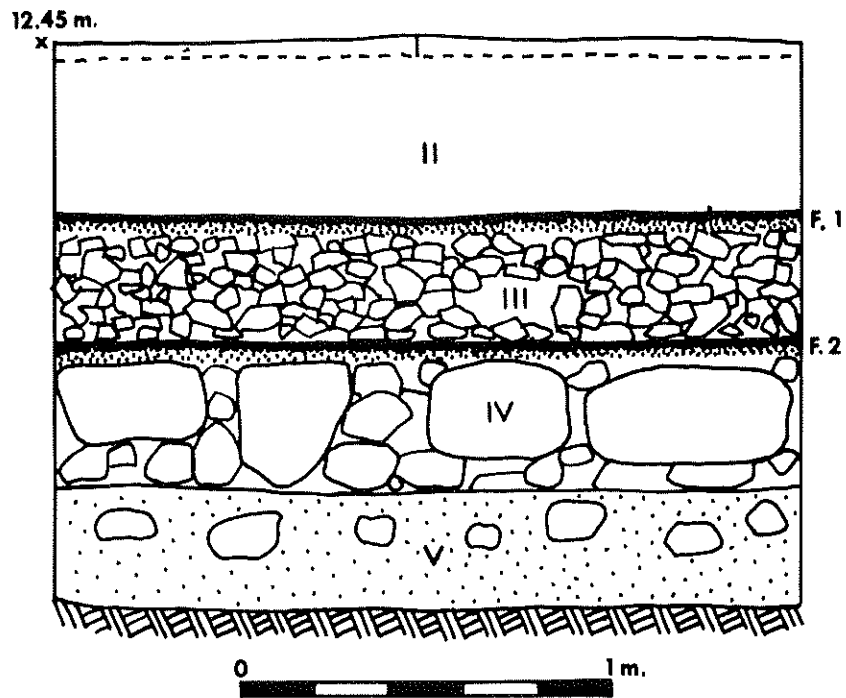


Fig. 44 Dzonot Aké

Operation 1. Trench 4  
Profile of north wall

- I Humus
- II Soft light brown soil with some concentrations.  
of limestone rubble immediately above Feature 1.
- III Grouting.
- IV Large limestone construction fill.
- V Compact reddish-brown soil.



bedrock. This soil consisted of a dark red upper layer which graded gradually into an orange-red lower zone; bedrock was hit in the south-west corner of the trench in association with this old soil. While a few sherds were found in the upper red soil horizon, the orange-red lower zone was extremely hard, compact, and completely sterile.

Identifiable sherds were abundant only in the upper level of this trench (i.e., above Feature 1, Lot 26) and these included predominantly late wares including slateware, Thin Slate, and Fine Grey.

Operation 1, Trench 6 (Fig. 46 - Lots 27, 32, 35, 37, 39, 40, 44)

The 2 x 2 m. Trench 6 was placed just off the back of one of the largest structures in Group B, where we hoped to turn up midden material. As in Trench 5, the uppermost 50-60 cm. consisted of a light brown soil/humus/rubble mixture. Beneath were four closely superimposed thick floors (Features 1-4); the lower two were grouted but the upper two seem to have been resurfacings. All were thick, well-made, and covered the entire trench. Below the grouting of Feature 4 was a thick layer of construction rubble covering a fifth floor (Feature 5) which was slightly grouted and which capped a second level of large limestone fill. At the base of the trench we struck a buried soil layer identical to that encountered in Trench 5; only the uppermost portions of this soil were excavated and the trench was terminated at the level of the sterile red-orange zone. No midden material was discovered.

Above the level of Feature (floor) 4 were late sherds, including Thin Slate, Fine Grey, and slateware, while below this floor the only identifiable sherds were Dzonot Aké Variegated and Brown types mixed with unslipped/striated ware.

Operation 1, Trenches 7 and 8 (Figs. 47-48 - Lots 28, 30, 33, 29, 34)

Two 2 x 2 m. trenches were dug near structures in Group C. Since both had very simple and similar stratigraphy, they will be discussed together. Topsoil in Trenches 7 and 8, as elsewhere at Dzonot Aké, was rather deep (40-60 cm.) and was of a light brown soil/humus/rubble mixture. In both trenches small floor fragments were discovered at the interface of this topsoil layer and the second major stratigraphic unit, a thick deposit of construction rubble grading from small to large with depth. With considerable effort we penetrated over a meter into this rubble in both trenches, but since it was very unproductive of cultural material, they were terminated before bedrock was reached.

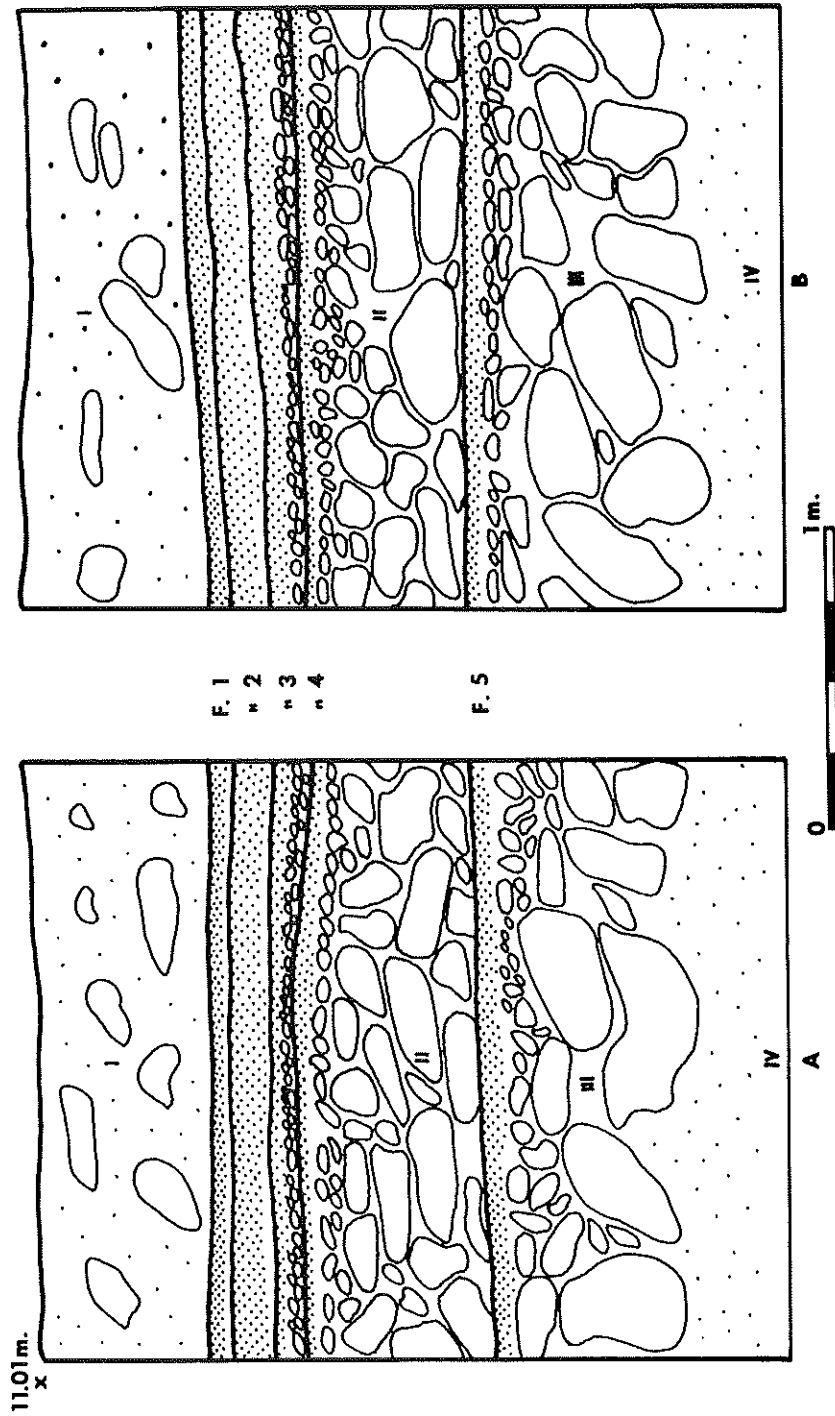


Fig. 46 Dzonot Aké

Operation 1, Trench 6

Profiles of east (A) and south (B) walls

- I Light brown humus/soil/rubble mixture
- II Large limestone construction fill
- III Large limestone construction fill
- IV Compact dark red soil

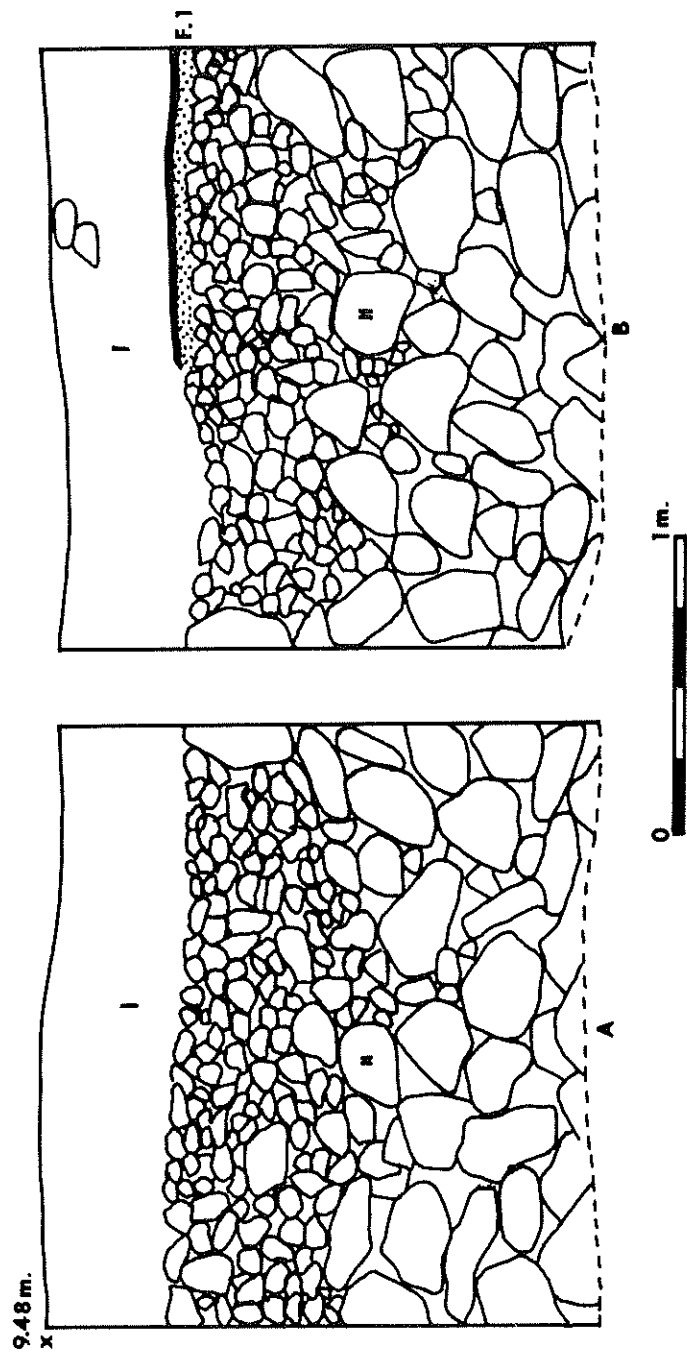


Fig. 47 Dzonot Aké  
 Operation 1, Trench 7  
 Profiles of west (A) and north (B) walls  
 I Light brown soil/humus/rubble mixture.  
 II Limestone construction fill.

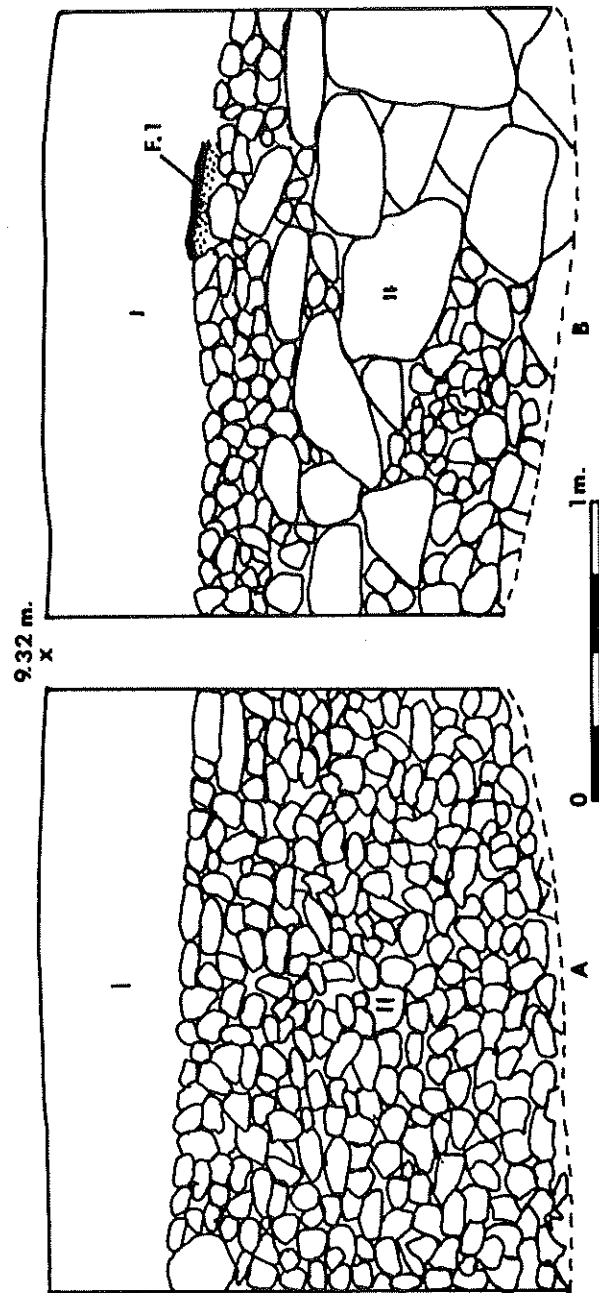


Fig. 48 Dzono Aké  
 Operation 1, Trench 8  
 Profiles of south (A) and west (B) walls  
 I Light brown soil/humus/rubble mixture.  
 II Limestone construction fill.

All of the levels of these trenches, neither of which was excavated to bedrock, yielded a mixture of slateware and Formative sherds.

Operation 1, Trench 9 (Fig. 49 - Lots 38, 43)

Trench 9, measuring 2 x 2 m., was dug into one of the shallow ditch-like depressions associated with the wall. It was just to the northeast of the major structure in Group C. Topsoil was removed, revealing a thick layer of limestone rubble which slumped toward the middle of the ditch (see profile of northwest wall). A layer of grey soil was encountered next, overlying the only feature found in Trench 9 (Feature 1), a thick plaster floor about 80 cm. below the surface. This floor was intact only in the northeastern half of the trench, giving the distinct impression in profile of having been cut away in the southern half. Below Feature 1 was a layer of rubble and soil, and a basal layer of hard brown pebbly soil just above bedrock.

The stratigraphy in Trench 9 provides some clues concerning the nature of the ditch even though the trench did not extend completely across it. First, the depth of the middle of the ditch could not have extended much below the level of Feature 1, which it apparently cut through. Secondly, since the outside lip of the ditch is about 2 m., to the northeast of the center of Trench 9, the original ditch walls must have sloped downward toward the middle at a fairly low angle, otherwise no traces of Feature 1 would have remained extending as far as the center of the trench. Most or all of the rubble just above and to the southwest of Feature 1 (see profile of northwest wall) probably represents slumpage from intact construction rubble often after the ditch was excavated.

Sherds from above Feature 1 are a mixture of late wares, including slateware, Thin Slate, and Fine Grey, along with some Formative and striated material. Below Feature 1 sherds were very abundant but extremely poorly preserved; identifiable sherds include slateware, striated, and Formative types.

Operation 1, Trench 10 (Fig. 50 - Lots 45, 47, 48)

Trench 10 was excavated into the small "plaza" defined by the three southeastern structures in Group A. Only three stratigraphic units were discerned in this trench--an upper 60 cm. layer of dark black soil, grouting between two plaza floors (Features 1 and 2), and hard, pebbly red-brown soil overlying bedrock. Both floors were intact throughout the trench.

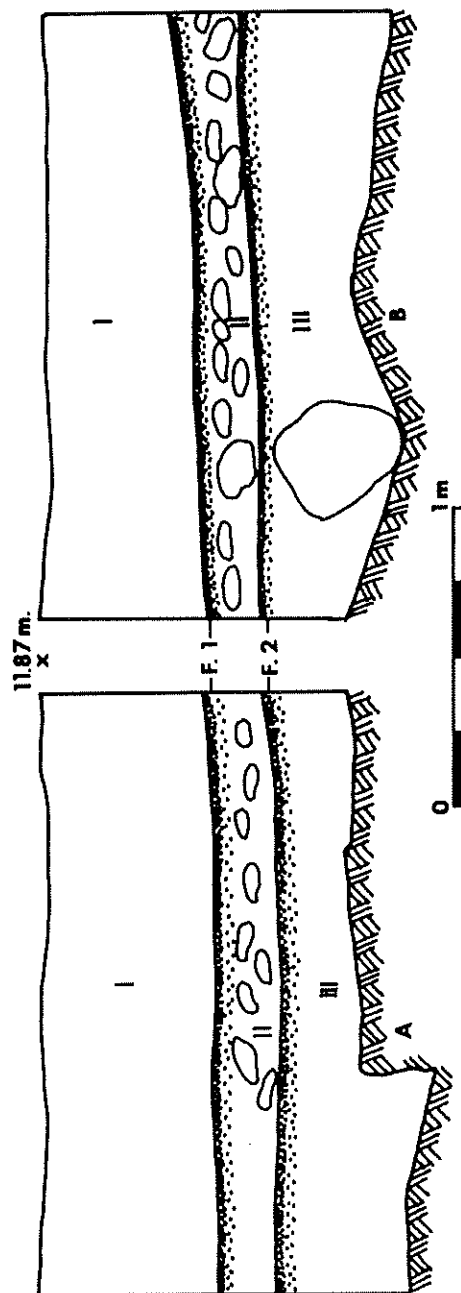


Fig. 50 Dzonot Aké  
Operation 1, Trench 10  
Profiles of east (A) and south (B) walls

I Black humus/topsoil.  
II Brown soil with small limestone inclusions.  
III Hard, pebbly brown soil.



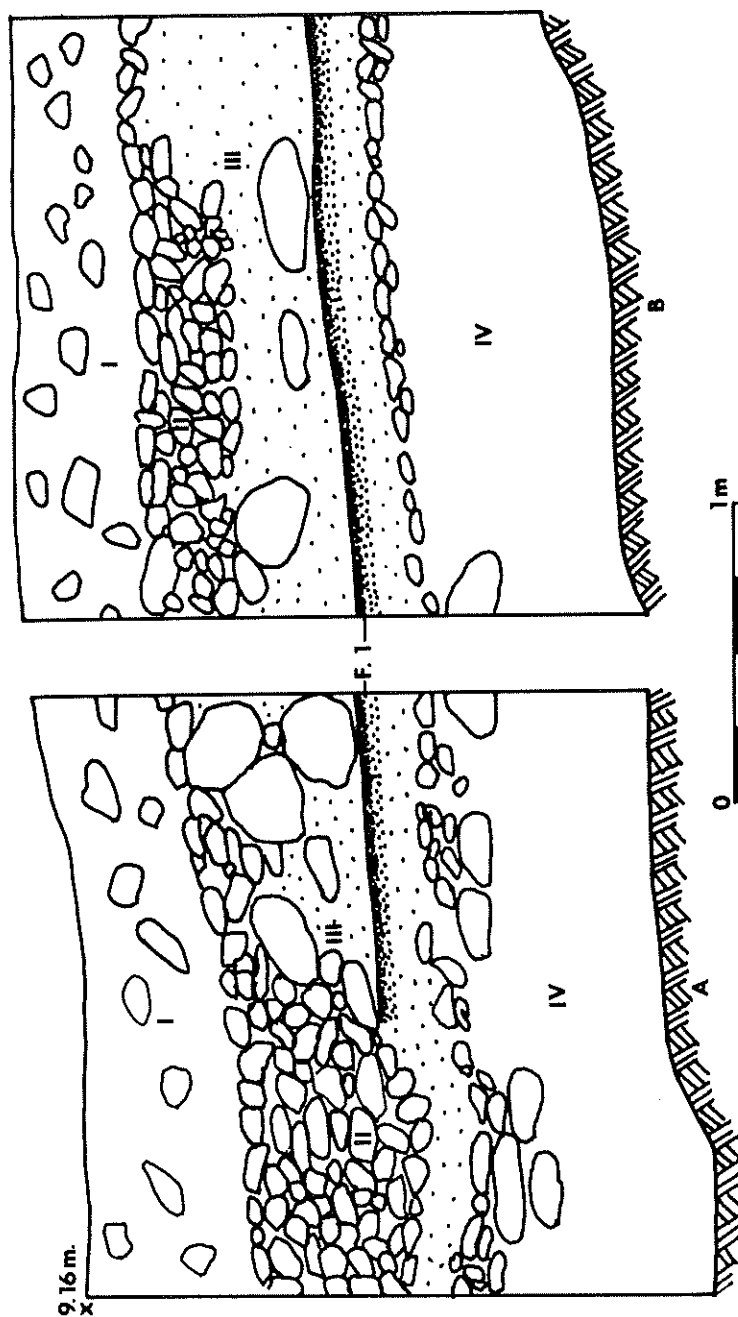


Fig. 49 Dzonot Åke  
 Operation 1, Trench 9  
 Profiles of northwest (A) and northeast (B) walls

I Black humus/soil/rubble mixture.  
 II Limestone rubble.  
 III Grey soil.  
 IV Hard, pebbly brown soil.

Above Feature 1 identifiable sherds were predominantly slateware, while all sherds from below Feature 1, apart from unslipped striated sherds, are heavily weathered.

Operation 1, Trench 11 (Fig. 51 - Plate 10 - Lots 20, 21, 23, 76, 77)

Trench 11 was a 2 x 2 m. test trench located about 10 m. north of Structure V. After the removal of 35 cm. of overburden consisting of humus, soft brown soil, and collapse rubble, two floor surfaces were exposed. One was only a small fragment in the southwest corner of the trench; this fragment apparently was only a resurfacing of a more extensive floor slightly below it which was intact throughout the trench except for a missing segment in the northeast corner. Both floors are collectively designated Feature 1. Fist-sized rock grouting 25 cm. deep supported Feature 1 and lay on another lower floor, Feature 2, which was in good condition except for its surface. Feature 2 rested on a layer of large rubble. Below, just above bedrock, was 30 cm. of reddish-brown pebbly soil.

One other rather puzzling feature (3) was discovered during the excavation of Trench 11. This was an intact vessel (Fig. 9B) found slightly below the level of Feature 2 in the northeastern corner. It was protruding from the trench wall and had been inverted over a strange collection of bones which I first thought were those of an infant burial. Upon examination, the collection included two good-sized human incisors, a rather large rib fragment, some small, fragmentary long bones and phalanges, and some paper-thin, flat bone fragments which were too fragile to extract intact. These latter bones could not be anatomically identified, but if human probably came from a pelvis or scapula.

Feature 3, as noted above, was slightly below the level of Feature 2--a plaster floor--but this floor's surface did not extend over it. Rather, the bottom of the small depression in which Feature 3 lay was plaster-coated. Three obvious stratigraphic possibilities exist. First, the vessel and bones could have been inserted into the lower floor when it was built, and would thus be contemporary with it. Second, a hole could have been cut into the floor and the cache inserted some time after the floor was built but while it was still in use. The argument against this interpretation is that the hole apparently was not covered over by plaster. Finally, and I think most likely, the cache could be a very late intrusion from above the level of the upper (Feature 1) floor. No sign of a deep pit could be seen, but this is not surprising given the nature of the large rubble grouting between the two floors. Had a pit been dug through Floor 1, the cache inserted, and the excavated grouting replaced, no pit would be very evident. That this interpretation is most likely is suggested by the gap in the northeastern corner of Floor 1, which was otherwise intact throughout the trench.

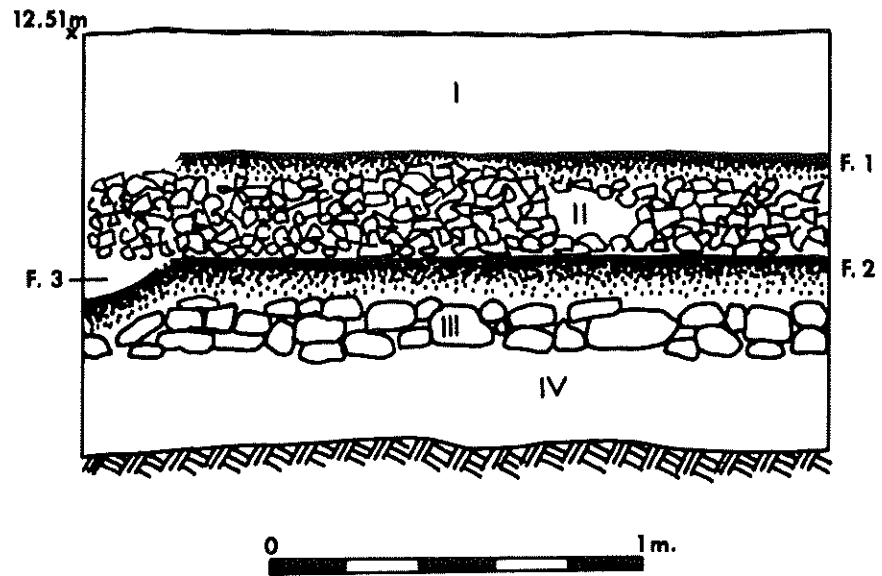


Fig. 51 Dzonot Aké

Operation 1, Trench 11  
Profile of east wall

- I Humus/ topsoil/ collapse rubble.
- II Grouting.
- III Fist-sized rubble fill.
- IV Reddish-brown soil with small limestone inclusions.



Plate 10 Dzonot Aké

- A Burial (Feature 2) in Operation 1, Trench 1.
- B Intact vessel covering cache in Operation 1, Trench 11 (Feature 3).

Above Feature 1 was a mixture of striated/slateware sherds, while in the three levels below the feature pure deposits of Formative Dzonot Aké Variegated and Brown type sherds occurred.

Operation 2, Trench 1 (Figs. 52-53 - Lots 51, 54, 57, 58, 60, 62, 63)

Our first major exposure of the wall was a 7 x 2 m. long cut located just off the back of the largest structure in Group C, on the northeastern periphery of the site. We began by excavating a 2 x 2 m. trench just inside the inner edge of the existing rubble mound. We hoped to hit some sort of cultural feature which could be followed into the wall to find a basal alignment.

Approximately 30 cm. of topsoil mixed with limestone collapse rubble was removed, at which point dense concentrations of small stones such as used for grouting appeared. No sharp break could be discerned between these two layers since root penetration and mixing was pronounced. At 60 cm. below the surface, the character of the deposit changed to almost solid concentrations of limestone fill, most about fist-sized, with only a sparse, light-grey soil matrix. At approximately 125 cm. below the surface was a well-preserved plaster floor (Feature 2) about 6 cm. thick overlying a deep layer of huge limestone blocks. We excavated about 60 cm. into the latter deposit to obtain a ceramic sample, but did not carry the trench down to bedrock since by this time we were well below the base of the wall which was our principal concern. In addition, the large construction rubble at the base of the pit, which lacked any binding matrix to speak of, was very unstable and its potential collapse could have caved in the trench walls.

Apart from the Feature 2 floor, only one other feature (1) was found in the southern trench segment. This was a concentration of highly fragmentary, disarticulated human bone in the south-central part of the trench at a depth of 80 cm. (i.e., in the compact rubble layer). In the center of the bone fragments was a small incised ceramic cup (see Fig. 10E) which itself contained some bone, and a large limestone slab with a circular depression pecked in one end. Feature 1 was neither a formal individual burial nor a formal cache. It had rather the appearance of a redeposited collection of disparate bones and objects, perhaps encountered elsewhere when fill was being excavated. Scattered fragments of human bone were noted throughout the middle levels in the original 2 x 2 m. sections of Trench 1.

Below the floor level of Feature 2 mixed in with the large construction rubble (Lot 58) were found a fragment of building stone with polychrome painted plaster decoration (Fig. 52) and half of a red-on-cream vessel (Fig. 9C).

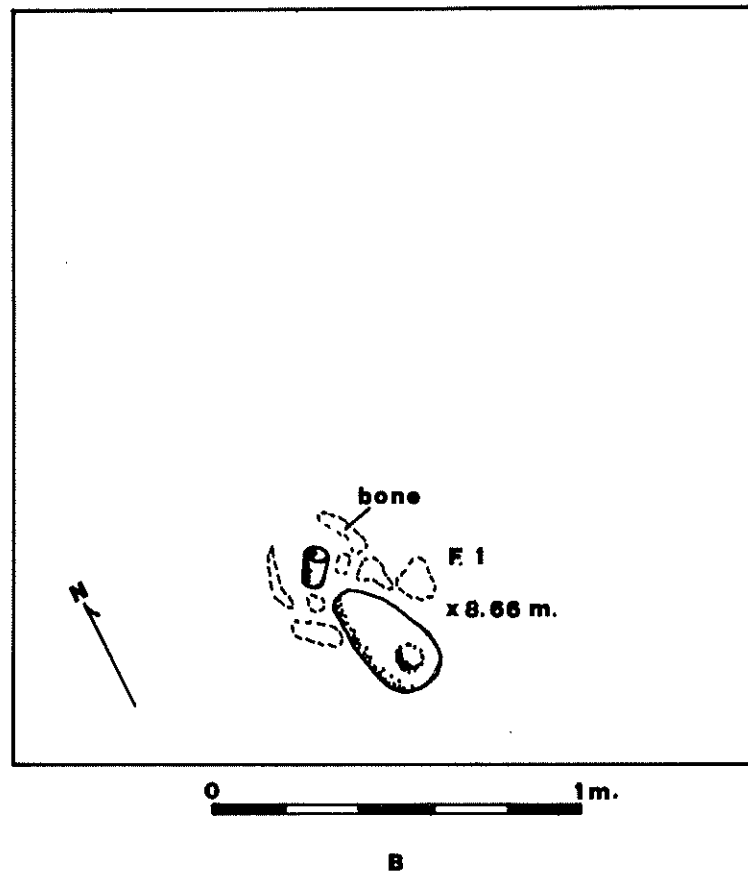
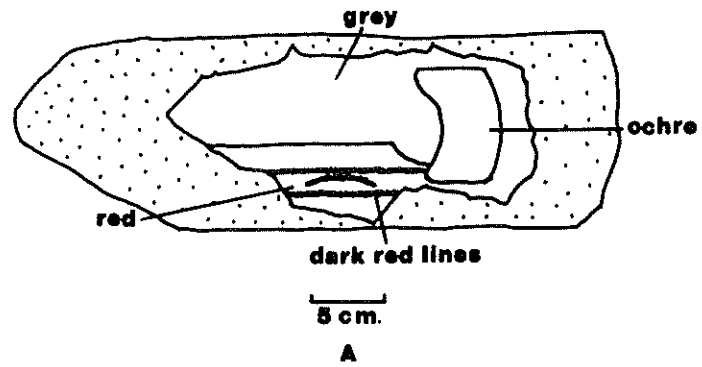


Fig. 52 Dzonot Aké

- A Polychrome-painted plaster on building stone.
- B Plan of Trench 1, Op. 2, showing position of Feature 1.

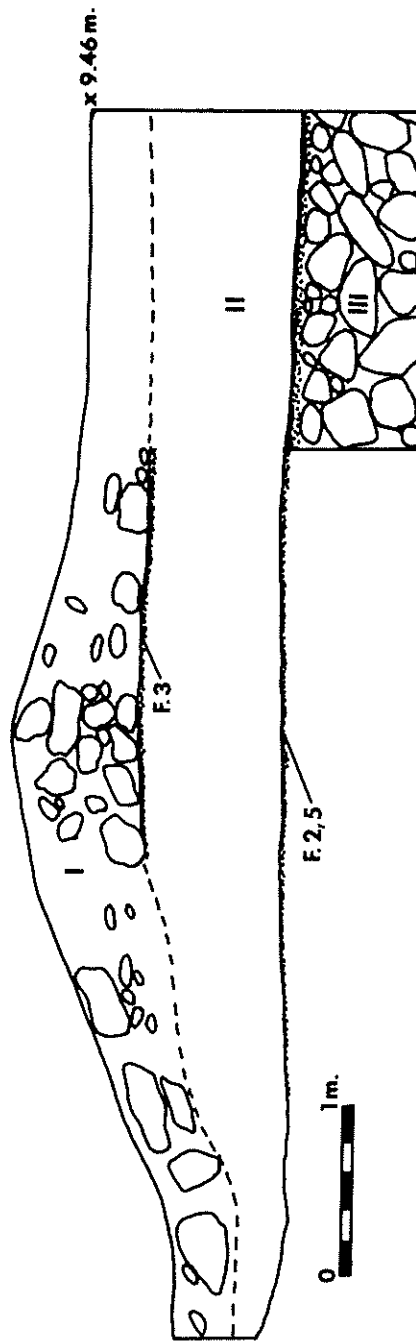


Fig. 53 Dzonot Aké

Operation 2, Trench 1

Profile of southwest wall

- I Brown topsoil and collapse rubble.
- II Small grouting grading into fist-sized limestone rubble in light grey matrix.
- III Large limestone construction rubble.

We next cut a 2 x 5 m. extension of the original trench right through the wall to the north, and partly down into the ditch. The wall itself showed up in profile as unconsolidated rough rubble about a meter wide and 80 cm. high, and it was apparent that much of the wall construction material had slumped down into the ditch. Sealed and protected beneath the remains of the wall we found fragments of a floor (Feature 3) which had originally capped the layer of small fill in our first 2 x 2 m. section of Trench 1. Leaving the central part of the trench at the level of Feature 3, the northern 3 m. section was excavated down to the level of a fragmentary floor (Feature 5). This was at the same level as the Feature 2 floor, and when we finally removed the layer of grouting beneath Feature 3 in the central part of the trench (Lot 63) the two floors (i.e., Features 2 and 5) were found to be contiguous.

The sequence of events in Trench 1 is clear. First a large area was leveled with huge limestone blocks, and then covered with a floor. Next about 80 cm. of small rubble was laid down and this was capped with a second, higher floor. A small wall which apparently quickly collapsed was built right on this floor, protecting a small portion of it from destruction. The latest deposit, which shows considerable mixing, consists of recent soil and collapse debris.

Unfortunately Trench 1 did not throw much light on the ditch to the north of the wall. This is clearly a late construction and must have been cut down through the small rubble layer beneath the Feature 3 floor. This rubble clearly slumps off toward the center of the ditch in our profile. Since there was an intact segment of the lower Feature 5 floor extending about 1.5 m. to the north of the wall, the ditch either did not reach this depth or, more probably, its southern edge was at least this far from the wall. All in all, the impression from Trench 1 is the same as that derived from our nearby test trench (Op. 1, Trench 9)--namely of a shallow ditch with fairly gently sloping sides. I would judge its original width at 2-4 m. and its maximum depth, as measured below the level of the adjacent wall, at originally no more than 2 m.

Our lowest penetration in Trench 1 (i.e., into the large plaza fill beneath the Feature 2-5 floor) was sterile (Lot 58). Lots from the small rubble fill below the level of Feature 3 (57, 60, 63) yielded a variety of sherds, including Dzont Aké Formative types, slateware, probable Thin Slate, and weathered polychromes. Removal of the wall rubble itself and the associated topsoil yielded no ceramic materials whatsoever, and overburden to the north and south of the wall (Lots 51, 54, 59) produced mostly weathered/unslipped, striated material, along with two slateware sherds.



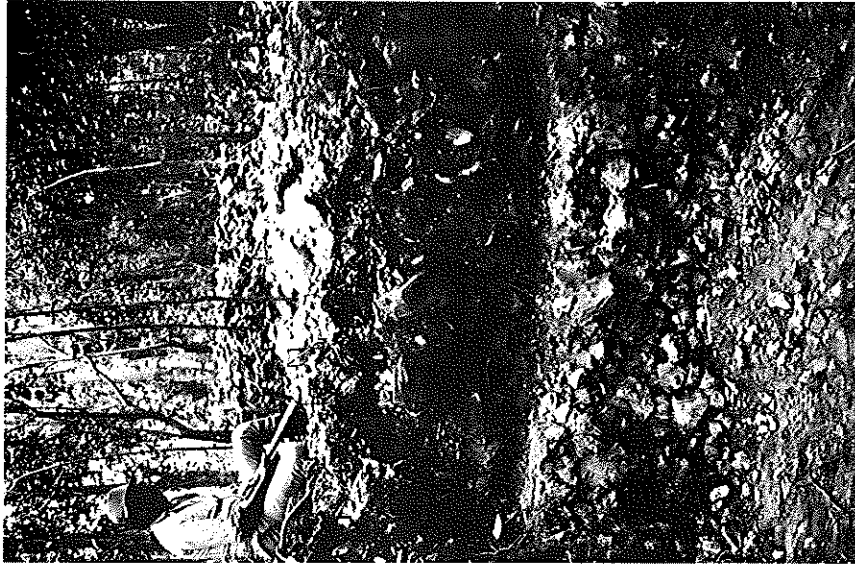


Plate 11 Dzonot Aké

Operation 2, Trench 1

- A Rubble of wall overlying plaza construction fill.
- B Floor (Feature 3) after exposure, lying between plaza construction fill and wall rubble.

Operation 2 Trench 2 (Fig. 54 - Lots 52, 55, 61)

This wall exposure was located about 30 m. to the northeast of the northeast corner of Structure VI. It began as a 2 x 2 m. trench just behind the inner edge of the wall rubble and then was extended for another 3.5 m. north through the wall itself. Our intention was to uncover either bedrock or a cultural surface such as a plaza floor in the 2 x 2 m. part of Trench 2, then follow it in toward the wall seeking an intact alignment of stone. Unfortunately, our trench reached a depth of 1.6 m.--well below the level of the wall base--without encountering bedrock or a floor. Two basic stratigraphic levels can be seen in the profile of the east wall. The first is a layer of humus, dark soil, and small collapse rubble about 50 cm. deep. Below is a layer of compact construction fill composed of large and small limestone rubble--commonly about fist-sized--into which we penetrated more than a meter without striking bedrock. Although there has been heavy mixing through root action which blurs the interface between these two layers there is no doubt that they are distinct. Presumably a now-destroyed surface covered the lower fill.

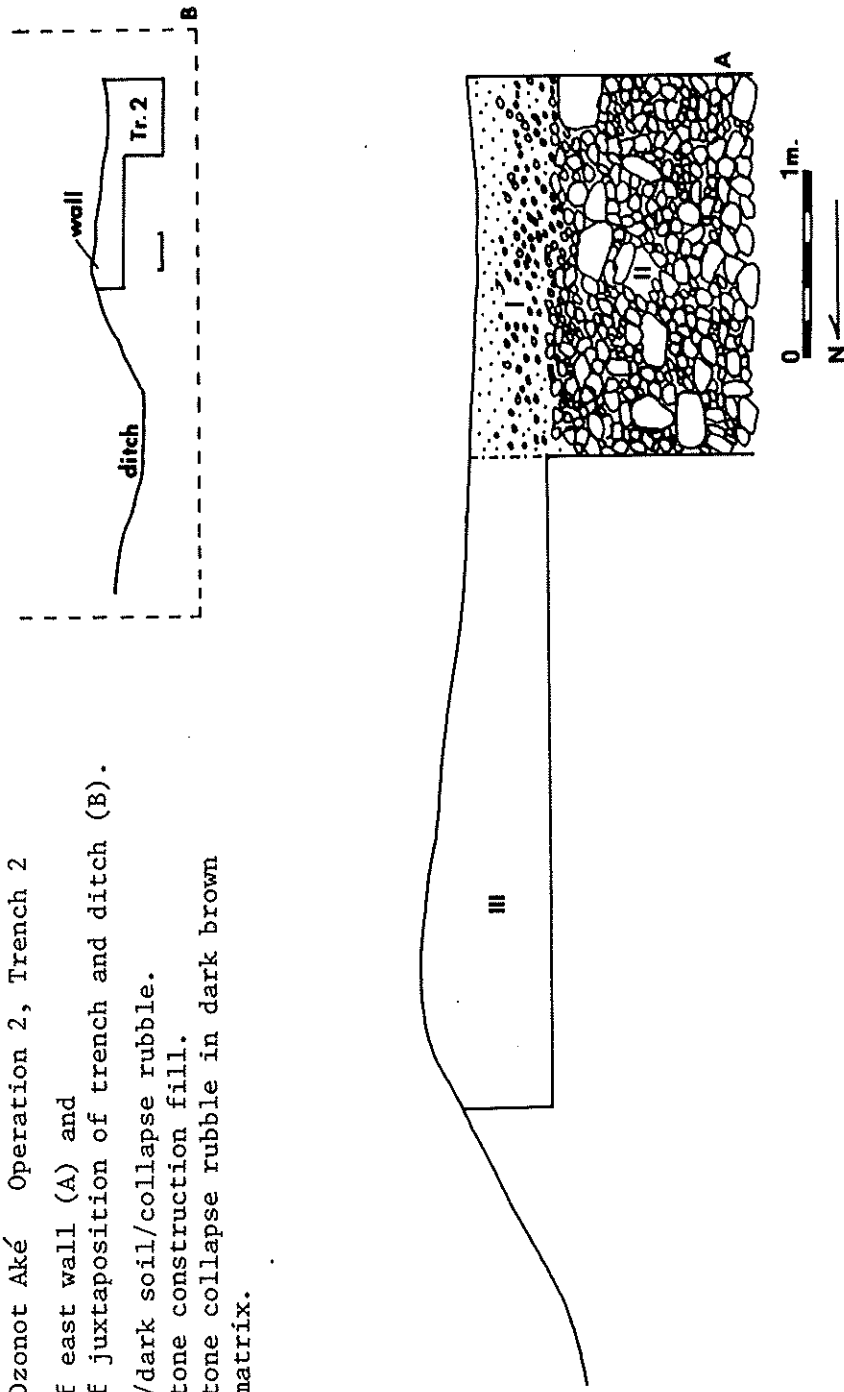
Only one feature (1) was identified in this part of the trench. It consisted of an unusually dense concentration of sherds and very small fragments of long bones, ribs, and skull vault found near the east wall, 90 cm. from the southeast corner, and at a depth below surface of 60 cm. This did not have the appearance of either a formal cache or a formal burial and probably represents simply an unusual concentration of trash dumped into the fill.

We next excavated a 2 x 3.5 m. area across the summit of the wall to the north of our original 2 x 2 m. trench. Here we found only unstructured limestone rubble consisting of blocks with a maximum length of 30-40 cm., in a dark soil matrix. This debris layer was only about 70 cm. deep and rested directly upon the lower rubble layer exposed in our 2 x 2 m. trench. We stopped the trench at this depth since we already had a sherd sample from this stratigraphic unit. Fig. 54 gives a good idea of the juxtaposition of what remains of the wall and the small ditch to the north.

Ceramic distribution in Trench 2 closely parallels that in Trench 1. Lower large rubble layers in the northern part of the trench (Lot 55) produced a combination of Formative and slateware sherds. In the topsoil in this part of the trench (Lot 52) were slateware sherds. Finally, in Lot 61, which includes the wall rubble itself and associated topsoil, was found lots of slateware and some Thin Slate, along with an admixture of earlier material.

Fig. 54 Dzonot Aké Operation 2, Trench 2  
 Profile of east wall (A) and  
 diagram of juxtaposition of trench and ditch (B).

- I Humus/dark soil/collapse rubble.
- II Limestone construction fill.
- III Limestone collapse rubble in dark brown soil matrix.



Operation 2, Trench 3 (Fig. 55 - Lots 53, 56)

Our third exposure of the wall was located about 30 m. north of the northwest corner of Structure I. It began as a 2 x 2 m. trench just behind the inner line of rubble, and then extended north across the wall for a total length of 6.5 m.

Within 30-50 cm. of the surface in our initial 2 x 2 m. exposure we struck bedrock after the removal of a mixed layer of collapse rubble, humus, and dark brown soil. During the northwest extension, which followed the surface of the bedrock, in situ alignments of stone were carefully sought, but no obvious intact alignments were discovered.

After the trench had been driven entirely through the wall down to bedrock level, the profile of the southwest wall was drawn. It reveals no coherent structure whatsoever. Seen in profile the "wall" appears as a jumbled mass of large and small limestone rubble, with larger blocks sometimes measuring 30-40 cm. long. This rubble is in a matrix of dark soil and is in the form of a low mound about 4 m. across and with a maximum height of 70-80 cm. Limestone blocks on the edge of the rubble mound sometimes sit right on bedrock, but a small depression about 30 cm. deep filled with soil and small rubble underlies the central part of the mound.

Although we recovered no patterns or structure to the wall fill in Trench 3, we can gage its original size in rough terms. Certainly the original "wall" was no more than 4 m. across, and probably considerably less, assuming that the present distribution of rubble at the outer edges represents post-construction collapse. I would estimate its original width at between 2-3 m., and its original height at 1-1.5 m.

Only two ceramic lots were recovered from Trench 3. The first (53) was from the thin topsoil/rubble deposit overlying bedrock in the 2 x 2 m. exposure to the south of the wall and the only identifiable sherds are one slateware and one Fine Orange.

Lot 56 includes all material from the wall rubble in the northern part of Trench 3. Again the identifiable sample is small-two Formative and one slateware sherds - along with the ubiquitous weathered/unslipped or unslipped/striated material.

Operation 2, Trench 4 (no illustrations, Lot 78)

In an attempt to find some intact structure to the Dznot Aké "wall" we cleared horizontally, in Trench 4, an area of about 4 x 2 m. of wall rubble in a section of the wall just to the west of Structure I. Before clearing, the rubble in this area was only about 30 cm. high.

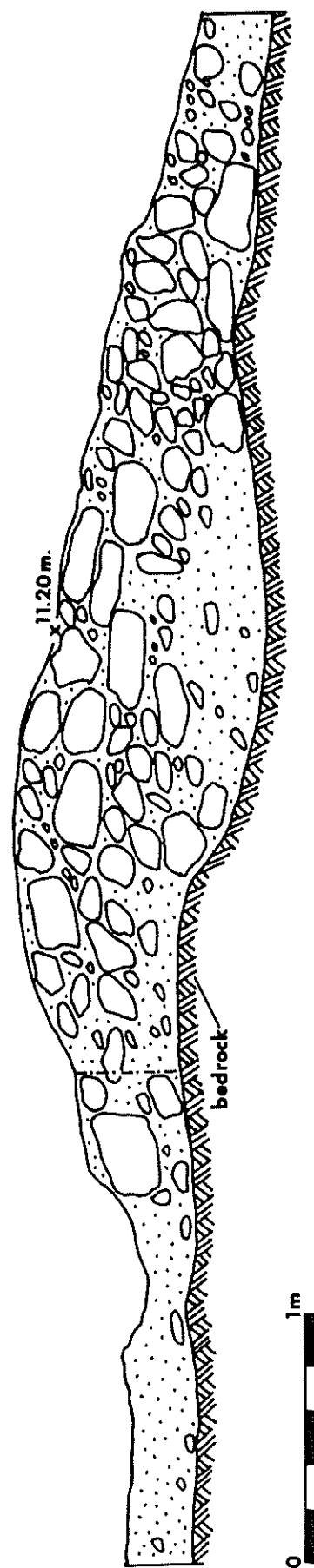


Fig. 55 Dzonot Aké  
Operation 2, Trench 3  
Profile of west wall  
Fill consists of limestone rubble in brown soil matrix.

Collapsed construction material was carefully removed. All of this material was composed of large and small limestone blocks with no apparent regularity of shape. When the clearing was finished, the only possible alignment, one course high, ran along the inner edge of the wall. It required a good imagination to discern even this alignment, and I am not sure that we did not create, rather than discover it. Even though the wall had obviously been extensively disturbed by roots in this area, I was surprised that so little structure remained. This apparent lack of structure supports the interpretation that the "wall" was never a formal structure at all, but perhaps only a heap of rocks laid down to support some sort of perishable superstructure such as a timber palisade. The wall rubble was separated from bedrock only by a thin, 10 cm. deep layer of black soil. Bedrock was hard, and it would have been very difficult to sink any kind of timbers into it. No sherds were recovered from Trench 4.

#### The Wall System at Dzont Aké

Unlike Cuca and Chacchob, Dzont Aké is not presently completely encircled by an intact wall. The existing wall segment, which begins at the northern edge of the cenote, is 560 m. in length but could not be traced along most of the southern periphery of the site. This southern zone where the wall is apparently absent is an area of deep soil which is now, and which has been for some time, under cultivation. If the wall in one form or another did continue to swing west, as suggested by faint traces of rubble in the milpa zone, it would probably have incorporated Structure V and run into the side of the cenote, thus adding about 300 m. to its existing length. Such a complete wall would have enclosed about 6 hectares of land.

Roys and Chamberlain, who visited Dzont Aké but who did not make a map, believed that a "ditch and parapet" were present at the site. In all probability, this impression was conceived because they entered along what is still the main path to the ruins, which runs between the two deep pits or depressions to the northeast of Structure I and then up over the wall. Before clearing and mapping, the juxtaposition of the pits and the wall segment along this approach do suggest a ditch-parapet arrangement, and I was forcibly reminded of the Becan earthworks. Closer observation, however, revealed that while a small wall is obvious there is no continuous associated ditch except for a short distance along the northeastern periphery where a shallow depression has been cut out into what is largely plaza-fill, and another slight depression near the cenote, which is cut into bedrock. Judging from our excavations these small ditches, which apparently were built at the same time as the wall, could not have been more than 1-4 m. across and 2 m. deep in their original form.

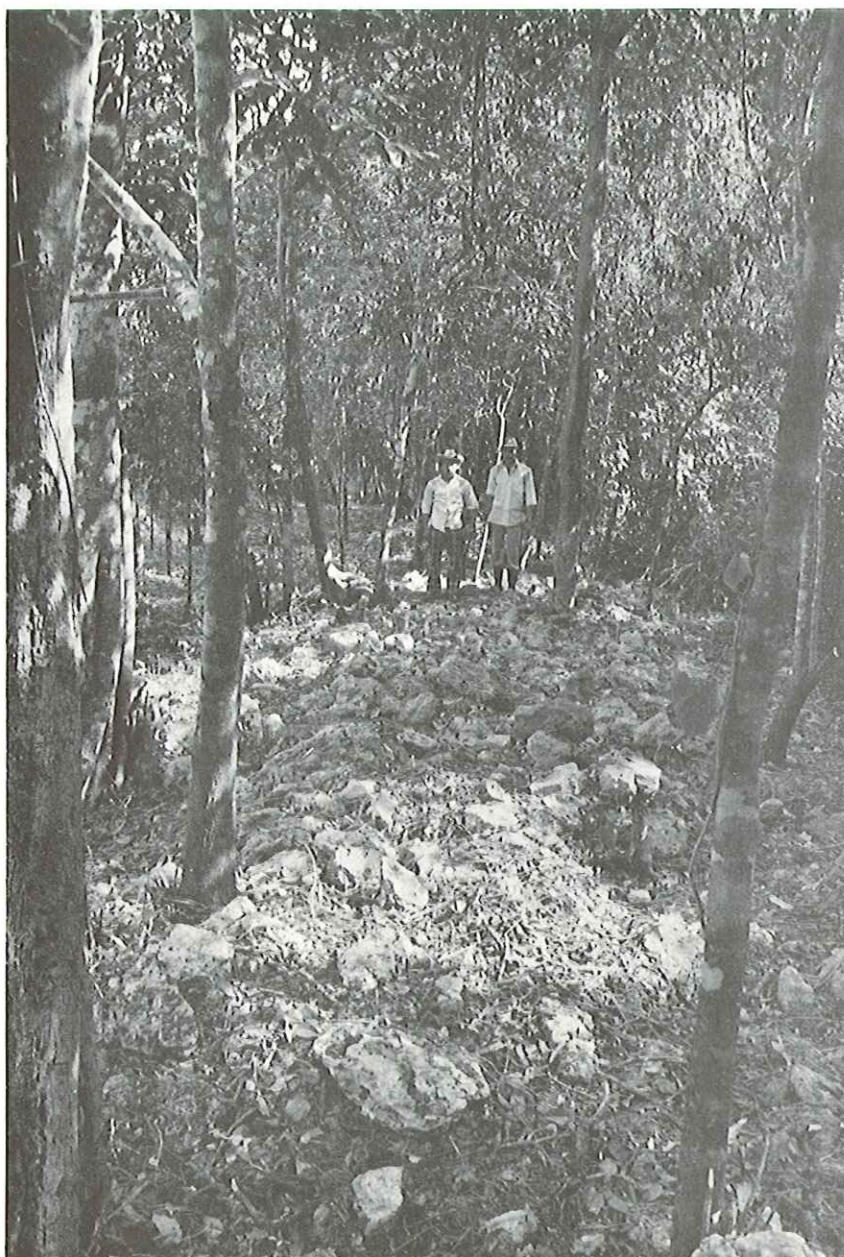


Plate 12    Dzonot Aké

Cleared section of the wall, northern edge of site.

"Wall" is perhaps too grandiose a term to describe the encircling feature at Dzonot Aké. The only surface indication is a low mound of featureless limestone rubble about 30 cm.--1 m. in height and 3-5 m. across. No formal stone alignments could be seen on the surface except for a possible narrow gate near Structure IX. All construction stone is irregular. On the northwest the wall rests directly upon bedrock; it overlies late plaza constructions on the northeast, and deep soil on the southeast for a short distance.

Our wall excavations, particularly our large Operation 2 trenches, reveal no obvious structure to the wall at all apart from a few dubious alignments. Even considering the disturbance it has clearly experienced from root action this lack of structure is surprising, and suggests that in its original form the wall was essentially just a deep pile of rubble. Maximum height could never have been more than 1-1.5 m., and width 1-3 m.; there was probably considerable variation from section to section. By comparison with the Chacchob and Cuca walls, the Dzonot Aké wall estimate of volume of fill is 800-1300 m<sup>3</sup>, depending upon how long one assumes the original wall was.

By itself the Dzonot Aké wall could not have constituted any sort of effective military barrier. In my opinion the low rubble mound is most explicable as the footing or foundation for some sort of perishable superstructure such as a wooden palisade, although no traces of such a feature were found in our wall exposures. Bedrock is at or near the surface in many areas of the site, and the erection of such a palisade would have required basal support. Digging a slot-trench into bedrock would have been more laborious than erecting the rubble mound, especially if much of its fill could be robbed from dilapidated nearby buildings. Quite possibly the absence of the wall on the south reflects the deep soils in this zone which would have made masonry footings unnecessary.

With the addition of a palisade of breastwork height or higher, Dzonot Aké would have been protected by a barrier similar to those seen at several Maya towns by early Spanish explorers, which seem to have been militarily effective in the context of at least Postclassic Maya warfare. The small ditches would have augmented the defensibility offered by a palisade, as would the deep pits north of Structure I (although I suspect that these are very recent). There is no inconsistency between a defensive function and the fact that the wall (if extended along the southern periphery of the site) would have abutted rather than enclosed the cenote. Water would have been accessible to the defenders of Dzonot Aké with this configuration, but no military vulnerability created, since the precipitous walls of the cenote (probably even steeper in the past) are themselves formidable obstacles.

In summary, without evidence for a perishable superstructure, the interpretation of the wall as a defensive feature remains admittedly speculative, although no equally convincing alternatives occur to me. It is pretty much what I would expect to find in terms



of the ephemeral defensive structures which apparently surrounded some Postclassic towns, and is moreover consistent in scale and configuration with the protection of the small population of late squatters who settled around the major structures at Dzont Aké. Certainly this paltry defensive feature (if that is what it is) was not erected by the same builders responsible for the enormous monumental architecture at the site's core. None of the masonry structures in the interior of the site seem to have been built or arranged with any obvious thought of defense.

#### Ceramic Assemblage at Dzont Aké

In contrast to the ceramic assemblages of Cuca and Chacchob, which reflect short-term occupations and which relate well to previously known collections from elsewhere in Yucatan, the analysis of the Dzont Aké assemblage presents certain difficulties. The first of these is the comparatively small size of the ceramic sample (5224 sherds). This sample has been effectively reduced, for all practical purposes, by very poor preservation of recovered sherd material. Fully 70% consists of body sherds which have been heavily weathered and have consequently lost their surfaces, or which were neither slipped or striated to begin with (it is often difficult to tell the difference). This unfortunate state of preservation, especially in the upper, unsealed levels of our trenches, is no doubt partly caused by the comparatively high rainfall and consequent leaching of the northeastern part of the Peninsula. In addition, much of the early pottery at Dzont Aké is cruder and less durable than the well-fired slateware of Pure Florescent sites in western Yucatan. The principal immediate effect of small sample size has been to frustrate the identification of the vessel shapes present (only four whole or reconstructable vessels were found).

A second problem is that most of our sherds, while from well-defined stratigraphic contexts, usually are from secondary deposits so only the main lines of the sequence can be blocked out.

Another difficulty is that there has been relatively little systematic archaeological work done in extreme northeastern Yucatan so there are no well-established ceramic sequences for this region. The recent work at Cozumel promises to provide a regional sequence, but has not yet been published; in any case there is very little Formative material on Cozumel (Jeremy Sabloff, personal communication) while such material is seemingly abundant at Dzont Aké. Ongoing survey and excavation at Coba should provide a superb sequence against which to compare other material from northeastern Yucatan, but no overall analysis of the Coba material has yet been made, nor were organized, representative collections from Coba available to me in Merida for comparative purposes. The very early site of Cerros, in Belize, will possibly provide good comparative data for Dzont Aké

(although Cerros is pretty far south) once the ceramic sequence there is reported. General northern plains resemblances with Dibilchaltun are noted below, as well as with the ceramic data of Sanders (1960) for Quintana Roo and Ball (1978) for coastal sites of northeastern Yucatan.

Rather than attempt a rigorous typological analysis of the sparse and poorly preserved Dzonot Aké material in the absence of comparable regional sequences, I will at this stage characterize the assemblage in general terms, attaching labels and suggesting spatial and chronological relationships which should be considered provisional and subject to modification. I am currently planning future work at Dzonot Aké and a principal aim of this research will be the production of a reliable sequence for the site.

#### Late Formative Monochrome/Dichrome Wares

Two highly distinctive and obviously closely related pottery types, completely different from anything found at Cuca or Chacchob, showed up at Dzonot Aké. I have labeled these Dzonot Aké Variegated and Dzonot Aké Brown, and assign them to Ball's (1978) provisional Cienaga sphere (ware unspecified).

#### Dzonot Aké Variegated Type (Fig. 6, S-Z, a-i; Fig. 8, H-Q)

Paste. Paste is coarse and large temper, probably all calcite, sometimes erupts on surface. Color is predominantly a light grey (10.5 YR 4/2) sometimes grading to a light pinkish-red near the surface (7.5 YR 7/4).

Thickness. Body sherds are thick, usually ranging from .7 to 1 cm.

Surface. Slip adheres closely and is usually glossy, often markedly so, and sometimes has a waxy feel. Slip color varies from vessel to vessel from a light cream (10 YR 8/2) through light grey (2.5 YR 7/2) through light brownish-grey (10.5 YR 6/2); there is often a distinct greenish tinge as well as orange mottling where root-crazed. Slip sometimes grades from greys or creams on vessel interiors or exteriors to an orange-red (2.5 YR 5/8). Slip has slightly translucent appearance somewhat like slateware, but much more glossy, with much greater contrast between paste and slip, and more tendency to flake off. Vessels are usually slipped inside and out.

Shapes. No whole vessels were recovered, but flat-bottomed, flaring-sided dishes and plates occur, as well as bolster-rim basins,

small hemispherical vessels with plain, incurving rims, and possibly basal-break dishes. Rims are often slightly everted and thickened.

Decoration. Almost all vessels are decorated in addition to slip, but a few are slipped only. All decorated sherds are illustrated in Appendix C. The principal forms of decoration are:

1. Zones of gouge - incising and punctation forming predominantly geometric patterns on the outside of the vessel, and in a few cases on the upper surfaces of elongated and flattened/bolstered rims. Incision seems to have been post-slip.

2. Painting or over-slipping in brownish-red (2.5 YR) over the first slip and usually over the incising. This paint tends to be streaky due to uneven thickness and also flakes easily, although in some sherds it is quite opaque. Painting, when present, produces a distinct dichrome.

#### Dzonot Aké Brown Type (Fig. 6, j-u; Fig. 8, H-G)

This type is obviously closely akin to Dzonot Aké Variegated in general feel, shapes, and especially in incision design:

Paste. Grey (10.5 YR 5/1) sometimes grading to buff near surface; very coarse temper, much of it probably calcite. Medium hard.

Surface. Closely adhering slip inside and out; usually a medium gloss but sometimes high gloss; waxy feel. Slip varies in color from yellowish-brown (10 YR 6/4) or buff (10 YR 7/3) through reddish-brown (2.5 YR 4/6) to dark brown (5 YR 3/3). Color varies over the surface of individual vessels, with interiors often lighter or darker than exteriors. Slip is often quite streaky due to uneven application and also slightly translucent, giving many sherds a slaty appearance. Slip is much more flaky than in slateware and much more distinct from paste.

Thickness. Body sherds are thick, ranging from ca. .6-1 cm.

Shapes. Z-angle vessels, small cylindrical beakers, basins or deep bowls with everted or bolstered rims. Rims are usually thickened.

Decoration. Decoration principally consists of zones of gouge-incising and/or punctation on exterior, and sometimes on the top of everted rims. Geometric motifs predominate, and surface alteration seems usually to be pre-slip.

Although I know of no precisely comparable material, both Dzonot Aké Variegated and Dzonot Aké Brown Types have general Formative, and particularly Late Formative, affiliations. Particular affiliations

are seen with the widespread Chicanel sphere. General Chicanel resemblances, as originally defined by Smith (1955:21-22), include waxy and often glossy slips in a variety of colors with some dichromes, a comparatively wide variety of vessel shapes, thick vessel walls, and frequent use of decorative plastic surface modification, particularly preslip groove incision and punctation. Significant differences include the more variegated or mottled slips of my Dzonot Aké types as well as differences in vessel form.

Among the close comparisons I have been able to find in published sequences are with Sanders' Tancah complex Late Formative Monochrome Wares (Sanders, 1960:250-253). In particular my Dzonot Aké Variegated Type seems virtually identical to his Tancah Variegated Type, especially in its patterns of gouge-incision. One difference is that Sanders seems to have a considerably wider range of shapes from Tancah than in our collection from Dzonot Aké. His Tancah Red Type is a companion ware which he sees as virtually identical to Tancah Variegated except in surface treatment and incidence of incised decoration, and this relationship is closely paralleled between the Variegated and Brown Types at Dzonot Aké.

Ball (1978) has recently analyzed a small collection of sherds from coastal surveys in Yucatan, and has provisionally defined a ceramic entity called the Cienaga sphere focused on the northeastern corner of Yucatan and dated, also provisionally, to 300-50 B.C. His description of the constituent ceramics of this proposed sphere and accompanying illustrations (1978:80, 83, 124) suggest that my material could easily be included in it. Some of the gouge-incised design elements on Dzonot Aké Variegated sherds (eg., Fig. 8 - K,N) are virtually identical to some illustrated by Ball. Ball notes resemblances between Cienaga sphere ceramics from northeastern Yucatan and material from Sanders' east coast surveys, but feels that Sanders lumped together in his seriation chronologically distinct Late Formative types. It is possible that I have done the same in emphasizing the close identity of Dzonot Aké Variegated and Brown Types. Of particular importance in future work with the Dzonot Aké early ceramics will be analysis of the accompanying striated, unslipped utility ware; Ball (1978:124) has emphasized the distinctive Chancénote Striated Type which accompanies his Cienaga sphere slipped wares.

Further north, but still in the eastern part of the Peninsula, there are more general resemblances with the Polished Red-Orange Ware discussed by Simmons (1975) from Cancun. Differences include the much larger variety of shapes and much greater homogeneity of slip color in Simmons' sample, along with the more preponderant decoration of gouge-incised decoration in the Dzonot Aké types. During my examination of sherd collections in Merida I did come across some sherds which were very similar in form, decoration, and slip to my Dzonot Aké Brown Type; these were from MARI coastal collections but I was unable to determine from what specific site they came; these have undoubtedly been included in Ball's coastal study.

Despite the lack of large, precisely similar collections from elsewhere, it seems safe to conclude that both Dzonot Aké types are Late Formative and that there was a considerable occupation at the site during that period. There is a very distinct tendency for the Variegated and Brown Types to covary in their distribution, even though the former type is much more abundant. Although frequently found mixed with obviously later wares, both types have a distinct tendency to increase abruptly in abundance with depth in our 2 x 2 m. test trenches, and in several of these trenches (eg., Op. 1, Trenches 1, 3, 4, 6, 11), there are pure stratigraphic collections (although usually mixed with weathered/striated sherds).

Our Dzonot Aké ceramic collections include a very large sample of unslipped, striated sherds (856) of which only 12 are rim (Fig. 7-P-U, A-E). These indicate a variety of jar and basin forms with thin striations, both horizontal and vertical, just below the rim and sometimes extending up into it. Striated rim and body sherds are found in almost all our excavation units.

Among our unslipped (or weathered) and unstriated rim sherds are a large number (93) which are incurving (Fig. 7-G-S). There is some variety in this category, with the tops of some rims flattened or decorated with a flat raised band just below the lip; the majority, however, represent large globular basins with slightly thickened, rounded rims, sometimes with vertical or horizontal strap handles still intact. These incurving-rim vessels caught my eye because we found nothing like them at Cuca or Chacchob. Incurving rims on basins are characteristic of several ceramic complexes in the literature, from the Late Formative wares described by Sanders (eg., Tancah Striated, Vista Alegre Striated; Sanders, 1960) to the Modified Florescent (Brainerd, 1958:259). While it is clear that I have probably lumped together incurving rims from different complexes, to judge from their stratigraphic distribution and variety of forms, many do come from late levels and may go with the slateware at Dzonot Aké. There is a very strong likelihood that an enlarged sample and closer analysis of this unslipped, striated ware will allow identification with the Chancenote Striated Type which Ball has defined (1978:114) and which he associates with a variety of slipped wares in his Cienaga sphere.

The dominant ceramic ware at Dzonot Aké, and one which predominates in the late levels of our trenches, is slateware. Unfortunately preservation in these levels is very poor, and our total undoubted slateware sample numbers only 278 rim and body sherds; this sample is thus not much larger than our Formative one. The small size of this sample makes it difficult to characterize the slateware assemblage at Dzonot Aké in any but the most general terms, and to compare it to other similar sequences elsewhere.

In paste and slip, the Dzonot Aké slateware closely resembles slatewares from elsewhere in Yucatan. One difference between it and the Pure Florescent slateware of the western part of the Peninsula

is that the paste is often more pinkish or reddish--a characteristic often said to characterize the slateware from Chichen Itzá. This characteristic is clearly seen on a whole vessel from test trench 11 (Fig. 9B). This vessel has a typical Pure Florescent slateware form--a basal-break bowl with tripod slab feet and slightly flattened inner lip--but the slip is a light cream over a brick-red paste. This vessel is almost identical in form and design to several slateware vessels illustrated by Brainerd and which he judged to be of very early Florescent or Late Regional (Early Period) date (Brainerd, 1958:180-181).

Slateware forms at Dzonot Aké are difficult to determine because of the small sample, but clearly include basal-break bowls, large jars with constricted necks and outflaring rims, and probably bolster-rim globular basins (Fig. 7 - a-m). There does not seem to be the same range of forms present in the Dzonot Aké collection as in our Cuca-Chacchob collections. Some sherds show trickle decoration, generally of a cinnamon color over a buff slip.

Although our sample of undoubted slateware sherds with slip intact is very small, many of the hundreds of highly weathered sherds in the upper levels have an extremely "slatey" feel--no doubt a suspiciously subjective evaluation to those who have never handled slateware collections. This feel is highly distinctive, however, and clearly suggests to me that the weathered sherds are, at least in large proportion, slateware, and moreover that these weathered sherds conceal far more variety than evident in the identified collections.

Along with the slateware, and identical with it in distribution, are a few pieces of Thin Slate and also a rather large (compared to Cuca and Chacchob) collection of Fine Grey Ware. Conspicuously lacking are the fine red wares, such as Puuc Red Ware or Chichen Red Ware which are companion wares to slateware elsewhere in Yucatan. This assemblage of wares, and particularly the Fine Grey Ware, clearly suggests a Late-Terminal Classic alignment with the Copo I and II phases at Dzibilchaltun. Unfortunately the Fine Grey sherds were all heavily weathered, and identification was made on the basis of paste alone.

Three small polychrome-painted sherds representing medial-flanged vessels were recovered. These were heavily weathered, but traces of red and black paint on an orange-buff fabric could still be seen (Fig. 7-L, M, T). As Ball notes (1978:129) our understanding of the distribution of early polychromes in northern Yucatan is abysmal, and given the tiny size and poor preservation of the Dzonot Aké sample, I will do no more than suggest an obvious, general, Early Classic provenience for these sherds.

Besides the intact slateware vessel described above, several other intact or reconstructable vessels were recovered (Fig. 9 - Fig 10 E). A surface collection from tree blow-down on Structure IV produced a collection of Mayapan-style effigy censer sherds, including both

human faces and deer-effigies (Fig. 10 - A-D). Our workmen brought in many other such sherds which they found scattered over the surface of the site. These seem to represent a very late ritual use of the site; no effigy censer fragments were actually recovered from excavations--they seem confined to the surface.

One final ceramic type encountered in small amounts (53 rim and body) is highly distinctive but will not be described in detail here. It consists of basins with incurving, thickened rims and jars made of a greyish paste covered with a highly uniform, flaky, pumpkin-orange slip (Fig. 6 - A-E). I noted a few precisely comparable sherds in recent Coba collections which were just being moved into the INAH bodega in Merida as I was doing my analysis, but was unable to determine their provenience. Most of these sherds (38) came from what may have been a single vessel in Lot 30. This is a late context and suggests a late provenience, but what may be a sherd of this ware came from a deep level in Trench 5 (Lot 42). I would provisionally assign the ware to Brainerd's Regional monochrome red ware tradition.

Although our current ceramic sample from Dzont Aké leaves much to be desired, I suggest the following implications derived from it, all of which should be regarded as provisional:

1. There was a large Late Formative occupation which, if its similarity with Ball's Cienaga sphere holds up, can be provisionally dated to ca. 300-50 B.C.
2. There was a slateware occupation which, although in some ways highly distinctive, suggests, especially in its companion wares (Thin Slate, Fine Grey), a Copo I-II alignment with Dzibilchaltun and thus a date of ca. 600-1000 A.D.
3. There was a final occupation, or at least ritual use of the central portion of Dzont Aké, which resulted in a surface scatter of Mayapan-style effigy censer ware. Present evidence suggests such late material is confined to the surfaces.
4. Traces of polychrome, basal or medial-flanged sherds and other poorly represented wares suggest a sparse Early-Late Classic presence of some sort.

The preceding conclusions are not only rendered tentative by the nature and stratigraphy of the Dzont Aké sample itself, but by our present poor understanding of the relationships between cultural stages and periods and their respective ceramic markers in northern Yucatan, a point which will be elaborated upon below. What seems obvious is that more work at Dzont Aké is warranted in the near future, with high priority given to the recovery of a larger, more secure, representative, and chronologically controlled ceramic sample which will allow the generation of a well-defined sequence for the site.

### Stratigraphy and Chronology

Comparisons of the elevations and profiles of our various test trenches reveal a very complicated sequence of construction phases, with considerable variation even over small distances. Bedrock fluctuates markedly in depth and generally rises from north to south (e.g., compare profiles of Operation 1, Trenches 1, 3 and 11). Where bedrock is deep, as in Trenches 1, 7, and 8, large quantities of construction fill were used. In trenches which were completed down to bedrock there never seem to be more than two major episodes of plaza construction (and I do not count resurfacings here). It is often quite difficult to compare and correlate construction activity even in closely juxtaposed trenches. Note, for example the completely different profiles of Trenches 3 and 4, which are only 25 m. apart on either side of the major building in Group C. Much more uniformity is seen in plaza construction around Group B, where Trenches 5 and 6 produced essentially similar profiles.

In terms of ceramic associations with stratigraphy, two main patterns stand out. First, in those trenches where we reached bedrock or penetrated into layers close to bedrock (Op. 1, Trenches 1, 3, 4, 5, 6, 9, 10, 11) slateware sherds and the associated late wares such as Thin Slate and Fine Grey are almost invariably confined to topsoil or to the uppermost floor levels encountered. Below these initial floors (or sets of floors as in Trenches 3, 5, and 6) we find only striated, weathered, or Formative material, particularly Dzonot Aké Variegated and Brown types. Trenches 3, 4, 5, 6, 10 and 11 perfectly illustrate this pattern. Of course early sherds are often mixed with the slateware complex in the upper levels of test trenches, but the reverse is rare. We did find slateware sherds occasionally mixed with earlier material in the deep levels of two trenches. This occurs in Trench 9 (Lot 43) but since this is an unsealed unit which was apparently disturbed by ditch construction, the slateware sherds may be intrusive. In Trench 1 I identified a single slateware sherd in a sealed rubble layer (Lot 19) which otherwise yielded only early identifiable sherds, but given the nature and preservation of slateware sherds at Dzonot Aké this could be a mis-identification.

On the basis of the two patterns of distribution, I would see the major, early occupation at the site as Late Formative (ca. 300-50 A.D.?) assuming that in this little-known region of Yucatan Formative ceramic traits do not spill over into the Early (or Classic) periods. This early occupation would involve initial plaza construction, including massive leveling operations and the construction of the earliest sets of plaza floors in Trenches 3, 4, 5, 6, 10, 11 and probably 1 and 9 as well. I would go further and predict (although since we have no physical connections, I am going out on a limb here) that the large architecture at Dzonot Aké goes with this initial occupation. I partly base my opinion on stratigraphy, but also on the large, heavy block masonry construction techniques shown by the major architecture, the evidence (sparse though it is) of stucco



and paint decoration on building stones, and the massive, flat-topped substructures which apparently carried unvaulted, perishable summit structures on low stone foundations. All of these traits are uncharacteristic of the Late-Terminal Classic period, at least as known elsewhere. Of course they would not be out of place in Early Classic contexts, but so far as available evidence is concerned, a large occupation for this period is lacking at Dzont Aké. Some of the undoubted Late Formative structures at Cerros, in Belize, closely resemble structures at Dzont Aké (eg., see Freidel, 1979, Structure 3 in Fig. 3).

A later occupation, marked by slateware and associated Thin Slate and Fine Grey wares, was responsible for another less intensive phase of construction, with its ceramic deposits confined to upper levels of test trenches. An even later final occupation, or at least utilization, of Dzont Aké was responsible for a surface scatter of effigy censer fragments. Groups A-C are the products of one of the latter occupations, probably the slateware one (Late-Terminal Classic, ca. 600-1000 A.D.?).

There are two major caveats to this interpretation. The first is that the ceramic samples from the apparently early contexts are usually very small, at least in terms of positively identifiable sherds. But one reason to place confidence in the chronological implications outlined above is that these are secondary deposits, and we are considering a number of different, widely scattered trenches. It seems inherently unlikely that such widely scattered contexts would yield such pure deposits of early sherds, small though they are, if most of the earliest major construction at Dzont Aké were in fact late (e.g., on a slateware horizon). Surely one would expect at least a few sherds of contemporary material to show up in construction fill scraped up for secondary deposition over a wide area by a large, and probably resident work force.

Second, most of the sherd material from early stratigraphic units is either the currently chronologically uninformative unslipped/striated ware (especially body sherds) or weathered material. It is possible that the weathered material especially might mask considerably more variety than suggested by the identifiably Formative sherds, and thus obscure chronological relationships. I feel this is unlikely since if anything the Formative sherds are considerably more vulnerable to destruction, and considerably less distinctive if poorly preserved, than the later slatewares and related wares. It should perhaps be emphasized here that my initial sorting and analysis of the Dzont Aké sherds, which segregated the Formative types and the later slatewares and other related wares completely ignored lot provenience and was purely typological. That this breakdown should correspond so closely to distinct stratigraphic distributions seems anything but fortuitous.

The wall, both in terms of its stratigraphic relationships and ceramic associations (as seen in Operation 2, Trenches 1-4) is clearly one of the latest constructions at Dzont Aké. It overrides earlier plaza fill and floors (and has apparently disturbed them on the northeast in the ditch area) which yielded small but definite slateware samples. Although sherds are not abundant anywhere in our wall exposures, similar slateware samples are derived from the wall-fill. The inescapable conclusion is that the wall either was constructed during the slateware occupation or later--i.e., during a small occupation responsible for the surface deposition of the Mayapan effigy censer ware.

The above conclusions beg the question of an Early Classic hiatus at Dzont Aké, since complexes obviously pertaining to this period were not found (except for slight traces). I will say more about this later, but will note here that no obvious stratigraphic (in the non-ceramic sense) evidence for such a hiatus exists.

No radiocarbon dates are available for Dzont Aké. We did find several contexts which produced human/animal bone (e.g., the burial in Trench 1, the "cache" in Trench 11, and scattered bone in other stratigraphic units). Both cache and burial seem to have been intrusive, and rather than generate suspect dates with poor associations, I decided to leave these materials undated.

## SUMMARY AND CONCLUSIONS

Because of the similarities between them Chacchob and Cuca will be considered together in the following discussion, while Dzonot Aké is treated separately.

### Cuca and Chacchob

Our operations at Cuca and Chacchob in many respects complement and enhance research done previously at Puuc centers elsewhere. Traditional research has focused on major sites such as Uxmal, Kabah, and Chichen Itzá and has emphasized the excavation of large architectural complexes, their reconstruction, and the study of the elaborate Puuc architectural style. Controlled excavation has been extremely limited, ceramic samples small and confused, and even the core areas of many large Puuc sites have been inadequately mapped, although the latter problem is being remedied by ongoing work.

By contrast our work was carried out at two comparatively small sites outside the Puuc zone proper. Mapping has been quite complete and has clearly revealed the basic configurations of the compact centers of Cuca and Chacchob, including the apparent defensive features which may be more widely characteristic of Puuc sites (e.g. for Uxmal see Barrera Rubio, 1978 and Kurjack and Garza, T., n.d.). Despite our limited excavations and their exposure of predominantly secondary deposits, the work at Cuca and Chacchob has provided what is probably the best-controlled set of Cehpech complex samples we possess--not least because the small size of the sites enabled even limited digging to yield samples which should be highly representative. In a way, our operations are mirror-images of the traditional research carried on at Puuc sites since practically no attention was paid to large architecture or stylistic features.

On the other hand our work, whether through design or circumstance, has failed to deal with a number of serious deficiencies which have long plagued the archaeology of the Puuc tradition of the Puuc Florescent period. Although we avoided the large architecture our excavations, however well-controlled, did deal primarily with secondary deposits; they shed little light on the functional variation and its behavioral correlates obviously present at Puuc centers. Our mapping, however complete, was restricted to core areas of undoubtedly much larger settlement systems and provides no information about overall site patterning. Nor did we recover material suitable for generating a much-needed radiocarbon-based chronological framework for our ceramic samples (see Andrews V, n.d. for a summary of radiocarbon determinations currently available for Puuc sites). Despite the deficiencies which still remain in our data, the information from the two Puuc centers offers new insights into the structure, culture history, and cultural processes of the Terminal Classic and early Postclassic of northern Yucatan. Before discussing these

implications I would like to briefly summarize and review our general information concerning Cuca and Chacchob, with an emphasis on the military implications which are the special concern of this study:

Cuca:

- 1) Cuca is, as Puuc sites go, quite small, measuring only 33 ha. in total area; the inner zone where most of the monumental architecture is concentrated is very small--only about 5 ha.
- 2) Despite the small size of the site the major architecture in the inner zone is impressive in scale, was apparently lavishly decorated in the Puuc style, and even in its unreconstructed state clearly exhibits the concern for regularity, overall planning, and intense modification of the natural landscape typical of major Puuc sites, especially Uxmal (Andrews, G., 1975:271-370). All of this suggests a high degree of political centralization as measured by access to labor.
- 3) The community of Cuca was founded on a site which had not been previously occupied by a dense population.
- 4) Although impressive temple-pyramids are present at the site in both the inner and outer zones, the architectural configurations as well as the limited excavation data suggest that a primary function of Cuca was that of elite residential enclave.
- 5) Cuca functioned as an elite/religious/administrative zone for some considerable time and experienced at least two major episodes of plaza construction, as well as numerous minor plaza renovations; explorations of the large architecture would undoubtedly reveal several building phases.
- 6) At some point after, possibly long after, the original settlement of Cuca the center was formally walled with concentric masonry barriers which are most plausibly interpreted as defensive in function. Greatest concern was focused on the inner zone, while the outer wall was positioned to enclose both ceremonial structures and what seem to be low but impressive residential platforms. Both walls are roughly constructed, and their layout suggests rapid erection to protect major architectural complexes; in configuration they contrast strongly with the regularity and concern for formal planning seen in inner-zone architecture. The inner wall experienced additions and elaborations, and some structures seem to have been erected after the enclosing walls were built.
- 7) Although there are internal causeways, Cuca does not seem to be connected to any other major site by sacbes, as is common in northern Yucatan and which may indicate wider socio-political ties (see Kurjack and Garza, T., n.d.).

- 8) Apart from a scatter of probable Formative monochrome ware, the Cuca occupation is correlated with a virtually pure Cehpech complex ceramic assemblage with some admixture of Yucatan Chalky Ware.
- 9) Cuca was abandoned, probably abruptly, and was never reoccupied by any sizeable population using a non-Cehpech ceramic complex.
- 10) Despite its apparent defensive system and abrupt abandonment, there is no evidence suggesting that Cuca was overthrown militarily.
- 11) Cuca is situated in densely populated countryside, although without testing the density and distribution of rural population relating to the Pure Florescent center remains unknown.

Chacchob:

- 1) Chacchob is a very small Maya organizational center, measuring only 13.7 ha.
- 2) Monumental public architecture at Chacchob is confined to a single complex and a few small temple-pyramids, all of which seem to have been rather plain. Most of the architecture consists of large, low platforms with apparently domestic functions. Unlike most Puuc centers there is no evidence of great formality or planning, and the low labor investment devoted to civic architecture bespeaks low labor availability and consequent lack of political power, as well as a short occupation. Paved plazas are non-existent, and the natural landscape is highly obtrusive, which is atypical of large Puuc centers.
- 3) Chacchob was founded on a site not previously occupied.
- 4) The predominant function of the site is that of residential--probably elite residential--enclave.
- 5) Chacchob was occupied for an extremely short period of time--possibly only a generation or two.
- 6) Chacchob is surrounded by a masonry wall with considerable defensive potential, and was probably founded as a fortified community, rather than being later fortified as Cuca was. It is the only known formal military enclave pre-dating the Postclassic. The wall was plastered and absorbed a very high proportion of the labor expended at the site as a whole; its major function was to protect a residential zone.
- 7) Ceramics found at Chacchob all can be assigned to the Cehpech complex.

- 8) Chacchob was abruptly abandoned and never reoccupied; there are signs of a military emergency, but no obvious signs of actual destruction.
- 9) There is no sign of any sacbe linkages with other sites.
- 10) Chacchob is located in a region intermediate between the Puuc zone in the south and the northern plains.

### Military Potential

Both Cuca and Chacchob are surrounded by masonry barriers which have impressive defensive potential seen in the context of the technological, organizational, and logistical limitations of Maya warfare. Massive construction efforts were expended on the wall systems at both sites, though the Chacchob effort is most impressive considering the small size of the center. These efforts probably involved conscription of labor from rural settlements. Although no evidence of perishable adjuncts such as brushwork screens or timber palisades was found they would have considerably strengthened the masonry barriers, particularly the outer wall at Cuca which would have been defensively useless without them.

Despite the labor expended upon them neither defensive arrangement seems very sophisticated. Projecting bastions which would have improved fields of fire and which are found at sites such as Cahokia in the eastern U.S. are lacking, as are complex, easily defended gateways or encircling ditches. Several explanations come to mind for this lack of sophistication, which certainly cannot be ascribed to lack of suitable engineering skills among the Maya:

- 1) Military engineering was a recent innovation in Maya society.
- 2) The lack of sophistication is more apparent than real.
- 3) Requisite labor (e.g. for cutting ditches in bedrock) was not available.
- 4) Technological, organizational, and logistical limitations on Maya military capabilities rendered even relatively unsophisticated fortifications perfectly defensible.
- 5) The defensive systems at Cuca and Chacchob were erected hurriedly and no time was available to perfect really sophisticated features.

Of these alternatives we can certainly eliminate the first. Traditions of Maya military architecture may be traced back to the Late Formative-Early Classic at Becan (and probably Tikal) and, if the interpretations of Baudez and Becquelin (1973) for the site of Los Naranjos in Honduras

are correct, even to the Middle Formative. The third also seems unlikely, considering the massive and sophisticated defensive efforts that even small agricultural communities have made (the enormous towers, walls, and rock-cut ditches of PPNA and PPNB Jericho are a case in point). We can also apparently rule out the fifth. Cuca seems to have experienced some growth after the walls were erected, and at least the inner wall experienced considerable additions; presumably there would have been time available for sophisticated renovation even if initial construction was hurried. At Chacchob, where the walls were probably built when the community was originally founded, where time and labor seem to have been abundant (judging from the size of the wall system and the labor absorbed by superficial activities such as plastering), and where the center must have been occupied for some time after the walls were completed, we can also rule out this factor.

In my opinion the lack of sophistication most likely results from a combination of factors (2) and (4) above. What I have in mind by the first is that perishable adjuncts may have existed which were in fact quite sophisticated. For example the Maori pa defensive systems, which were largely perishable, possessed rather impressive military features such as raised fighting stages and towers of timber for the effective delivery of missiles (see Bellwood, 1971). More to the point, these were erected by groups with technological capabilities similar to those of the Maya, but with fewer engineering and organizational skills and less labor at their command.

Equally important, I suspect, were certain limitations inherent in Maya warfare patterns. The technological ones are obvious. In particular, the Maya lacked missiles capable of effective long-range delivery, missiles which could breach defensive barriers or, probably, any sort of siege machinery. Judging from ethnohistoric accounts of Mesoamerican warfare in general, strategic and tactical capabilities were rather poorly developed, and the ability to maintain large armies in the field for long periods, especially when operating in hostile territory, was very limited. The rather disorganized close combat with great dependence upon shock weapons typical of known Mesoamerican battles is adapted to confrontations in the open, and not very effective against even light defensive works. Given these limitations I have long felt that a major strategy in Maya warfare was probably the quick, sharp raid in force directed against the elite organization of an enemy polity. A suitable countermeasure would be the erection of light defensive screens around elite enclaves, and this seems to be exactly what we have at Cuca and Chacchob. Of course such defensive screens would be most effective if adequately manned and in fact both centers had such small resident populations that additional defenders from outside the walls would have probably been necessary to withstand a determined threat. Both walled precincts are big enough to have sheltered refugees from the surrounding countryside in large numbers, and they may thus have functioned rather like the Maori pa referred to above, albeit in a more complex socio-political context.

Like most other fortified Maya centers Cuca and Chacchob are small sites. The general correlation of small site size and defensive works suggests both that small centers were politically and militarily more

vulnerable than large ones, and that such centers may have played vital military roles in political units dominated by larger sites. That both Cuca and Chacchob seem to have been abruptly abandoned but not violently overthrown may reflect processes of widespread, large-scale political competition which ultimately affected small centers indirectly rather than directly.

Since the Maya themselves created the boundary walls, we are provided with essentially "emic" definitions of space and thus we escape the often vexing archaeological task of deciding how to define a Maya site in spatial terms (this would be quite difficult at Cuca, for example, given the density of occupation outside the walls). What the Maya seem to have delineated (and protected) at both sites are essentially elite residential enclaves, and I feel that this reflects a basic syndrome of settlement in Maya prehistory. A number of scholars, principally Edward Kurjack and William T. Sanders, have speculated that the hierarchy of Maya settlements is essentially a household hierarchy, from the simplest farmsteads to the most impressive organizational centers. This is not to deny that with increasing site size and complexity additional or specialized functions accrued to Maya centers (e.g. ritual, economic, or military ones). The point is that such a process occurred within what was, both in spatial and organizational terms, a system of ranked households. Following up this reasoning we can conceive of an essential continuity in the "levels" of a Maya settlement system, with the major center with its palaces and towering religious monuments a hypertrophied version of the rural hamlet or house cluster with its perishable dwellings and household shrines. While I have no space to expand on the idea here, the analysis of Maya settlement systems so conceived would require the application of locational models rather different from those applied to other settlement systems. My main point is that what the Maya were concerned with protecting at both Cuca and Chacchob were elite establishments; these certainly had elite domestic functions but wider organizational significance as well if overall social, political, and economic administration is conceived essentially as an extension of household administration.

Seen in this perspective Cuca and Chacchob exhibit strikingly different patterns. While both sites were founded on previously unoccupied ground, Cuca seems to have been much the more "successful" elite establishment of the two. It grew to considerably larger size, was occupied for longer, and if the size and elegance of its monumental architecture are any measure commanded much more labor and, by extension, possessed more political authority and wealth. Although not founded as a fortified community the inhabitants of Cuca apparently responded effectively (at least for a time) to competitive pressures by the construction of a defensive system. Chacchob, by contrast, was founded as a fortified center--a rare settlement type in the Maya lowlands--with its concern with protection evidenced by the inordinate time and labor expended on the wall compared with the rather impoverished internal residential and civic architecture it enclosed. Chacchob was occupied for a very short period of time and then abruptly abandoned like Cuca, possibly in the face of an actual military emergency. Apparently it commanded far fewer resources than the larger site, and was less



competitive in the volatile Terminal Classic political environment of northern Yucatan. Personally, I find Chacchob a fascinating site precisely because it was so shortlived; it offers us in its settlement pattern a glimpse of what many newly-established Maya elite establishments must have been like before sustained growth obscured initial configurations.

Finally, I would like to note that the builders of Pure Florescent defensive systems seem to have taken an expectedly pragmatic attitude toward their constructions. Certainly they do not show the emphasis on extreme visual formalism and integration so often seen in the layout of major architectural complexes at Puuc centers.

#### Culture Historical and Processual Implications of Cuca and Chacchob

Our current view of the social, political, and economic processes and structures of the Terminal Classic-Late Postclassic of the northern Maya lowlands is, to say the least, dynamic, and what I intend to do here is evaluate the evidence from Cuca and Chacchob in light of a series of hypothetical alternative scenarios, especially as put forward by Ball (1977, 1978, n.d.) and Andrews V. (n.d.). Both of these authors, among others, have proposed that the Late Classic-Late Postclassic periods in northern Yucatan were characterized by much more variation and complexity than traditional reconstructions suggest. In particular they question the concept of sequential periods--Pure Florescent, Modified Florescent, Decadent, etc.--on which our traditional reconstructions are based, and propose instead that there is in fact considerable overlap in the cultural entities concerned--i.e. that they are better conceived as stages (Ball, n.d., p. 25).

#### Scenario I

The traditional cultural-historical framework for northern Yucatecan prehistory may be briefly summarized as follows. At about 800 A.D., or perhaps slightly earlier, a vigorous regional culture which we label the Puuc Tradition emerges to the south of the Puuc hills, characterized by a distinctive architectural style in combination with Cehpech complex ceramics. Major growth occurs in the Puuc zone proper, but the tradition also expands into the northern plains at the expense of well-established local centers there. Thus the Copo I Copo complex (Late Classic/Early Period II) at Dzibilchaltun is succeeded and replaced by the Copo II Cehpech complex (Terminal Classic/Pure Florescent) and associated Puuc-style architecture, and another thriving Pure Florescent center is established at Chichen Itza. By at least 1000 A.D. the Cehpech ceramic sphere and the Pure Florescent architectural style are established over most of the northern third of the Yucatan Peninsula, except perhaps the northeast.

Late in the 10th century Toltec-related intrusions result in the emergence of a new polity centered on Chichen Itza, and the appearance

of the Sotuta ceramic complex. The Pure Florescent/Puuc Tradition is quickly eclipsed as Chichen Itza establishes its hegemony, and Puuc sites are abandoned. Finally the emergence of a Mayapan-centered polity similarly eclipses Chichen Itza after 1200 A.D.

### Scenario II

An alternative scenario offered by Ball (n.d., pp. 29-30) would modify the first somewhat. Again we would begin with the development of the Puuc Tradition in the Puuc heartland and then its expansion early in the 9th century both north and south. Ball, however, then proposes that a Putun Maya group from the coastal Yucatan-Campeche zone established themselves at Chichen Itza shortly after 900 A.D., resulting in open conflict with the Pure Florescent sites and the establishment of walled centers such as Cuca and Chacchob. Later in the 11th century, possibly grown stronger by reinforcing Toltec elements, Chichen Itza finally eliminates its Puuc competitors. This scenario is partly based upon an earlier one proposed by J. E. S. Thompson (1970).

### Scenario III

Yet another scenario (Ball, n.d., pp. 30-31) emphasizes complete overlap. According to this tentative reconstruction there is a continuity between the Cehpech sphere (Puuc related) and Hocaba complex (Mayapan related) in northeastern Quintana Roo, with a largely contemporary and competitive Chichen Itza-dominated polity. Either the Puuc populations abandoned their early centers and migrated eastward under pressure from Chichen Itza, to return again bearing a later, related, Mayapan tradition, or maintained themselves without retreating in the face of such pressure until the founding of Mayapan.

All of these scenarios postulate two basic competitive confrontations for the Terminal Classic/Early Postclassic of northern Yucatan, while differing in the timing of this competition. The first competitive process would pit the vigorous Puuc Tradition (expanding from the Puuc heartland?) against the old, established centers of the northern plains such as Dzibilchaltun. The second would involve the "greater" Puuc Tradition centers (i.e. Puuc centers proper such as Uxmal, etc. and the contemporary Puuc-related sites of the northern plains) and the emergent Putun/Mexican polity at Chichen Itza.

Three ways of relating new information such as that from Cuca and Chacchob to these scenarios are obvious: 1) establishment of detailed chronological interrelationships; 2) comparative ceramic studies; 3) comparative evaluation of non-ceramic evidence from excavation and survey. Since we lack radiocarbon chronologies from Cuca and Chacchob I will focus on the latter two.

Clearly the acceptance of either of the alternative scenarios to the traditional one, as reviewed above, implies the chronological and probably spatial overlap of ceramic entities (such as the Cehpech and

Sotuta complexes) and perhaps even continuities between them (e.g. Cehpech-Hocaba), rather than the linear, successive, temporal relationships usually envisioned. Ball (n.d.) notes new evidence that such overlap does in fact occur at some sites.

The ceramic assemblages at both Cuca and Chacchob, though exhibiting minor differences, both conform remarkably well to the traditional definition of the Cehpech complex. Apart from a scatter of probable Formative monochrome sherds at Cuca, the only major non-Cehpech (in the pure sense) were present is Yucatan Chalky Ware, which seems to be of considerable antiquity at Dzibilchaltun. Its presence in numerous Pure Florescent contexts at Cuca is consistent with Puuc domination of the northern plains and assimilation of some northern wares.

Unfortunately our sample of chronologically significant Fine Grey and Fine Orange wares is so small (2 fragmentary, weathered sherds from Cuca) that no conclusions may be drawn on the basis of it except in a negative sense. That is, the paucity of these wares suggests that there were political and economic constraints on their availability at both sites. Tohil Plumbate Ware, a constituent of the Chichen Itza-associated Sotuta ceramic sphere, is entirely lacking. In short, there is no ceramic evidence at either site suggestive of the overlap scenarios outlined above. On the one hand this situation can be interpreted as supporting the traditional culture--historical reconstruction of the Terminal Classic/Early Postclassic--i.e. the non-overlap model. On the other hand, it is perfectly possible that while the various ceramic complexes and spheres involved may indeed overlap both spatially and chronologically, as Ball suggests, ceramic manifestations at individual sites could still be relatively "pure" since the entities themselves seem to be real ones. Thus Puuc Tradition political units with their distinctive Cehpech ceramic assemblages could have coexisted with, and competed with, Chichen-related polities, but each could still have retained their ceramic distinctiveness. In fact the competition model of interaction predicts that this would be the case at most sites. Only those centers which switched allegiances, which were conquered or overrun and then reoccupied, which somehow remained non-aligned, or were fortunately situated with regard to secure trade routes might show the mixing expectable under one of the overlap scenarios.

One final point of possible chronological significance should be made here. At neither Cuca or Chacchob did we uncover any polychrome wares. These occur at Kabah and Dzibilchaltun in deep levels in association with the earliest Cehpech complex forms (Andrews, V., n.d.), and their absence is thus consistent with late, rather than early dates for the two walled sites.

Turning now to the non-ceramic evidence from our excavations and mapping, several points stand out in relation to the three scenarios. First, both Cuca and Chacchob are located north of the Puuc hills--north, that is, of the Puuc heartland. Cuca itself is well out onto the northern plains while Chacchob, further south, is in what one could think of as a transitional or border area between the two zones. Both could thus fit competition models involving Puuc Tradition conflict early, with

established northern plains centers, or later, with Chichen Itza. On the assumption that the Puuc heartland is to the south of the Puuc hills--i.e. that this zone was the source of expansive northern tendencies--both would be fairly late Puuc sites dating, say, at ca. 900 A.D. or later.

Ball (1977b:190-191) in one of his reconstructions has suggested that the Puuc expansion was essentially an attempt by a "warrior-elite-cum-mercenary" group to dominate the lucrative salt trade of north-western Yucatan, and that fortified sites such as Cuca and Chacchob were "control" centers in that effort. Two patterns seen at both sites are consistent with this view. The first is the apparently rapid establishment of major centers on previously unoccupied ground. The second is the nature of the sites themselves--they are predominantly secular, elite residential enclaves and hence the sort of centers one would expect to find characteristic of an aggressively expanding warrior-elite-mercenary group.

Other information from Cuca, however, is damaging to this line of reasoning. Cuca, high up in the northern plains, is ideally situated to play the role of military-administrative outpost, but in fact it was not founded as a fortified site. Evidence from excavations and mapping clearly reveals that the original settlement consisted of rather sprawling, undefended religious and residential complexes, and that some considerable time later, presumably in the face of a newly-arisen military threat, the site was hurriedly enclosed by two concentric walls. Thereafter it prospered for some time before being abruptly abandoned.

Chacchob, by contrast apparently was founded as a military outpost--or at least as a fortified occupation zone. My original conception of Chacchob was that it was an early Puuc center demonstrating the initial competitive thrust out toward the northern plains--a process which seems to have been successful. But the small size of the site, its rather paltry architecture, its abrupt abandonment with associated evidence for military threat, and the lack of fine ceramics now suggest something else to me. They suggest that Chacchob was not a fledgling elite center established early during a successful process of expansion, but rather a fugitive elite center briefly founded and occupied during a process of political disintegration. If I am correct in this speculation Chacchob is probably a later site than Cuca.

Another point which should be made again here is that neither site has sophisticated military architecture and at neither did military functions or considerations obviously dominate the settlement arrangement. That both sites were elite administrative establishments is undoubted--but then all Maya centers dating back into the Preclassic possessed this generalized function. There are no obvious configurations suggesting that Cuca or Chacchob had specialized or hypertrophied military/economic functions, apart from the walls themselves. These, as I have indicated before, look more like situational or emergency military features than integral components of specialized military/commercial outposts. In fact apart from obvious differences in architectural features the two Terminal Classic fortified sites do not strike me as being all that much different

in their range of functions than the fortified Terminal Preclassic center of Becan.

That both sites were abruptly abandoned without any signs of obvious violence and were never reoccupied suggests two conclusions. First, that we are correct in seeing political confrontations in the Terminal Classic/Early Postclassic as large scale ones which, if they did not involve highly centralized polities did certainly involve large confederations of independent but culturally related political units. Thus competitive processes were on a scale which could have indirect effects on small centers such as Cuca and Chacchob, and which could cause considerable population restructuring. It has been noted by Kurjack and Andrews V. (1976:319) that Cuca (along with Ake) was strategically located on a boundary zone between three late preconquest states, and midway between the massive centers of T'ho and Izamal; they speculate that the area may have been a political frontier even earlier, thus accounting for Cuca's fortifications. While this seems reasonable, the Postclassic political situation seems to have so dynamic and competitive that political boundaries must have continually shifted. Second, Cuca (and probably Chacchob) are late Puuc centers depopulated as the Puuc Tradition societies gradually lost their political dominance in northwestern Yucatan.

While the data from Cuca and Chacchob may be fitted into either of the first two scenarios discussed above, I think the partial overlap, or second, scenario is most compelling at this point, emphasizing as it does a much more intense and long-term set of competitive processes than the traditional reconstruction. I am not convinced, however, that the culture history of the Terminal Classic and Early Postclassic revolves as heavily as Ball thinks around control of the Yucatecan salt trade (Ball, 1977). Nor are the scenarios reviewed above necessarily the only ones. There may, for example, have been competition among Puuc centers themselves. Such competition would be entirely consistent with the rather weak integration seemingly indicated by the separate elite groupings at many northern sites (Kurjack and Garza, T., n.d.).

#### Dzonot Aké

The findings from Dzonot Aké can be summarized more easily and succinctly than those from Chacchob and Cuca, but satisfying interpretations are far more difficult.

Although the walled area of the site is small it contains massive architectural complexes including both temple-pyramids and huge low platforms, and is only the core zone of a much larger site. Scattered among the large architecture are several small residential groups which do include some rather impressive platforms. Their presence and arrangement suggests reuse of a large, older ritual/elite/administrative zone. The small "wall" at Dzonot Aké was built to enclose this late occupation and was not contemporary with the major architectural complexes.

The Dzonot Aké "wall," and the ditches associated with it certainly were not militarily effective barriers, and their function remains in doubt. I suggest, however, that the most likely function was that of defense, with the real barriers being provided by perishable super-structures. Granted this assumption the defenses of Dzonot Aké were flimsy and crude in comparison with those of Cuca or Chacchob, but in scale with the apparent small (elite?) population they shielded. The principal interest of Dzonot Aké is not its military architecture, but the wider implications of its stratigraphy, architecture, and ceramic assemblages.

Our stratigraphic exposures indicate two main building phases at the site as reflected in plaza construction, but neither has been tied into the architecture. Two distinctive ceramic assemblages are associated with these building phases. First, there is a large collection of slipped monochrome/dichrome sherds with groove-incised decoration which has general Late Formative affiliations, and which resembles material included in Ball's (1978) provisional Cienaga ceramic sphere defined by coastal collections from northeastern Yucatan. Another assemblage which is obviously later on both typological and stratigraphic grounds consists of abundant slateware, Thin Slate, Fine Grey, and probably a variety of unslipped wares. In terms of traditional ceramic sequences this assemblage suggests a Terminal Classic provenience. Finally there is a surface scatter of Late Postclassic effigy-censer ware, but apparently no larger assemblage from this time period.

An unresolved problem at Dzonot Aké, given the lack of structural excavation and physical connection of structures with plaza floors exposed in our test trenches, is the relationship between the ceramic chronology and the architecture. My initial reaction to the large standing architecture, based upon its size, rather crude construction, general lack of cut or decorative stone or obvious vaulting, use of polychrome-painted stucco, and rather haphazard overall arrangement, was that it was Early Classic (Early Period I). But there is very little in our Dzonot Aké collection suggesting a Classic occupation of any size according to our traditional ceramic sequences. We are thus faced with assigning the large architecture to one of the occupations indicated by our two main ceramic assemblages. Unfortunately there are problems either way. On the one hand, if the major architectural complexes are Late Formative, Dzonot Aké is a Maya center out of all proportion with what we would expect for northeastern Yucatan during this period (but of course apart from the coast we in fact do know next to nothing about the northeast). On the other, if the architecture goes with the slateware assemblage, why is it so early-looking and why is the arrangement of the site so different from Pure Florescent centers elsewhere? Moreover, the latter correlation would mean that the small residential groups and associated wall, which constitute the latest occupation at the site, would have to be pushed into the Postclassic--perhaps the Late Postclassic. Again, there would be no good ceramic evidence for such a placement. At this point we are confronted with several alternatives:

- 1) The stratigraphic evidence has been misinterpreted, and the early phase of plaza construction is only fortuitously associated with Formative material. In fact the major occupation at the site was late, associated with a slateware complex, with a final occupation by Postclassic households.
- 2) The large architecture is indeed Late Formative; after a hiatus there was a reoccupation by bearers of a slateware complex who built some plaza floors, the small residential groups, and just possibly reused (or maybe even built) one or two of the smaller pyramids. The scatter of Postclassic remains indicates only ritual reuse.
- 3) Some sort of sizeable Classic occupation was present, but has not been perceived archaeologically.
- 4) Our standard concepts of the chronological relationships of major ceramic entities do not apply in northeastern Yucatan. Thus the "Formative" wares at Dzont Aké could continue on into the Classic periods and/or the slateware assemblage predates the Pure Florescent. In either case one or the other is associated with Classic period monumental architecture.

Since any of these choices (except 3 which I feel we can discard) involves considerable revision of what we think we know about chronological phasing, architectural style, and ceramic entities I feel free to make the bold choice--that is, the second. This is most consistent with the evidence at hand. It would not surprise me if the fourth possibility is to some extent true, although I would rather speculate that the "Formative" wares extend forward into the Classic than that the slateware assemblage, with its Thin Slate/Fine Grey component, extends back any great distance.

Assuming that the major architecture at the site, or some considerable portion of it, was produced by early Maya groups using Cienaga sphere-related ceramics, our conception of the nature of the Late Preclassic of northeastern Yucatan is considerably modified. Indeed, this is the case even if the ceramic-architectural association breaks down as a result of future work, since it is undeniable that there was a large, dense early population at Dzont Aké, no matter what they built.

The only existing extensive archaeological evidence concerning the early occupational history in northeastern Yucatan comes from Eaton (1978) and Ball (1978). According to Ball's reconstruction (1978:122-125) the coastal occupation marked by Cienaga sphere ceramics represents the first substantial settlement of the northeastern zone--at least the littoral zone--at about 300-50 B.C. He sees this occupation as essentially peripheral to more complex processes elsewhere in northern Yucatan, and suggests that Cienaga sphere forms (and the populations that produced them) are related to and possibly derived from Dzibilchaltun. He sees Cienaga ceramic forms as ". . . characterized by conservatism and provincialism . . ." (1978:124) and one gets the impression that Ball

would apply these labels to the wider cultural attainments of Cienaga sphere groups as well.

If my interpretation of the ceramic/architectural association is correct, then several conclusions follow. First, early occupation was not confined to the coast. The most impressive Late Preclassic settlements are inland ones. Second, however one may view Cienaga ceramic attributes, overall socio-cultural development was complex, rivaling anything known elsewhere in Yucatan. Third, the emphasis on Dzibilchaltun as an unusually precocious center which dominated early Yucatecan developments is misconceived, and reflects only the abundance of evidence from that site as opposed to its paucity elsewhere, rather than real socio-cultural patterning or processes in northern Yucatan as a whole. The northeast emerges as a zone of early, vigorous cultural development in its own right.

Before going on to discuss the later occupation at Dzonot Aké, it should be noted that Ball (1978:128-129) thinks there was an occupational hiatus along the northeastern coast during the first part of the Early Classic (ca. 250-450 A.D.). This interpretation is consistent with our findings unless, again, "Formative" ceramic markers persist into Early Classic times in the northeast.

The late slateware occupation at Dzonot Aké probably produced the small residential Groups A-C, and I suggest we may regard this late occupation as that of a marginal elite group and associated retainers who walled themselves up amidst the earlier monumental structures. The slateware complex of Dzonot Aké is of particular interest since we currently cannot trace the origins of the northern slateware traditions, particularly Puuc Slate Ware; they may well be in northeastern Yucatan. The presence of Fine Grey Ware suggests that the Dzonot Aké slateware assemblage, or at least part of it, may predate the Pure Florescent (i.e. date to the Late Classic), but the presence of some Thin Slate indicates a Pure Florescent component as well. This would agree with the idea that the Copo sphere is spread all over northern Yucatan at ca. 650-750 A.D. I see no obvious evidence supporting Scenario III discussed above--that there is continuity in the northeast between the Cehpech sphere and the Hocaba complex.

One of Ball's maps (1978:140) showing probable lines of ceramic and population movement at ca. 990-1100 A.D. postulates a ceramic (and hence political?) boundary between the Sotuta and Cehpech spheres very close to Dzonot Aké. Such a notion is consistent with the possible fortifications at the site.

#### Suggestions for Future Work

If nothing else, our limited excavation and mapping clearly show that Cuca, Chacchob, and Dzonot Aké all would richly repay future archaeological work. The two Puuc sites need more complete excavation, especially to determine structural functions, variation, and phasing.



It is also imperative that adequate radiocarbon frameworks be constructed for Cuca and Chacchob, since these will allow us to sort out the various scenarios discussed above. Settlement surveys in the hinterlands of both sites would be even more helpful in this regard, and would be particularly fruitful in the cleared and densely settled countryside around Cuca. Chacchob, as an extremely shortlived elite center, is a unique site. It personally fascinates me because it provides such a synchronic glimpse of what a newly-founded center was like, without the overlay of subsequent occupation phases.

More work is most urgently needed at Dzonot Aké, since we have virtually no information from the region in which it is situated. In addition to the sorts of research suggested for Cuca and Chacchob, we particularly need a larger, more representative, and more carefully controlled ceramic sample which can provide the basis for a local sequence.

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APPENDIX A

Lot Breakdown and Definition by Trench

Table 1  
Cuca Lot Designations

| <u>Lot #</u> |              | <u>Provenience</u>                                                       |
|--------------|--------------|--------------------------------------------------------------------------|
| 1            | Op. 1, Tr. 1 | Material from clearing of rubble on outer fact of inner wall.            |
| 2            | Op. 1, Tr. 2 | Material from clearing of rubble or inner fact of inner wall.            |
| 3            | Op. 1        | Material from test excavation into fill of wall on lower, north terrace. |
| 4            | Op. 1, Tr. 3 | Material from wall fill in Tr. 1, across top of wall.                    |
| 5            | Op. 2, Tr. 7 | Material from surface to Floor 1 (Level 1).                              |
| 6            | Op. 5, Tr. 2 | Material from surface to Floor 1 (Level 1).                              |
| 7            | Op. 2, Tr. 7 | Material between Floors 1 & 2 (Level 2).                                 |
| 8            | Op. 5, Tr. 2 | Material from below Floor 1 in large rubble layer (Level 2).             |
| 9            | Op. 2, Tr. 7 | Material from below Floor 5 to bedrock.                                  |
| 10           | Op. 5, Tr. 3 | Material from above floor (Level 1).                                     |
| 11           | Op. 2, Tr. 9 | All sherds.                                                              |
| 12           | Op. 5, Tr. 3 | Material from below floor (Level 2).                                     |
| 13           | Op. 8, Tr. 1 | Material from clearing of wall-rubble along inner and outer sides.       |
| 14           | Op. 8, Tr. 1 | Material from below Floor 1 along north face of wall.                    |
| 15           | Op. 8, Tr. 1 | Under Floor 1, beneath construction fill of wall.                        |
| 16           | Op. 8, Tr. 1 | Material from beneath Floor 2 to bedrock.                                |
| 26           | Op. 2, Tr. 3 | Surface - Floor 1 (Level 1).                                             |
| 27           | Op. 2, Tr. 1 | All material from surface to Floor 2 (Floor 1 fragmentary).              |

Table 1 (continued)

|    |              |                                                                                                                    |
|----|--------------|--------------------------------------------------------------------------------------------------------------------|
| 28 | Op. 2, Tr. 2 | Collapse and structural fill above Floor 1.                                                                        |
| 29 | Op. 2, Tr. 3 | Material sealed below Floors 2 & 3 (Level 3).                                                                      |
| 30 | Op. 2, Tr. 1 | Material from fill beneath Floor 3.                                                                                |
| 31 | Op. 2, Tr. 4 | Humus and collapse rubble above Floor 1.                                                                           |
| 32 | Op. 2, Tr. 3 | Material sealed between Floor 3 and bedrock (Level 4).                                                             |
| 33 | Op. 2, Tr. 2 | Material from sealed fill between Floors 4 and 6.                                                                  |
| 34 | Op. 2, Tr. 5 | Humus and collapse rubble above Floor 1.                                                                           |
| 35 | Op. 2, Tr. 4 | Sealed fill beneath Floor 7.                                                                                       |
| 36 | Op. 2, Tr. 6 | Humus and collapse rubble above Floor 1.                                                                           |
| 37 | Op. 2, Tr. 5 | Sealed fill between Floors 2 and 3.                                                                                |
| 38 | Op. 2, Tr. 6 | Sealed fill beneath Floor 3.                                                                                       |
| 39 | Op. 2, Tr. 5 | Sealed fill between Floors 3 and 4.                                                                                |
| 40 | Op. 2, Tr. 8 | Humus and collapse rubble above Floor 2.                                                                           |
| 41 | Op. 2, Tr. 5 | Sealed fill between Floors 2 and 3.                                                                                |
| 42 | Op. 2, Tr. 5 | Sealed fill beneath Floor 4.                                                                                       |
| 43 | Op. 2, Tr. 8 | Sealed fill beneath Floor 3.                                                                                       |
| 44 | Op. 7, Tr. 1 | Humus and collapse rubble.                                                                                         |
| 45 | Op. 7, Tr. 2 | Collapse rubble and humus.                                                                                         |
| 46 | Op. 7, Tr. 2 | Collapse rubble and fill in front of wall (Feature 1) and above level of Feature 3 (floor).                        |
| 47 | Op. 7, Tr. 1 | Humus, collapse rubble and fill between stair risers of Feature 2 and south of Feature 2 on upper surface of wall. |
| 48 | Op. 7, Tr. 1 | Material from 1 x 2 m. cut into plaza at base of stairs; material from humus to bedrock at ca. 1 m. depth.         |

Table 1 (continued)

|     |               |                                                                            |
|-----|---------------|----------------------------------------------------------------------------|
| 49  | Op. 7, Tr. 2  | Fill of Feature 1 (task wall).                                             |
| 50  | Op. 2, Tr. 10 | Humus and collapse rubble above Floor 1.                                   |
| 51  | Op. 3, Tr. 1  | Material from above Floor 1.                                               |
| 52  | Op. 3, Tr. 1  | Material from below Floor 1, north end of trench.                          |
| 53  | Op. 3, Tr. 1  | Material from below packed earth surface, south half of trench.            |
| 61  | Op. 3, Tr. 2  | Material from collapse debris along outer face of wall.                    |
| 62  | Op. 3, Tr. 3  | Material from collapse debris along inner face of wall.                    |
| 63  | Op. 3, Tr. 4  | Material in or beneath intact wall fill.                                   |
| 64  | Op. 5, Tr. 1  | Removal of construction rubble above Floor 1.                              |
| 65  | Op. 5, Tr. 1  | Material from fill between Floors 1 and 2.                                 |
| 66  | Op. 5, Tr. 1  | Material sealed below Floor 2 but above large rubber layer.                |
| 67  | Op. 5, Tr. 4  | Material from clearing of rubble above floor exposed in cut.               |
| 69  | Op. 5, Tr. 4  | Sealed material from below floor; ca. 1.3-1.75 m. below mound surface.     |
| 76  | Op. 4, Tr. 1  | Clearing of rubble from outer face of inner wall.                          |
| 77  | Op. 4, Tr. 1  | Collapse rubble above present wall crest, working toward rear of Str. VII. |
| 78  | Op. 4, Tr. 2  | 0-50 cm.                                                                   |
| 79  | Op. 4, Tr. 2  | 50-100 cm.                                                                 |
| 80  | Op. 4, Tr. 1  | Material from white matrix in southern part of trench.                     |
| 88  |               | Mixed lot; provenience lost.                                               |
| 101 | Op. 2, Tr. 11 | Humus and collapse rubble above grouting stones.                           |



Table 1 (continued)

|     |                                                                                      |                                                                                                |
|-----|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| 102 | Op. 2, Tr. 10                                                                        | Sealed fill beneath Floor 1.                                                                   |
| 103 | Op. 7, Tr. 2                                                                         | Fill of Feature 5 (task wall).                                                                 |
| 104 | Op. 2, Tr. 11                                                                        | Humus and collapse rubble between stone alignments (Features 1 & 2) and above grouting stones. |
| 105 | Op. 7, Tr. 2                                                                         | Floor fill beneath Feature 3, in front of Feature 1 task wall.                                 |
| 106 | Op. 2, Tr. 10                                                                        | Sealed fill beneath Floor 4.                                                                   |
| 107 | Op. 2, Tr. 11                                                                        | Sealed below grouting stones but above Feature 4.                                              |
| 108 | Misc. lot collected from surface disturbance (tree blow-down?) just west of Str. VI. |                                                                                                |
| 109 | Op. 7, Tr. 2                                                                         | Floor fill beneath Feature 3 underlying Feature 1 task wall.                                   |
| 110 | Op. 7, Tr. 2                                                                         | Floor fill of Feature 3 beneath Feature 5 task wall.                                           |
| 111 | Op. 2, Tr. 10                                                                        | Sealed fill beneath Floor 6.                                                                   |
| 112 | Op. 2, Tr. 12                                                                        | Humus and collapse rubble.                                                                     |
| 113 | Op. 2, Tr. 13                                                                        | Humus and collapse rubble.                                                                     |

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Table 2  
Chacchob Lot Designations\*

| Lot # |               | <u>Provenience</u>        |
|-------|---------------|---------------------------|
| 1     | Op. 1, Tr. 1  | 0-80 cm. (Level 1)        |
| 2     | Op. 1, Tr. 1  | 80-160 cm. (Level 2)      |
| 3     | Op. 1, Tr. 2  | Surface bedrock (Level 1) |
| 4     | Op. 1, Tr. 3  | 0-50 cm. (Level 1)        |
| 5     | Op. 1, Tr. 3  | 50 cm. - 1 m. (Level 2)   |
| 6     | Op. 1, Tr. 4  | 0-20 cm. (Level 1)        |
| 7     | Op. 1, Tr. 7  | 0-20 cm. (Level 1)        |
| 8     | Op. 1, Tr. 8  | Surface bedrock (Level 1) |
| 9     | Op. 1, Tr. 4  | 20-40 cm. (Level 2)       |
| 10    | Op. 1, Tr. 7  | 20 cm. bedrock (Level 2)  |
| 11    | Op. 1, Tr. 4  | 40 cm. bedrock (Level 3)  |
| 12    | Op. 1, Tr. 9  | 0-20 cm. (Level 1)        |
| 13    | Op. 1, Tr. 11 | 0-50 cm. (Level 1)        |
| 14    | Op. 1, Tr. 12 | 0-20 cm. (Level 1)        |
| 15    | Op. 1, Tr. 9  | 20-40 cm. (Level 2)       |
| 16    | Op. 1, Tr. 12 | 20-40 cm. (Level 3)       |
| 17    | Op. 1, Tr. 9  | 40-60 cm. (Level 3)       |
| 18    | Op. 1, Tr. 12 | 40 cm. bedrock (Level 3)  |
| 19    | Op. 1, Tr. 11 | 50-100 cm. (Level 2)      |
| 20    | Op. 1, Tr. 13 | 0-20 cm. (Level 1)        |
| 21    | Op. 1, Tr. 9  | 60 cm. bedrock (Level 4)  |
| 22    | Op. 1, Tr. 11 | 100 cm. bedrock (Level 3) |
| 23    | Op. 1, Tr. 13 | 20-40 cm. (Level 2)       |

Table 2 (continued)

|      |               |                                         |
|------|---------------|-----------------------------------------|
| 24   | Op. 1, Tr. 14 | Surface-bedrock (Level 1)               |
| 25   | Op. 1, Tr. 13 | 40 cm. bedrock (Level 3)                |
| 26   | Op. 2, Tr. 1  | Fill of Gate B.                         |
| 27   | Op. 1, Tr. 5  | Surface-bedrock (Level 1)               |
| 28   | Op. 1, Tr. 6  | 0-20 cm. (Level 1)                      |
| 29   | Op. 1, Tr. 10 | Surface-bedrock (Level 1)               |
| 30   | Op. 1, Tr. 6  | 20 cm. bedrock (Level 2)                |
| 51   | Op. 3, Tr. 1  | Collapse debris from clearing of wall.  |
| 52   | Op. 3, Tr. 1  | Material from removal of upper terrace. |
| 76   | Op. 1, Tr. 16 | Surface-bedrock (Level 1)               |
| 77   | Op. 1, Tr. 15 | 0-50 cm. (Level 1)                      |
| 78   | Op. 4, Tr. 1  | Fill of Gate A                          |
| 79   | Op. 1, Tr. 15 | 50 cm. bedrock (Level 2)                |
| 101  | Op. 1, Tr. 17 | Surface-bedrock (Level 1)               |
| 102  | Op. 5, Tr. 1  | Clearing of collapse debris from wall.  |
| 17-1 | Mixed lot     |                                         |

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\* Note that there are no lots listed for the wall exposure in Op. 2, Tr. 2. The collapse debris from this area of the wall was sterile.

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Table 3  
Dzonot Aké Lot Designations

| <u>Lot #</u> |              | <u>Provenience</u>                                                                                  |
|--------------|--------------|-----------------------------------------------------------------------------------------------------|
| 1            | Op. 1, Tr. 1 | 0-20 cm. (Level 1)                                                                                  |
| 2            | Op. 1, Tr. 2 | Surface-Feature 1 (Level 1)                                                                         |
| 3            | Op. 1, Tr. 3 | 0-20 cm. (Level 1)                                                                                  |
| 4            | Op. 1, Tr. 4 | 0-20 cm. (Level 1)                                                                                  |
| 5            | Op. 1, Tr. 1 | 20 cm. - Feature 1 (floor associated with burial - Feature 2)                                       |
| 6            | Op. 1, Tr. 3 | 20 cm. - Feature 1 (Level 2)                                                                        |
| 7            | Op. 1, Tr. 4 | 20 cm. - Feature 1 (Level 2)                                                                        |
| 8            | Op. 1, Tr. 1 | Skeleton and associated artifacts (Feature 2)                                                       |
| 9            | Op. 1, Tr. 4 | Material between Features 1 and 2 (Level 3)                                                         |
| 10           | Op. 1, Tr. 3 | Material recovered while removing Feature 1 floor cluster                                           |
| 11           | Op. 1, Tr. 3 | Material below lowest floor in Feature 1 cluster, to Feature 2, in western half of trench; unsealed |
| 12           | Op. 1, Tr. 2 | Material between Features 1 and 2 (sealed, Level 2)                                                 |
| 13           | Op. 1, Tr. 2 | Material below Feature 1 to 90 cm. level (Level 3)                                                  |
| 14           | Op. 1, Tr. 4 | Material below Feature 2 to bedrock at -1.4 m. (sealed, Level 4)                                    |
| 15           | Op. 1, Tr. 1 | Extension of Trench 1; surface to level of burial                                                   |
| 16           | Op. 1, Tr. 3 | Same level as Lot 11, but <u>sealed</u> between Feature 1 and 2 in eastern half of trench           |

Table 3 (continued)

|    |               |                                                                     |
|----|---------------|---------------------------------------------------------------------|
| 17 | Op. 1, Tr. 1  | Material sealed between Features 1 and 3 (Level 3)                  |
| 18 | Op. 1, Tr. 1  | Material sealed between Features 3 and 4 (Level 4)                  |
| 19 | Op. 1, Tr. 1  | Material sealed below Feature 4 to bottom of terrace fill (Level 5) |
| 20 | Op. 1, Tr. 11 | 0-25 cm. (Level 1)                                                  |
| 21 | Op. 1, Tr. 11 | 25 cm. to Feature 1 (Level 2)                                       |
| 22 | Op. 1, Tr. 3  | Material between Feature 2 and bedrock; unsealed (Level 6)          |
| 23 | Op. 1, Tr. 11 | Material sealed between Features 1 and 2 (Level 3)                  |
| 24 | Op. 1, Tr. 1  | Material from base of construction fill to bedrock (Level 6)        |
| 25 | Op. 1, Tr. 3  | Material between Feature 2 and bedrock; sealed (Level 6)            |
| 26 | Op. 1, Tr. 5  | Surface to Feature 1 (Level 1)                                      |
| 27 | Op. 1, Tr. 6  | Surface to Feature 1 (Level 1)                                      |
| 28 | Op. 1, Tr. 7  | 0-20 cm. (Level 1)                                                  |
| 29 | Op. 1, Tr. 8  | Surface to layer of small rubble at ca. -60 cm. (Level 1)           |
| 30 | Op. 1, Tr. 7  | 20 cm. to layer of small rubble at ca. -60 cm. (Level 2)            |
| 31 | Op. 1, Tr. 5  | Material between Features 1 and 2 (Level 2)                         |
| 32 | Op. 1, Tr. 6  | Material between Features 1 and 2 (Level 2)                         |
| 33 | Op. 1, Tr. 7  | 60 cm. to level of large rubble fill (Level 3)                      |
| 34 | Op. 1, Tr. 8  | 60 cm. to level of large rubble fill (Level 2)                      |
| 35 | Op. 1, Tr. 6  | Material between Features 2 and 3 (Level 3)                         |

Table 3 (continued)

|    |               |                                                                             |
|----|---------------|-----------------------------------------------------------------------------|
| 36 | Op. 1, Tr. 5  | Material between Features 2 and 3<br>(Level 3)                              |
| 37 | Op. 1, Tr. 6  | Material between Features 3 and 4<br>(Level 4)                              |
| 38 | Op. 1, Tr. 9  | Surface to Feature 1 (Level 1)                                              |
| 39 | Op. 1, Tr. 6  | Material between Features 4 and 5<br>(Level 5)                              |
| 40 | Op. 1, Tr. 6  | Material between Feature 5 and small<br>rubble layer (Level 6)              |
| 41 | Op. 1, Tr. 5  | Material below Feature 3 down to red<br>soil layer (Level 4)                |
| 42 | Op. 1, Tr. 5  | Material in red soil layer (Level 5)                                        |
| 43 | Op. 1, Tr. 9  | Feature 1 to bedrock (Level 2)                                              |
| 44 | Op. 1, Tr. 6  | Material in layer of small rubble<br>(Level 7)                              |
| 45 | Op. 1, Tr. 10 | Surface to Feature 1 (Level 1)                                              |
| 46 | Op. 1, Tr. 6  | Material from red soil (ca. 2-2.5 m.;<br>Layer 8)                           |
| 47 | Op. 1, Tr. 10 | Material between Features 1 and 2<br>(Level 2)                              |
| 48 | Op. 1, Tr. 10 | Material between Feature 2 and bedrock<br>Level 3)                          |
| 51 | Op. 2, Tr. 1  | Surface - 30 cm. (Level 1)                                                  |
| 52 | Op. 2, Tr. 2  | Surface - 45 cm. (Level 1)                                                  |
| 53 | Op. 2, Tr. 3  | Humus and collapse rubble down to bedrock<br>adjacent to inner face of wall |
| 54 | Op. 2, Tr. 1  | 30-60 cm. (Level 2)                                                         |
| 55 | Op. 2, Tr. 2  | 45 cm. - 165 cm. (Level 2)                                                  |
| 56 | Op. 2, Tr. 3  | Wall rubble and fill down to bedrock                                        |
| 57 | Op. 2, Tr. 1  | Fill, 60 cm. - 125 cm.; above Feature 2                                     |

Table 3 (continued)

|    |               |                                                                            |
|----|---------------|----------------------------------------------------------------------------|
| 58 | Op. 2, Tr. 1  | Sealed floor fill beneath Feature 2                                        |
| 59 | Op. 2, Tr. 1  | Humus and wall collapse rubble north of wall crest.                        |
| 60 | Op. 2, Tr. 1  | Fill below level of Feature 3, and above Feature 5, north of wall crest.   |
| 61 | Op. 2, Tr. 2  | Collapse and fill of wall rubble; just north of Lot 52                     |
| 62 | Op. 2, Tr. 1  | Fill of wall above Feature 3                                               |
| 63 | Op. 2, Tr. 1  | Sealed floor fill beneath Feature 3                                        |
| 76 | Op. 1, Tr. 11 | Material sealed in rock rubble fill beneath Feature 2 to 85 cm. (Level 4). |
| 77 | Op. 1, Tr. 11 | Material between 85 cm. to bedrock (Level 5).                              |
| 78 | Op. 2, Tr. 4  | Material from clearing of wall rubble                                      |

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APPENDIX B

Ceramic Distribution



**TABLE A: Ceramic distribution at Cuca**

[illegible]

**TABLE B: Ceramic distribution at Chacchob**

| LOT         | BODY                            |                                          |                             |                           |                                                   |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        | RIM                                                        |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
|-------------|---------------------------------|------------------------------------------|-----------------------------|---------------------------|---------------------------------------------------|---------------------------------------------------|--------------------------------------------------|------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|-----------------------------------------|---------------------------|----------------------------------------------|--------------------------------------------------------|------------------------------------------------------------|-----------------------------------|-------------------|---------------------------------------------|-------------------------------------------|-----------------------------------------------------|----------------------------------------------|--------------------------------------------|--------------------------------------------------------|------------------------------|----------------------------------------------------|-----------------------------------------|---------------------------------------------|---------------------|
|             | PSW Muna Slate Type body sherds | Puuc Unslipped Ware striated body sherds | Thin Slate Ware body sherds | Puuc Red Ware body sherds | Weathered and/or unslipped/unstriated body sherds | PSW Muna Slate Type Impressed Variety body sherds | PSW Tekit Inscribed basal-break dish body sherds | PSW Nohcacab Type basal-break dish body sherds | PSW Muna Slate Type body sherds with trickle-painting | Weathered body sherds, probably all Puuc Slate Ware | PSW Akil Impressed Type jar body sherds | Unslipped censer fragment | PSW Muna Slate Type near-rim jar body sherds | PSW Muna Slate Type step-carved ring-stand base frags. | Puuc Unslipped Ware Yokat Striated Type Yokat Variety rims | Puuc Red Ware Teabo Red Type rims | Red on orange rim | Thin Slate Ware Ticul Type hemis. bowl rims | PSW Muna Slate Type basal-break dish rims | PSW Muna Slate Type Impressed Variety b/b dish rims | PSW Tekit incised Type basal-break dish rims | PSW Muna Slate Type bolster rim basin rims | PSW Muna Slate Type bolster rims with trickle painting | PSW Muna Slate Type jar rims | PSW Muna Slate Type jar rims with trickle painting | PSW Muna Slate Type ringstand bowl rims | PSW Muna Slate Type hemispherical bowl rims | PSW Muna Slate Type |
| 1           | 18                              | 15                                       |                             |                           | 21                                                |                                                   |                                                  |                                                |                                                       | 3                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 5                                         | 1                                                   |                                              | 6                                          | 1                                                      | 1                            |                                                    |                                         |                                             |                     |
| 2           | 3                               | 2                                        |                             |                           | 6                                                 | 2                                                 |                                                  |                                                | 1                                                     |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 3           | 6                               |                                          |                             |                           | 13                                                |                                                   |                                                  |                                                |                                                       | 1                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 4           | 8                               | 3                                        |                             |                           | 3                                                 |                                                   |                                                  |                                                |                                                       | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              | 1                                          |                                                        |                              |                                                    |                                         |                                             |                     |
| 5           | 3                               | 3                                        |                             |                           | 4                                                 |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           | 1                                            |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 6           | 46                              | 40                                       |                             | 1                         | 158                                               |                                                   |                                                  |                                                | 1                                                     | 3                                                   |                                         |                           | 1                                            |                                                        |                                                            |                                   |                   | 1                                           | 3                                         |                                                     |                                              |                                            | 1                                                      | 3                            |                                                    | 1                                       |                                             |                     |
| 7           | 19                              | 4                                        |                             | 1                         | 32                                                |                                                   | 1                                                |                                                |                                                       | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 8           | 9                               | 2                                        |                             |                           | 29                                                |                                                   |                                                  |                                                |                                                       | 3                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 9           | 47                              | 27                                       |                             | 1                         | 33                                                |                                                   |                                                  |                                                | 3                                                     | 2                                                   |                                         |                           |                                              |                                                        | 1                                                          |                                   |                   |                                             | 4                                         |                                                     |                                              | 3                                          | 1                                                      |                              | 1                                                  |                                         |                                             |                     |
| 10          | 12                              | 2                                        |                             |                           | 9                                                 |                                                   |                                                  |                                                |                                                       | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         | 1                                                   |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 11          | 38                              | 25                                       | 2                           |                           | 33                                                | 2                                                 |                                                  |                                                | 4                                                     | 1                                                   |                                         |                           | 3                                            |                                                        |                                                            | 1                                 |                   | 1                                           | 3                                         | 1                                                   |                                              | 2                                          | 1                                                      | 2                            |                                                    | 1                                       | 1                                           |                     |
| 12          | 160                             | 83                                       | 2                           | 5                         | 206                                               | 2                                                 |                                                  | 2                                              | 1                                                     | 5                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   | 4                                           |                                           |                                                     |                                              | 2                                          |                                                        | 2                            |                                                    | 6                                       |                                             |                     |
| 13          | 28                              | 14                                       |                             |                           | 11                                                |                                                   |                                                  | 1                                              |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 3                                         | 1                                                   |                                              | 1                                          |                                                        |                              |                                                    | 1                                       | 1                                           |                     |
| 14          | 35                              | 14                                       |                             | 1                         | 77                                                |                                                   |                                                  |                                                |                                                       | 3                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              | 2                                          |                                                        |                              |                                                    |                                         |                                             |                     |
| 15          | 111                             | 122                                      | 4                           | 5                         | 116                                               | 1                                                 |                                                  |                                                | 1                                                     | 4                                                   |                                         |                           | 1                                            | 1                                                      |                                                            |                                   |                   | 5                                           | 11                                        | 1                                                   |                                              | 4                                          |                                                        | 7                            |                                                    | 1                                       | 1                                           |                     |
| 16          | 33                              | 10                                       |                             | 2                         | 24                                                |                                                   |                                                  |                                                | 1                                                     | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   | 1                                           |                                           |                                                     |                                              |                                            | 1                                                      | 1                            |                                                    |                                         |                                             |                     |
| 17          | 104                             | 89                                       |                             |                           | 45                                                | 2                                                 |                                                  |                                                | 1                                                     | 7                                                   |                                         |                           |                                              | 1                                                      |                                                            |                                   |                   | 1                                           | 10                                        |                                                     |                                              | 6                                          | 4                                                      | 4                            | 1                                                  | 1                                       |                                             |                     |
| 18          | 10                              | 12                                       |                             |                           | 15                                                |                                                   |                                                  |                                                |                                                       | 2                                                   |                                         |                           | 2                                            |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 19          | 14                              | 4                                        |                             |                           | 13                                                | 2                                                 |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              | 1                                          |                                                        | 2                            |                                                    | 1                                       |                                             |                     |
| 20          | 2                               | 1                                        |                             |                           | 15                                                |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              | 1                                          |                                                        |                              |                                                    |                                         |                                             |                     |
| 21          | 96                              | 66                                       | 2                           | 6                         | 95                                                | 2                                                 |                                                  |                                                | 2                                                     | 3                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   | 2                                           | 8                                         |                                                     | 1                                            | 8                                          |                                                        | 2                            |                                                    | 4                                       |                                             |                     |
| 22          | 1                               |                                          |                             |                           | 4                                                 |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 23          | 1                               | 1                                        |                             |                           | 14                                                |                                                   |                                                  |                                                |                                                       | 1                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              | 1                                          |                                                        |                              |                                                    |                                         |                                             |                     |
| 24          | 27                              | 5                                        |                             |                           | 49                                                |                                                   |                                                  |                                                |                                                       | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              |                                            |                                                        | 2                            |                                                    | 1                                       |                                             |                     |
| 25          |                                 |                                          |                             |                           | 10                                                |                                                   |                                                  |                                                |                                                       | 1                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 26          | 10                              |                                          |                             | 1                         | 73                                                |                                                   |                                                  |                                                |                                                       | 1                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             | 1                   |
| 27          | 126                             | 109                                      | 3                           | 6                         | 418                                               | 1                                                 | 1                                                | 2                                              | 1                                                     | 12                                                  |                                         | 1                         |                                              |                                                        |                                                            |                                   |                   | 3                                           | 6                                         |                                                     | 1                                            | 4                                          |                                                        | 2                            |                                                    | 3                                       | 1                                           |                     |
| 28          | 311                             | 266                                      | 7                           | 9                         | 337                                               | 2                                                 |                                                  | 1                                              | 25                                                    | 12                                                  | 2                                       |                           |                                              |                                                        | 1                                                          | 1                                 |                   | 8                                           | 32                                        |                                                     | 1                                            | 6                                          |                                                        | 6                            |                                                    |                                         |                                             |                     |
| 29          | 77                              | 97                                       | 1                           | 1                         | 343                                               |                                                   |                                                  |                                                | 4                                                     | 9                                                   |                                         |                           |                                              |                                                        |                                                            | 1                                 |                   |                                             | 8                                         |                                                     | 1                                            | 2                                          | 1                                                      |                              |                                                    |                                         | 1                                           |                     |
| 30          | 56                              | 49                                       | 1                           |                           | 21                                                |                                                   |                                                  |                                                | 4                                                     | 1                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   | 1                                           | 7                                         |                                                     |                                              | 3                                          |                                                        | 2                            |                                                    |                                         |                                             |                     |
| 51          |                                 | 1                                        |                             | 1                         | 12                                                |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 52          | 1                               |                                          |                             |                           |                                                   |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 76          | 16                              | 45                                       | 1                           |                           | 34                                                |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   | 1                                           | 2                                         |                                                     |                                              |                                            |                                                        | 1                            |                                                    | 3                                       |                                             |                     |
| 77          | 16                              | 17                                       |                             |                           | 31                                                |                                                   |                                                  |                                                | 1                                                     | 3                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              |                                            |                                                        | 1                            |                                                    |                                         |                                             |                     |
| 78          | 1045                            | 198                                      |                             |                           | 76                                                |                                                   |                                                  |                                                | 3                                                     | 31                                                  |                                         |                           | 4                                            |                                                        |                                                            |                                   |                   | 2                                           | 2                                         |                                                     |                                              | 60                                         | 4                                                      | 32                           |                                                    | 2                                       | 3                                           |                     |
| 79          | 3                               | 2                                        |                             |                           | 3                                                 |                                                   |                                                  |                                                |                                                       |                                                     |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 101         | 8                               | 3                                        |                             |                           | 43                                                |                                                   |                                                  |                                                |                                                       | 1                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 1                                         |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 102         | 8                               | 7                                        |                             |                           | 36                                                |                                                   |                                                  |                                                |                                                       | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             |                                           |                                                     |                                              |                                            |                                                        |                              |                                                    |                                         |                                             |                     |
| 17-1        | 55                              | 40                                       | 1                           | 1                         | 43                                                |                                                   |                                                  | 2                                              | 1                                                     | 2                                                   |                                         |                           |                                              |                                                        |                                                            |                                   |                   |                                             | 5                                         | 1                                                   | 3                                            | 5                                          |                                                        | 1                            |                                                    | 2                                       |                                             |                     |
| TOTAL:      | 2563                            | 1388                                     | 24                          | 41                        | 2505                                              | 16                                                | 2                                                | 8                                              | 54                                                    | 123                                                 | 2                                       | 1                         | 12                                           | 2                                                      | 3                                                          | 3                                 | 1                 | 30                                          | 118                                       | 5                                                   | 8                                            | 121                                        | 14                                                     | 73                           | 2                                                  | 27                                      | 9                                           | 02                  |
| % of TOTAL: | 34                              | 18                                       | .31                         | .54                       | .33                                               | .21                                               | .026                                             | .11                                            | .71                                                   | 1.6                                                 | .026                                    | .013                      | .16                                          | .026                                                   | .039                                                       | .039                              | .013              | .39                                         | 1.56                                      | .066                                                | .11                                          | 1.6                                        | .18                                                    | .96                          | .026                                               | .36                                     | .12                                         |                     |

| restricted mouth<br>bowl rims | Misc. Puuc Slate<br>Ware rims | Misc. weathered<br>rims, probably all<br>Puuc Slate Ware | DIAGNOSTIC-SHAPED BODY                     |                                                     |                                                      |                                                        |                                                      |                                            | WEATHERED                                               |                                    |                                             | MISC. |
|-------------------------------|-------------------------------|----------------------------------------------------------|--------------------------------------------|-----------------------------------------------------|------------------------------------------------------|--------------------------------------------------------|------------------------------------------------------|--------------------------------------------|---------------------------------------------------------|------------------------------------|---------------------------------------------|-------|
|                               |                               |                                                          | PSW Muna Slate Type<br>bulbous foot frags. | PSW Muna Slate Type<br>strap-handled body<br>sherds | PSW Muna Slate Type<br>Ring-base bowl<br>body sherds | PSW Muna Slate Type<br>flat/concave basal<br>fragments | PSW Muna Slate Type<br>cone-shaped foot<br>fragments | PSW Muna Slate Type<br>slab-foot fragments | Weathered bolster -<br>rim basin rims -<br>probably PSW | Weathered jar rims<br>probably PSW | Weathered strap<br>handles, probably<br>PSW |       |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      | 1                                          | 2                                                       | 4                                  | 1                                           |       |
|                               |                               |                                                          |                                            |                                                     |                                                      |                                                        |                                                      |                                            |                                                         | 1                                  | 1                                           | 3     |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 1                                                       |                                    |                                             |       |
|                               |                               | 5                                                        |                                            | 1                                                   |                                                      | 1                                                      |                                                      | 1                                          | 1                                                       | 4                                  |                                             | 3     |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 3                                                       |                                    | 1                                           |       |
|                               |                               | 3                                                        |                                            | 2                                                   | 1                                                    | 2                                                      |                                                      |                                            |                                                         | 4                                  | 1                                           | 2     |
|                               |                               | 3                                                        |                                            |                                                     | 2                                                    | 2                                                      |                                                      |                                            |                                                         | 3                                  |                                             |       |
| 1                             |                               | 4                                                        |                                            | 3                                                   |                                                      | 1                                                      |                                                      |                                            | 8                                                       | 9                                  | 3                                           | 1     |
| 1                             |                               |                                                          |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 1                                                       |                                    | 1                                           | 2     |
|                               |                               |                                                          |                                            |                                                     | 1                                                    |                                                        |                                                      |                                            | 4                                                       |                                    | 2                                           |       |
|                               |                               | 5                                                        |                                            | 2                                                   | 1                                                    | 2                                                      |                                                      |                                            | 1                                                       | 5                                  | 4                                           | 2     |
|                               |                               |                                                          | 1                                          |                                                     |                                                      |                                                        |                                                      |                                            |                                                         |                                    | 1                                           | 6     |
|                               |                               |                                                          |                                            |                                                     |                                                      |                                                        |                                                      | 2                                          | 3                                                       | 5                                  | 4                                           | 2     |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            |                                                         | 3                                  |                                             | 1     |
|                               |                               |                                                          |                                            |                                                     |                                                      |                                                        |                                                      |                                            |                                                         | 2                                  |                                             |       |
|                               | 4                             | 7                                                        |                                            | 1                                                   |                                                      | 2                                                      |                                                      |                                            | 7                                                       | 9                                  | 1                                           | 4     |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            |                                                         |                                    |                                             |       |
|                               |                               | 5                                                        |                                            |                                                     |                                                      | 1                                                      |                                                      |                                            | 2                                                       |                                    | 1                                           |       |
|                               |                               |                                                          |                                            |                                                     |                                                      |                                                        |                                                      |                                            |                                                         |                                    |                                             |       |
|                               |                               | 17                                                       |                                            |                                                     |                                                      | 1                                                      |                                                      |                                            | 6                                                       | 3                                  | 1                                           | 2     |
|                               |                               | 5                                                        |                                            | 5                                                   |                                                      | 1                                                      |                                                      | 6                                          | 1                                                       | 5                                  | 9                                           | 4     |
|                               |                               | 9                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 3                                                       | 4                                  | 3                                           | 6     |
|                               |                               |                                                          | 1                                          |                                                     |                                                      |                                                        | 1                                                    |                                            |                                                         | 3                                  |                                             |       |
|                               |                               |                                                          |                                            |                                                     |                                                      | 1                                                      |                                                      |                                            |                                                         |                                    |                                             |       |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 1                                                       | 8                                  |                                             |       |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 1                                                       |                                    | 2                                           |       |
|                               |                               | 5                                                        |                                            | 5                                                   |                                                      | 3                                                      |                                                      | 1                                          | 10                                                      | 23                                 | 17                                          | 12    |
|                               | 1                             |                                                          |                                            |                                                     |                                                      |                                                        |                                                      |                                            |                                                         |                                    |                                             |       |
|                               |                               | 1                                                        |                                            |                                                     |                                                      |                                                        |                                                      |                                            | 1                                                       | 1                                  |                                             |       |
|                               |                               | 4                                                        |                                            |                                                     | 2                                                    |                                                        |                                                      |                                            | 2                                                       |                                    | 2                                           |       |
|                               | 2                             | 2                                                        |                                            | 1                                                   |                                                      | 1                                                      |                                                      | 1                                          | 1                                                       | 1                                  | 1                                           |       |
| 2                             | 7                             | 79                                                       | 2                                          | 20                                                  | 7                                                    | 18                                                     | 1                                                    | 12                                         | 59                                                      | 101                                | 56                                          | 56    |
| .6                            | .092                          | 1.04                                                     | .026                                       | .26                                                 | .092                                                 | .24                                                    | .013                                                 | .16                                        | .78                                                     | 1.33                               | .74                                         | .74   |

80  
15  
25  
20  
12  
275  
64  
45  
137  
33  
129  
511  
66  
140  
418  
83  
292  
46  
50  
19  
332  
6  
18  
96  
11  
88  
732  
1063  
571  
151  
16  
1  
114  
75  
1538  
9  
59  
63  
172

7575



TABLE C: Ceramic distribution at Dzonot Aké

| LOT        | Rim                   |                  |               |                    |            |                |                                 |                                 |                 |                                   | Weathered rims     |                      |                    |      |                             |                 | Body               |            |                                    |                  |                 |                       |                  |               |                                        |      | TOTAL   |
|------------|-----------------------|------------------|---------------|--------------------|------------|----------------|---------------------------------|---------------------------------|-----------------|-----------------------------------|--------------------|----------------------|--------------------|------|-----------------------------|-----------------|--------------------|------------|------------------------------------|------------------|-----------------|-----------------------|------------------|---------------|----------------------------------------|------|---------|
|            | Dzonot Aké Variegated | Dzonot Aké Brown | "Orange" ware | Unslipped/striated | Thin Slate | Fine Grey Ware | Slate Ware - bolster rim basins | Slate Ware - basal-break dishes | Slate Ware jars | Medial-flanged polychrome vessels | Basal-break dishes | Incurving-rim basins | Bolster rim basins | Jars | Probable basal-break dishes | Thin Slate Ware | Unslipped/striated | Slate Ware | Slate Ware with trickle decoration | Fine Orange Ware | Polychrome Ware | Dzonot Aké Variegated | Dzonot Aké Brown | "Orange" ware | Weathered and/or unslipped nonstriated |      |         |
| 1          |                       |                  |               |                    |            | 1              | 1                               |                                 | 1               |                                   |                    | 2                    | 2                  | 1    |                             | 1               | 5                  | 2          |                                    |                  |                 |                       |                  |               |                                        | 56   | 71      |
| 2          |                       | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      | 1                  |      |                             |                 | 5                  |            |                                    |                  |                 |                       |                  |               |                                        | 79   | 87      |
| 3          |                       |                  |               |                    |            |                | 2                               |                                 |                 |                                   | 1                  | 3                    | 3                  | 3    | 1                           | 1               | 34                 | 5          |                                    |                  |                 |                       |                  |               |                                        | 70   | 123     |
| 4          | 2                     | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      | 1                  |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 13   | 17      |
| 5          |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      | 1                  |      |                             |                 | 3                  | 2          |                                    |                  |                 |                       |                  |               |                                        | 24   | 30      |
| 6          |                       |                  |               |                    |            |                |                                 | 1                               | 1               |                                   |                    | 1                    |                    | 1    |                             |                 | 7                  | 4          |                                    |                  |                 | 2                     |                  |               |                                        | 13   | 30      |
| 7          |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    |                    |      |                             |                 | 5                  | 3          |                                    |                  |                 | 1                     |                  |               |                                        | 12   | 22      |
| 8          |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 8                  |            |                                    |                  |                 |                       |                  |               |                                        |      | 8       |
| 9          |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        |      | 1       |
| 10         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    |                    |      |                             |                 | 3                  | 1          |                                    |                  |                 |                       |                  |               |                                        | 11   | 16      |
| 11         | 4                     | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 5                  |            |                                    |                  |                 | 4                     |                  |               |                                        | 15   | 29      |
| 12         | 1                     | 4                |               |                    |            |                |                                 |                                 |                 |                                   | 1                  |                      |                    |      |                             |                 | 62                 |            |                                    |                  |                 | 1                     | 2                |               |                                        | 100  | 171     |
| 13         | 6                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    |                    | 1    |                             |                 | 2                  | 1          |                                    |                  |                 | 4                     |                  |               |                                        | 20   | 35      |
| 14         | 2                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 4                    | 1                  | 1    |                             |                 | 8                  |            |                                    |                  |                 | 2                     |                  |               |                                        | 60   | 78      |
| 15         | 1                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    | 1                  |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 18   | 21      |
| 16         | 5                     | 3                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 4                  | 1          |                                    |                  |                 | 11                    |                  |               |                                        | 12   | 36      |
| 17         | 1                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 1                  |            |                                    |                  |                 | 1                     |                  |               |                                        | 10   | 13      |
| 18         | 3                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 2                  |            |                                    |                  |                 | 2                     |                  |               |                                        | 13   | 20      |
| 19         | 7                     | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    | 4                    | 2                  |      |                             |                 | 60                 | 1          |                                    |                  |                 | 8                     |                  |               |                                        | 50   | 133     |
| 20         |                       |                  |               | 1                  |            |                |                                 |                                 |                 |                                   | 2                  | 1                    | 3                  | 3    | 1                           |                 | 40                 |            |                                    |                  |                 |                       |                  |               |                                        | 168  | 219     |
| 21         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    | 2                  |      |                             |                 | 8                  | 4          |                                    |                  |                 |                       |                  |               |                                        | 37   | 52      |
| 22         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 6    | 6       |
| 23         | 3                     | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 15                 |            |                                    |                  |                 | 1                     | 1                |               |                                        | 57   | 78      |
| 24         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 1    | 1       |
| 25         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 | 1                     |                  |               |                                        | 5    | 6       |
| 26         | 1                     |                  |               |                    | 1          | 1              |                                 |                                 |                 |                                   | 2                  | 6                    | 7                  | 2    | 2                           | 1               | 37                 | 4          |                                    |                  |                 |                       |                  |               |                                        | 179  | 243     |
| 27         |                       |                  |               |                    | 1          | 7              |                                 |                                 |                 |                                   |                    | 3                    | 3                  | 2    |                             |                 | 23                 | 3          |                                    |                  |                 |                       |                  |               |                                        | 132  | 174     |
| 28         |                       |                  |               |                    |            |                |                                 | 1                               |                 |                                   | 6                  | 2                    | 7                  | 1    | 8                           | 1               | 37                 | 3          |                                    |                  |                 |                       |                  |               |                                        | 214  | 280     |
| 29         | 1                     |                  |               | 1                  |            |                | 1                               | 2                               |                 |                                   | 5                  | 10                   | 7                  | 1    | 4                           | 1               | 29                 | 6          | 1                                  |                  |                 | 1                     |                  |               |                                        | 121  | 191     |
| 30         | 2                     |                  | 5             | 1                  |            | 1              | 1                               | 1                               |                 |                                   | 3                  | 3                    | 1                  |      | 5                           |                 | 23                 | 10         |                                    |                  |                 |                       |                  |               | 38                                     | 169  | 263     |
| 31         |                       | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      | 1                  |      |                             |                 | 5                  |            |                                    |                  |                 |                       |                  |               |                                        | 30   | 37      |
| 32         |                       |                  |               |                    |            | 2              |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 3                  |            |                                    |                  |                 |                       |                  |               |                                        | 5    | 10      |
| 33         |                       |                  | 2             |                    |            |                |                                 |                                 |                 |                                   |                    |                      | 1                  |      |                             |                 | 1                  | 4          | 1                                  |                  |                 |                       |                  | 2             |                                        | 6    | 17      |
| 34         |                       |                  |               | 1                  |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 1                  | 1          |                                    |                  |                 | 2                     |                  |               |                                        | 11   | 16      |
| 35         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    | 1    |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 5    | 6       |
| 36         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    | 1    |                             |                 | 5                  |            |                                    |                  |                 |                       |                  |               |                                        | 24   | 30      |
| 37         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 10   | 10      |
| 38         | 2                     |                  | 2             | 5                  | 2          | 1              | 2                               | 1                               |                 |                                   | 6                  | 12                   | 6                  | 4    | 6                           | 1               | 37                 | 20         | 9                                  |                  |                 |                       |                  | 1             |                                        | 262  | 380     |
| 39         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    |                    |      |                             |                 | 1                  |            |                                    |                  |                 | 1                     |                  |               |                                        | 11   | 14      |
| 40         | 5                     |                  |               | 1                  |            |                |                                 |                                 |                 |                                   |                    |                      | 1                  |      |                             |                 | 28                 |            |                                    |                  |                 | 3                     | 3                |               |                                        | 80   | 121     |
| 41         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 2    | STERILE |
| 42         |                       |                  | 1             |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 3    | 3       |
| 43         | 7                     | 1                | 1             |                    |            |                |                                 | 3                               |                 |                                   | 2                  | 6                    | 5                  | 1    | 2                           |                 | 65                 | 9          |                                    |                  |                 | 2                     |                  |               |                                        | 226  | 330     |
| 44         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    | 1                  |      |                             |                 | 13                 |            |                                    |                  |                 |                       | 1                |               |                                        | 38   | 54      |
| 45         |                       |                  |               |                    |            |                | 2                               |                                 |                 |                                   | 1                  | 6                    | 2                  |      | 1                           | 1               | 23                 | 4          |                                    |                  |                 |                       |                  |               |                                        | 261  | 301     |
| 46         |                       | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 2                  |            |                                    |                  |                 |                       |                  | 1             |                                        | 19   | 23      |
| 47         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 3                  |            |                                    |                  |                 |                       |                  |               |                                        | 11   | 14      |
| 48         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 2    | 2       |
| 50         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        |      | STERILE |
| 51         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   | 10                 | 6                    |                    |      | 8                           | 1               | 65                 |            |                                    |                  |                 |                       |                  |               |                                        | 257  | 350     |
| 52         |                       |                  | 1             |                    |            |                |                                 | 1                               |                 |                                   | 2                  |                      | 3                  |      | 2                           |                 | 11                 | 4          |                                    |                  |                 |                       |                  |               |                                        | 61   | 86      |
| 53         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   | 1                  | 1                    | 4                  |      | 1                           |                 | 15                 | 1          |                                    | 1                |                 |                       |                  |               |                                        | 31   | 51      |
| 54         | 2                     | 1                |               | 1                  |            |                | 1                               |                                 |                 |                                   | 2                  | 5                    | 6                  |      |                             |                 | 35                 | 3          |                                    |                  |                 |                       |                  |               |                                        | 125  | 181     |
| 55         | 2                     | 1                |               | 1                  |            |                |                                 |                                 |                 |                                   |                    |                      | 9                  |      |                             |                 | 16                 |            |                                    |                  | 1               | 1                     |                  |               |                                        | 30   | 62      |
| 56         | 1                     | 1                |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    | 1                  |      |                             |                 | 2                  | 1          |                                    |                  |                 |                       |                  |               |                                        | 101  | 108     |
| 57         | 1                     |                  |               |                    |            |                |                                 |                                 |                 | 1                                 |                    | 1                    |                    |      |                             | 1               | 6                  |            |                                    |                  |                 | 1                     |                  |               |                                        | 25   | 36      |
| 58         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        |      | STERILE |
| 59         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 2                    | 2                  |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        | 9    | 9       |
| 60         | 2                     |                  |               |                    |            |                |                                 |                                 | 1               | 1                                 |                    |                      | 10                 |      |                             |                 | 5                  | 2          |                                    |                  |                 |                       |                  |               |                                        | 55   | 76      |
| 61         |                       | 1                |               |                    | 1          |                | 1                               |                                 | 11              |                                   | 5                  | 4                    |                    |      | 5                           |                 | 23                 | 26         |                                    |                  |                 |                       |                  |               |                                        | 75   | 152     |
| 62         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    | 1                    | 2                  |      |                             |                 | 5                  |            |                                    |                  |                 |                       |                  |               |                                        | 18   | 26      |
| 63         | 4                     | 3                |               |                    |            |                | 3                               |                                 |                 | 1                                 | 1                  | 1                    | 7                  |      | 1                           |                 | 21                 |            |                                    |                  |                 | 3                     |                  |               |                                        | 111  | 156     |
| 76         | 1                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 19                 |            |                                    |                  |                 | 2                     |                  |               |                                        | 5    | 27      |
| 77         |                       |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 |                    |            |                                    |                  |                 |                       |                  |               |                                        |      | 74      |
| 78         | 6                     |                  |               |                    |            |                |                                 |                                 |                 |                                   |                    |                      |                    |      |                             |                 | 8                  |            |                                    |                  |                 |                       |                  |               |                                        | 60   | STERILE |
| TOTAL      | 72                    | 22               | 12            | 12                 | 5          | 14             | 15                              | 11                              | 14              | 3                                 | 50                 | 93                   | 103                | 23   | 47                          | 9               | 844                | 127        | 11                                 | 1                | 1               | 55                    | 8                | 41            | 3631                                   | 5224 |         |
| % of TOTAL | 1.4                   | -                | -             | -                  | -          | -              | -                               | -                               | -               | -                                 | .9                 | 1.8                  | 2                  | -    | .9                          | -               | 16                 | 2.4        | -                                  | -                | -               | 1                     | -                | .8            |                                        |      |         |



APPENDIX C

Ceramic Illustrations

APPENDIX C

CERAMIC ILLUSTRATIONS

Figure 1. Ceramics from Cuca

- A-H: Puuc Red Ware, Red Teabo Group, Teabo Red Type basal-break dishes with flaring rims (probably originally all with tripod feet); rims may be direct, grooved or stepped on the interior of the lip, or flattened; diameters\* of vessels range from 24-30 cm.
- I-L: Puuc SlateWare Slate Muna Group, Muna Slate Type jar rims; diameters range from 14-28 cm.
- M-R: Thin SlateWare Ticul Group Ticul Thin Slate Type hemispherical bowls with direct, everted, or beaded rims, and low (probably basal-break) dishes with flaring sides and rims; diameters range from 18-26 cm.
- S-U: Puuc Red Ware, Red Teabo Group, Teabo Red Type hemispherical bowls with direct, slightly pointed or beaded rims; diameters range from 20-24 cm.
- V-Z,a: Puuc SlateWare Slate Muna Group, Muna Slate Type basal-break dishes (probably all originally with tripod feet) with direct or flaring rims, often flattened on top or inside of lip; diameters range from 24-28 cm.
- b-j: Yucatan Chalky Ware jar rims (type unspecified) with constricted necks, direct or everted rims, globular bodies; diameters range from 14-24 cm.; j is an unusual rim, possibly from a dish.
- k-q: Puuc SlateWare Slate Muna Group, Muna Slate Type globular basins with vertical strap handles and bolster-rims; diameters range from 26-32 cm. Some basin sherds have very faint traces of highly weathered, trickle-paint decoration.
- r-u: Cauich Coarse-Cream Ware, Holactun Black-on-Cream Type large globular basins with bolster-rims, some swelling slightly on the interior of the lip, others slightly pointed or flattened at top of lip; diameters range from 28-32 cm.

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\* Unless otherwise stated, all vessel diameters were taken across rims from the outside of the lip.



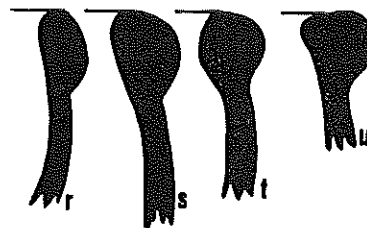
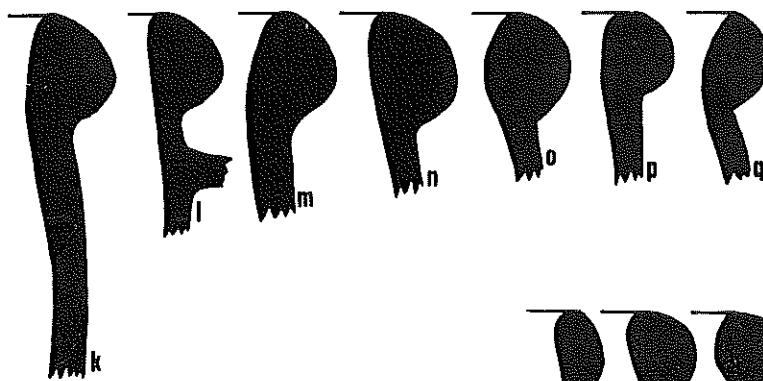
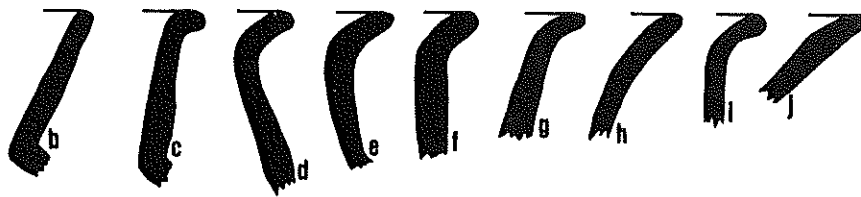
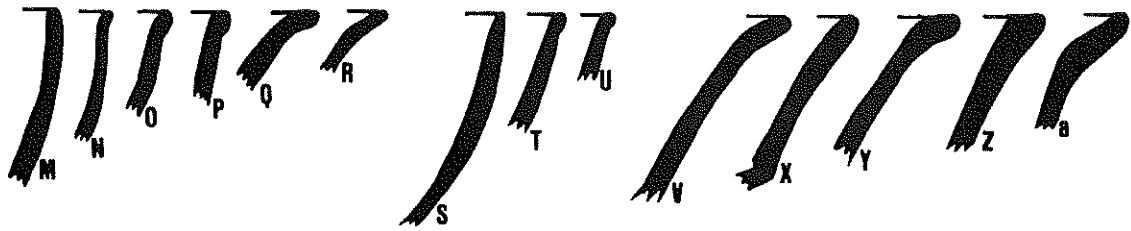
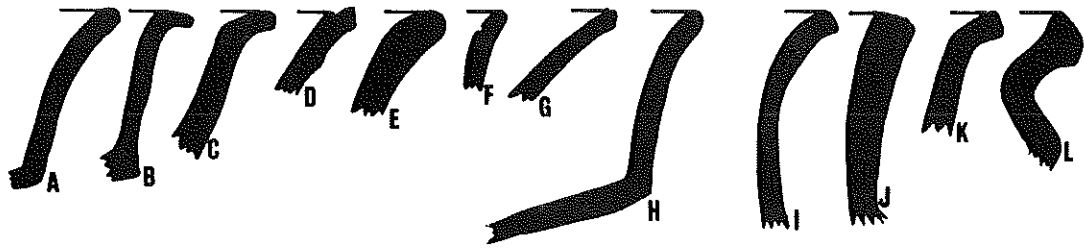


FIG. 1  
0 5  
cm

Figure 2. Ceramics from Cuca

- A-E: Puuc SlateWare Slate Muna Group, Tekit Incised Type basal-break dishes; decoration consists of crudely incised post-slip lines between the rim and the basal-break; patterns are geometric, with triangles set off against zones of parallel incisions common; diameters range from 24-30 cm.
- F: Fine Orange Ware sherd (type unspecified) probably representing a tall cylinder; greyish interior is not well-oxidized and exterior is a yellowish-buff color; decoration consists of a panel of incised designs which are only partially preserved--no overall pattern can be discerned.
- G-K: Puuc Red Ware, Red Teabo Group, Becal Incised Type flaring-sided dishes and hemispherical bowl; decoration appears to be pre-slip, although this is sometimes difficult to discern; motifs are basically zoned geometrics and include parallel lines, cross-hatching, and concentric rectangles; diameters are about 24-28 cm.
- L-Y: Monochrome red sherds provisionally classified in Sierra Red Group; shapes are predominantly deep, flat-bottomed bowls with flaring sides; rims are characteristically thickened and exhibit a variety of forms; diameters range from 20-40 cm.

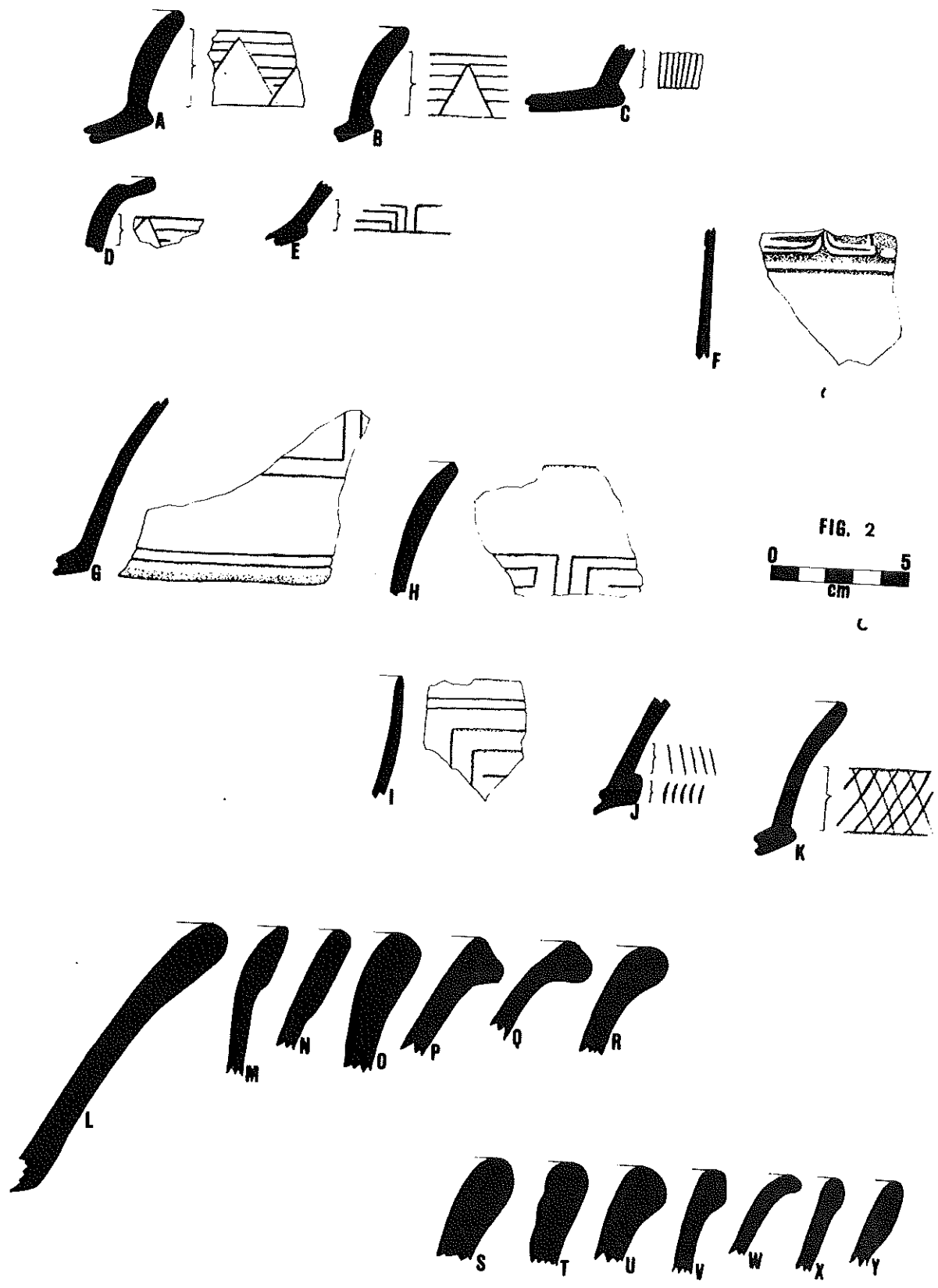


Figure 3. Ceramics from Chacchob

- A-J: Puuc Slate Ware Slate Muna Group, Muna Slate Type globular jars with constricted necks and everted rims; diameters range from 16-26 cm.
- K-M: Puuc Unslipped Ware, Yokat Striated Type globular jars; diameters 18-24 cm.
- N-U: Puuc Slate Ware Slate Muna Group, Muna Slate Type squared rims from large jars; some of these may be pedestal fragments; diameters 22-30 cm.
- V-W: Puuc Slate Ware Slate Muna Group, Muna Slate Type bolster-rim globular basins with intact vertical strap handles; diameters are 20 cm.
- a-l: Puuc Slate Ware Slate Muna Group, Muna Slate Type basal-break dishes with flaring sides and direct rims, often slightly flattened on inside of lip; all probably had slab or bulbous tripod feet; diameters are from 18-24 cm.
- m-u: Puuc Slate Ware Slate Muna Group, Muna Slate Type globular basins with bolster-rims, often slightly pointed or flattened on top of rim; diameters range from 22-28 cm.

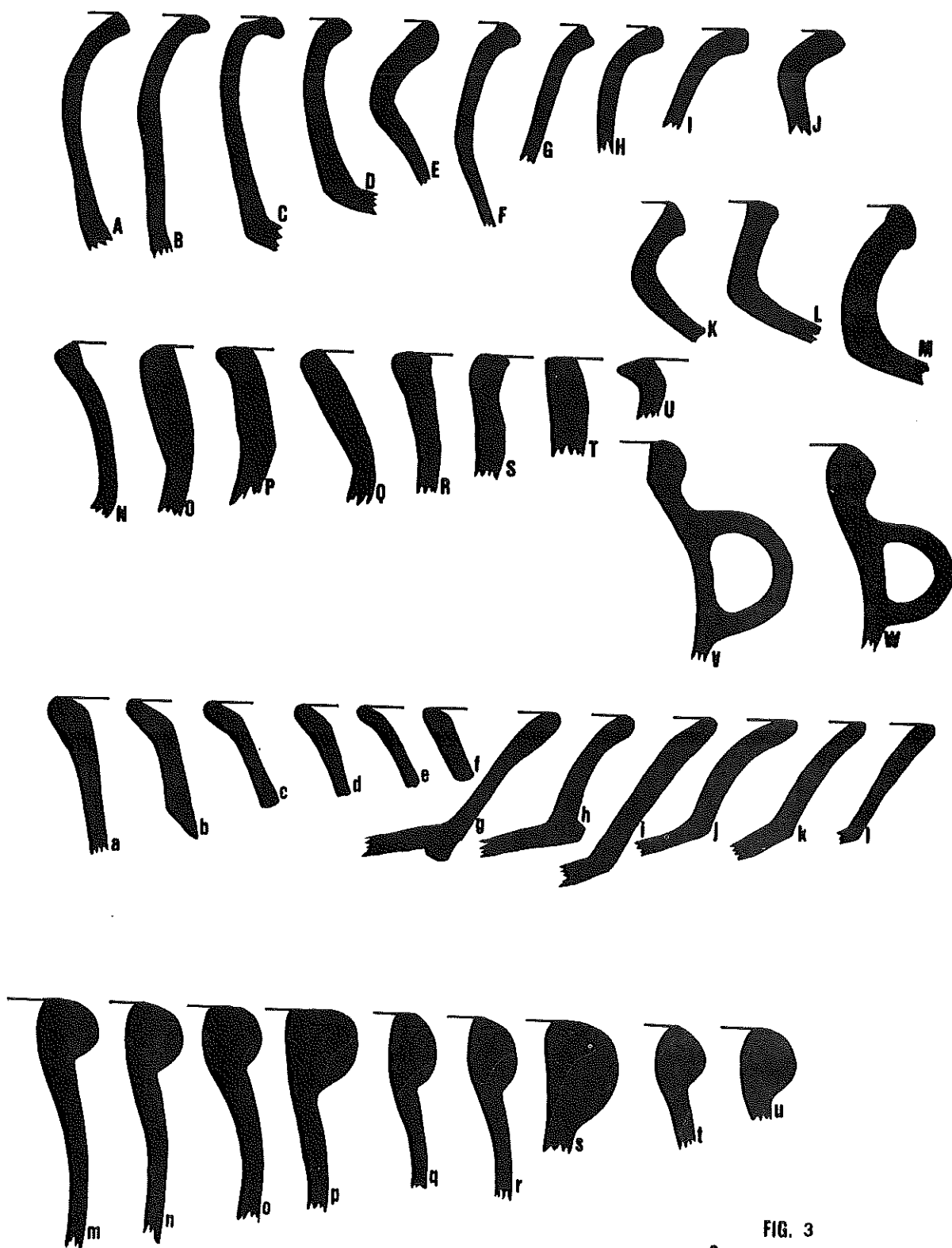


FIG. 3  
0 5  
cm

Figure 4. Ceramics from Chacchob

- A-E: Puuc SlateWare, Slate Muna Group, Muna Slate Type ring-stand base bowls with slightly incurving, thickened rims often flattened on top or exterior; diameters 14-24 cm.
- F-K: Puuc SlateWare, Slate Muna Group, Muna Slate Type hemispherical or globular bowls; rims are variable with some direct and slightly thickened and others highly inverted producing a tecomate form; diameters of 14-28 cm. in non-inverted forms.
- L-R: Thin SlateWare, Ticul Group, Ticul Thin Slate Type small hemispherical bowls with direct, slightly narrowed, or beaded rims; diameters about 16 cm.
- S-V: Puuc Red Ware, Red Teabo Group, Teabo Red Type small hemispherical bowls with direct, narrowed, thickened, or beaded rims; diameters 12-24 cm.
- a-i: Puuc SlateWare Slate Muna Group, Tekit Incised Type basal-break dishes; post-slip incision in bands above break, with motifs including parallel lines, concentric rectangles, stepped lines and cross-hatching; diameters 20-30 cm.

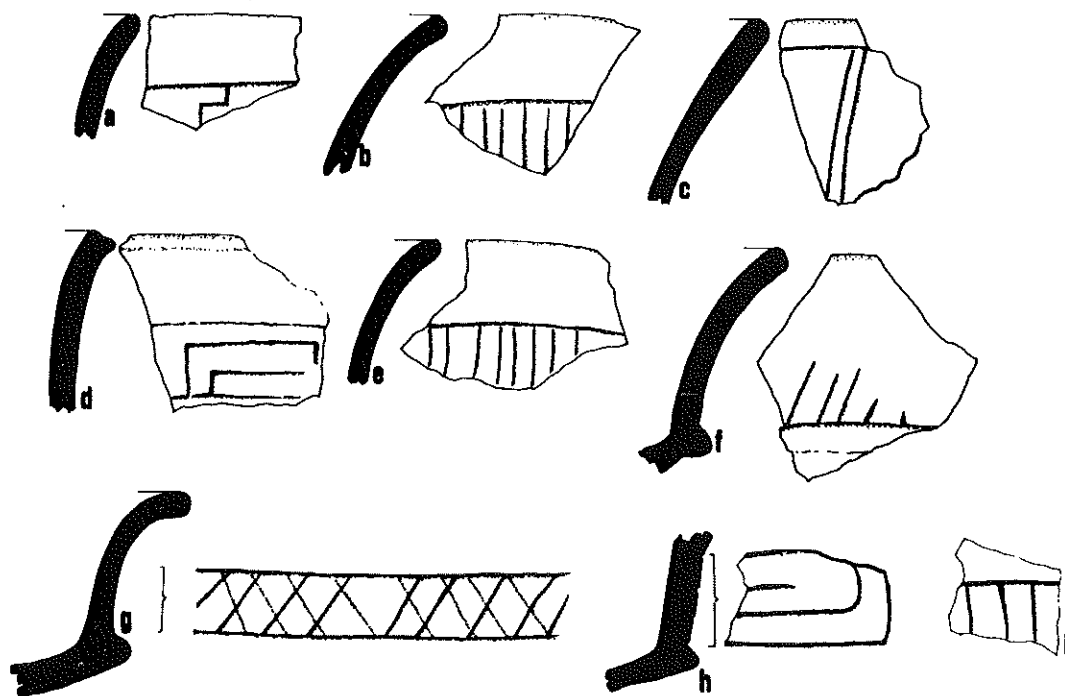
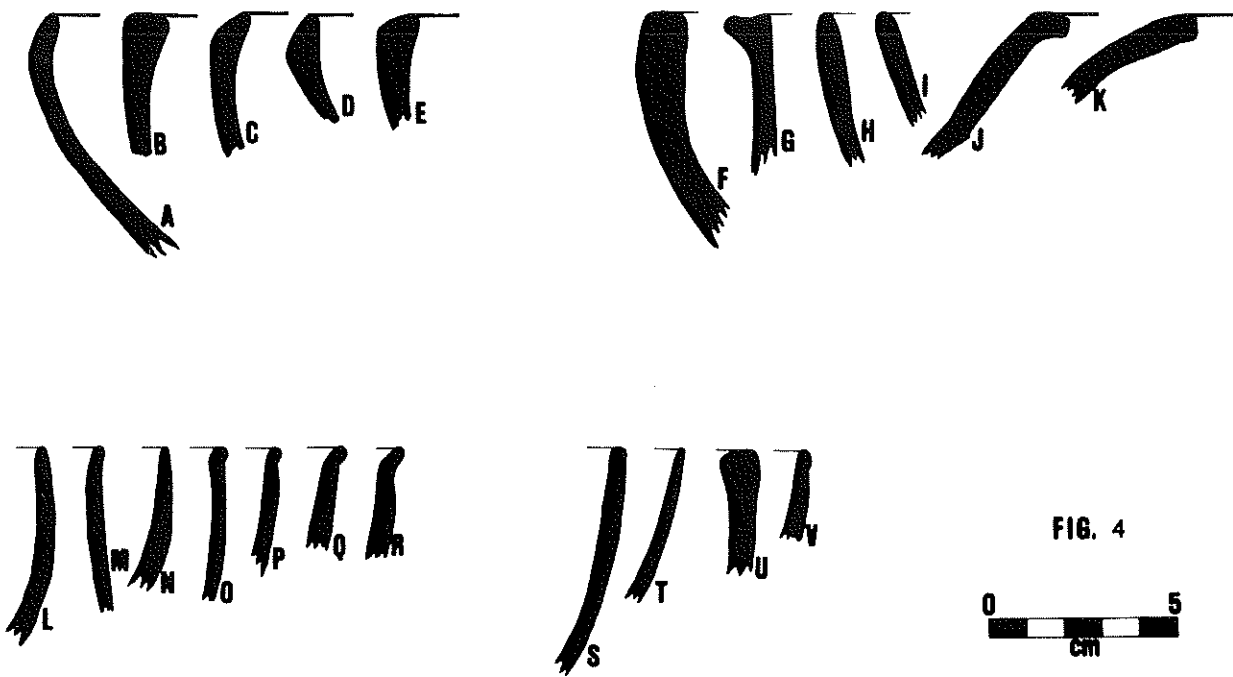


Figure 5. Ceramics from Chacchob

- A-D: Puuc Slate Ware Slate Muna Group, Muna Slate Type basal-break dishes; decoration consists of bands of impressions just above break made by obliquely impressing circular, oval, or wedge-shaped implements; diameters 20-24 cm.
- E-G: Puuc Slate Ware Slate Muna Group, Nohcacab Composite Type basal-break dishes; decoration consists of fretted or stepped elements extending down from molding just above break; molding and area just above decorated by combination of incision and impressing; diameters uncertain.
- H: Miscellaneous unslipped sherd with applique band decorated with oblique impressions of semi-circular implement below zone of incised parallel lines.
- I: Miscellaneous sherd; fine grey paste with extremely shiny black slip with waxy feel; some temper visible; decoration consists of pre-slip incision.
- J: Miscellaneous unslipped sherd from small globular vessel with vertical handle; one decorative element of circular impression and punctates.
- K: Miscellaneous unslipped effigy fragment; orange-buff paste heavily smudged on outside; applique arms.
- L: Miscellaneous basal break dish with bulbous supports; translucent dark slip ranging from purplish-black to purplish-red; paste is reddish-brown with large temper and a distinctly slatey feel; diameter 30 cm.; this is probably a discolored Puuc Slate Ware variation.



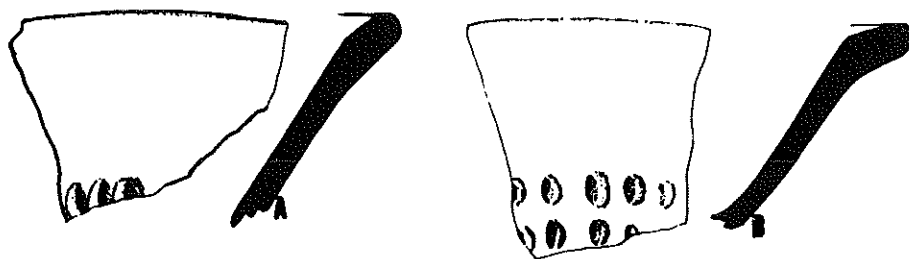


FIG. 5

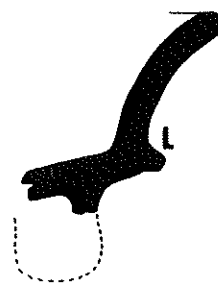
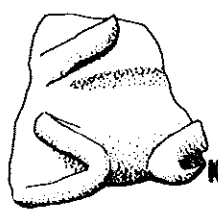
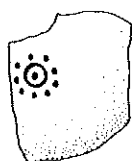
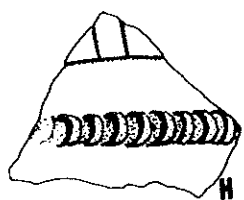
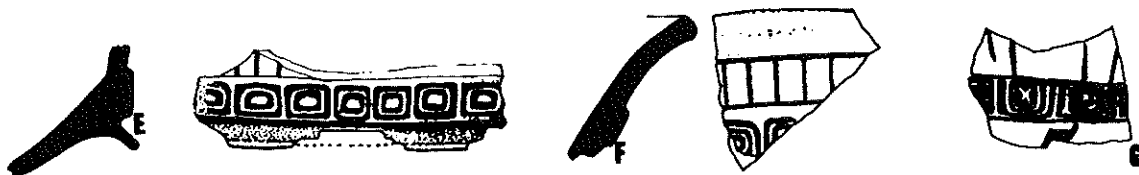


Fig. 6. Ceramics from Dznot Aké

A-E: Orange Ware rims--globular basins and flaring-sided bowls.

F-I: Weathered/unslipped basal-break dish rims.

J-R: Weathered/unslipped jar rims.

S-Z  
a-i: Dznot Aké Variegated Type rims.

j-u: Dznot Aké Brown Type rims.

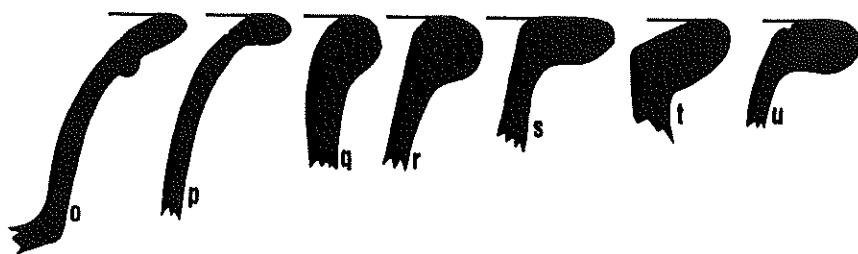
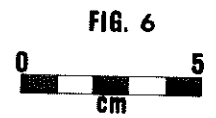
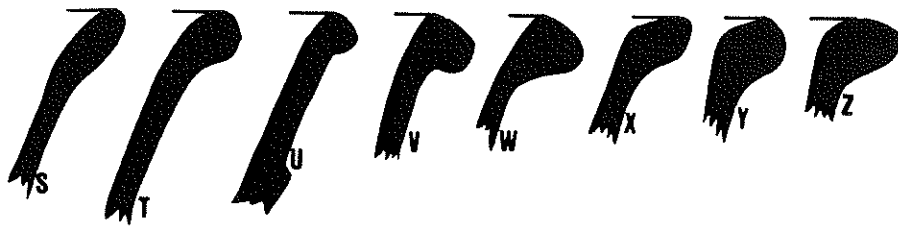
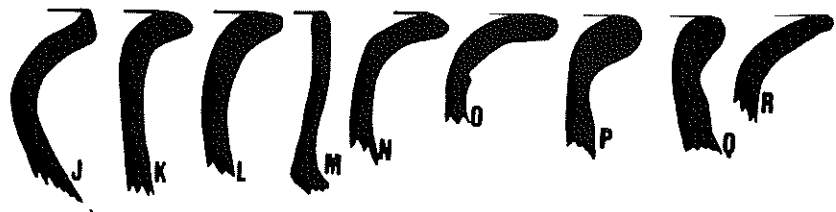


Fig. 7. Ceramics from Dzonot Ake'

- a-f: Weathered basal-break dish rims; probably Slate Ware.
- g-h: Slate Ware jar rims.
- i-m: Definite Slate Ware basal-break dish rims.
- n-o: Slate Ware (probably Thin Slate) rims from small hemispherical vessels.
- P-U, F: Unslipped striated jar rims.
- A-E: Unslipped striated basin rims.
- G-K,  
N-S: Unslipped/weathered incurving basin rims.
- L, M, T: Weathered rims and body sherd from medial-flanged vessels.

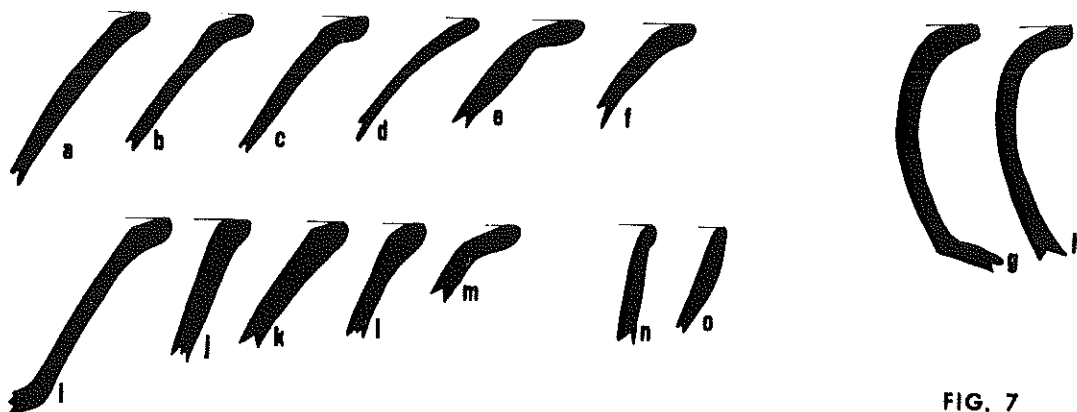


FIG. 7  
0 5  
cm

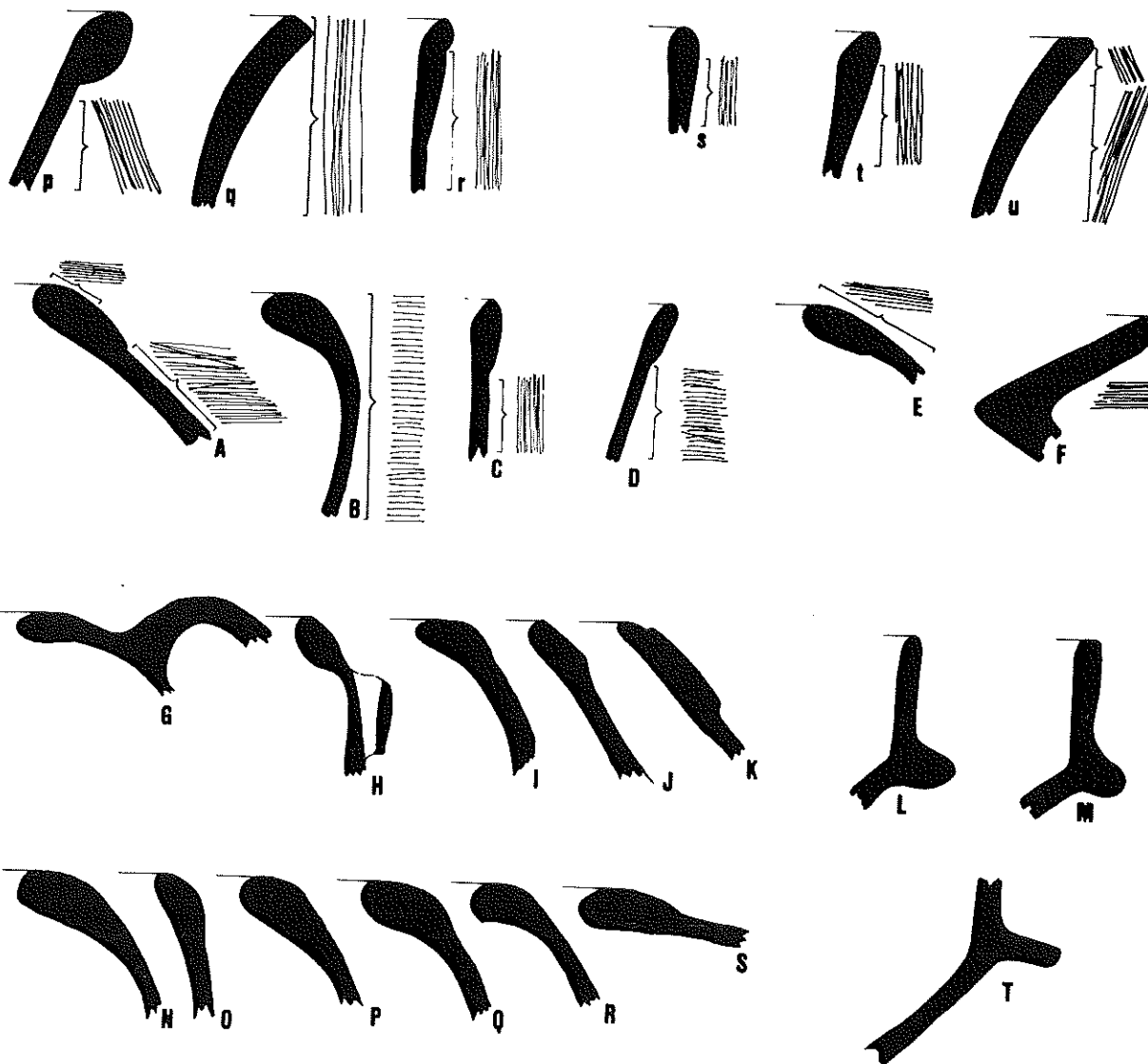


Fig. 8 . Ceramics from Dzonot Aké

- A-G: Decorated rim and body sherds of Dzonot Aké Brown Type  
Formative monochrome ware; decoration consists basically  
of preslip gouge incision.
- H-Q: Decorated rim and body sherds of Dzonot Aké Variegated Type  
Formative monochrome/dichrome ware; predominant decoration  
consists of preslip gouge incision often painted or unslipped  
over to produce a dichrome effect.

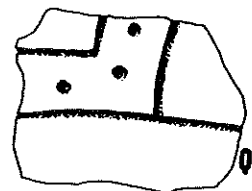
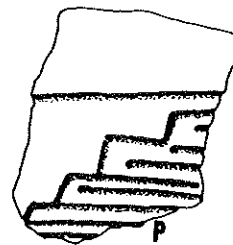
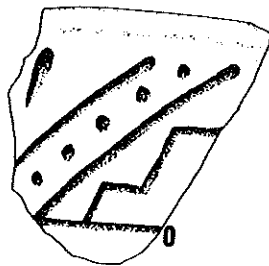
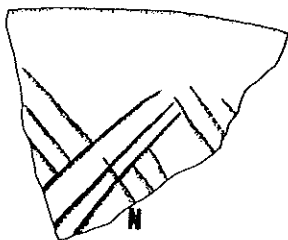
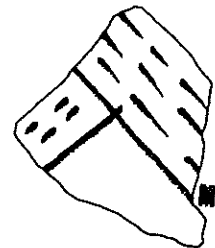
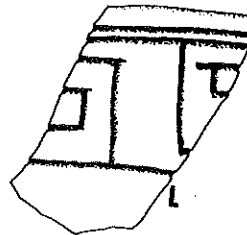
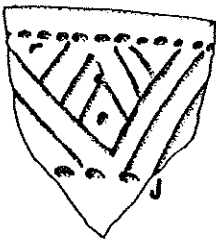
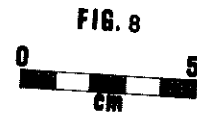
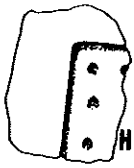
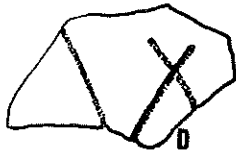
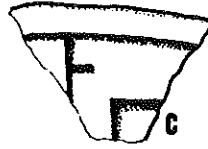
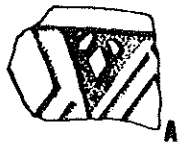


Fig. 9. Whole or Reconstructable Vessels from Dzonot Ake'

- A: Flat-bottomed, flaring-sided tripod-footed bowl associated with burial (Feature 2) in Op. 1, Trench 1 (Lot 8). This vessel has been heavily weathered, but exhibits a shape similar to many slateware vessels in Puuc assemblages, especially the characteristic flattening around the inner rim. The vessel has a coarse, light-brown paste and faint traces of a dark red burnished slip.
- B: Tripod-footed basal-break bowl similar in size and shape to A, but with a convex bottom. Paste is brick red with a creamy slip. Decoration on inside apparently produced by resist technique, allowing red paste to show through translucent slip. Outer decorative band just above break of push-pull impressions made with rectangular implement. Compare with Brainerd, 1958:181. Found associated with the "cache" in Op. 1, Trench 11 (Feature 3).
- C: Medial-flanged ring-stand base bowl found in Op. 2, Trench 1, (Lot 58). Paste is a light grey with large calcite temper. Slip is opaque, cream-colored and dull or even powdery. Very haphazard painted bands in a dull red-brown paint are found around the base, flange, and rim.



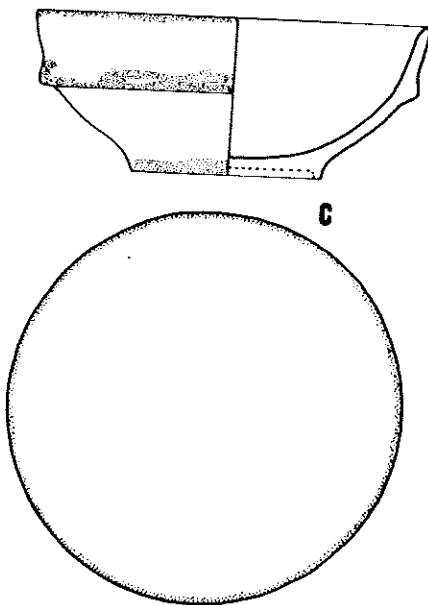
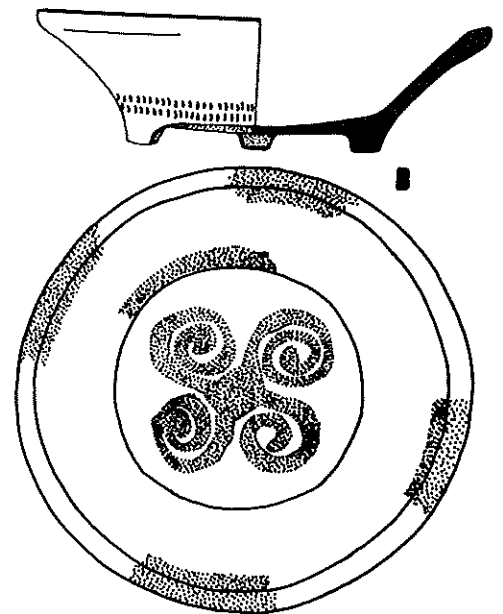
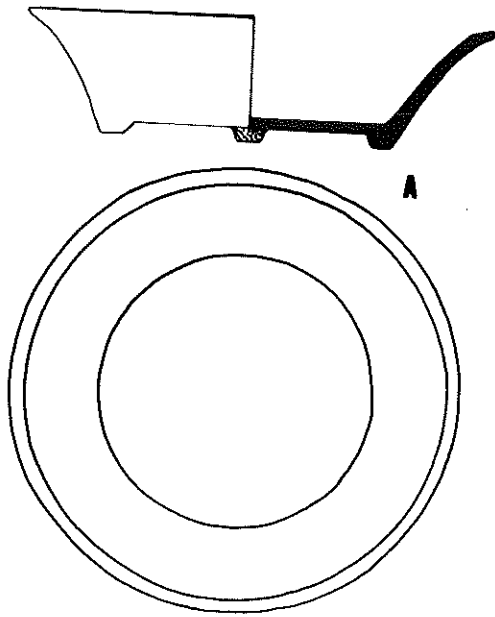
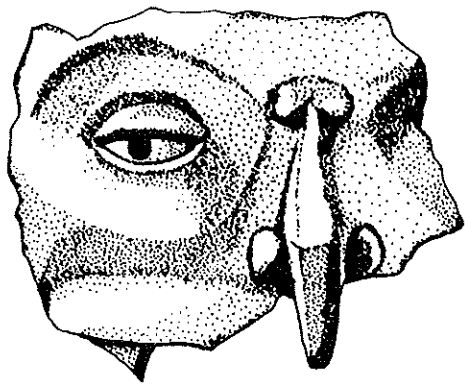


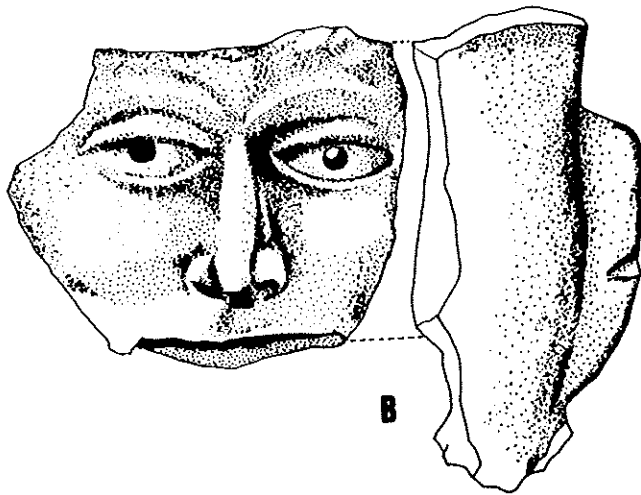
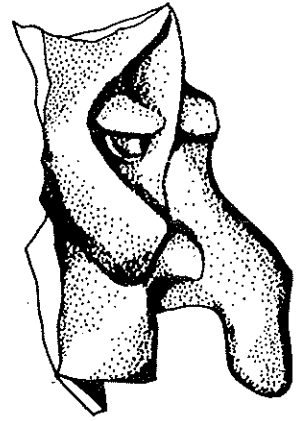
FIG.  
0 10  
cm.

Fig. 10. Ceramics from Dzonot Aké

- A-D: Human and animal (deer?) effigy-censer fragments.
- E: Small intact cup from Op. 1, Trench 1 (Feature 1); crude, coarse pinkish-red paste discolored on outside to dusty grey-black. Decorated around bottom with crude chevron pattern of incised lines.



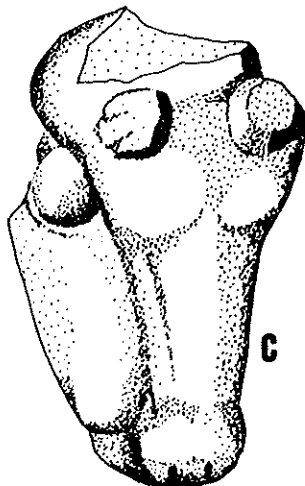
A



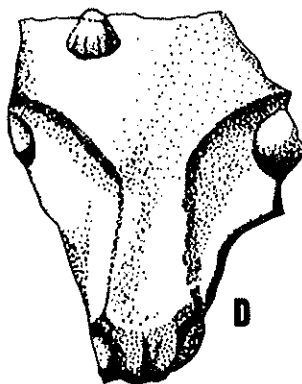
B



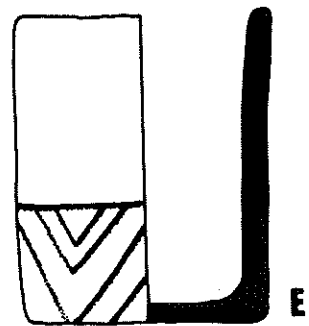
**Fig. 10**



C



D



E

APPENDIX D

Non-Ceramic Artifacts

## APPENDIX D

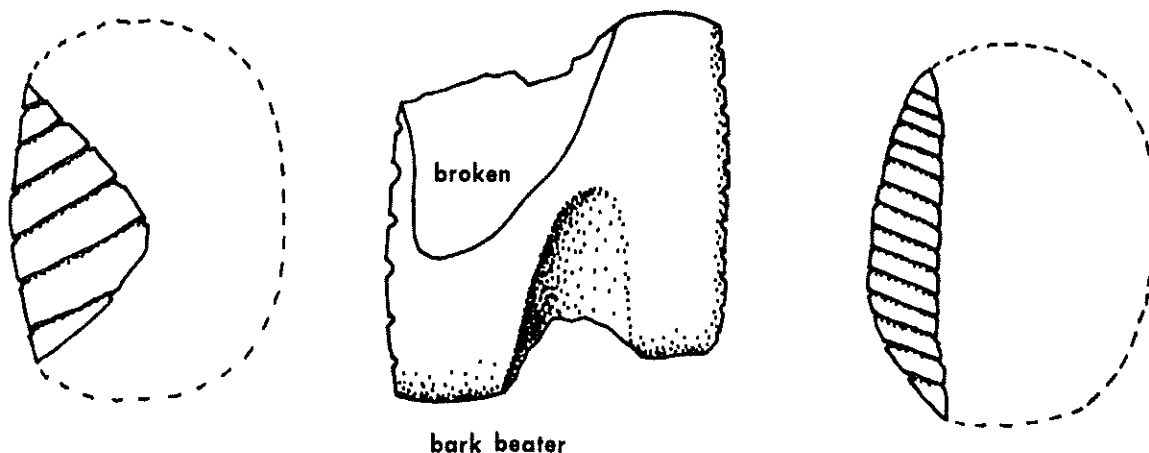
### NON-CERAMIC ARTIFACTS

Only a handful of non-ceramic artifacts of ground stone, shell, obsidian, and chert was recovered from our excavations at the three sites. These are described below, and all are presently in the INAH collections in Merida. I have illustrated (to scale) only one ground stone item and the chipped stone pieces; photographs of all non-ceramic artifacts are on file at the Department of Anthropology, The Pennsylvania State University. Whole or fragmentary mano and metate fragments were commonly encountered during excavation and survey. Associations were noted, but manos and metates, as well as decorated stone fragments, were not collected.

#### Ground Stone

Two roughly shaped limestone spheres were recovered. One from Chacchob (Lot 61) is 7.5 cm. in diameter and exhibits slight flattening on one side as if from pecking or rubbing. Another from Dzonot Ake' (Lot 61) is smaller--4.5 cm. in diameter and only roughly spherical, and also has slight flattening.

The only other ground stone artifact was a "bark beater" from Cuca (Lot 109) similar to those found at other Maya sites (e.g., see Willy, 1972:125-126). This tool was made of fine grey limestone in the shape of a rough cylinder 4.5 cm. long and 3-4 cm. in diameter. The sides of the cylinder were partly grooved for hafting and both of the flat ends, now broken, have parallel incisions, with one set narrower (ca. 3 mm. apart) than the other (5 mm.).



### Chipped Stone

Apart from occasional rough core fragments only five chipped stone tools were found. Two of these were proximal ends of prismatic blades made from black-banded obsidian, one from Cuca (Fig. 1a, Lot 5) and the other from Dzonot Aké (Fig. 1b, Lot 60). Neither was retouched, but the Cuca specimen showed signs of use on one side, with similar wear on both sides of the Dzonot Aké fragment.

All of the chert artifacts come from Chacchob. One is a very roughly-made bifacial scraper, trapazoidal in shape, of brownish chert (Fig. 1c, Lot 14). A long bifacial lanceolate projectile or spear point of fine, dark, reddish chert was found in the fill of Gate A (Fig. 1e, Lot 78). What seems to be a broken fragment of a similar weapon made of dark-grey chert comes from the same context. If indeed both are weapons the association with an apparently hurriedly-filled gate in a defensive wall is suggestive.

### Shell

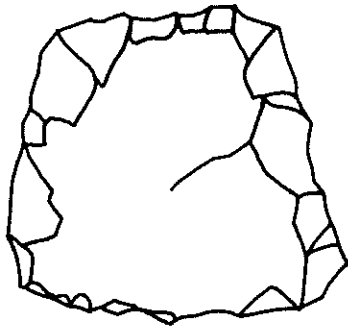
Fourteen shell artifacts were recovered. Most of these were from Dzonot Aké, where they were scattered through the excavations (Lots 2, 3, 13, 19, 20, 45, 53, 61, 76, 77). Two of these appear to be from conch. One is the distal end of a large columella with the outer shell and the frontal area cut cleanly away (Lot 61). The other is simply a broken, irregular fragment of outer shell (Lot 2). The rest of the Dzonot Aké shell material, plus two pieces from Cuca (Lots 33, 43), consists of whole or fragmentary small marine mollusks, species undetermined. Most of these show varying degrees of human modification--holes, parts cut away, etc.--but none is an obvious implement or ornament.



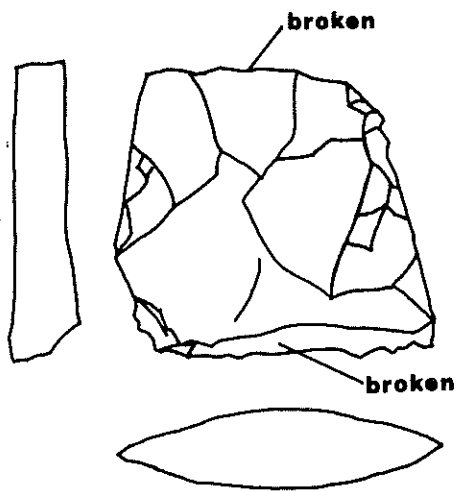
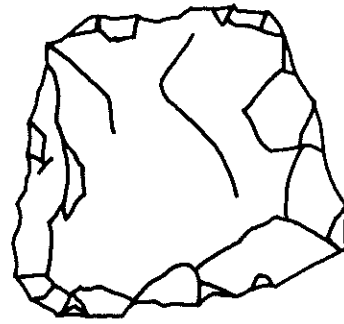
A



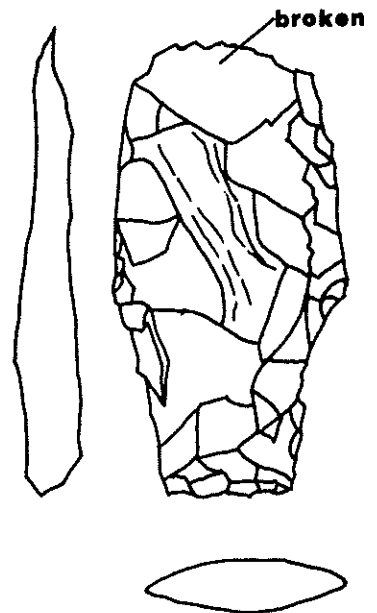
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C



D



E

FIG. 1

APPENDIX E

Spanish Abstract



## INTRODUCCION

Un tema de considerable interés a los arqueólogos orientados al estudio de la evolución cultural es la guerra, como una forma específica de competición humana, en la aparición y la estructura de sociedades complejas prehistóricas. Al contrario de las reconstrucciones tradicionales, recientemente he mantenido que la guerra era un factor importante en la aparición y la estructura de la civilización maya de las tierras bajas, y estoy en plan de investigar esta proposición.

Dado su ubicuidad entre las sociedades humanas, especialmente las más complejas, y sus implicaciones evolucionarias, la investigación apropiada de la guerra en contextos arqueológicos es esencial. Desafortunadamente, la guerra es un proceso prehistórico muy difícil a documentar. En parte, esto se debe al hecho de que muy pocos proyectos de investigación están específicamente diseñados con la guerra prehistórica como enfoque central. Pero el problema fundamental es la naturaleza de la evidencia potencial, la cual es casi siempre susceptible a interpretaciones múltiples. Las armas pueden reflejar el conflicto, pero a menos que era la tecnología muy especializada, no se puede asegurar que no fueron usadas a otros propósitos como la caza. Claro que representaciones artísticas pueden indicar la existencia de la guerra sin equivocación, pero pocas veces nos informan mucho de su escala o su intensidad. El análisis osteológico puede mostrar trauma causado por el conflicto, pero se necesitan muestras grandes y bien preservadas, las cuales frecuentemente son imposibles de recuperar. Al nivel regional, se espera que sistemas de asentamiento se ajusten a las situaciones de conflicto, pero hay una variedad de ajustes adecuados, que pueden ser tan diversos como la nucleación o la dispersión.

Mis propios intentos recientes de documentar la guerra entre los maya se han enfocado en el análisis de sistemas defensivos. Tales sistemas, especialmente los compuestos de barreras de tierra o mampostería, tienen las ventajas de poder preservarse bien y de ser visibles al arqueólogo. Además, los tamaños y las configuraciones de fortificaciones formales se relacionan estrechamente con la escala, la intensidad, la tecnología y la organización de la guerra. Los patrones cronológicos y temporales de los sistemas defensivos por el paisaje maya, cuando sean suficientemente conocidos, brindarán percepciones claras de los patrones de entidades políticas. Pero el análisis de fortificaciones prehistóricas no es tan fácil como parece. ¿Como se puede determinar si una cierta muralla o construcción de tierra actualmente sirvió como barrera defensiva? Tal vez sirviera para delinear un recinto sagrado o para garantizar la privacidad de una zona elite (y claro, puede tener todas estas funciones). Idealmente, se podría esperar revelar evidencias independientes, sin equivocación, de la guerra, tales como deshechos de destrucción, armas, y víctimas de una matanza en masa en el mismo sitio, como hizo Wheeler en Maiden Castle. Pero, la mejor fortificación es la tan formidable que nunca se ataca. Faltando el descubrimiento de evidencia tan fortuita, mi método ha sido de tratar de negar explicaciones alternativas, y demostrar que el tamaño y la configuración de los rasgos periféricos son consistentes con funciones defensivas.

Desde hace mucho tiempo se ha sabido de la existencia de una tradición respetable de arquitectura militar entre los maya. Cortéz, en su marcha por el país maya, y los Montejó, que finalmente pacificaron la región, encontraron una gran variedad de sistemas defensivos indígenas. Antes, durante el período Post-Clásico (ca. 1000-1500 D.C.), los centros como Mayapán y Tulum tenían fortificaciones, lo cual indica faccionalismo político y probablemente incursiones de elementos mexicanos, o mexicanizados, a las tierras bajas.

Para el período Clásico anterior (ca. 250-1000 D.C.) hay menos evidencia, pero construcciones mayores de tierra en Tikal, que puedan fecharse al Clásico Temprano, y mi propio trabajo en Becan, en el sur de Campeche, ha revelado que una de las fortificaciones más impresionantes de Mesoamérica se edificó por fines del Preclásico (ca. 150 D.C.) cuando la civilización maya aun estaba en sus etapas formativas.

Durante el invierno del año 1976-1977, levanté planos y sondeaba tres sitios amurallados en los llanos del norte de Yucatán--Cuca, Chacchob y Dzont Aké. Todos tienen sistemas de murallas que se fechan al Clásico Terminal o Post-Clásico, y en este informe se trata del análisis preliminar de estos sitios y su interpretación.

#### CUCA

El sitio de Cuca se ubica en la zona de henequen de los llanos noroestes de Yucatán (lat.  $20^{\circ} 55' 45''$  N., long.  $89^{\circ} 24' 30''$  W.). Es el más grande por mucho de los sitios de las cuales levantamos planos y sondeamos. El sitio consiste de dos zonas separadas, delineadas por dos murallas concéntricas; la zona interior contiene la mayoría de la arquitectura cívica grande y adornada y ha requerido un plano separado. La muralla exterior de Cuca es de 2255 m. de largo y encierca un área total (incluyendo la zona interior) de  $0,33 \text{ km}^2$ . La muralla interior, aunque mucho más maciza, tiene solo 828 m. de largo y encierca un área de  $0,046 \text{ km}^2$ .

El paisaje alrededor de Cuca, ahora casi totalmente dedicado a la producción de henequen, es muy llano, pero las depresiones locales y los salientes de roca viva producen una variedad de relieve bajo. El relieve es mayor en la mitad oriental del sitio, donde se ha cortado la vegetación, mientras parece que el suelo sea más profundo y la topografía mas plana en la zona occidental cubierta de bosque. El área amurallada de Cuca probablemente fuera solamente el centro organizacional de una zona poblada mucho mayor. Los campos de henequen al oriente estan cubiertos de plataformas, pirámides y complejos de plazas por hasta donde llega la vista. En comparación con la densidad de estructuras entre las dos murallas, no hay una disminución óbvía de estructuras por afuera de la muralla hacia el oriente.

#### La Zona Interior de Cuca

La configuración arquitectónica de la zona interior de Cuca conforma estrechamente con las preconcepciones comunes de como debe parecer un

centro "típico" maya. Un area extensiva ha sido artificialmente nivelado hasta el punto de que sean visibles los salientes de roca viva en solamente algunas áreas. Pirámides macizas y estructuras de rango, con orientaciones consistentes de unos grados al este de norte, estan arregladas alrededor de grandes plazas. Los arreglos más formales e imponentes son los complejos de Plaza A y Plaza B en el centro de la zona interior.

Dentro de la muralla interior se encuentran tres otras estructuras de tamaño notable. Una de éstas, la Estructura VI, es una pirámide de unas 10 m. de alto, con terrazas por la pared al sur, pero con un complejo de estructuras de rango adosados y arreglados alrededor de una planicie hundida por el norte. Este complejo de pirámide da la impresión de ser muy autocontenido. No se relaciona de manera muy formal a la enorme Estructura V al noreste. Esta última es probablemente el edificio más imponente de Cuca, midiéndose ca. 35 por 50 m., con una altura de 12-13 m., y es el único que tiene elementos arquitectónicos preservados de forma intacta. Por el centro de la fachada oriental hay un cuarto largo en forma de bóveda (ahora casi totalmente caída) con una entrada con columnas y dinteles preservados por frente. Claro es que éste es solamente uno de una serie de cuartos semejantes a este nivel por el lado este del edificio, y probablemente había varios otros niveles también con series de cuartos así arreglados. Su estilo de arquitectura es de Puuc típico, con bóveda bien tallada y con mampostería que aún retiene en algunos lugares una capa delgada de yeso (originalmente de color rojo?).

La Estructura IV es una enorme plataforma baja que tiene alrededor de 40 m. por cada lado y 2-3 m. de altura, aparentemente erigida sobre un núcleo natural de roca viva. Es de primer interés porque la muralla interior pasa por encima de ella. La Estructura VII, con una orientación más al NE que las otras estructuras mayores, está adosada a la muralla y provisionalmente sugiere que sea una adición tardía, construida para conformar a la muralla previa.

Entre los deshechos de la mayoría de los edificios grandes se pueden ver piedras decorativas y elementos arquitectónicos tallados. Particularmente conspicuos son los fragmentos de grandes columnas cilíndricas y de losas de jambas y dinteles, semejantes a los que están aun in situ en la Estructura V. Dos estelas aparentemente sin tallar están rectas todavía por el lado oriental de la Estructura II, y tal vez se asociaran con una escalera monumental ahí, aunque ésta no es la fachada del edificio frente a la Plaza A. Otros fragmentos posiblemente de estelas se encuentran en dos grupos, uno al sureste de la Estructura V y el otro cerca a la muralla hacia el suroeste. Todos están sin tallar.

#### La Zona Exterior de Cuca

Solamente se ha podido levantar planos detallados de la zona exterior de Cuca por el oriente y por el sur, pues la mitad occidental del sitio estaba cubierta de vegetación muy densa. La arquitectura predominante consiste de alrededor de 13 plataformas rectangulares; todas son de tamaños apreciables, con rangos de 20-50 m. por cada lado. Todas son bajas--1-3 m. de altura. Algunas de estas plataformas están

obviamente superimpuestas sobre salientes locales de la roca viva, y sospecho que casi todos han sido erigidas sobre o alrededor de áreas naturalmente elevadas. La mayoría de las plataformas son amorfas, pero parece que haya una tendencia de orientarse igual que los edificios mayores dentro de la muralla interior. No se notan agrupaciones formales.

Se encuentran cuatro pirámides en la zona exterior, una está adosada a la muralla exterior por el límite suroeste del sitio. La pirámide más grande--mayor de 15 m. de altura--está apenas dentro de la muralla por el norte extremo. Dos pirámides menores quedan muy cerca a la muralla exterior por el oriente; ambas parecen haber tenido batientes bajos, y ambas han sufrido algunos robos de piedras. Por el sur hay una plataforma baja con una superestructura levantada por su extremo sur y una plataforma batiente por el norte.

Un sacbe corre desde la muralla interior hacia la pirámide más al norte y probablemente se unía con un sacbe semejante que corre hacia el sur desde esa estructura. Por el centro del eje formado por esos dos sacbes hay un cenote con agua a una profundidad de 8-10 m. Lo que puede ser otro sacbe ha sido observado saliendo de la muralla interior desde la esquina suroeste de la Plaza B.

La impresión total es que la zona interior y la zona exterior de Cuca tenían diferentes funciones. La mayoría de las grandes estructuras cívicas religiosas/administrativas se concentran dentro de la muralla interior, tanto como algunas estructuras residenciales obviamente del elite. Al contrario, la mayoría de la zona exterior está cubierta de estructuras menos obviamente de significancia cívica, y que están, por sus configuraciones, más consistentes con ser residencias sustanciales.

#### Los Sistemas de Murallas de Cuca

Aunque sitios amurallados no son raros en los llanos nortes de los maya, Cuca está fuera de lo usual en que se encierca por dos murallas concéntricas. Ambos ya están en condiciones arruinadas y parecen ser enormes montículos sinuosos de cascote de piedra caliza, con rasgos estructurales intactos pocas veces visibles sin ser excavados.

#### La Muralla Exterior

La muralla exterior tiene un largo total de 2255 m. y encierca un área de unos 0,33 km<sup>2</sup>. Aunque he descrito las murallas de Cuca como concéntricas, una inspección del mapa muestra que ni una ni la otra están planificada de manera muy sistemática o formal. Especialmente la muralla exterior parece haber sido diseñado oportunísticamente para encerrar varias estructuras grandes por su perifería las cuales probablemente eran anteriores en su construcción. Esta tendencia es especialmente evidente por los extremos norte y oriente, donde quedan complejos grandes de pirámides apenas adentro de la muralla exterior. Sugiero que las combas marcadas de la muralla producidas por los segmentos relativamente derechos por el noroeste, noreste y sureste

indican intenciones claras de los constructores de encerrar estas estructuras. Evidencia adicional que sugiere que el patrón general de asentamiento se fechara antes de la muralla exterior se ve en las estructuras de plataformas bajas aparentemente alteradas por la periferia noreste de la muralla. Más, nuestra excavación por el norte reveló fragmentos de pisos inmediatamente por debajo de la muralla misma.

Mostrada en el mapa como cascote, la muralla exterior es baja, generalmente de 1-2 m. de altura, y con un rango de ancho de aproximadamente 6-10 m. Sigue los contornos bajos de la roca viva de los campos de henequen y, como las medidas por su fila muestran, no exhibe variaciones abruptas de altura (como hace la muralla de Chacchob). Por inspección de la superficie se pueden ver algunas aperturas angostas en la muralla, particularmente en el norte, las cuales están incluidos en el mapa. Ninguna muestra configuraciones de superficie que sugieren portones formales.

La construcción de la muralla consiste de gran cascote de piedra caliza entre murallas de contención de lajas irregulares de piedra caliza. Después de limpiarse, sus dimensiones se revelaron ser de 4,5 m. de ancho por alrededor de 1 m. de alto. El material de construcción descansa sobre una delgada capa de suelo que cubre la roca viva. No se notó ningún rasgo de superestructuras formales por la muralla exterior.

Aunque se recolectó una amplia muestra de tiestos de cerámica de nuestras calas por la muralla exterior, la mayoría estaban muy erosionados y sin poder identificarse. La materia cerámica que se pudo identificar es una combinación de tiestos de la Florecencia Pura y el Formativo (probable), lo cual es consistente con nuestros hallazgos en otros contextos en Cuca. No hay ninguna razón para suponer que la muralla exterior se fecha a otro período que el de la mayor ocupación de Cuca (Florecencia Pura-Puuc), y debe considerarse como parte del esfuerzo general que también produjo la muralla interior.

#### La Muralla Interior

En contraste con la muralla exterior, la muralla interior de Cuca es muy corta (828 m.) pero mucho más elaborada y maciza y, por cierto, más variable en su configuración. En su condición arruinada parece como un gran montículo de cascote de 10-12 m. de ancho y de 1-3 m. de altura. Filos de piedras semi-talladas están visibles por su fila, especialmente en el área al sur de la Estructura IV.

Nuestro mapa revela varias características interesantes de la muralla interior, aparte de su gran tamaño. Por primero, aunque encierra complejos arquitectónicos que exhiban arreglos muy formales, la muralla misma es muy irregular. Sugiero que su planificación, como era el caso con la muralla exterior, es más consistente con el encerramiento de un grupo de complejos arquitectónicos ya existentes. Por ejemplo, la comba asimétrica por el suroeste parece obviamente planificada para incluir el complejo de la Estructura VI. Evidencia adicional que apoya la especulación de que la muralla interior se fecha después

de la arquitectura asociada con ella se ve en su superposición sobre una gran plataforma más temprana--la Estructura IV. En adición, se encuentran numerosos elementos arquitectónicos decorativos de piedra entre el cascote de la muralla, los cuales reflejan el estilo puuc. O representan elementos de edificios deshechos para relleno durante la construcción de la muralla, o materiales extras de construcción. Puede haber excepciones como la Estructura VII.

Otro aspecto peculiar de su configuración es que mientras por la mayoría de su largo es una sola construcción en sí, por mucho de su periferia occidental la muralla es básicamente una muralla de contención. Por otras partes puede faltar por completo la cara interior o tener solamente una muy baja. Este arreglo de contención o de contrafuerte probablemente se debe al hecho de que el saliente elevado sobre el cual descansa la mayoría de la construcción de la zona interior se levanta más abrupto por el poniente que por otras partes. No se ven óbvios rasgos estructurales por la superficie que indicarían la posible presencia de portones. Debo aclarar aquí que la presencia de una muralla no necesariamente presupone la presencia de portones o aperturas. Rampas o escaleras puedan proveer medios alternativos de acceso. Por otra mano, la muralla interior tenía una altura suficiente como para haberse atravesado por aperturas en forma de bóvedas bajas, y una vez caídas éstas, podrían restar pocos senales por la superficie.

La manifestación más elaborada y maciza de la muralla interior está por su periferia sur. Aquí tiene 12-13 m. de ancho, con una fachada exterior ligeramente en forma de talud todavía preservada hasta una altura de casi 4 m. No hay una fachada interior sino una larga escalera como una rampa. Los restos de una terraza parecen haber estado por encima de la muralla interior. Es muy posible que este sector de la muralla fuera elaboradamente acabado por el interior para complementar los rasgos arquitectónicos interiores de la Plaza B.

Se recogió una amplia muestra de tiestos de cerámica durante nuestras excavaciones de la muralla interior, incluyendo material de los desechos de derrumbe, de entre el relleno de construcción intacto, y también de restos enterrados debajo de la muralla, los cuales eran anteriores de la muralla. Todo este material indica claramente su construcción durante la Florecencia Pura (Puuc).

#### Las Funciones de los Sistemas de Murallas de Cuca

La cuestión crucial con respecto a las murallas de Cuca es si su configuración es consistente con una función defensiva. Es justo notar aquí que la muralla exterior es, por lo menos como expuesta en nuestras excavaciones, de dudoso valor defensivo en términos de las capacidades militares de los maya. Es impresionantemente ancha pero muy baja. Solamente si tuviera un gran número de defensores sería defensible. Claro que de por sí misma no hubiera parado a nadie, ni aún funcionando como un parapeto eficaz para luchar detrás del cual. Pero si se le agregara una palisada, o quizá aún mejor, un seto de la vegetación espinosa tan abundante en el norte de Yucatán, sería una pantalla o primera línea de

defensa bastante eficaz. Desafortunadamente, no se encontró ninguna evidencia para tales rasgos ni, dado la construcción de la muralla exterior, será posible. Una apreciación del relleno de construcción originalmente invertido en la muralla exterior, en términos de magnitud, es de 10.000 m<sup>3</sup>.

Para la muralla interior, cabe sin decirlo que aún sin rasgos adicionales perecederos, hubiera constituido una barrera militar bastante eficaz. Es mucho más maciza que la muralla exterior (el volumen estimado de relleno es alrededor de 25.000 m<sup>3</sup>, sobre un largo total de 828 m., comparado a unos 10.000 m<sup>3</sup>. por un largo de 2255 m. para la muralla exterior). Esta mayor masa está especialmente reflejado en la altura impresionante de la muralla interior, que todavía tiene 3-4 m. de altura en algunos lugares, y aún los sectores más bajos hubieran tenido por lo menos 2 m. de altura. En resumidas cuentas, hubiera sido mucho más defensible que, por ejemplo, la muralla de Mayapan.

Debe observarse que un efecto de ambos sistemas de murallas es de restringir severamente el acceso a la zona exterior y especialmente a la zona interior. Claro que no hay ninguna razón para creer que las murallas no pudieran haber servido algunas funciones en adición a las defensivas. Por ejemplo, obviamente la muralla interior simbólicamente aísla, en términos de espacio, un núcleo de complejos residenciales y edificios cívico-religiosos, aislándolos del paisaje alrededor y garantizando su privacidad. Esta tendencia a limitar el acceso a los recintos de alto rango o de uso especial por varias maneras está bien conocida en la arqueología maya (p.e., la evolución del complejo A-V de Uaxactún). Pero aislamiento casi total de tales recintos por murallas macizas de mampostería es atípico de la mayoría de los patrones de asentamiento de los maya, y yo sugeriría que la consideración defensiva era la más prominente. Esto es lo más probable pues ambas murallas por varias razones parecen haber sido "fijadas" a un pueblo puuc ya existente pero que no llevaba muchos años. Si hubieran poseído los habitantes una tradición establecida que ordenara el aislamiento y la privacidad para los complejos cívico-religiosos, se habrían planificado la ubicación de las murallas en un sentido más formal y contemporánea con la demás arquitectura grande (p.e., como los recintos administrativos de las ciudades chinas). Que se desarrollaran tales tradiciones durante la relativamente corta ocupación puuc, así necesitando la construcción de las murallas, parece inherentemente menos probable que la proposición de que se levantara una emergencia militar. En resumen, las murallas claramente hacen defensible a Cuca, la muralla exterior posiblemente sirviendo como pantalla inicial defensiva, mientras la interior constituyó una barrera central impresionante.

#### Cronología Cerámica y Afiliación Cultural

Se recolectaron y analizaron 11.341 tiestos de cerámica en Cuca. De los identificables, más de 70% representan las cerámicas grises y rojas del complejo Cehpech de la Florencia Pura. Aunque hay algunas diferencias menores pero interesantes entre las colecciones de Cuca y de Chacchob, las dos se asemejan mucho y no hay duda de que los dos

sitios se relacionan estrechamente ambos en el tiempo y el espacio. Al contrario de Chacchob, que produjo una colección puramente puuc, hay evidencia cerámica en Cuca para una ocupación más temprana, principalmente en la forma de tiestos rojos, gruesos y monocromáticos, que provisionalmente se asignan al grupo Formativo "Sierra Red." También se presenta "Yucatan Chalky Ware" la cual asigna Smith al complejo cerámico Cochuah (300-600 D.C.) en otros sitios. Pero muy poco de este material temprano procede de depósitos no mezclados, y no hay sugerencia de que la arquitectura visible, por lo menos en la zona central, se fecha antes de la Florecencia Pura (ca. 750-1000 D.C.).

#### CHACCHOB

El sitio de Chacchob se ubica aproximadamente 15 km. al sureste del actual pueblo de Teabo y al norte de la Cordillera Puuc (lat.  $20^{\circ} 19' 45''$  N., long.  $89^{\circ} 13' 0''$  W.). En el año 1952 Pollock y Stromsvik ahí levantaron un plano parcial e hicieron algunos sondeos, pero el sitio ha recibido poca atención desde entonces. Nuestras excavaciones en Chacchob (y en Cuca y Dzonot Aké) tenían dos objetivos principales: (1) recoger una muestra representativa de la cerámica para retrazar la historia ocupacional del sitio y sus asociaciones culturales más amplias, y (2) averiguar el tamaño, la configuración y la función originales del sistema de murallas y establecer la fecha aproximada de su construcción.

El paisaje alrededor de Chacchob es generalmente plano, pero exhibe una marcada variación topográfica local; esta variación ha afectado las configuraciones de la muralla y la arquitectura interior de manera importante, como se detalla en adelante. Se encuentran salientes masivos de roca viva y cenotes también dentro del sistema de murallas, especialmente en los sectores del suroeste y noroeste, y éstos aparentemente han impedido la construcción en estas áreas. Se presentan algunos cenotes impresionantes, pero ninguno parece ser definitivamente manantial.

Chacchob es un centro organizacional maya comparativamente pequeño, limitado por una muralla de mampostería de 1410 m. de perímetro, la cual encierra un área de aproximadamente 13,7 hectáreas (0,137 km<sup>2</sup>). Al contrario de la mayoría de los centros mayas, el plano mayor arquitectónico de Chacchob muestra muy poca planificación ordenada. Conspicuos en su ausencia son los arreglos grandes de plazas definidos por pirámides y/o estructuras de rango. El rasgo arquitectónico dominante del sitio es el complejo Estructura I cerca la muralla por el lado oriente. Una pirámide pendiente, casi como torre, se levanta desde una subestructura hasta una altura alrededor a 14 m. y se accede por una escalera (¿falsa?) por su lado noroeste. El complejo total descansa sobre una baja terraza artificial, la cual también sostiene algunas estructuras de rango bajas, varias de las cuales aún tienen bóvedas intactas. Aunque las construcciones son del estilo puuc hay poca evidencia de elementos decorativos elaboradamente tallados en los desperdicios, y esta estructura, como todas las estructuras de Chacchob, parece haber sido algo simple, en contraste a los edificios muy adornados en otros sitios puuc.

Tres otras pirámides bajas se agregan cerca al centro del sitio,



pero su arreglo parece ser sin planificación ordenada. Ninguna de ellas tiene elementos arquitectónicos aún de pie, y los desperdicios incluyen muy pocas piedras bien talladas. Obviamente, todas representan estructuras cívicas de alguna clase.

La mayor parte de la arquitectura de Chacchob consiste de plataformas grandes y bajas de piedra. Generalmente son rectangulares en plan, aunque algunas exhiben planos extraños pues se han incorporado formaciones naturales de piedra caliza en su construcción. Estas plataformas varían considerablemente en sus tamaños, pero la mayoría miden entre 10-40 m. por cada lado y entre 0,5-3 m. de altura. Típicamente tienen bordes de grandes bloques, o irregulares o tallados de superficie áspera, que pueden alcanzar hasta más de un metro de largo. La orientación general de todas las plataformas (amén toda la arquitectura) es de NE-SW. Las plataformas pueden encontrarse en grupos irregulares o solas y apartes. A veces se notan piedras bien talladas en las plataformas, ocasionalmente entrepuestas con otras sin tallarse. En las superficies de la mayoría de las plataformas se encuentra cascote pequeño que probablemente era la base para pisos de yeso, pero en ningún caso pudo observarse yeso intacto. Varias plataformas sostenían superestructuras de mampostería, cuyos bases de paredes aún pueden observarse pero muchas faltan tales rasgos y pudieran haber tenido edificios perecederos.

En mi opinión, casi seguro es que las plataformas tenían funciones domésticas, aunque solamente excavaciones lo confirmarían. A juzgar de sus tamaños, y de la impresionante labor necesaria para su construcción, provisionalmente sugiero que son los restos de hogares del elite.

Aparte de la arquitectura de templos y de las plataformas, hay dos complejos arquitectónicos notables. Uno es el complejo de Estructura II inmediatamente al suroeste de la Estructura I. Aquí el rasgo dominante es una subestructura enorme de plano irregular (erroneamente mostrada como rectángulo grande en el mapa de Pollock y Stromsvik) de unos 60 m. por cada lado. Un gran saliente de roca viva ha sido parcialmente cubierto por la construcción, el relleno de la cual se contiene por murallas en los lados norte y noroeste. Cascote de pavimento (?) cubre la superficie de la subestructura, la cual sostiene varios edificios, incluyendo una pirámide pequeña por su lado poniente que tal vez tuviera bovedas. Por el lado sur del complejo de la Estructura II hay una serie de largas estructuras de rango y plataformas. En el sector suroeste del sitio hay los restos relativamente aislados de una gran subestructura muy amorfa de un altura extraordinaria--cerca 3 m.

Dispersas por el sitio, y entre los rasgos arquitectónicos ya descritos, hay numerosas pequeñas estructuras amorfas o plataformas rectangulares que apenas se proyectan sobre el nivel del piso. La mayoría se difiere de las plataformas más grandes solo de escala, pero que todavía tienen dimensiones suficientes como para haber servido de residencias.

Una de las revelaciones más interesantes de nuestras excavaciones se basa en la estratigrafía en nuestros sondeos--o mejor dicho la falta

de estratigrafía. Habeamos esperado una estratigrafía cultural bien desarrollada en la forma de superposiciones de pisos como usualmente se encuentran en los grandes centros mayas (como encontramos en Cuca y Dzonot Aké). Había indicaciones de que ésto podría ser una esperanza en vano desde los comienzos de nuestro reconocimiento de Chacchob, pues era inmediatamente evidente que Chacchob no había experimentado una extensiva nivelación cultural ni modificación de la topografía original de la roca viva. Al contrario, hay una delgada capa arquitectónica que se había adaptado a estas configuraciones de la roca viva en vez de eliminarlas o ocultarlas.

Todos nuestros sondeos llegaron a la roca viva a niveles poco profundos--generalmente menos de un metro. No se encontro ningún piso de plaza, y la roca viva no se había nivelado, aún en las áreas inmediatamente adyacentes a la dominante Estructura I. No cabe dudar la ausencia de pisos de plazas de yeso en las áreas que sondeamos. Las condiciones del suelo eran tales que aún los elementos menores de plazas en malas condiciones habrían sido fácilmente visibles en los perfiles, y no habea señales del relleno extensivo de cascote ni de la argamasa usualmente asociados con pavimientos.

El suelo en Chacchob es muy delgado y, con excepción de una capa de humus poco desarrollada, es característicamente de un color café rojizo o rojo-purpureo y de textura uniforme y ligera hasta la roca viva. La roca viva es dura y maciza y muestra poca evidencia de degradación mecánica. El color, la textura y la aparente importancia de degradación química del suelo sugieren una vegetación esparsa que permitía una lixiviación extensa, en vez de un bosque bien desarrollado. Claro que recientemente una gran parte del sitio ha sido usado de potrero, pero no por suficiente tiempo como para producir las características del suelo observadas. Además, se encuentran cantidades de tiestos de cerámica en todos los niveles de nuestras calas, lo que indica o que la mayoría del suelo es de una edad respectable y/o que ha sido muy revuelto el suelo posterior a su deposición. Cabe anotarse que aún los depositos increíblemente ricos en restos culturales--basurales--faltaban concentraciones oscuras orgánicas, también indicativo de lixiviación extensiva.

#### El Sistema de Murallas de Chacchob

La muralla de Chacchob, 1410 m. de periferia, es de forma más o menos ovalada con un diámetro NW-SE de 525 m. y un diámetro NE-SW de 396 m. En el presente la muralla parece como un montículo bajo de unos 10 m. de ancho, de piedras no talladas o semi-talladas, y con una altura máxima de 2-2,5 m. Los únicos rasgos constructivos observables sin excavación son filos largos de piedras por encima del montículo de cascote, marcando las posiciones de las portones con terrazas bajas o filos transversales de piedras, ahora llenos de cascote. Como notaron Pollock y Stromsvik, la muralla obviamente fue planeada para aprovechar estratégicamente las variaciones topográficas locales para aumentar su altura efectiva. Como indican las medidas, puede aumentarse varios metros de altura absoluta sobre una distancia de 30-40 m. Aunque la muralla sea (y era) solamente de 2-3 m. de altura máxima, los declives pendientes frecuentemente adyacentes, especialmente por el exterior,

dan la impresión de una altura mucho mayor y aumentan su eficacia como barrera; este efecto es especialmente notable por los segmentos norte y suroeste.

Una inspección visual indicó tres portones aparentes en la muralla, uno por el norte (C) y dos por el sur (A & B). Los dos portones últimos se limpiaron de cascote y se averiguó que consistían de aperturas de aproximadamente 2 m. de ancho, definidas por murallas transversales de piedras enormes semi-talladas, directamente sobre la roca viva. El relleno de cascote parece ser un depósito intencional, y no representa deshechos de la muralla adyacente ni de techos de bóvedas. En breve, los portones parecen haber sido aperturas simples sin techos (al contrario de los portones de Tuluum) y que no tenían vueltas abruptas ni otros impedimentos al tráfico.

Tres excavaciones de segmentos intactos de la muralla revelaron técnicas similares de construcción y de configuración. El componente básico consiste de una subestructura de cascote grande y tierra, empacados entre murallas de contención de grandes bloques de piedra caliza, o naturales o semi-tallados; esta subestructura tiene un ancho promedio de 5-6 m. y una altura promedio de 1-2 m. Por encima, y generalmente corriendo por el centro, hay una terraza bordeada con hileras de piedras ásperas (a veces con 3-4 hileras aún preservadas) con relleno más chico entre si. Los restos de las terrazas tienen 50 cm. y menos de altura, aunque originalmente tenían más, y 1-2 m. de ancho. La subestructura y también las terrazas superiores tienen cascote, pequeño y más o menos uniforme por sus superficies que posiblemente servía de relleno de pisos de yeso. Aunque no se encontraron restos de pavimento, se preservaron algunos restos de yeso en las caras verticales de la muralla exterior de la terraza en nuestras calas de Operaciones 2 y 5. Parece muy probable que la muralla estuviera completamente acabada con yeso, en gran contraste con la falta de tal acabado en las áreas de plazas del interior del sitio. No encontramos ninguna evidencia de una palisada.

Tal vez el rasgo más sorprendente de la muralla es su escala. Una estimación aproximada de su volumen de relleno de roca y cascote es de 14.800 m<sup>3</sup>. La mayoría de este material de construcción probablemente venía de excavaciones adyacentes a la muralla misma, algunas de ellas están visibles todavía. La cifra de 14.800 m<sup>3</sup>. se compara muy favorablemente con el volumen groso estimado para toda la arquitectura no-religiosa de Chacchob--30.000 m<sup>3</sup>. A mi juzgar, la construcción de la muralla costó, en terminos de labor, aproximadamente la cuarta o la quinta parte de toda la labor de las actividades constructivas del sitio y que habría requerido un mínimo de unas 15.000 días-hombres de labor. Tal gasto es muy alto, considerando la población aparentemente muy limitada representada por las plataformas formales dentro de la zona amurallada, que estimaría, en terminos de magnitud, ser no más que algunos centenares de personas, incluyendo las mujeres y los niños. Mientras el sistema de murallas pudiera haberse construido en un tiempo corto y razonable por la fuerza obrera disponible a la población residente--digamos 3-5 meses--me parece más probable que se reclutaran manos de obra adicionales de las poblaciones alrededores.

Como la hemos reconstruido, la muralla de Chacchob hubiera constituido una barrera bastante eficaz aún sin una palisada adicional. La altura de la muralla varía entre unos 1,5-2,5 m. y su altura efectiva muchas veces era mucho mayor por los terrenos pendientes adyacentes. Con hombres suficientes hubiera sido un obstáculo militar defensible en términos de las técnicas y la organización de la sociedad maya. Su configuración es perfectamente consistente con una función militar. Desafortunadamente, no hay ninguna evidencia segura de que se atacara alguna vez la muralla de Chacchob, aunque el relleno de los portones con cascote sugiere una tal emergencia. Si encontramos nuestros únicos equipos de piedra, dos fragmentos de puntos de proyectiles o de cuchillos en el relleno del Portón A.

Aunque nuestras excavaciones no revelaron restos de tales rasgos, la adición de una palisada o un parapeto de madera hubiera aumentado enormemente la eficacia de la muralla existente como barrera con relativamente poco labor adicional. No se sugieren funciones alternativas obvias, aparte de la delineación rígida de una zona residencial/ceremonial del elite para mantener la privacidad y la distancia social. Esto no parece haber sido una preocupación común en otros sitios mayas, y la muralla parece excesivamente grande para este fin, especialmente considerando las estructuras residenciales y ceremoniales algo pequeñas y simples del elite (?) que encierca.

#### Cronología Cerámica y Afiliaciones Culturales

Un total de 7575 tiestos de cerámica de Chacchob fueron recogidos y analizados. Todo el material cerámico identificable se relaciona claramente al complejo Cehpech definido por Smith, así indicando una procedencia de la Florecencia Pura (ca. 750-1000 D.C., pero vease Ball para una discusión de la cronología de la Florecencia Pura) y relacionando Chacchob, como sugiere su arquitectura, a la tradición puuc, centrada, aparentemente, en la región al sur de la Cordillera Puuc. No hay evidencia obvia de ocupaciones más tempranas ni tardías que la Florecencia Pura, y sugiero que la ocupación de Chacchob era muy corta, una interpretación consistente con la evidencia de la arquitectura y las excavaciones tratadas arriba. Había poca cerámica del relleno de la muralla misma, pero grandes cantidades de material del complejo Cehpech fueron encontrados en el relleno de los portones excavados, y no hay ninguna razón para creer que la muralla era otra cosa que una parte íntegra de la comunidad de la Florecencia Pura en términos de las fases de su construcción.

#### DZONOT AKE

De los tres sitios sondeados, solamente Dzonot Aké (lat. 21° 13' 40" N., long. 87° 50' 0" W.) posiblemente figura en la literatura etnohistórica de los maya en tiempos de la conquista española del siglo XVI. Roys nota la existencia de un pueblo llamado Dzonot Aké en la provincia de Chikinchel. Esta provincia parece haber consistido de comunidades independientes, las cuales no obstante colaboraron para mantener su acceso privilegiado a las salinas. Roys especula que Dzonot Aké y

varios otros pueblos formaron una barrera defensiva contra las provincias más al sur que deseaban acceso a las salinas costaneras, y claro que esta interpretación es consistente con la existencia de un posible sistema defensivo en el sitio.

Las fuerzas de Montejo lucharon en una batalla contra los maya en el año 1528 en un lugar llamado Aké y Roys cree que éste se puede identificar con el pueblo moderno de Dzonot Aké, que queda como 1 km. al norte de las ruinas que sondeamos. Si se ocupara el sitio arqueológico en el siglo XVI está todavía sin comprobarse, como descrito en adelante tiene una muy larga historia de ocupación.

El mapa acompañante de Dzonot Aké no incluye todas las estructuras que probablemente están relacionados con el sitio. Al contrario, lo que se representa es una zona central de arquitectura grande que está parcialmente cercada por una muralla baja de cascote de piedra caliza. Este sistema de muralla fue notado primero por Roys y Chamberlain y subsecuentemente por mí en el transcurso de un breve reconocimiento en el año 1975. Varias plataformas bajas de tamaño apreciable quedan por fuera de la zona amurallada, y la muralla misma ha pasado por encima y ha perturbado las construcciones extensivas de plazas por el noreste. Un complejo de arquitectura mayor también se puede ver a varios centenares de metros al sureste de la zona amurallada. Parece prudente, hasta que se puede realizar un reconocimiento más intensivo del área, ver a Dzonot Ake como un sitio disperso sin el mayor grado de nucleación encontrada en Chacchob. No obstante, claro es que el área cubierto por el mapa se incluye los rasgos arquitectónicos más impresionantes.

Esa porción de Dzonot Aké investigada por nuestro reconocimiento cubre un área de aproximadamente 6 hectáreas, limitada, excepto en el sur, por la muralla ya mencionada. El rasgo topográfico dominante es un enorme cenote con un diámetro en la superficie de más de 100 m. Este cenote tiene paredes muy pendientes, casi rectas, y se encuentra el agua a unos 12,5 m. debajo de nuestro datum de superficie. Aparte del cenote, el sitio es más o menos plano, así reflejando el carácter general del paisaje vecino como también la nivelación asociada con la construcción de plazas.

La arquitectura mayor (Estructuras I-X) exhibe una variabilidad considerable. Tres grandes pirámides (Estructuras I, II, III) son subestructuras típicamente altas y pendientes con un rango de altura de 13-21 m., con templos encima muy restringidos de área. Las técnicas de construcción de todas esas tres edificaciones son burdas. Faltan casi por completo piedras bien talladas y no se encontró ningún elemento decorativo de piedra tallada. Se encuentran restos indistintos de las fundaciones de superestructuras en todos los tres edificios.

Las otras tres estructuras grandes de Dzonot Aké (V, VI y VII) difieren sustancialmente de las ya descritas aunque las técnicas de construcción son similares. Todas son plataformas bajas, con un rango de 5-9 m. de altura, y todas tienen por encima planos más o menos amplios, parcialmente cubiertos con el cascote pequeño que se usaba debajo de las superficies de yeso. Por cada uno se ven restos de largos

edificios lineares como también ocasionalmente fragmentos de metates.

Aparte de algunas otras plataformas, grandes pero bajas, la demás arquitectura de Dzonot Aké consiste de tres complejos de montículos pequeños designados como grupos A, B y C en el mapa. El grupo A consiste de dos núcleos, cada cual que tiene 3 montículos sin arreglo formal. Estos varían de alto de unos 50 cm. a 1,5 m. El núcleo noroeste es el más impresionante con filos algo macizos de piedras toscas en los edificios más grandes.

El grupo B no muestra la separación en dos núcleos que tiene el grupo A, y tiene 11 estructuras que tienen un rango de ser plataformas grandes con alturas mayores a 1 m. y con restos de superestructuras de piedra, hasta montones pequeños y muy amorfos de cascote que alcanzan algunos centímetros de alto.

El grupo C muestra una variabilidad similar. Aquí dos plataformas bastante grandes, de 1,6-2 m. de alto, definen los lados norte y oriente de una plaza, con un revoltillo de montículos más pequeños hacia el poniente. Las estructuras más grandes de este grupo están limitadas con bloques macizos y/o restos de escaleras de lajas toscas.

La configuración total de este sitio es difícil determinarla, una consecuencia, creo, de la larga historia de ocupación revelada por nuestros sondeos y por nuestras colecciones cerámicas. Una cosa es obvia--la muralla es una de las construcciones más tardías de Dzonot Aké. De su planificación, adivinaría que la muralla se planificara para incorporar las estructuras mayores I, VI y VII. Estas, y tal vez V también, probablemente son estructuras muy tempranas, a juzgar de sus tamaños y su construcción burda, como también de la abundancia de cerámica de nuestras excavaciones que parece temprana. Sugeriría provisionalmente que se fechan al Período Temprano, y tal vez hasta los principios de ese período. Las Estructuras I, VI y VII muestran orientaciones similares, y se podría concebir que ellas definan una plaza enorme. Por su semejanza de escala y de construcción, la Estructura V podría ser temprana también, aunque su orientación sea diferente. Las Estructuras II y III presentan un problema. Aunque sus técnicas de construcción son iguales a las de los edificios más grandes, sus orientaciones no son y su localización viola la idea de una gran plaza definida por las Estructuras I, VI y VII. Estos edificios puedan ser contemporáneos con las estructuras más grandes, así produciendo dos conjuntos de plazas, o puedan ser adiciones más recientes. De los dos posibilidades, opto por la última.

Parece evidente que los Grupos A, B y C figuran entre las construcciones más tardías del sitio, que son principalmente estructuras domésticas/de mantenimiento, reflejando una ocupación por un pequeño grupo elite y sus sirvientes, de lo que antes era primeramente un recinto cívico-religioso. Casi cierto es que se erigió la muralla para encerrar esta ocupación terminal.

## El Sistema de Muralla de Dzonot Aké

Al contrario de Cuca y Chacchob, Dzonot Aké no se cerca completamente por una muralla intacta. El segmento de muralla existente, que comienza por el borde norte del cenote, tiene 560 m. de largo, pero desaparece por la periferia sur del sitio con la excepción de unos trazos indistintos. Roys y Chamberlain, quienes visitaron el sitio pero que no hicieron un mapa, creyeron que Dzonot Aké tenía un foso y un parapeto. Es muy probable que se originara esta impresión equivocada porque entraron al sitio por lo que todavía es el camino principal hasta las ruinas, el cual corre entre dos depresiones profundas al noreste de la Estructura I y luego sube la muralla. Con la vegetación sin limpiarse, la yuxtaposición de las depresiones y el segmento de la muralla, se sugiere un arreglo de foso-parapeto, y me recordé forzosamente de las defensas de Becan. Pero una inspección mas detallada reveló que mientras era obvia la muralla pequeña, no hay un foso continuo asociado excepto por una distancia corta por la periferia noreste donde se ha cortado una depresión poco profunda en lo que es generalmente relleno de una plaza, y otra depresión pequeña cerca al cenote.

"Muralla" tal vez sea una terminología demasiado formal para describir la cosa que circunda a Dzonot Aké. Un montículo de cascote tosco, sin rasgos especiales, la "muralla" tiene solamente unos 30 cm. hasta 1 m. de altura promedio y 3-5 m. de ancho. En marcado contraste con nuestros hallazgos en Chacchob y Cuca, nuestras excavaciones de la "muralla" de Dzonot Aké no reveló ninguna estructura obvia, aunque se pueden ver ciertos arreglos indistintos con algo de imaginación. En parte, esto refleja el tamaño reducido de la muralla y de sus materiales de construcción, los cuales eran muy sujetos a los disturbios, especialmente por la vegetación grande. Pero obviamente la "muralla" no tenía una estructura muy formal cuando se construyó en primer lugar.

Por el noroeste la muralla descansa directamente sobre la roca viva; pasa sobre construcciones tardías de plazas por el noreste y suelo profundo por el sureste. Por toda la periferia norte donde aparentemente está ausente la muralla, queda una zona de suelo profundo que ahora se cultiva, como se ha hecho desde hace algún tiempo. Si es cierto que la muralla continuara hacia el poniente, como se indica por restos indistintos de cascote en la zona de milpas, probablemente habría incorporado la Estructura V y corrido hasta el cenote, así agregando unos 300 m. a su largo actual.

Por si misma, la "muralla" de Dzonot Aké no podría haber constituido una barrera eficaz de ninguna manera. En mi opinion, se explica ese montículo bajo de cascote mejor como una base para una superestructura perecedera de alguna forma, como una palisada de palos, aunque no se encontro ningún rastro de tal en nuestras excavaciones de la muralla. La roca viva queda por la superficie o muy cerca en muchas áreas del sitio, y la construcción de una palisada hubiera requerido una fundacion tal. Es muy posible que la ausencia de la "muralla" por el sur refleje los suelos profundos de esta zona, que hubieran obviado la necesidad de una base de mampostería. Hasta que se encuentre la evidencia para una superestructura, la interpretación

de la "muralla" como una construcción defensiva queda como pura especulación, aunque no se me ocurren otras funciones igualmente probables. Debe anotarse que algunas comunidades mayas etnohistóricamente conocidas eran defendidas muchas veces por estructuras efémeras en términos arqueológicos, las cuales hubieran dejado únicamente restos muy indistintos. No hay una inconsistencia entre una función defensiva y el hecho de que la "muralla" (extendida hacia el sur) habría rematado con el cenote en vez de encerrarlo. Con este arreglo habrían tenido acceso al agua dentro del sitio pero sin crear un peligro militar pues las paredes pendientes del cenote (probablemente aún más pendientes en el pasado) son de por sí obstáculos formidables.

### Cronología Cerámica y Afiliación Cultural

En contraste con las colecciones cerámicas de Cuca y Chacchob, las cuales reflejan ocupaciones de corta duración y que se relacionan estrechamente con otras colecciones yucatecas (especialmente puuc), nuestra colección de cerámica de Dzonot Aké es mucho más compleja y así indica una historia de ocupación mucho más larga. Los niveles profundos de nuestras calas en las plazas produjeron componentes de materia cerámica que no tienen contrapartes cercanas en otras colecciones; son éstas probablemente de Preclásico o del Período Temprano (debe anotarse que el noreste de Yucatán es arqueológicamente poco conocido). Hay restos de una tradición de "slateware" en Dzonot Aké, pero es muy diferente de las colecciones de "slateware" de Cuca y Chacchob. Las colecciones de superficie produjeron cantidades apreciables de fragmentos de efigie-incensarios del estilo de Mayapán. La muralla sobrepasa algunos niveles de construcción más tempranos y claramente es una de las construcciones más tardías del sitio. Provisionalmente yo le asignaría una fecha del Clásico Terminal.

### CONCLUSIONES

La existencia de fortificaciones impresionantes en los dos centros puuc de Chacchob y Cuca indica claramente que el conflicto, la competencia y el militarismo eran procesos importantes en las adaptaciones políticas y culturales durante la Florecencia Pura (Clásico Terminal) en el norte de Yucatán. Las presiones relacionadas con las condiciones inestables de esa época incluyen:

- 1) la creación de un vacío político y posibles migraciones de la población hacia el sur después de 900 D.C. como resultado del descaecimiento de los grandes centros clásicos;
- 2) la intrusión de los mexicanos o de grupos mayas mexicanizados a las tierras bajas de los maya--especialmente en el norte de Yucatán;
- 3) el crecimiento rápido de numerosos centros posiblemente competitivos en la zona puuc, previamente marginal, al sur de las lomas Puuc;



- 4) la expansión de los centros de la tradición puuc por fuera de la zona puuc hasta el noroeste de Yucatán.

De interés especial con respecto a Cuca y Chacchob es el último proceso. Ball ha especulado que la expansión de los centros puuc hacia el norte de las lomas Puuc después de ca. 900 D.C. ocasionaba confrontaciones con las poblaciones ahí ya establecidas, posiblemente incluyendo una mexicanizada emergente, con sede en Chichen Itza. De sus varias teorías, ésta se concuerda lo mejor con las fortificaciones de Cuca y Chacchob, como también con otros sitios fortificados del norte. Como hipótesis de trabajo, consideraría Chacchob como un sitio tardío y posiblemente efémero en este proceso de expansión, con Cuca como representativo de una etapa más temprana y de más éxito.

Las fortificaciones de Dzonot Aké, si realmente son fortificaciones, indican la competencia en el noreste de Yucatan durante el Clásico Terminal, pero en escala menor y más localizada. Con su historia larga, su colección distintiva de cerámica, y su impresionante arquitectura probablemente temprana, Dzonot Aké claramente merece trabajo en el futuro, aparte de sus posibles configuraciones defensivas.

